Dell™ Color Smart Printer | S3840cdn

User's Guide

Regulatory Model: S3840cdn

Contents

1 Before Beginning 9

Notes, Cautions, and Warnings 10

User's Guide 11

Conventions 11

Finding Information 12

Product Features 13

Graphic Symbols on the Printer and Their Meanings 14

About the Printer 15

Front and Rear Views 15

Control Panel 17

Additional Components 17

2 Setting Up the Printer (Printer Setup) 19

Preparing Printer Hardware 20

Space Requirements 20

Securing the Printer 20

Connecting and Setting Up Your Printer 24

Connecting to a Computer or a Network 24

Turning On/Off the Printer 26

Configuring Initial Settings on the Control Panel 26

Setting Up the Printer Using Dell Printer Easy Install (Windows® Only) 27

Configuring the Wireless Settings 28

Setting the IP Address 34

Assigning an IP Address 34

Verifying the IP Settings 35

Installing Printer Drivers on Windows® Computers 36

Identifying Printer Driver Pre-install Status 36

Starting Dell Printer Easy Install 36

USB Cable Connection Setup 37

Network Connection Setup 38

Setting Up for Shared Printing 39

Installing Printer Drivers on Macintosh Computers 41

Installing the Drivers and Software 41

Installing Printer Drivers on Linux Computers (CUPS) 43
Operation on Red Hat Enterprise Linux 6 Desktop 43
Operation on SUSE Linux Enterprise Desktop 11 45
Operation on Ubuntu 12.04 LTS 48

3 Using Your Printer 51

Control Panel 52
About the Home Screen 52
Basic Operations on the Touch Panel 52
Moving, Adding or Removing the Tiles 53
Using the Keyboard Displayed on the Touch Panel 53
Changing the Language and Keyboard Layout 54
Setting the Power Saver Timers 54

Device 55
Language 55
About 55
Notifications 55
Paper Trays 56
Supplies 56
Billing/Usage 56
General 56
Connectivity 59
Support 65
Resets 67

Jobs 68
Job List 68

USB 69
Supported USB 69
Supported File Formats 70
Print from USB 70

Dell Printer Configuration Web Tool 71
Overview 71
Setting Up the Dell Printer Configuration Web Tool 71
Starting the Dell Printer Configuration Web Tool 72
Overview of the Menu Items 72
Page Display Format 73
Home 74
Apps 78
Jobs 81
Connectivity 82

Permissions 102
System 112

Print Media Guidelines 127
Supported Print Media 127
Supported Paper Weight 128
Unacceptable Print Media 129
Recommended Print Media 129
Print Media Storage Guidelines 131

Loading Print Media 132
Before Loading 132
Loading Print Media in Tray 1 and the Optional 550-Sheet Feeder 132
Loading Print Media in the Bypass Tray 135
Linking Trays 138

4 Printing 139

Printing 140
Tips for Successful Printing 140
Sending a Job to Print 140
Canceling a Print Job 140
Duplex Printing 141
Using Stored Print 143
Print From USB 145
Printing With Wi-Fi Direct 146
Mobile Printing 148
AirPrint 148
Google Cloud Print™ 149
MopriaTM Print Service 153

5 Know Your Printer 155

User Authentication and Accounting 156
Types of Users 156
Roles 156
Types of Authentication 157
Types of Account Administration 157
Authentication and Accounting Relationship 158
User Authentication Operations 158
Creating and Editing User Accounts 160
User Authentication for Accounting 161

Screen Customization 162
Customizing the Home Screen 162

Customizing App Screens 162

Encryption and Digital Signature Settings 164

Encryption and Digital Signature Overview 164
Configuration of HTTP Communications Encryption 165
Configuration of Encryption using IPSec 166
Configuration of Wireless LAN WPA-Enterprise (EAP-TLS) 167
Configuration of Wireless LAN WPA-Enterprise (PEAPV0-MS-CHAPV2, EAP-TTLS PAP, EAP-TTLS CHAP) 168

Understanding Printer Messages 169

Status Codes 169
Other Errors 206

Specifications 207

Operating System Compatibility 207
Power Supply 208
Dimensions 208
Weight 208
Memory 208
Page Description Language (PDL)/Emulation, Operating System, and Interface 208
Environment 210
Cables 210
Print Specifications 210
Wireless Connection Specifications 211

6 Maintaining Your Printer 213

Maintaining Your Printer 214

Determining the Status of Supplies 214
Conserving Supplies 216
Ordering Supplies 216
Storing Print Media 216
Storing Consumables 216
Replacing the Toner Cartridges 216
Replacing the Drum Cartridges 218
Replacing the Waste Toner Box 224
Cleaning the Exterior 226
Cleaning the Touch Screen 227
Cleaning Inside the Printer 227
Moving the Printer 236
Adjusting Color Registration 237

Removing Options 241

Removing the Optional 550-Sheet Feeder 241

Removing the Optional Wireless Adapter 243
Removing the Optional Caster Cabinet 245

7 Troubleshooting 249

Clearing Jams 250
Avoiding Jams 250
Identifying the Location of Paper Jams 251
Clearing Paper Jams From the Bypass Tray 252
Clearing Paper Jams From Tray 1 254
Clearing Paper Jams From Inside the Rear Cover 255
Clearing Paper Jams From the Optional 550-Sheet Feeder 259

Basic Printer Problems 261

Display Problems 262

Printing Problems 263

Print Quality Problems 264
The output is too light 264
Toner smears or print comes off 264
Random spots/Blurred images 265
The entire output is blank 265
Dark or colored streaks appear on the output 266
Part of the entire output is black or a color (CMY) is missing 266
Dark and color dots repeating at the same interval 266
Vertical voids or lighter areas 267
Ghosting 268
Light-induced fatigue 268
Fog (background) 269
Bead-Carry-Out (BCO) 269
Jagged characters 270
Banding 270
Auger mark 271
Wrinkled/Stained paper 271
Damage on the leading edge of paper 272

Jam/Alignment Problems 273
The top and side margins are incorrect 273
Color registration is out of alignment 273
Images are skewed 274
Tray 1/Optional 550-Sheet Feeder Misfeed Jam 274
Bypass Tray Misfeed Jam 275
Regi Jam (Exit Sensor On JAM) 275
Exit Jam (Exit Sensor Off JAM) 276

Tray 1/Optional 550-Sheet Feeder Multi-feed Jam 276
Bypass Tray Multi-feed Jam 276

Noise 278

Digital Certificate Problems 279

Network-related Problems 280

When using SMB 280
When using TCP/IP 280
E-mail Features Problems 281
Internet/Intranet Connection Problems 281
IPv4 and IPv6 Connection Problems 283

Problems With Installed Optional Accessory 285

Wi-Fi Direct Problems 286

Other Problems 287

Contacting Service 288

Appendix 289

SharePoint Connector 290

SharePoint Connector Introduction 290

DellTM Technical Support Policy 295

Online Services 295

Warranty and Return Policy 296

Recycling Information 296

Contacting Dell 297

About License 298

Dell Color Smart Printer | S3840cdn 298
As for RSA BSAFE 443
ICC Profile Header 443
JPEG Library 443
Math Library 444
libtiff 444
Zlib 445
UNITED STATES GOVERNMENT RESTRICTED RIGHTS 445

1

Before Beginning

Notes, Cautions, and Warnings

NOTE:
- A NOTE indicates important information that helps you make better use of your printer.

CAUTION:
- **A CAUTION indicates potential damage to hardware or loss of data if instructions are not followed.**

WARNING:
- **A WARNING indicates a potential for property damage, personal injury, or death.**

Information in this document is subject to change without notice.
©2017 Dell Inc. All rights reserved.

Reproduction of these materials in any manner whatsoever without the written permission of Dell Inc. is strictly forbidden.

Trademarks used in this text:
Dell and the *DELL* logo are trademarks of Dell Inc.
Microsoft, Windows, Windows Server, Windows Vista and *SharePoint* are either trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries.
Apple, Bonjour, iPhone, Macintosh, Mac OS, OS X, macOS, AirPrint, and *AirPrint* logo are trademarks of Apple Inc.
Android, Google Chrome, Gmail, Google, Google Cloud Print, Google Drive, and *Google Play* are either registered trademarks or trademarks of Google Inc.
Adobe, PostScript and *Photoshop* are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries.
Wi-Fi and *Wi-Fi Direct* are registered trademarks of the Wi-Fi Alliance; *Wi-Fi Protected Setup, WPA,* and *WPA2* are trademarks of the Wi-Fi Alliance.
Red Hat and *Red Hat Enterprise Linux* are registered trademarks of Red Hat. Inc. in the U.S. and other countries.
SUSE is a registered trademark of Novell, Inc., in the United States and other countries.
QR Code is a registered trademark of Denso Wave Incorporated.
Box and the *Box logo* are including without limitation, either trademarks, service marks or registered trademarks of Box, Inc.
RSA and *BSAFE* are either registered trademarks or trademarks of EMC Corporation in the United States and/or other countries.

Other trademarks and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. Dell Inc. disclaims any proprietary interest in trademarks and trade names other than its own.

NOTE:
- When you use this machine, we recommend that you change the system administrator's user ID and passcode immediately after installing the machine.

February 2017 Rev. A02

User's Guide

Click the links to the left for information on the features, options, and operation of your Dell Color Smart Printer | S3840cdn. For information on other documentation included with your printer, see "Finding Information".

NOTE:

- In this manual, Dell Smart Printer | S3840cdn is referred to as the "printer."
- In this manual, the procedures for the computer are explained using Microsoft® Windows® 7 unless stated otherwise.

Conventions

The following describe the meaning of the symbols and fonts used in this manual:

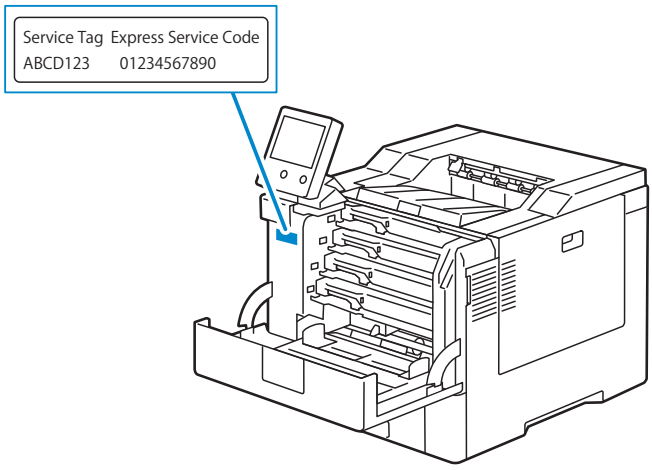
Item	Description
Bold texts	• Names of hardware button on the operator panel. • Menus, commands, windows, or dialog boxes displayed on the computer screen.
Texts in `Courier New` font	• Menus and messages displayed on the touch panel. • Screen names on the touch panel. • Characters entered from the computer. • Directory paths.
< >	• Key on the keyboard of the computer.
→	• Indicates a process flow.
" "	• Cross references in this manual. • Characters entered from the operator panel. • Messages displayed on the computer screen.

Orientation of documents or paper is described in this guide as follows:

, , Long Edge Feed (LEF): Loading the document or paper in portrait orientation when viewed from the front of the machine.

, , Short Edge Feed (SEF): Loading the document or paper in landscape orientation when viewed from the front of the machine.

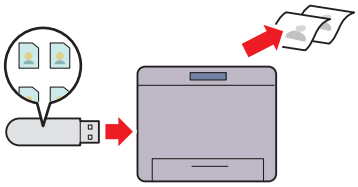
Finding Information

What are you looking for?	Find it here
• Drivers for my printer • My *User's Guide*	*Software and Documentation* disc The *Software and Documentation* disc contains documentation and drivers for your printer. You can use the *Software and Documentation* disc to install drivers or access your setup video and documentation. Readme files may be included on your *Software and Documentation* disc to provide last-minute updates about technical changes to your printer or advanced technical reference material for experienced users or technicians. Manuals other than the User's Guide are included in the Manuals folder of the Software and Documentation disc.
• How to set up my printer • How to use my printer	*Setup Guide*
• Safety information • Warranty information	*Important Information* ⚠ **WARNING:** • **Read and follow all safety instructions in the *Important Information* prior to setting up and operating your printer.**
• Express Service Code and Service Tag	 The Express Service Code and Service Tag are located inside the front cover of your printer.
• Latest drivers for my printer • Documentation for my printer	Go to **dell.com/support**.
• Answers to technical service and support questions	**dell.com/support** provides several online tools, including: • Solutions — Troubleshooting hints and tips, articles from technicians, and online courses • Upgrades — Upgrade information for components, such as the printer drivers • Customer Care — Contact information, order status, warranty, and repair information • Downloads — Drivers • Manuals— Printer documentation and product specifications Go to **dell.com/support**. Select your region, and fill in the requested details to access help tools and information.

Product Features

This chapter describes the product features and indicates their links.

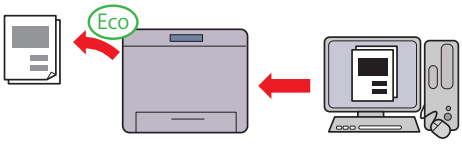
Print from USB



You can print files directly from a USB flash drive without requiring you to start your computer.

See "Print From USB".

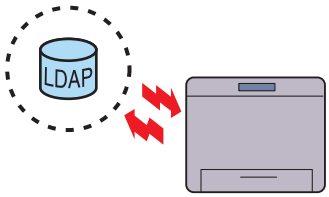
Eco Mode



Eco Mode is a setting that saves cost on toner and paper. Skip Blank Pages, 2-Sided Print and toner saving will always apply for print jobs when Eco mode is enabled.

See "Toner/Power Optimization".

Remote Authentication Using the LDAP or Kerberos Server



The user authentication using the LDAP or Kerberos server is available to control the user's login to the printer. Only users who can access the specified server are allowed to log in to the printer.

Security Enhancement

If a global IP address is assigned to the printer, no one will be allowed to access the Dell Printer Configuration Web Tool without authenticating regardless of login settings. Furthermore, if the administrator logs in to the Dell Printer Configuration Web Tool with the default password while a global IP address is assigned, a warning message to change the password will be displayed.

See "Changing Password from the Dell Printer Configuration Web Tool".

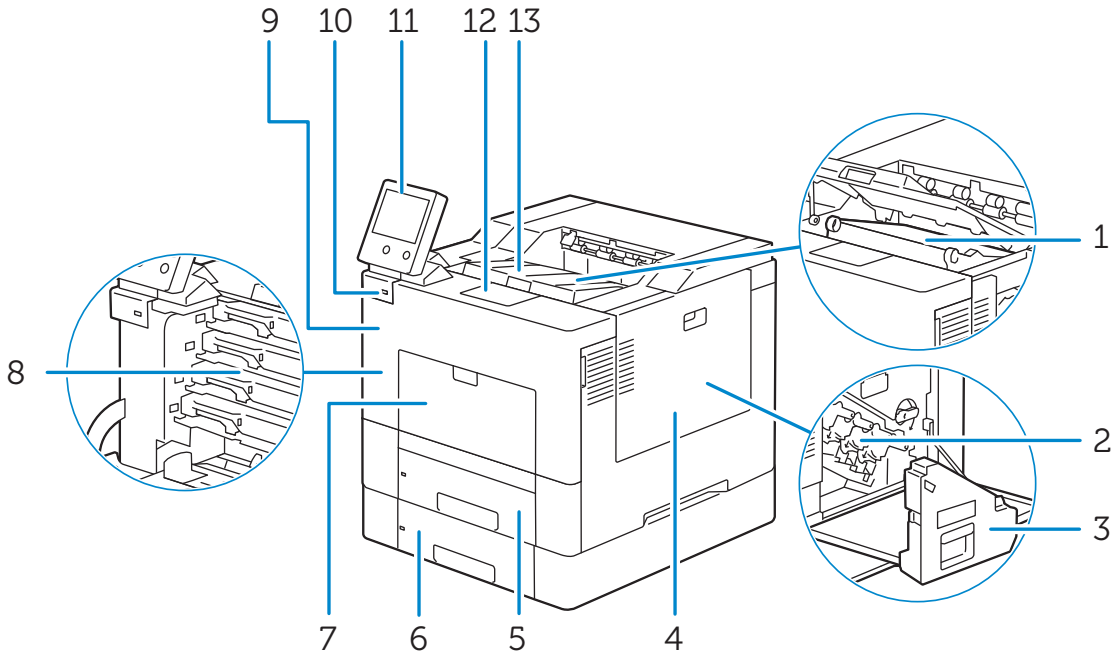
Graphic Symbols on the Printer and Their Meanings

	Do not use stapled or clip on paper.
	Do not use folded, creased, or curled paper.
	Do not use ink-jet printing paper.
	Do not use OHP sheets.
	Do not use paper printed or used on one side.
	Caution.
	Do not throw a toner cartridge into an open flame.
	Do not throw a drum cartridge into an open flame.
	Do not expose to light.
	Do not touch.
	Caution (Hot surface).
	Do not disassemble the product.
	Do not throw a waste toner box into an open flame.
	Locking.
	Unlocking.

About the Printer

Front and Rear Views

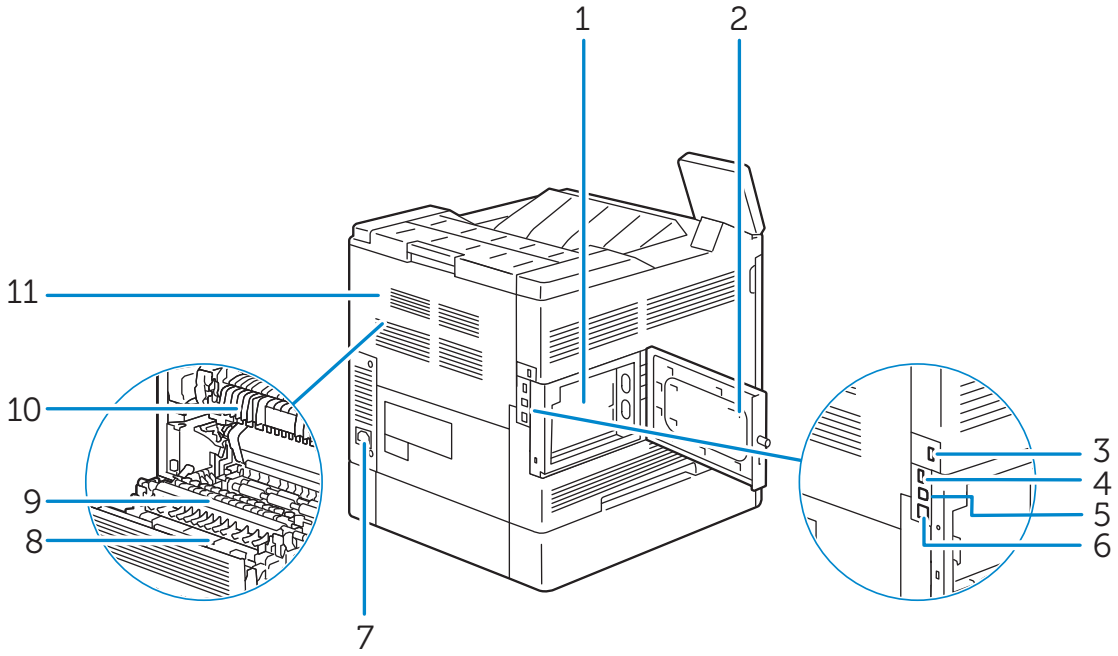
Front View



1	Transfer Belt Unit	8	Toner Cartridges
2	Drum Cartridges	9	Front Cover
3	Waste Toner Box	10	Front USB Port*
4	Right Side Cover	11	Control Panel
5	Tray 1	12	Output Tray Extension
6	Optional 550-Sheet Feeder (Tray 2)	13	Top Cover
7	Bypass Tray (Tray 5)		

* USB 2.0 host port (for the Print from USB feature)

Rear View

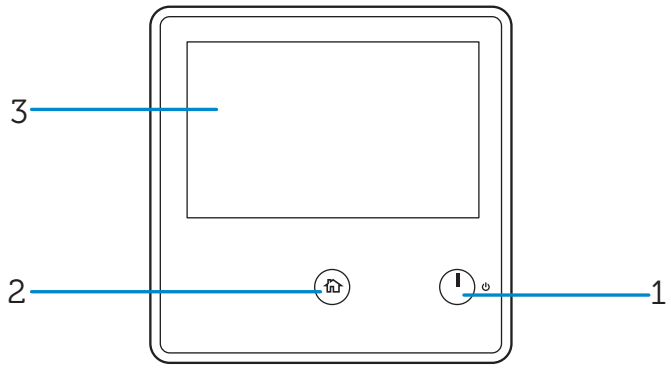


1	Control Board	7	Power Inlet
2	Left Side Cover	8	Duplex Unit
3	Wireless Adapter Socket	9	2nd Belt Transfer Roller (2nd BTR)
4	USB Port*1	10	Fusing Unit
5	USB Port*2	11	Rear Cover
6	Ethernet Port		

*1 USB 2.0 host port (for Smart Card)

*2 USB 3.0 device port

Control Panel



1	Power Button
2	Home Button
3	Touch Panel

Additional Components

Optional Accessories

- 550-sheet feeder
- Wireless adapter
- Caster cabinet

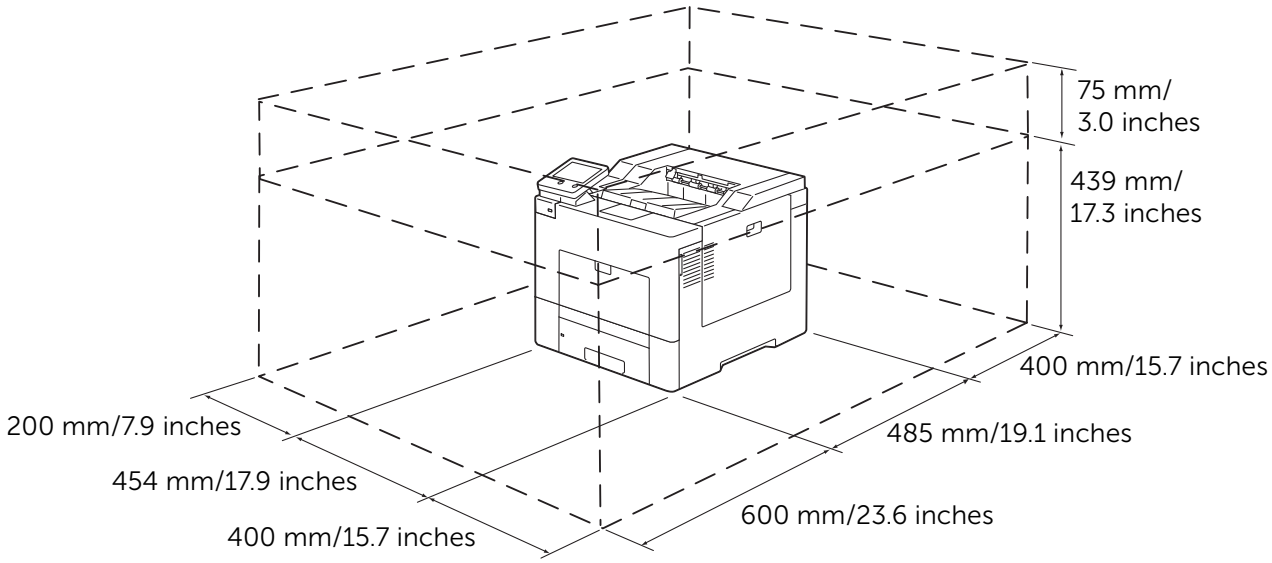
2

Setting Up the Printer (Printer Setup)

Preparing Printer Hardware

Space Requirements

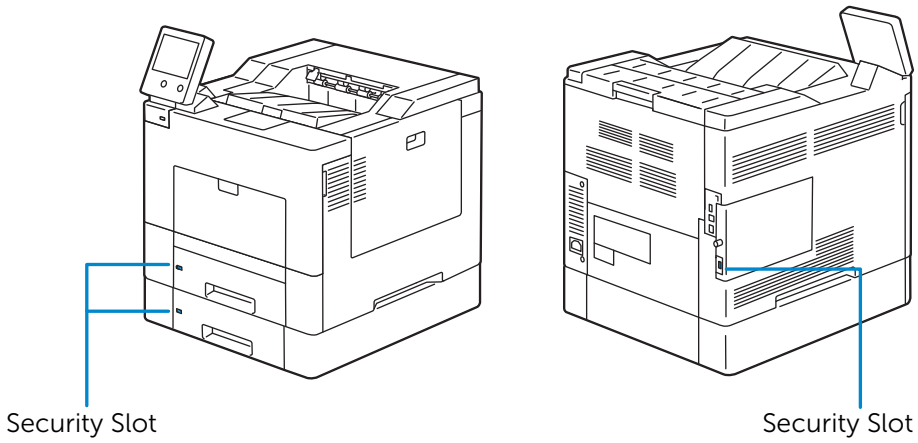
Provide enough room to open the printer trays, covers, and optional accessories, and for proper ventilation.



Securing the Printer

To protect the printer from theft, you can use a Kensington lock.

Attach the Kensington lock to the security slot of the printer.



Refer to the operating instructions supplied with the Kensington lock.

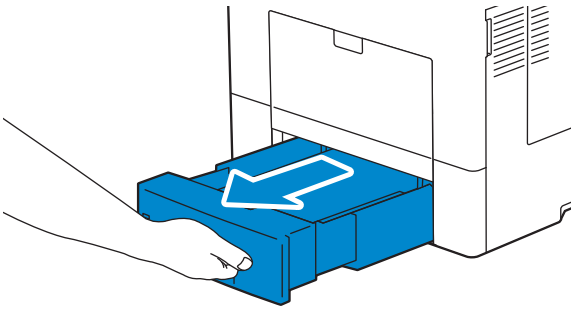
Installing the Kensington Lock Extender

To use the Kensington lock when loading legal-size paper in Tray 1 or the optional 550-sheet feeder, install the Kensington lock extender onto the printer.

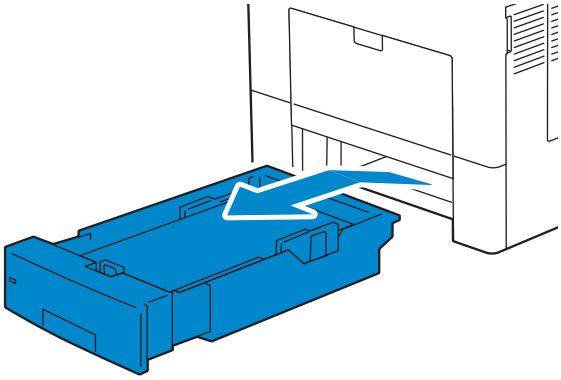
NOTE:

- The Kensington lock extender for Tray 1 and the optional 550-sheet feeder (Tray 2) is marked with the number "1" and "2" respectively on its left side. Do not install the extender for Tray 2 to Tray 1, and vice versa.

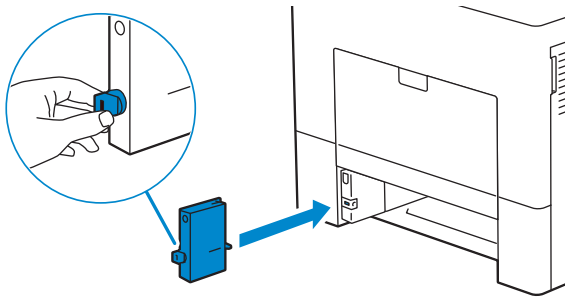
1 Pull the tray out of the printer about 200 mm.



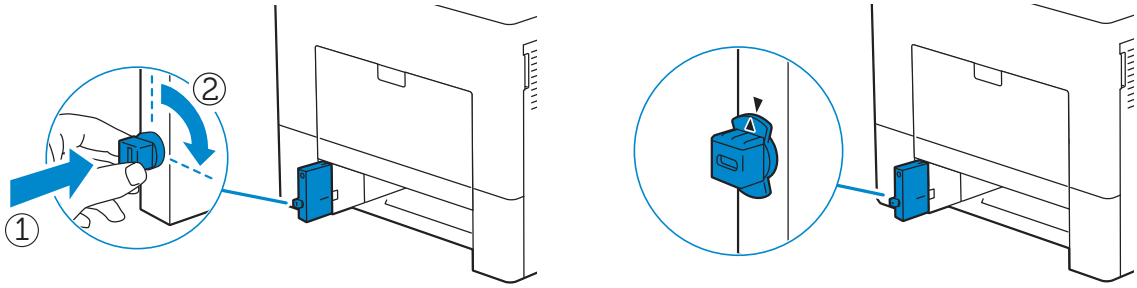
2 Hold the tray with both hands, and remove it from the printer.



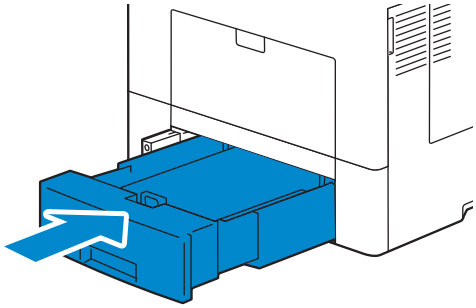
3 Hold the stopper of the Kensington lock extender and attach the extender into position on the printer.



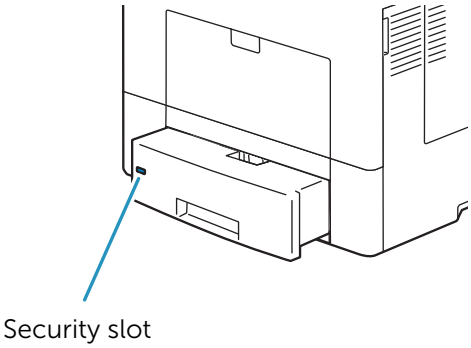
4 Push and rotate the stopper 90 degrees clockwise until the triangle on the stopper aligns with the one marked on the extender body.



5 Insert the tray into the printer, and push until it stops.



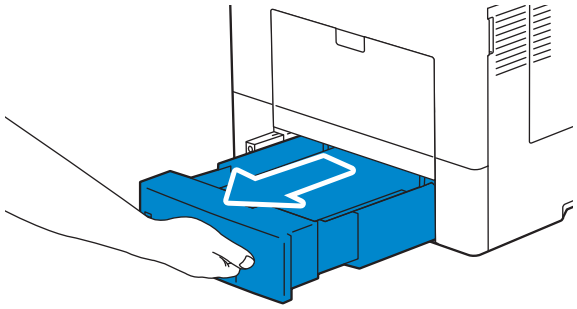
6 Attach the Kensington lock to the security slot.



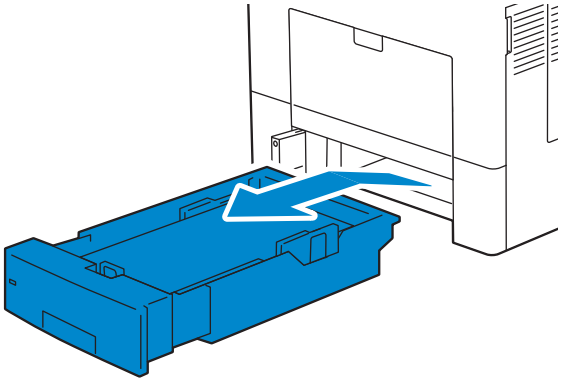
Installing the Security Cover

To make your print media in Tray 1 more secure, install the security cover onto Tray 1.

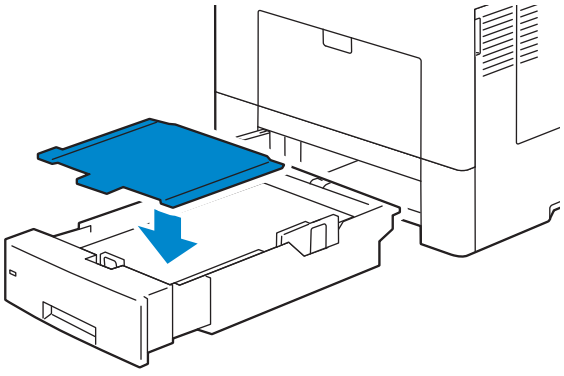
1 Pull Tray 1 out of the printer about 200 mm.



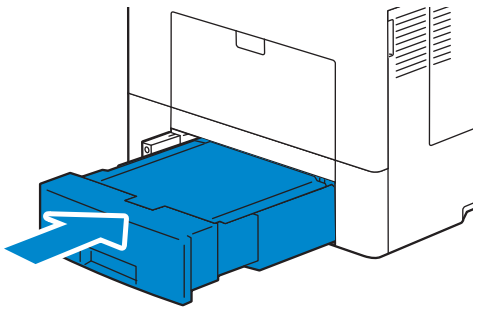
2 Hold Tray 1 with both hands, and remove it from the printer.



3 Place the security cover on the top of Tray 1.



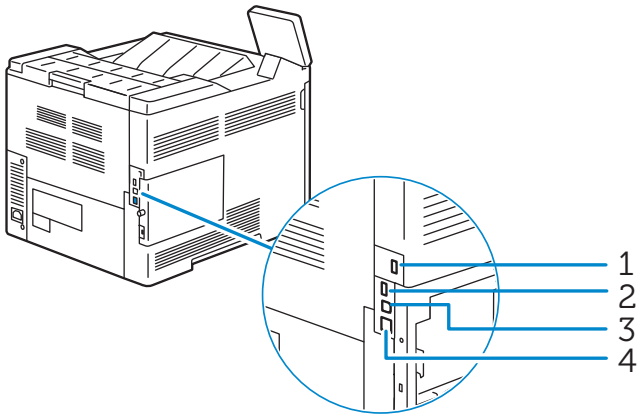
4 Insert Tray 1 into the printer, and push until it stops.



Connecting and Setting Up Your Printer

To connect your printer to a computer or device, the following specification must be met for each of the connection type:

Connection type	Connection specifications
Ethernet	10BASE-T/100BASE-TX/1000BASE-T
USB	USB3.0/USB2.0
Wireless (optional)	IEEE 802.11n/802.11g/802.11b/802.11a



1	Wireless Adapter Socket
2	USB Port*1
3	USB Port*2
4	Ethernet Port

*1 USB 2.0 host port (for Smart Card)

*2 USB 3.0 device port

Connecting to a Computer or a Network

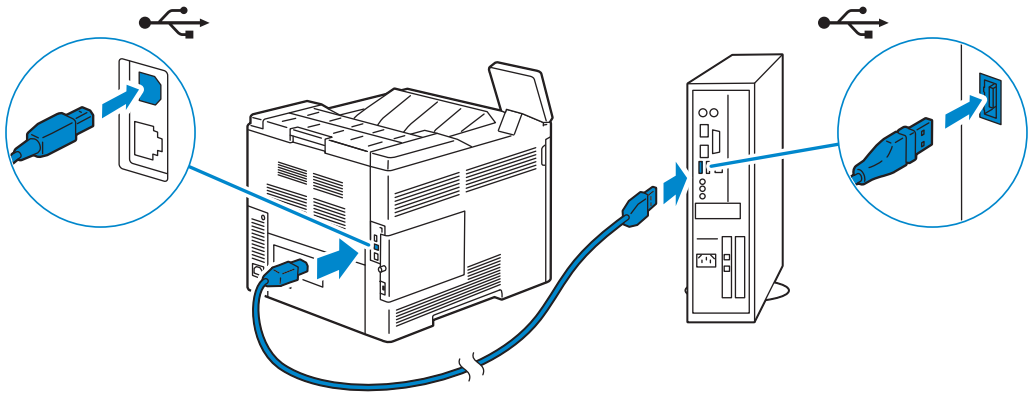
NOTE:

- Before making connections, be sure to turn off the printer.

Connecting to a Computer Using the USB Cable (Direct Connection)

A local printer is a printer which is directly connected to your computer using the USB cable. If your printer is connected to a network instead of your computer, skip this section and go to "Connecting to a Network Using the Ethernet Cable".

1 Connect the smaller USB connector into the USB port at the rear of the printer.

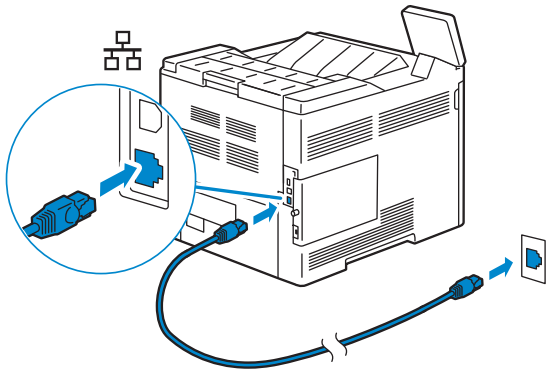


2 Connect the other end of the cable into a USB port of the computer.

CAUTION:
- **Do not connect the printer USB cable to a USB port located on the keyboard.**

Connecting to a Network Using the Ethernet Cable

1 Connect the Ethernet cable.



To connect the printer to the network, connect one end of an Ethernet cable into the Ethernet port on the rear of the printer, and the other end to a LAN drop or hub.

Connecting to a Wireless Network

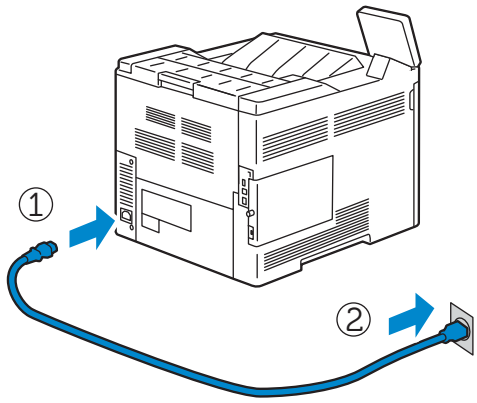
See "Configuring the Wireless Settings".

Turning On/Off the Printer

Turning On the Printer

WARNING:
- **Do not use extension cords or power strips.**
- **The printer should not be connected to an Uninterruptible Power Supply (UPS) system.**

1 Connect the power cable to the power inlet on the rear of the printer, and then to a power source.



2 Press the ⏻ button on the control panel.

Turning Off the Printer

NOTE:
- The data in the memory is cleared when the printer is turned off.

Press and hold the ⏻ button until the confirmation screen appears on the control panel, and then tap `Power Off`.

CAUTION:
- **Pressing and holding the button for six or more seconds can turn off the printer immediately. However, note that this may result in the loss of data in memory.**

NOTE:
- Each press of the button switches the standby and power saver modes alternately. When the printer enters the power saver mode, the button blinks slowly.

Configuring Initial Settings on the Control Panel

When you turn on the printer for the first time, the install wizard screen to perform the initial setup appears on the control panel. Follow the wizard to configure the initial settings, including the following:

- Language
  See "Language".
- Date & Time
  See "Date & Time".
- Measurements
  See "Measurements".

The printer is ready for use after tapping `Done` on the `Install Complete` screen that appears at the end of the settings.

Setting Up the Printer Using Dell Printer Easy Install (Windows® Only)

NOTE:

- To set up the printer as a wireless printer, see "Configuring the Wireless Settings".
- To set up the printer connected with Macintosh computers or Linux computers, see "Installing Printer Drivers on Macintosh Computers" or "Installing Printer Drivers on Linux Computers (CUPS)" respectively.

Basic Setup

To set up the printer, you can use the **Dell Printer Easy Install** program on the computer running a Microsoft® Windows® operating system.

The program first searches for the printer and grasps how the printer is connected to the computer. Based on that information, the program will automatically install the drivers and software to your computer.

Before starting this basic setup, make sure that the printer is turned on, and ensure the cable connections as follows:

To set up the printer as a network (wired) printer, connect the Ethernet cable to the printer.

To set up the printer as a USB printer, connect the USB cable to the printer.

NOTE:

- To enable the automatic search for network printers on the computer running a client operating system (Windows Vista®, Windows® 7, Windows® 8, Windows® 8.1 or Windows® 10), go to **Control Panel** → **Network and Internet** → **Network and Sharing Center** → **Advanced sharing settings**, and set **Network discovery** for the current network profile to **Turn on network discovery**.

1. Insert the *Software and Documentation* disc provided with the printer into your computer.

   The **Dell Printer Easy Install** program launches automatically.

   NOTE:

   - If the **Dell Printer Easy Install** program does not launch automatically, follow the procedure below.

   The following procedure uses Windows® 10 as an example.

   a. Right-click the Start button, and then click **Run**.

   b. Enter `D:\Setup.exe` (where `D` is the drive letter of the optical drive), and then click **OK**.

2. On the **Dell Printer Easy Install** window, click **Next**. **Dell Printer Easy Install** begins to search for your printer.

3 Wait for **Dell Printer Easy Install** wizard to find your printer.

For a network (wired) printer, select your printer after the printer is found, and then click **Next**.

For a USB printer, **Dell Printer Easy Install** automatically installs your printer after the printer is found.

NOTE:
- If **Dell Printer Easy Install** does not find any printer, the main menu window of **Dell Printer Easy Install** appears. See "Installing Printer Drivers on Windows® Computers".

4 Click **Finish** to exit the wizard when the **Ready to Print!** screen appears.

5 Eject the *Software and Documentation* disc.

Configuring the Wireless Settings

The wireless adapter allows you to use the printer with wireless network connection. The specifications of the wireless adapter are described below.

Item	Specification
Connectivity Technology	Wireless
Compliant Standards	IEEE 802.11a, 802.11b, 802.11g, and 802.11n
Bandwidth	IEEE 802.11n, 802.11g and 802.11b: 2.4 GHz IEEE 802.11n and 802.11a: 5 GHz
Data Transfer Rate	IEEE 802.11n: 72 Mbps IEEE 802.11g and 802.11a: 54, 48, 36, 24, 18, 12, 9, and 6 Mbps IEEE 802.11b: 11, 5.5, 2, and 1 Mbps
Security	64 (40-bit key)/128 (104-bit key) WEP, WPA Personal (TKIP, AES), WPA2 Personal (AES), WPA Enterprise (TKIP, AES)*1, WPA2 Enterprise (AES)*1
Wi-Fi Protected Setup (WPS)*2	Push-Button Configuration (PBC), Personal Identification Number (PIN)
Wireless Mode	Infrastructure, Ad-hoc, Wi-Fi Direct

*1 EAP method supports PEAPv0/MS-CHAPv2, EAP-TLS, EAP-TTLS/PAP, EAP-TTLS/CHAP and EAP-TTLS/MSCHAPV2.

*2 WPS 2.0 compliant.

NOTE:
- The wireless adapter is configured as a secondary network interface by default.
  If the wireless connection is the only network to be used, the wireless adapter must be set as the primary interface.
- When the wireless adapter is configured as a primary network interface, you cannot use IEEE 802.1x authentication on the Ethernet port.

Determining the Wireless Network Settings

You need to know the settings for the wireless network to set up the wireless printer. For details of the settings, contact your network administrator.

Wireless Settings	SSID	A name with up to 32 alphanumeric characters, which identifies the wireless network		
	Network Type	**Infrastructure** or **Ad hoc**		
Security Settings	Encryption	• No security		For the wireless setting without specifying any encryption
		• WEP		Requires a WEP key. For a 64-bit WEP: up to 10-hexadecimal character key For a 128-bit WEP: up to 26-hexadecimal character key
			Transmit Key	WEP key 1-4
		• WPA2 Personal*		With AES method
		• Mixed Mode Personal*		Automatically selects the encryption type from WPA Personal (AES), WAP2 Personal (AES) or WPA Personal (TKIP).
			Passphrase	Alphanumeric characters from 8 to 63 bytes long and hexadecimal characters of 64 bytes long
		• WPA2 Enterprise*		With AES method
		• Mixed Mode Enterprise*		Automatically selects an available encryption type from WPA Enterprise (AES), WAP2 Enterprise (AES) or WPA Enterprise (TKIP).
			Authentication	PEAPv0 MS-CHAPv2, EAP-TLS, EAP-TTLS/PAP, EAP-TTLS/CHAP or EAP-TTLS/MS-CHAPv2

* Available only when Infrastructure is selected as Network Type.

Configuring the Optional Wireless Adapter

You can select a method to configure a wireless adapter from the following:

WPS-PBC[*1*3]
WPS-PIN[*2*3]
Auto SSID Setup
Manual SSID Setup
Dell Printer Configuration Web Tool

[*1] WPS-PBC (Wi-Fi Protected Setup-Push Button Configuration) is a method to authenticate and register devices required for wireless configuration, by pressing the button provided on your access point or wireless router. This setting is available only when the access point supports WPS. Before starting WPS-PBC, check where the WPS button (button name may vary) on the wireless LAN access point.

[*2] WPS-PIN (Wi-Fi Protected Setup-Personal Identification Number) is a method to authenticate and register devices required for wireless configuration, by entering PIN assignments into the wireless LAN access point. This setting, performed through access point, is available only when the access points of your wireless router supports WPS.

[*3] For WPS operation on the wireless LAN access point, refer to the manual supplied with the wireless LAN access point.

NOTE:

- The optional wireless adapter must be installed on the printer.

WPS-PBC

You can start Push Button Configuration only from the control panel.

1. Press the button.
2. Tap `Device`→`Connectivity`→`Wi-Fi`.
3. Tap `Manual Setup`.
4. Tap `Wi-Fi Protected Setup (WPS)`→`PBC`→`OK`.

   NOTE:

   - Start the WPS-PBC on the wireless LAN access point (Registrar) within 2 minutes.

When the WPS operation is successful and the printer is rebooted, wireless LAN connection setting is completed.

WPS-PIN

The PIN code of WPS-PIN can only be configured from the control panel.

1. Press the button.
2. Tap `Device`→`Connectivity`→`Wi-Fi`.
3. Tap `Manual Setup`.
4. Tap `Wi-Fi Protected Setup (WPS)`→`PIN`.
5. Write down the displayed 8-digit PIN code for the wireless LAN access point.
6. Tap `OK`.

   NOTE:

   - Enter the PIN code into the wireless LAN access point (Registrar) within 2 minutes.

When the WPS operation is successful and the printer is rebooted, wireless LAN connection setting is completed.

Auto SSID Setup

1 Press the button.

2 Tap Device→Connectivity→Wi-Fi.

The printer automatically searches the access points on wireless network.

3 Tap the desired access point.

When you select an access point with no encryption, proceed to step 5.

If the desired access point does not appear, go to "Manual SSID Setup".

NOTE:
- Some hidden SSID may not be displayed. If the SSID is not detected, turn on SSID broadcast from the router.

4 Enter the login information.

When the encryption type of the selected access point is WEP, WPA2 Personal or Mixed Mode PSK (AES/TKIP) in step 3:

a Enter the password in the Enter Password text box.

b Tap OK.

When the encryption type of the selected access point is WPA2 Enterprise or Mixed Mode Enterprise (AES/TKIP) in step 3:

a Enter the identity in the Enter Identity text box.

b Tap Next.

c Enter the user name in the Enter User Name text box.

d Tap Next.

e Enter the password in the Enter Password text box.

f Tap OK.

5 If the Wi-Fi screen is displayed with the desired access point set to Connected, wireless LAN connection setting is complete.

Manual SSID Setup

1 Press the button.

2 Tap Device→Connectivity→Wi-Fi.

3 Tap Manual Setup.

4 Enter the SSID in the Enter Network Name (SSID) text box, and then tap Enter.

5 Tap Network Type to select the network type from Infrastructure and Ad hoc depending on your environment.

If you select Infrastructure, proceed to step 6.

If you select Ad hoc, proceed to step 7.

6 Tap Security to select the encryption type from None, WEP, WPA2 Personal, Mixed Mode Personal (AES/TKIP), WPA2 Enterprise or Mixed Mode Enterprise (AES/TKIP).

If you do not set security for your wireless network:

a Tap None.

To use WEP, WPA2 Personal or Mixed Mode PSK (AES/TKIP):

a Tap the desired encryption type.

b Enter the password in the `Enter Password` text box.

c Tap `Enter`.

To use WPA2 Enterprise or Mixed Mode Enterprise (AES/TKIP):

a Tap the desired encryption type.

b Tap `Mode` to select the authentication method from `PEAPv0 MS-CHAPv2`, `EAP-TLS`, `EAP-TTLS/CHAP`, `EAP-TTLS/PAP` or `EAP-TTLS/MSCHAPV2`.

If you select any authentication method for Mixed Mode Enterprise (AES/TKIP) or `PEAPv0 MS-CHAPv2` for WPA2 Enterprise, proceed to substep c.

If you select `EAP-TLS`, `EAP-TTLS/CHAP`, `EAP-TTLS/PAP` or `EAP-TTLS/MSCHAPV2` for WPA2 Enterprise, proper security certificates need to be installed using **Dell Printer Configuration Web Tool**. Follow the instructions displayed when you select the authentication method.

c Enter the identity in the `Enter Identity` text box.

d Tap `Next`.

e Enter the user name in the `Enter User Name` text box.

f Tap `Next`.

g Enter the password in the `Enter Password` text box.

h Tap `Enter`.

Proceed to step 8.

7 Tap `Security` to select the encryption type from `None` or `WEP`.

If you do not set security for your wireless network:

a Tap `None`.

To use WEP:

a Tap `WEP`.

b Enter the password in the `Enter Password` text box.

c Tap `Enter`.

8 If the `Wi-Fi` screen is displayed with the desired access point set to `Connected`, wireless LAN connection setting is complete.

Dell Printer Configuration Web Tool

1 Launch the **Dell Printer Configuration Web Tool**. See "Starting the Dell Printer Configuration Web Tool".

2 Click **Connectivity**.

3 Click **Wi-Fi** under **Connections**.

4 Click **Enable** slider to turn it on.

5 Enter the SSID in the **SSID** text box.

6 Select **Ad hoc** or **Infrastructure** in the **Network Type** drop-down list box.

7 Select the encryption type from **No Encryption**, **WEP**, **WPA2 Personal**, **WPA2 Enterprise**, **Mixed Mode Personal (AES/TKIP)** or **Mixed Mode Enterprise (AES/TKIP)** in the **Encryption** drop-down list box, and then set each item for the encryption type selected.

NOTE:
- For details on each item, see "Dell Printer Configuration Web Tool".

8 Click **OK** to apply the settings.

9 Turn off the printer, and then turn it on again.

Wireless LAN connection setting is complete.

Reconfiguring the Wireless Settings

To change the wireless settings from your computer, perform the following.

NOTE:
- To change the wireless settings through wireless connection, ensure that the wireless connection setting is completed.

Reconfiguring the Wireless Settings Using Dell Printer Configuration Web Tool

1 Launch the **Dell Printer Configuration Web Tool**. See "Starting the Dell Printer Configuration Web Tool".

2 Click **Connectivity**.

3 Click **Wi-Fi** under **Connections**.

4 Change the wireless settings of the printer.

5 Reboot the printer.

6 Change the wireless settings on your computer or access point accordingly.

NOTE:
- To change the wireless settings on your computer, refer to the manuals provided with the wireless adapter or if your computer provides a wireless adapter tool, change the wireless settings using that tool.

Setting the IP Address

Assigning an IP Address

You can select the IP mode from Dual Stack, IPv4, and IPv6. If your network supports both IPv4 and IPv6, select Dual Stack.

Select the IP mode of your environment, and then set IP address, subnet mask (for IPv4 only), and gateway address.

CAUTION:

- **Assigning an IP address that is already in use can cause network communication issues.**

NOTE:

- Assigning an IP address is considered as an advanced function and is normally done by a system administrator.
- When you assign an IP address manually in IPv6 mode, use the **Dell Printer Configuration Web Tool**. To display the **Dell Printer Configuration Web Tool**, use the link-local address. To confirm the link-local address, print a configuration report and check the IPv6 link-local address.
  See "Information Pages".

Assigning an IPv4 Address Using the Control Panel

1. Press the ⌂ button.
2. Tap `Device`→`Connectivity`.
3. Do either of the following:

   If the printer is connected to a network with the Ethernet cable:

   Tap `Ethernet`.

   If the printer is connected to a wireless network:

   Tap `Wi-Fi`, and then tap the desired network.
4. Tap `IPv4`.
5. Tap the `Enable IPv4` slider to turn it on.

   Make sure that `Mode` is set to `STATIC`.
6. Tap `IPv4 Address`.
7. Enter the IPv4 address using the number pad, and then tap `Enter`.
8. Tap `Gateway Address`.
9. Enter the gateway address using the number pad, and then tap `Enter`.
10. Tap `Subnet Mask`.
11. Enter the subnet mask using the number pad, and then tap `Enter`.
12. Tap `OK`, or tap `Restart` if you change the mode in Step 5.

Verifying the IP Settings

You can confirm the settings by using the control panel or printing the configuration report.

Verifying the IPv4 Settings Using Control Panel

1. Press the button.
2. Tap `Device`→`About`.
3. Verify the IP address displayed in `IPv4:` under `Network`.

Verifying the IPv4 Settings Using Configuration Report

1. Print the configuration report.
2. Verify the correct IPv4 IP address, subnet mask and gateway address are listed in the configuration report.

   If the IP address shows `0.0.0.0` (the factory default), an IP address has not been assigned. To assign one for your printer, see "Assigning an IPv4 Address Using the Control Panel".

Installing Printer Drivers on Windows® Computers

Identifying Printer Driver Pre-install Status

Before installing the printer driver on your computer, check the IP address of your printer.

Changing the firewall settings before installing your printer

If you are running one of the following operating systems, you must change the firewall settings before installing the Dell™ printer software:

- Microsoft® Windows Vista®
- Windows® 7
- Windows® 8
- Windows® 8.1
- Windows® 10
- Windows Server® 2008
- Windows Server® 2008 R2
- Windows Server® 2012
- Windows Server® 2012 R2

The following procedure uses Windows® 10 as an example.

1. Insert the *Software and Documentation* disc into your computer.
2. Right-click **Start→Control Panel**.
3. Select **System and Security**.
4. Click **Allow an app through Windows Firewall**.
5. Click **Change settings→Allow another app**.
6. Check **Browse**.
7. Type `D:\Setup.exe` (where `D` is the drive letter of the optical drive) in the **File name** text box, and then click **Open**.
8. Click **Add**, and then click **OK**.

Starting Dell Printer Easy Install

1. Make sure that the printer is turned on.
2. Insert the *Software and Documentation* disc provided with the printer into your computer. The **Dell Printer Easy Install** program launches automatically.

   NOTE:
   - If the **Dell Printer Easy Install** program does not launch automatically, follow the procedure below.

   The following procedure uses Windows® 10 as an example.

   a. Right-click the Start button, and then click **Run**.

b Enter `D:\Setup.exe` (where `D` is the drive letter of the optical drive), and then click **OK**.

3 Click **Main Menu**.

The main menu window appears.

USB Cable Connection Setup

For installing PCL and PS printer driver

1 In the main menu window of **Dell Printer Easy Install**, click **Connect**.

2 Select **USB Cable Connection**, and then click **Next**.

The Plug and Play installation starts and the installation software proceeds to the next page automatically.

3 Click **Finish** to exit the wizard when the **Ready to Print!** screen appears.

If you want to verify installation, click **Print Test Page** before clicking **Finish**.

For installing XML Paper Specification (XPS) printer driver

NOTE:

- XML Paper Specification (XPS) driver is supported on Windows Vista® or later.

Windows® 10

1 Insert the *Software and Documentation* disc into your computer.

2 Right-click the Start button, and then click **Control Panel**.

3 Click **Hardware and Sound→Devices and Printers→Add a printer**.

4 Click **The printer that I want isn't listed**.

5 Select **Add a local printer or network printer with manual settings→Next→Next→Have Disk→Browse**.

6 Type `D:\Software\XPS\i386_amd64` (where `D` is the drive letter of the optical drive) in the **File name** text box, and then click **Open**.

7 Select the inf file in the desired language folder, and then click **OK**.

8 Select the printer name, and then click **Next**.

If you want to change the printer name, enter the printer name in the **Printer name** box, and then click **Next**.

9 When the driver installation is completed, click **Print a test page** to verify installation. If you want to use this printer as the default printer, select the **Set as the default printer** check box.

10 Click **Finish**.

Network Connection Setup

NOTE:

- To use this printer in a Linux environment, you need to install a Linux driver.

For installing PCL and PS printer driver

1. In the main menu window of **Dell Printer Easy Install**, click **Connect**.
2. Select **Wireless or Ethernet Connection**, and then click **Next**.
3. Select the printer you want to install from the printer list, and then click **Next**. If the target printer is not displayed on the list, click the button to refresh the list or click **add printer manually** to add a printer to the list manually. You may specify the IP address and port name at this point.

   NOTE:

   - To enable the automatic search for network printers on the computer running a client operating system (Windows Vista®, Windows® 7, Windows® 8, Windows® 8.1 or Windows® 10), go to **Control Panel** → **Network and Internet** → **Network and Sharing Center** → **Advanced sharing settings**, and set **Network discovery** for the current network profile to **Turn on network discovery**.
   - In some cases, **Windows Security Alert** is displayed in this step when you use Windows Vista®, Windows Vista® 64-bit Edition, Windows Server® 2008, Windows Server® 2008 64-bit Edition, Windows Server® 2008 R2, Windows® 7, Windows® 7 64-bit Edition, Windows® 8, Windows® 8 64-bit Edition, Windows® 8.1, Windows® 8.1 64-bit Edition, Windows Server® 2012, Windows Server® 2012 R2 and Windows® 10. In this case, select **Unblock** (**Allow access** for Windows Server® 2008 R2, Windows® 7 and Windows® 10), and then continue the procedure.

4. Specify the printer settings, and then click **Next**.
   a. Enter the printer name.
   b. If you want to set the printer as the default printer, select the **Set this printer as default** check box.
   c. If you want to install the PostScript 3 printer driver, select the **PS Driver** check box.
   d. If you want other users on the network to access the printer, select **Share this printer with other computers on the network**, and then enter a share name that users can identify.
5. Click **Finish** to exit the wizard when the **Ready to Print!** screen appears.

   If you want to verify installation, click **Print Test Page** before clicking **Finish**.

For installing XML Paper Specification (XPS) printer driver

NOTE:

- XML Paper Specification (XPS) driver is supported on Windows Vista® or later.

Windows® 10

1. Insert the *Software and Documentation* disc into your computer.
2. Right-click the Start button, and then click **Control Panel**.
3. Click **Hardware and Sound**→**Devices and Printers**→**Add a printer**.
4. Click **The printer that I want isn't listed**.

5 Click **Add a local printer or network printer with manual settings→Next→Next→Have Disk→Browse**.

6 Type `D:\Software\XPS\i386_amd64` (where `D` is the drive letter of the optical drive) in the **File name** text box, and then click **Open**.

7 Select the inf file in the desired language folder, and then click **OK**.

8 Select your printer name, and then click **Next**.

If you want to change the printer name, enter the printer name in the **Printer name** box, and then click **Next**.

9 When the driver installation is completed, click **Print a test page** to verify installation. If you want to use this printer as the default printer, select the **Set as the default printer** check box.

10 Click **Finish**.

Setting Up for Shared Printing

You can share your USB connected printer with other computers (clients) on the same network.

To share your USB connected printer, enable shared printing when installing the printer driver. You can also enable shared printing by following the procedures below.

Enabling Shared Printing from the Computer

For Windows® 10

1 Right-click the Start button, and then click **Control Panel→Hardware and Sound→Devices and Printers**.

2 Right-click the printer icon and select **Printer properties**.

3 On the **Sharing** tab, click **Change Sharing Options** if exists.

4 Select the **Share this printer** check box, and then type a name in the **Share name** text box.

5 Click **Additional Drivers** and select the operating systems of all network clients using this printer.

6 Click **Apply**, and then click **OK**.

Checking the Shared Printer

To confirm that the printer is properly shared:

- Ensure that the printer object in the **Printers**, **Printers and Faxes**, or **Devices and Printers** folder is shared. The shared icon is shown under the printer icon.
- From a network client, browse **Network** or **My Network Places**. Find the host name of the server and the shared name you assigned to the printer.

After you have checked that the printer is shared, use methods such as Windows® Point and Print to use the shared printer from a network client.

NOTE:

- If the OS bit editions (32/64 bit edition) differ between a print server and a client computer, you need to manually add the printer driver for the client computer edition on the server. Otherwise, the printer driver cannot be installed on the client computer using methods such as Point and Print. For example, if the print server runs on Windows Vista® 32-bit edition, while the client computer runs on Windows® 7 64-bit edition, follow the procedures below to additionally install the printer driver for 64-bit client on the 32-bit server.

  a Click **Additional Drivers** on the screen for sharing printers.

  For details about how to display this screen, see "Enabling Shared Printing from the Computer".

  b Select the **x64** check box, and then click **OK**.

  c Insert the *Software and Documentation* disc into your computer.

  d Click **Browse** to specify the folder that contains the 64-bit OS driver, and then click **OK**.

  Installation starts.

Installing Printer Drivers on Macintosh Computers

Installing the Drivers and Software

1. Run the *Software and Documentation* disc on the Macintosh computer.
2. Double-click **Dell s3840cdn Installer.pkg**, and then click **Continue**.
3. When the popup dialog box prompts you for confirming the program included in the installation package, click **Continue**.
4. Click **Continue** on the **Important Information** screen.
5. Select a language for the **Software License Agreement** screen.
6. After reading the **Software License Agreement**, click **Continue**.
7. If you agree to the terms of the **Software License Agreement**, click **Agree** to continue the installation process.
8. Confirm the installation location.
9. Click **Install**.
10. Type the administrator's name and password, and then click **Install Software**.
11. When the message **The installation was successful.** appears, click **Close**.

Adding a Printer on Mac OS X

The following procedure uses OS X 10.10 as an example.

When Using a USB connection

1. Turn on the printer.
2. Connect the USB cable between the printer and the Macintosh computer.

   The printer is automatically added to your Macintosh computer.

When Using IP Printing

1. Turn on the printer.
2. Ensure that Macintosh computer and the printer are connected via network.

   If you use wired connection, connect the LAN cable between the printer and the network.

   If you use wireless connection, ensure that wireless connection is configured properly on your Macintosh computer and the printer.
3. Open the **System Preferences**, and then click **Printers & Scanners**.
4. Click the Plus (+) sign, and then click **IP**.
5. Select **Line Printer Daemon - LPD** for **Protocol**.

6 Type the IP address for the printer in the **Address** area.

7 Select **Dell Color Printer S3840cdn v3018.103 PS** for **Use**.

NOTE:
- When printing is set up using IP printing, the queue name is displayed as blank. You do not need to specify it.

8 Click **Add**.

9 Specify the options that have been installed on the printer, and then click **Continue**.

10 Confirm that the printer is displayed in the **Printers & Scanners** dialog box.

When Using Bonjour

1 Turn on the printer.

2 Ensure that Macintosh computer and the printer are connected via network.

If you use wired connection, connect the LAN cable between the printer and the network.

If you use wireless connection, ensure that wireless connection is configured properly on your Macintosh computer and the printer.

3 Open the **System Preferences**, and then click **Printers & Scanners**.

4 Click the Plus (+) sign, and then click **Default**.

5 Select the printer connected via Bonjour from the **Name** list.

6 **Name** and **Use** are automatically entered.

NOTE:
- If **AirPrint Printer** is automatically selected for **Print Using** (or **Use**), select **Dell Color Printer S3840cdn v3018.103 PS** manually.

7 Click **Add**.

8 Specify the options that have been installed on the printer, and then click **Continue**.

9 Confirm that the printer is displayed in the **Printers & Scanners** dialog box.

Configuring Settings

1 Open the **System Preferences**, and click **Printers & Scanners**.

2 Select the printer in the **Printers** list, and click **Options & Supplies**.

3 Select **Options**, select the options that can be configured for the printer, and then click **OK**.

Installing Printer Drivers on Linux Computers (CUPS)

This section provides information for installing or setting up the printer driver with CUPS (Common UNIX Printing System) on Red Hat Enterprise Linux 6 Desktop (32/64bit), SUSE Linux Enterprise Desktop 11 (32/64bit), or Ubuntu 12.04 LTS (32/64bit).

Operation on Red Hat Enterprise Linux 6 Desktop

Setup Overview

1. Install the printer driver.
2. Set up the print queue.
3. Specify the default queue.
4. Specify the printing options.

Installing the Printer Driver

1. Select **Applications→System Tools→Terminal**.
2. Type the following command in the terminal window.

```
su
(Type the administrator password)
rpm -ivh (Type the file path)/Dell-Color-Printer-S3840cdn-*.*-*.noarch.rpm
```

   The printer driver is installed.

Setting Up the Queue

To execute printing, you must set up the print queue on your workstation.

1. Open the URL "**http://localhost:631**" using a web browser.
2. Click **Administration**.
3. Click **Add Printer**.
4. Type `root` as the user name, type the administrator password, and click **OK**.

   For network connections:

   a. Select **LPD/LPR Host or Printer** from the **Other Network Printers** menu, and click **Continue**.

   b. Type the IP address of the printer in **Connection**, and click **Continue**.

   Format: `lpd://xxx.xxx.xxx.xxx` (the IP address of the printer)

   For USB connections:

   a. Select **Dell Color Printer S3840cdn** from the **Local Printers** menu, and click **Continue**.

5 Type the name of the printer in the **Name** box in the **Add Printer** window, and click **Continue**.

You can optionally specify the location and description of the printer for further information.

If you want to share the printer, select the **Share This Printer** check box.

6 Select **Dell** from the **Make** menu, and click **Continue**.

7 Select **Dell Color Printer S3840cdn vXXXX PS** from the **Model** menu, and click **Add Printer**.

The setup is complete.

Printing From the Applications

When you have finished setting up the queue, you can print jobs from the applications. Start the print job from the application, and specify the queue in the print dialog box.

However, sometimes you can print only from the default queue depending on the application (for example Mozilla). In these cases, before you start printing, set queue you want to print to as the default queue.

Setting the Default Queue

1 Select **Applications→System Tools→Terminal**.

2 Type the following command in the terminal window.

```
su
(Type the administrator password)
lpadmin -d (Type the queue name)
```

Specifying the Printing Options

1 Open the URL "**http://localhost:631**" using a web browser.

2 Click **Administration**.

3 Click **Manage Printers**.

4 Click the queue name for which you want to specify the printing options.

5 Select **Set Default Options** from the **Administration** menu.

6 Click the desired setting item, specify the required settings, and click **Set Default Options**.

The message **Printer xxx default options have been set successfully.** appears.

The setting is complete.

Uninstalling the Printer Driver

1 Select **Applications→System Tools→Terminal**.

2 Type the following command in the terminal window to delete the print queue.

```
su
(Type the administrator password)
/usr/sbin/lpadmin -x (Type the print queue name)
```

3 Repeat the command above for all queues for the same model.

4 Type the following command in the terminal window.

```
su
(Type the administrator password)
rpm -e Dell-Color-Printer-S3840cdn
```

The printer driver is uninstalled.

Operation on SUSE Linux Enterprise Desktop 11

Setup Overview

1 Install the printer driver.

2 Set up the print queue.

3 Specify the default queue.

4 Specify the printing options.

Installing the Printer Driver

1 Select **Computer→More Applications...** and select **GNOME Terminal** on the Application Browser.

2 Type the following command in the terminal window.

```
su
(Type the administrator password)
rpm -ivh (Type the file path)/
Dell-Color-Printer-S3840cdn-*.*-*.noarch.rpm
```

The printer driver is installed.

Setting Up the Queue

To execute printing, you must set up the print queue on your workstation.

1 Select **Computer→More Applications...**, and select **YaST** on the Application Browser.

2 Type the administrator password, and click **Continue**.
YaST Control Center is activated.

3 Select **Hardware** on **YaST Control Center**, and select **Printer**.
The **Printer Configurations** dialog box opens.

For network connections:

a Click **Add**.
The **Add New Printer Configuration** dialog box opens.

b Click **Connection Wizard**.
The **Connection Wizard** dialog box opens.

c Select **Line Printer Daemon (LPD) Protocol** from **Access Network Printer or Printserver Box via**.

d Type the IP address of the printer in **IP Address or Host Name:**.

e Select **Dell** in the **Select the printer manufacturer:** drop-down menu.

f Click **OK**.
The **Add New Printer Configuration** dialog box appears.

g Select **Dell Color Printer S3840cdn vXXXX PS [Dell/Dell_Color_PrinterS3840cdn.ppd.gz]** from the **Assign Driver** list.

NOTE:
- You can specify the printer name in **Set Name:**.

h Confirm the settings, and click **OK**.

For USB connections:

a Click **Add**.
The **Add New Printer Configuration** dialog box opens.

The printer name is displayed in the **Determine Connection** list.

b Select **Dell Color Printer S3840cdn vXXXX PS [Dell/Dell_Color_PrinterS3840cdn.ppd.gz]** from the **Assign Driver** list.

NOTE:
- You can specify the printer name in **Set Name:**.

c Confirm the settings, and click **OK**.

Printing From the Applications

When you have finished setting up the queue you can print jobs from the applications. Start the print job from the application, and specify the queue in the print dialog box.

However, sometimes you can print only from the default queue depending on the application (for example Mozilla). In these cases, before you start printing, set queue you want to print to as the default queue.

Setting the Default Queue

You can set the default queue when you add the printer.

1 Select **Computer→More Applications...**, and select **YaST** on the Application Browser.

2 Type the administrator password, and click **Continue**.
YaST Control Center is activated.

3 Select **Hardware** on **YaST Control Center**, and select **Printer**.
The **Printer Configurations** dialog box opens.

4 Click **Edit**.
A dialog box to modify the specified queue opens.

5 Confirm that the printer you want to set is selected in the **Connection** list.

6 Select the **Default Printer** check box.

7 Confirm the settings, and click **OK**.

Specifying the Printing Options

1 Open a web browser.

2 Type **http://localhost:631/admin** in **Location**, and press <Enter>.

3 Click **Manage Printers**.

4 Click **Set Printer Options** of the printer for which you want to specify the printing options.

5 Specify the required settings, and click **Set Printer Options**.

6 Type `root` as the user name, type the administrator password, and click **OK**.

NOTE:

- Set the password for authority as the printer administrator before setting the printer queue. If you have not set it, go to "Setting the Password for Authority as the Printer Administrator".

The message **Printer xxx has been configured successfully.** appears.

The setting is complete. Execute printing from the application.

Setting the Password for Authority as the Printer Administrator

You must set the password for authority as the printer administrator to do operations as the printer administrator.

1 Select **Computer→More Applications...** and select **GNOME Terminal** on the Application Browser.

2 Type the following command in the terminal window.

```
su
(Type the administrator password)
lppasswd -g sys -a root
(Type the password for authority as the printer administrator after the Enter password prompt.)
(Retype the password for authority as the printer administrator after the Enter password again prompt.)
```

Uninstalling the Printer Driver

1 Select **Computer→More Applications...** and select **GNOME Terminal** on the Application Browser.

2 Type the following command in the terminal window to delete the print queue.

```
su
(Type the administrator password)
/usr/sbin/lpadmin -x (Type the print queue name)
```

3 Repeat the command above for all queues for the same model.

4 Type the following command in the terminal window.

```
su
(Type the administrator password)
rpm -e Dell-Color-Printer-S3840cdn
```

The printer driver is uninstalled.

Operation on Ubuntu 12.04 LTS

Setup Overview

1 Install the printer driver.

2 Set up the print queue.

3 Specify the default queue.

4 Specify the printing options.

Installing the Printer Driver

1 Click **Dash Home**, and enter terminal in the **Search** text box.

2 Click **Terminal** in the **Applications** category of the search results.

3 Type the following command in the terminal window.

```
sudo dpkg -i (Type the file
path)/dell-color-printer-s3840cdn_*.*-*_all.deb
(Type the administrator password)
```

The printer driver is installed.

Setting Up the Queue

To execute printing, you must set up the print queue on your workstation.

1 Open the URL "**http://localhost:631**" using a web browser.

2 Click **Administration**.

3 Click **Add Printer**.

4 Type the user name and the administrator password, and click **OK**.

5 Select either of the following according to the type of your printer connection.

For network connections:

a Select **LPD/LPR Host or Printer** from the **Other Network Printers** menu, and click **Continue**.

b Type the IP address of the printer in **Connection**, and click **Continue**.

Format: `lpd://xxx.xxx.xxx.xxx` (the IP address of the printer)

For USB connections:

a Select **Dell Color Printer S3840cdn** from the **Local Printers** menu, and click **Continue**.

6 Type the name of the printer in the **Name** box in the **Add Printer** window, and click **Continue**.

You can optionally specify the location and description of the printer for further information.

If you want to share the printer, select the **Share This Printer** check box.

7 Select **Dell** from the **Make** menu, and click **Continue**.

8 Select **Dell Color Printer S3840cdn vXXX PS** from the **Model** menu, and click **Add Printer**.

The setup is complete.

Printing From the Applications

When you have finished setting up the queue, you can print jobs from the applications. Start the print job from the application, and specify the queue in the print dialog box.

However, sometimes you can print only from the default queue depending on the application (for example Mozilla). In these cases, before you start printing, set queue you want to print to as the default queue.

Setting the Default Queue

1 Click **Dash Home**, and enter terminal in the **Search** text box.

2 Click **Terminal** in the **Applications** category of the search results.

3 Type the following command in the terminal window.

```
sudo lpadmin -d (Type the queue name)
(Type the administrator password)
```

Specifying the Printing Options

1 Open the URL "**http://localhost:631**" using a web browser.

2 Click **Administration**.

3 Click **Manage Printers**.

4 Click the queue name for which you want to specify the printing options.

5 Select **Set Default Options** from the **Administration** menu.

6 Click the desired setting item, specify the required settings, and click **Set Default Options**.

The message **Printer xxx default options have been set successfully.** appears.

The setting is complete.

Uninstalling the Printer Driver

1. Click **Dash Home**, and enter `terminal` in the **Search** text box.
2. Click **Terminal** in the **Applications** category of the search results.
3. Type the following command in the terminal window to delete the print queue.

   ```
   sudo /usr/sbin/lpadmin -x (Type the print queue name)
   (Type the administrator password)
   ```

4. Repeat the command above for all queues for the same model.
5. Type the following command in the terminal window.

   ```
   sudo dpkg -r dell-color-printer-s3840cdn
   (Type the administrator password)
   ```

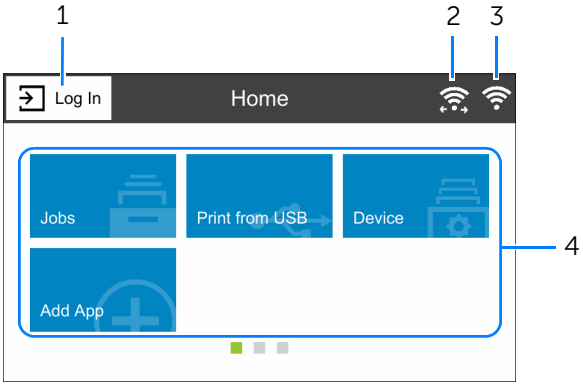
   The printer driver is uninstalled.

3

Using Your Printer

Control Panel

About the Home Screen



1	Log In	3	Wireless LAN Connection Status Icon
2	Wi-Fi Direct Connection Status Icon	4	Tiles

Log In

Select this button to log in.

Wi-Fi Direct Connection Status Icon

Displays the Wi-Fi Direct connection status. This icon is displayed only when Wi-Fi Direct is enabled.

: Connected

: Disconnected

Wireless LAN Connection Status Icon

Displays the intensity of wireless signal when the printer is connected to a wireless network.

Tiles

Displays the tiles of the functions you can select from.

Basic Operations on the Touch Panel

You can operate the touch panel as with a smart phone or a tablet.

To Select the Item on the Screen

Tap the item.

To Scroll the Screen or the Listed Items

Swipe the screen by dragging your finger on the screen.

To scroll faster, flick the screen.

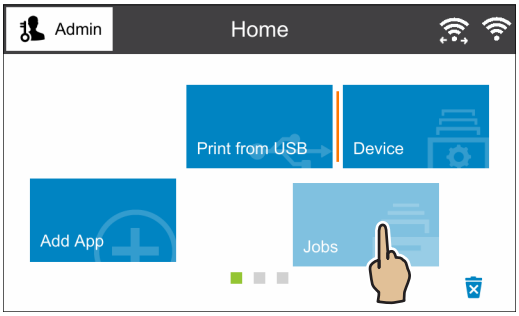
NOTE:

- You cannot swipe or flick on some screens depending on the screen design and specifications. In this case, operate by tapping the buttons shown on the screen.

Moving, Adding or Removing the Tiles

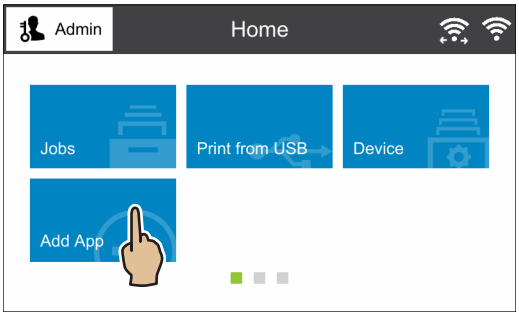
To Move the Tiles

Tap and hold the tile you want to move, and drag it to the desired place.



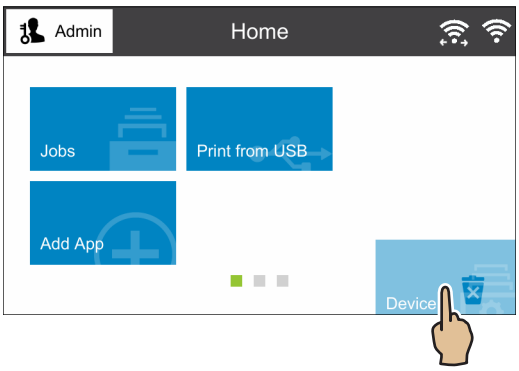
To Add the Tiles

Tap `Add App` and select the item you want to add.



To Remove the Tiles

Tap and hold the tile you want to remove, and drag it to the trash box icon.



Using the Keyboard Displayed on the Touch Panel

During operations, a keyboard for entering text sometimes appears. The following

describes how to enter text.

Item	Description
Entering alphabets	To enter uppercase letters, tap ⇧. To return to the lowercase letters, tap ⇧ again. To lock to the uppercase letters, double-tap ⇧. To enter the accented versions of each letter, tap and hold the key for the letter you want to accent and select the desired letter.
Entering numbers and symbols	Tap &123
Entering a space	Tap ▭
Deleting characters	Tap ⌫ to delete one character at a time.
Changing the language	Tap 🌐
Closing the keyboard	Tap ⌨

Changing the Language and Keyboard Layout

To change the language and keyboard layout used on the touch panel:

1. On the `Home` screen, select `Device`.
2. Select `Language`.
3. See "Language" to change the language and keyboard layout.
4. Select `OK` on the `Language` screen to save the settings.

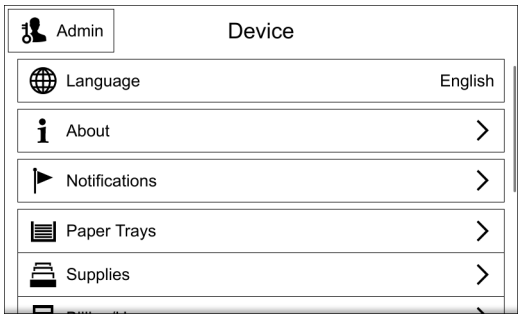
Setting the Power Saver Timers

You can set the power saver timers for the printer. The printer enters the power saver mode when the printer is not used for a certain period of time.

1. On the `Home` screen, select `Device`.
2. Select `General`, and then `Power Saver`.
3. See "Power Saver" to change the values of `Low Power Timeout` and `Sleep Timeout`.
4. Select `OK`.

Device

The Device app allows you to view the printer status and set the general settings of the printer.



NOTE:
- The displayed features may vary depending on your settings.
- You can scroll the feature list up and down.

Language

Language

Select the language you want to use on the touch panel.

Keyboard Layout

Select a keyboard layout on the touch panel.

To preview the layout, tap View Keyboard.

About

Displays the general, contact, and network information of the printer.

Information Pages

Allows you to print reports or lists.

- Configuration Report
- Billing Summary Report
- Supplies Usage Report
- ColorTrack Account Report
- PostScript Font List
- PCL Font List
- Demonstration Print
- Startup Page
- Job History Report

Notifications

Displays the notifications from the printer such as the fault status, replacement period,

and other important messages in the order of severity.
You can check the details or associated pages by selecting each notification.

Fault History

Selecting `History` displays `Fault History`.
The faults are displayed from newest to oldest in descending order.

Paper Trays

See "Trays".

Supplies

See "Supplies".

Billing/Usage

Selecting `Billing/Usage` allows you to check the billing information. The `Billing/Usage` screen shows `Serial Number`, `Counter` and `Usage Counters`.
In the `Usage Counters` screen, you can check the detailed usage counters. You can filter the counters by setting the filter (set to `All` by default) over the counter.

General

Measurements

Units

Allows you to select a unit of measurement displayed on the screen from `Millimeters` and `Inches`.

Paper Size Preference

Allows you to select the unit of default paper size to be used for printer settings.
To use the A4 size paper for the following printer settings by default and to set the `Units` setting to `Millimeters`, select `Metric`.
To use the Letter size paper for the following printer settings by default and to set the `Units` setting to `Inches`, select `Inch`.

- Default paper size for printing
- Default custom paper sizes displayed on the screen for each paper tray
- Default paper size of each paper tray and the bypass tray

Date & Time

Set the date and time for the system clock of the machine. The date and time set here will be printed on all lists and reports.

Set Automatically

Select this to set the date and time automatically according to the time server.

If you do not select this, you can set the time zone, date and time, and daylight saving time manually.

Time Server (SNTP)

Tap this to set the time server.

Server Address

Enter a server address.

Time Zone

Sets the region and time zone.

Date & Time

Sets the date and time.

Daylight Savings Time

Select this to enable daylight saving time.

Date Format

Select a date format.

- `mm/dd/yyyy`
- `dd/mm/yyyy`
- `yyyy/mm/dd`

Use 24 Hour Clock

Select this to use 24-hour clock. To use 12-hour clock, deselect this.

System Timeout

Specify the time lapsed without any operation on the control panel until the machine resets the settings automatically.

Display Brightness

You can adjust the brightness of the touch panel between level 1 and level 7.

Sounds

Enable Sounds

Select this to activate sounds. Touch an event, and use the slider bar to set the volume of the sound.

Touch

Sounds when you touch an item on a screen displayed on the control panel correctly.

Job Completion

Sounds when a job is completed successfully.

Login

Sounds when you log in to the printer.

Error \ Fault

Sounds when a job fails or an error occurs.

Power

Sounds when the machine is ready for operation, or is powered on.

Mobile Device Connected

Sounds when the printer detects a mobile device.

Power Saver

The Power Saver mode has two modes: Low Power and Sleep. When a specified period of time has elapsed, the machine switches to these modes in the following order to reduce power consumption.

Last operation on the machine → Low Power mode → Sleep mode.

NOTE:

- For `Low Power Timeout` and `Sleep Timeout`, you can enter values of up to 60 minutes in total.

Low Power Timeout

Specify a time period to enter the Low Power mode after the last operation.

Sleep Timeout

Specify a time period to enter the Sleep mode after entering the Low Power mode.

Auto Power Off

Select this to automatically turn the printer off after a specified time has elapsed from the Sleep mode. Use the slider bar to specify a value for turning the printer off.

- `Always Allowed`

  Turns the printer off when the specified time has elapsed.

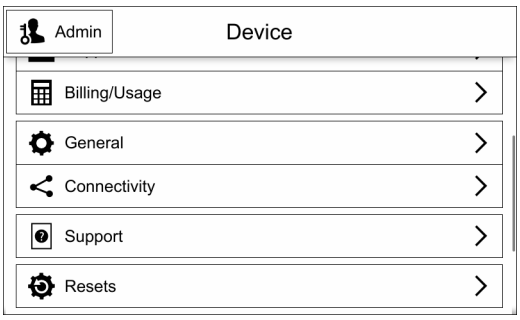
- `Allowed ONLY When Conditions are Met`

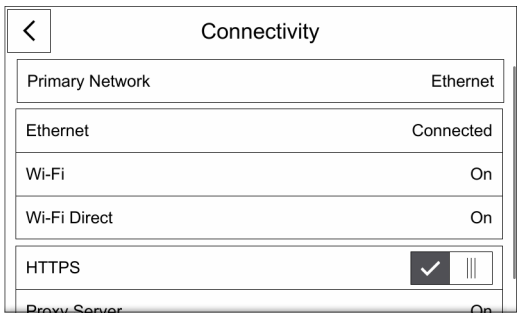
  Turns the printer off only when the following conditions are all met during the time you specified.

  – The USB device port is not used.
  – The wired network port is not used.
  – The wireless connection is not used.

Connectivity

To open the screen, scroll the feature list on the `Device` screen and select `Connectivity`.





NOTE:

- The displayed features may vary depending on your settings.
- You can scroll the feature list up and down.
- When wired and wireless connections are used at the same time, it is recommended to use different subnets for the primary and secondary interfaces.
  Either the wired or wireless connection can be designated as the primary network interface.
  Only the primary network interface can use the following protocols:
  IPsec, SMTP/POP, SNTP, WSD Scan*, Scan To (Email/Network/ FTP), LDAP, UPnP Discovery, Email Notifications, FTP Server, WebDAV, App Platform Web Services
  *: WSD stands for Web Services on Devices.

Primary Network

Displays `Ethernet` or `Wi-Fi`. You can switch between these options when using multiple interface.

Ethernet

IPv4

Enable IPv4

Select this to enable the IPv4 mode.

Mode

Select a mode.

- `DHCP`
  The address, subnet mask, and gateway address will automatically be set via DHCP.
- `BOOTP`
  The address, subnet mask, and gateway address will automatically be set via BOOTP.

  NOTE:
  - This is displayed only when this option is configured on **Dell Printer Configuration Web Tool**.
- `STATIC`
  The address, subnet mask, and gateway address will manually be set.

Host Name
Enter a host name.

IPv4 Address
Displays the IP address.

Gateway Address
Displays the gateway address.

Subnet Mask
Displays the subnet mask.

IPv6

Enable IPv6
Select this to enable the IPv6 mode.

Host Name
Enter a host name.

Link-Local Address
Displays the Link-Local address.

Self-Assigned Address
Displays the self-assigned address.

Manual Address
Allows you to enter an address.

DHCPv6 Configuration
Select a purpose of using DHCPv6.

- `Direct by Router`
- `Address Assignment and Configuration`
- `Configuration Data`

DNS

Host Name
Displays the host name.

Domain Name
Enter a domain name.

IPv4 Servers
Tap this to set addresses.

Mode
Select a mode from `DHCP` and `STATIC`.

Primary Server, Alternate Server 1, Alternate Server 2
Set DNS server addresses.

IPv6 Servers
Tap this to set addresses.

Mode
Select a mode from `DHCP` and `STATIC`.

Primary Server, Alternate Server 1, Alternate Server 2
Set DNS server addresses.

Rated Speed

Select a communication speed for the Ethernet interface.

- `Auto`
- `10Mbps Half Duplex`
- `10Mbps Full Duplex`
- `100Mbps Half Duplex`
- `100Mbps Full Duplex`
- `1Gbps Full Duplex`

Wi-Fi

Wi-Fi

To specify whether to enable the Wi-Fi feature.
From the networks displayed, select a network. For secured network, login is required.

Manual Setup

Tap this to set up manually.

Enter Network Name (SSID)
To set the name that identifies the wireless network with up to 33 alphanumeric characters.

Network Type
To set the type of wireless network. Select `Infrastructure` when you configure the wireless settings through the access point such as a wireless router. Select `Ad hoc` to configure the wireless settings without the access point such as a wireless router.

Security
Select a type of encryption.

- `None`

- WEP
- WPA2 Personal
- Mixed Mode Personal (AES/TKIP)
- WPA2 Enterprise
- Mixed Mode Enterprise (AES/TKIP)

NOTE:
- When Network Type is set to Ad hoc, WPA2 Personal and WPA2 Enterprise are not available.

Wi-Fi Protected Setup (WPS)

Select PBC to configure the network with WPS-PBC.

Select PIN to configure the network using PIN code assigned automatically by the printer.

PIN

Displays a pin code.

Mode

For WPA2 Enterprise or Mixed Mode Enterprise (AES/TKIP), specifies the EAP authentication method used for WPA Enterprise.

- PEAPv0 MS-CHAPv2
- EAP-TLS
- EAP-TTLS/CHAP
- EAP-TTLS/PAP
- EAP-TTLS/MSCHAPV2

Enter Identity, Enter User Name, Enter Password

Enter an EAP-identity, a user name, and a password respectively for authentication. The identity can be the same string as the user name.

Wi-Fi Band

To select the Wi-Fi Band.

- Auto
- 2.4 Ghz
- 5 Ghz

Wi-Fi Direct

Wi-Fi Direct

Select this to enable the Wi-Fi Direct network.

NOTE:
- In multi-interface environment, Wi-Fi Direct becomes disabled if the address range is duplicated with Ethernet or Wi-Fi.

Device Name:

Displays the device name.

This appears when Group Role is set to Auto.

IPv4 Address:

Displays the IPv4 address.

Connections:

Displays the number of connections.

Setup

Tap this for Wi-Fi Direct settings.

Group Role

Select Auto to automatically resolve the group role for Wi-Fi Direct according to the group formation.

Select Group Owner to make it possible for your Wi-Fi mobile devices to discover this printer. The SSID of the printer will then be displayed in a list of wireless networks on your Wi-Fi mobile devices.

Device Name

Enter a device name. This appears when Group Role is set to Auto.

SSID Prefix

Displays the prefix of SSID.

SSID Suffix

Specify the suffix of SSID.

Passcode

Enter the passcode to be used when the printer is Group Owner.

IPv4 Address

Displays the IPv4 address.

HTTPS

Select this to enable HTTPS.

Proxy Server

Proxy Server

Select this to enable proxy server settings.

Proxy Connections

Select a type of proxy connections. This is displayed when you are using multiple interface.

- Common
- Multiple

Wireless Proxy Setup

Enable Proxy Server
For `Multiple`, select this to enable the proxy server for wireless connection.

Setup
Select a type of settings.

Automatic
Select this to automatically set up the proxy.

Configuration Script
Select this to allow you to enter the URL of a configurations script.

Manual
Select this to enter a server address in `Server Address`. When enabling `Password Required`, enter the login name and password.

Add Exceptions
Enter an address that is not to use the proxy.

To remove the address, tap the trash box icon and select `Remove Exception`.

To edit the address, tap the trash box icon and select `Edit Exception`.

Wired Proxy Setup

Enable Proxy Server
For `Multiple Proxies`, select this to enable the proxy server for wired connection.

Wired Proxy Setup
Select a type of settings.

Automatic
Select this to automatically set up the proxy.

Configuration Script
Select this to allow you to enter the URL of a configurations script.

Manual
Select this to enter a server address in `Server Address`. When enabling `Password Required`, enter the login name and password.

Add Exceptions
Enter an address that is not to use the proxy.

To remove the address, tap the trash box icon and select `Remove Exception`.

To edit the address, tap the trash box icon and select `Edit Exception`.

LDAP

- When LDAP is turned on

  You can set the LDAP server settings in the `LDAP Server` screen.

`Test Connection`	To test the connection to the server, select `Test Connection`. Initially `Not Tested` is displayed. `Success` or `Failed` is displayed as a result of the test.
`Server Address`	Sets the server address.
`SSL/TLS`	To encrypt the communication between the server and the printer, enable `SSL/TLS`.
`Directory Root`	Sets the directory root.
`User Name`	Enter the login name for searching in LDAP server.
`Password`	Enter a password for the user specified in `User Name`.
`Find Other LDAP Servers`	Opens the LDAP server list.
`LDAP Communication Report`	Outputs the report that shows the contents of the LDAP communication transmitted and received by the machine.

- When LDAP is turned off

  Wait until the desired server is found, and select the server.

  To specify the server by manually entering the server information, select `Manual Setup`.

SMTP

Setup the SMTP server.

Once this screen is opened, searching SMTP server starts automatically. Select a server from the search result.

Also you can specify the SMTP server by entering the server address manually.

NOTE:

- If SMTP is already enabled, the search is not performed automatically and the `SMTP Server` screen is displayed.

Support

Displays the menu for maintenance of the machine.

Support Pages

Allows you to print reports.

- `Ghosting Print`
- `Repeating Defects`
- `System Status`
- `Error History Report`
- `LDAP Communication Report`
- `SMB Communication Report`
- `SMTP Communication Report`

Diagnostics

Displays the diagnostics menu.

Altitude Adjustment

Specify the altitude of the location where the printer is installed.

Color Calibration

Corrects the consistency of printing colors over time, environment, and print media.

Color Registration - Automatic

See "Adjusting Color Registration".

Color Registration - Manual

See "Adjusting Color Registration".

Image Position

Adjust the image position.

Non-Dell Toner Cartridges

Enable or disable the Non-Dell Toner mode.

Fusing Unit Temperature Adjustment

Adjust the temperature of the fusing unit.

To lower the temperature, set negative values. To increase, set positive values.

The default settings may not give the best output on all paper types. When the printed paper has curled, try to lower the temperature. When the toner does not fuse on the paper properly, try to increase the temperature.

NOTE:

- The print quality changes depending on the setting values you select for this item.

Transfer Voltage Adjustment

Adjust the transfer voltage.

To lower the voltage, set negative values. To increase, set positive values.

The default settings may not give the best output on all paper types. If you see mottles on the print output, try to increase the voltage. If you see white spots on the print output, try to decrease the voltage.

NOTE:

- The print quality changes depending on the setting values you select for this item.

Hardware

Displays the maintenance menu for hardware.

Resets

Allows you to set the machine settings to original factory state.

NOTE:

- Settings cannot be recovered after a reset.

Reset 802.1X and IPSec

Sets the 802.1X and IPSec settings to original factory state.

Reset Fonts, Forms, and Macros

Deletes all the fonts, forms and macros installed to the printer by users.

Reset to Factory Defaults

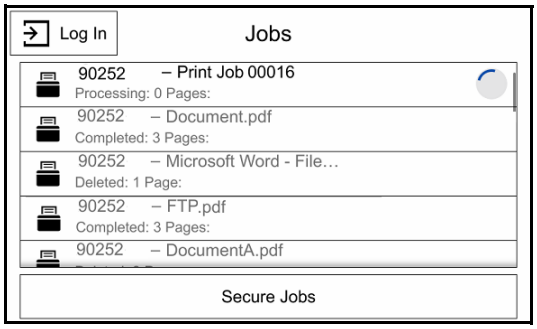
Erases all settings and returns the machine to original factory state.

Jobs

This section describes the features you can select on the `Jobs` screen.

Job List

Displays the active, pending and completed jobs. You can operate the following on the job list.



NOTE:

- You can scroll the feature list up and down.

Checking active/pending jobs

Lists active and pending jobs. Selecting a row opens its associated job details.

Checking completed jobs

Displays the status of completed jobs. Selecting a row opens its associated job details.

Deleting a Job

Cancels the current or pending job. Select a table row or status indicator that you want to delete. Then select the `Delete` button.

Checking stored jobs

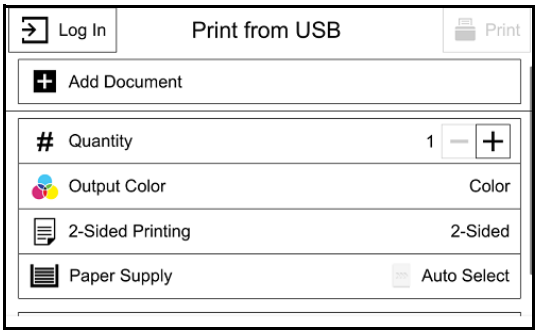
Displays the `Secure Jobs`. Also prints and deletes jobs stored using the **Sample Set** features.

Secure Jobs

Prints confidential jobs. The printer can hold the job in memory until you arrive at the printer and type the passcode on the operator panel.

USB

This section describes the features you can select on the `Print from USB` screen.



NOTE:

- To prevent damage to your printer, do not connect any device other than USB memory to the front USB port of the printer.
- Do not remove the USB memory from the front USB port until the printer has finished printing.
- When the Authentication or Accounting feature is enabled, a user ID and passcode may be required. Ask your system administrator for the user ID and passcode.
- Data stored in USB memory device may be lost or damaged in the following cases. Make sure to back up data in media before use.
  - When disconnecting/connecting the USB memory device by methods other than those described in this guide
  - When receiving the effect of electrical noise or an electrical discharge
  - When a fault or failure occurs during operation
  - If the USB memory device receives mechanical damage
- We assume no responsibility for any direct and indirect damages arising from or caused by such data loss.

Supported USB

For the front USB port of the printer, you can use a USB flash drive with the following specification:

- USB 2.0 memory device
- USB memory devices with the capacity of up to 256 GB.
- USB memory devices that support FAT12, FAT16, FAT32, and VFAT (long name).

NOTE:

- If the USB flash drive is formatted in a file system other than the above, the printer may not detect the USB flash drive.
- A USB flash drive with authentication feature and some brands of USB flash drive cannot be used with this printer.

Supported File Formats

Files in the following file formats can be printed directly from a USB flash drive:

- PDF
- TIFF
- JPEG
- XPS
- EXIF2.0-2.2

NOTE:

- XPS stands for XML Paper Specification.

Print from USB

You can print document files from a USB memory device.

You can enable/disable the `Print from USB` service following procedure.

Launch the **Dell Printer Configuration Web Tool** → Click **Apps** → **Print from USB** → Set the **Print From** settings.

NOTE:

- When you disable the service, the `Print from USB` is not displayed on the screen, and you cannot use the service. You must log in as an administrator to use this setting.

Action Footer

The following action buttons are available on the bottom of the App screen.

Some features are available only for the users with administrator permission.

Reset

Returns all the settings within the App to the default.

Save

Shows the popup menu to save the current settings within the App.

Save as New Preset

Saves the current settings as a Preset.

Save Over XXX (Preset Name)

Saves the current settings as a new version of an existing Preset.

Customize

Shows the popup menu to start the screen customization.

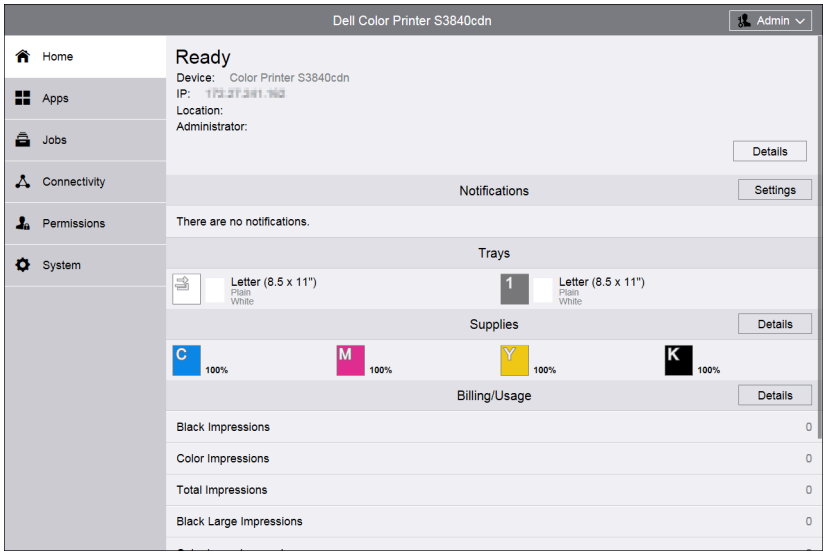
NOTE:

- See "Customizing App Screens".

Dell Printer Configuration Web Tool

Overview

Use **Dell Printer Configuration Web Tool** to monitor the status of your network printer without leaving your desk. You can view and/or change the printer settings, monitor toner level, and acknowledge the timing of ordering replacement consumables.



If you are a network administrator, you can copy the printer settings to one or all printers on the network using your web browser.

NOTE:

- This web tool is available only when the printer is connected to a network using an Ethernet cable or the wireless network function.

Setting Up the Dell Printer Configuration Web Tool

Ensure that you activate JavaScript in your browser before using the **Dell Printer Configuration Web Tool**.

Follow the procedures below to configure the environment settings of your web browser before using the **Dell Printer Configuration Web Tool**.

NOTE:

- The **Dell Printer Configuration Web Tool** pages may be displayed unreadable if the pages were configured by the language different from the language of your web browser.

Supported Web Browser

Dell Printer Configuration Web Tool supports the following web browsers.

For Windows	Microsoft Internet Explorer 10, 11 and later
	Mozilla Firefox 45 and later
	Google Chrome 48 and later
For OS X	Safari 7, 8 and later

Setting Up From Web Browser

The following procedure is described using Internet Explorer 11. The item names may differ depending on the version and type of your browser.

Setting Up the Display Language

1. Select **Internet Options** from **Tools** on the menu bar.
2. Select **Languages** in the **General** tab.
3. Specify the display language in order of preference in the **Language** list.

Setting the IP Address of the Printer to Non-Proxy (Optional)

1. Select **Internet Options** from the **Tools** menu.
2. Click **LAN Settings** under **Local Area Network (LAN) Settings** in the **Connections** tab.
3. Do either of the following:
   - Clear the **Use a proxy server for your LAN** check box under **Proxy server**.
   - Click **Advanced**, and then specify the IP address of the printer in the **Do not use proxy server for addresses beginning with** field under **Exceptions**.

Starting the Dell Printer Configuration Web Tool

To launch the **Dell Printer Configuration Web Tool**, enter the IP address of your printer in your web browser.

NOTE:
- See "Verifying the IP Settings".

Overview of the Menu Items

The **Dell Printer Configuration Web Tool** consists of the following menus:

Home

The **Home** screen consists of the following menus: **Notifications**, **Trays**, **Supplies**, **Billing/Usage**, and **Quick Links**. Use those menus to get immediate feedback on the printer status or to jump to useful services.

Apps

Use the **Apps** menu to change the apps settings of the printer.

Jobs

Use the **Jobs** menu to see the job history of the printer and to configure the job control.

Connectivity

Use the **Connectivity** menu to change the printer interface and necessary conditions for communications.

Permissions

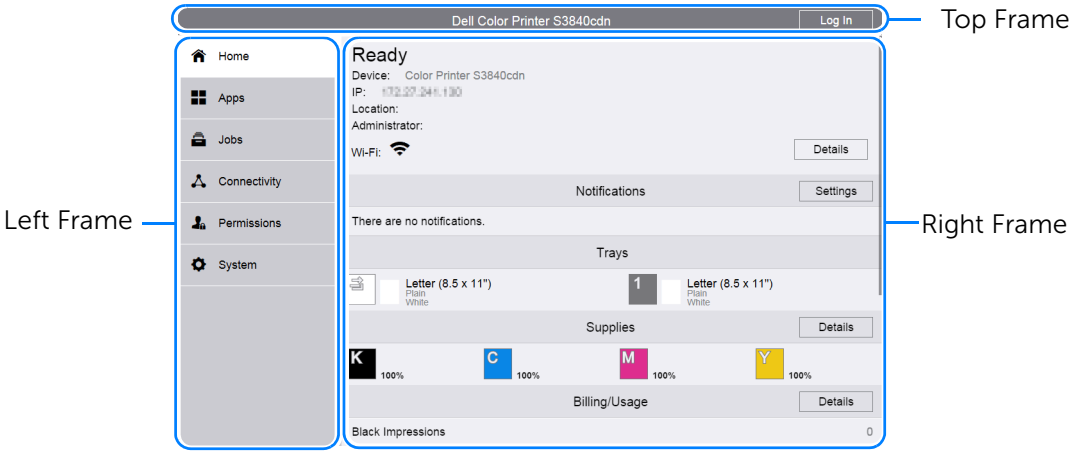
Use the **Permissions** menu to view and set the user account settings and to set the authentication and accounting methods.

System

Use the **System** menu to configure the printer environment settings such as Power Saver settings, Security settings, or PDL settings.

Page Display Format

The layout of the page is divided into three sections:



Top Frame

The top frame is located at the top of all pages. The printer name and the **Log In** button are displayed in the top frame on every page.

NOTE:

- See "Log In/Log Out from the Dell Printer Configuration Web Tool".

Left Frame

The left frame is located on the left side of all the pages. The menu titles displayed in the left frame are linked to corresponding menus and pages. You can go to the corresponding page by selecting their characters.

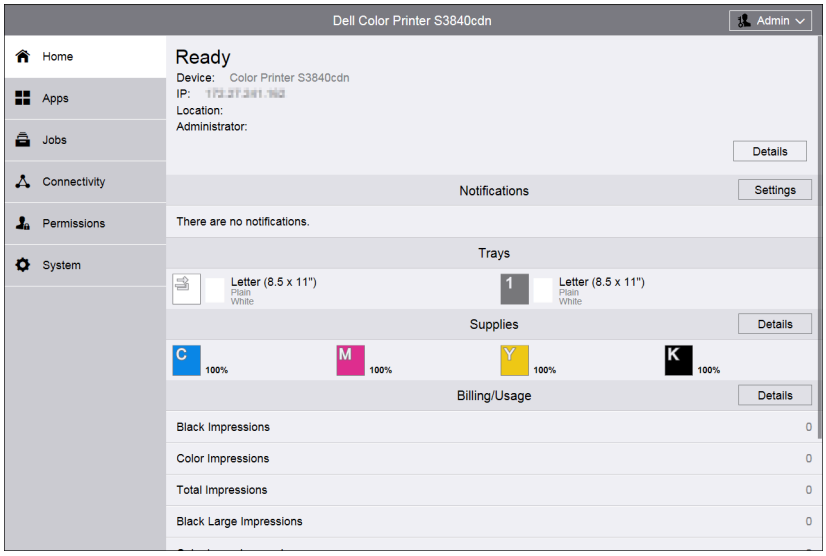
Right Frame

The right frame is located on the right side of all the pages. The contents of the right frame correspond to the menu that you select in the left frame.

Home

The header part of **Home** screen shows the status and basic information of the printer.

Select **Details** to open **Device Details**.



Device Details

Allows you to view and edit the following items.

Device Name	Set the name of the printer.
Dell Service Tag Number	Displays Dell Service Tag Number.
Express Service Code	Displays Express Service Code.
Customer Asset Tag	Set the asset tag for the printer.
Firmware Version:	Displays the current software version of the printer.
Serial Number:	Displays the serial number of the printer.
Device Location	Set the location of the printer.
Network	Displays the basic network information. You can edit the values at "Connectivity".
System Administrator	Set the information of the system administrator.

Notifications

Displays the notifications from the printer such as the fault status, replacement period, and other important messages in the order of severity.

You can check the details or associated pages by selecting each notification.

Select **Settings** to open **Notification Settings**.

Notification Settings

Email Notifications

Set the Email Notifications settings. The printer sends the printer's trouble information to the Email address specified here.

Fault History

Select **Fault History** at the lower left of **Notification Settings** to view the fault history. The faults are displayed from newest to oldest in descending order.

Trays

Displays the tray status and the current tray settings. Select the icon of each tray to see the details and change the settings.

Tray Status

Displays the size, type, color, and remaining amount of paper loaded on the tray.

Tray Mode

Select the tray mode.

Size, Type, Color

Specify the size, type, and color of paper that can be loaded on the tray as necessary.

Auto Select

Specify whether to set the tray as a target of automatic tray selection.

Priority

Specify the priority order of the tray for automatic tray selection.

Supplies

Displays the status of supplies. Select **Details** to display more information and configure the settings related to supplies.

Reorder Information

Displays the URL of Dell website for ordering supplies.

List of Supplies

Select an item to see more details.

Options

Configure optional settings as necessary.

Alerts Setup

Enable or disable the alerts related to supplies. When enabled, tap each item to change the timing of the alert.

Email Alerts

To receive alerts by e-mail, enter e-mail addresses and select the types of alerts you need.

Billing/Usage

You can check the number of pages printed per meter. To check the detailed billing information, click **Details**.

Billing Details & Usage Counters

You can check the **Device Serial Number**, **Billing Meters**, and **Usage Counters**.

Billing Meters

You can check the total number of copies and pages printed by individual meters.

Usage Counters

You can check the detailed usage counters.

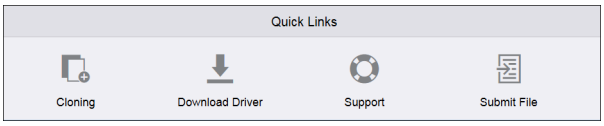
NOTE:

- "Impressions" in Usage Counters means the counts of images. For example, 2-sided printing increases the impressions by two.

Total Impressions	Displays the total number of **Color Impressions** and **Black Impressions**.
Black Impressions	Displays the total number of pages printed in black and white.
	Black Printed Impressions
Color Impressions	Displays the total number of pages printed in full color.
	Color Printed Impressions
Single Impressions	Displays the total number of impressions counted for maintenance services.
	Black Single Impressions
	Color Single Impressions
Black Sheets	Displays the total number of sheets of paper printed in black and white.
	Black Printed Sheets
	Black Printed 2-Sided Sheets
Color Sheets	Displays the total number of sheets of paper printed in full color.
	Color Printed Sheets
	Color Printed 2-Sided Sheets
Sheets	Displays the total number of sheets of paper printed.
(1 Sided and 2 Sided)	**Printed Sheets**
2-Sided Sheets	Displays the total number of sheets of paper printed in 2-sided format.
	Printed 2-Sided Sheets

Quick Links

Quick Links provides some convenient functions.



Cloning

This page allows you to copy and download the setting information file of the printer and to install the setting information file of another machine.

Install Clone File

Locate a setting information file to be installed and then select **Install** to start the installation.

Create Clone File

To download a setting information file, select the items to copy and then select **Create**.

NOTE:

- The clone file is downloaded in a format which cannot be edited by users.

You can select the following items.

Select/Clear All	Check or uncheck all the items.
Device App	
Jobs App	
USB App	
App Platform	
App Customization	
Connections	
Mobile Printing	
Protocols	
Authentication, Authorization, Accounting, Personalization	
Logs	
Date & Time	
Security	
Timeouts	
Power Saver	
PDL Settings	
Defaults and Policies	
Job Management	
Software Update	
Supplies Management	
Notifications	
Internationalization	
Support Information	

Download Driver

Displays the support page. You can download the appropriate driver to the client PC.

Support

Displays the support information.

Support Information

You can change the information by selecting **Edit**.

Online Support

Opens the Online Support page in a new browser window.

Restart Device

Allows you to restart the printer. Select **Restart** after the confirmation screen is displayed.

Submit File

Allows you to print a file from the local client device by uploading the file through **Dell Printer Configuration Web Tool**.

No driver installation is required.

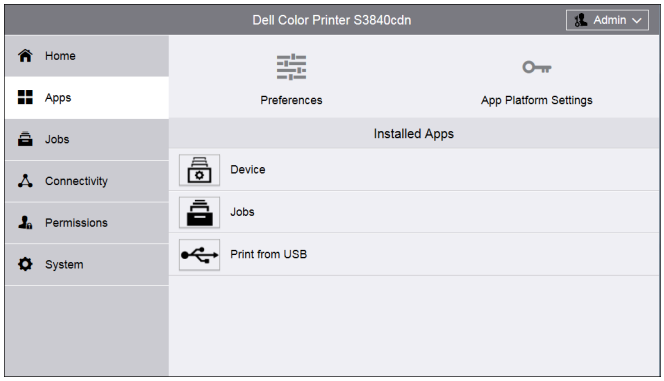
Supported file format	Procedure
PDF, PS, PCL, PRN, XPS, JPEG, TIFF, TXT	1. Enter the path of the file or select a file through browsing the local file system. 2. Enter the print quantity. 3. Set each print items. 4. Click **Submit** button and the print job will be submitted.

NOTE:

- XPS stands for XML Paper Specification.

Apps

Allows you to configure the settings related to the apps used on the control panel.



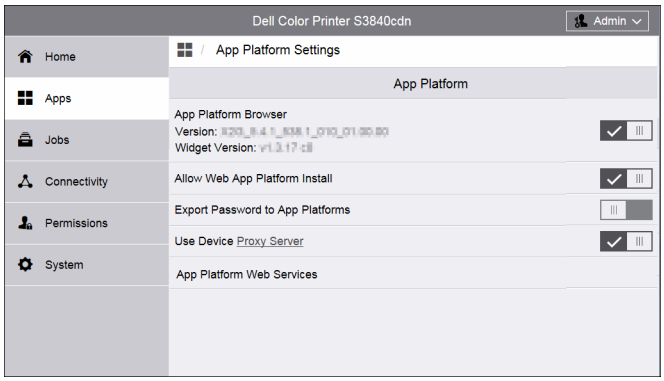
Preferences

Walkup Screen

Set the screen displayed after powering on the machine or canceling the Power Saver mode.

App Platform Settings

Using the App Platform service allows you to use application software on the printer. You can set the following App Platform settings.



NOTE:

- For information on the installation and usage of application software, refer to the guide provided with each application software.

App Platform

App Platform Browser

Set whether or not to enable the App Platform browser.

The browser version and the widget version are displayed.

Allow Web App Platform Install

Set whether or not to allow the installation of Web App Platform applications.

Export Password to Apps Platform

Set whether or not to allow login user passwords on the machine or a remote authentication server to be used for internal applications such as SharePoint® Connector, to set up single sign-on between the machine and the application.

Use Device Proxy Server

Set whether or not to use the device's proxy server.

App Platform Web Services

You can enable or disable the following web services:

Remote System Management	**Device Configuration** allows obtaining the machine settings and capabilities.
	App Platform SNMP Configuration allows obtaining and setting MIB (management information base) that can be obtained and set via SNMP.
	Extensible Service Registration allows registering, changing, and deleting applications.
	User Interface Configuration allows managing the initial screen used by applications.
	App Platform Proxy Configuration allows referring and setting the machine proxy information.

Apps	**Job Management Extension** allows enabling job list and job details, and operating jobs.
	Print Extension allows printing documents obtained from a specified URL.
Hardware	**Card Reader Access** allows sending card information from the card reader to a client.
	Mass Storage Access allows operating a mass storage device connected to the machine.
Authentication and Accounting	**Configuration** allows obtaining and changing authentication and accounting settings.
	Job Limits allows limiting job operations based on the information from the remote accounting server.
	Session Data allows obtaining and changing user information on the machine.
	Dell Secure Access allows session control and notification from the machine to the server for convenience authentication.
Security	**Certificate Management and Security Configuration** allows certificate management.

Installed Apps

The list of installed apps is displayed.

Select each app to confirm or change the app information and settings.

Basic Information and Control of Apps

On the left column of each app's setting pages, the basic information of the app is displayed.

NOTE:

- The items are displayed on the top of the pages when the browser size is small.

Type:

Displays **Standard App** or **Web App Platform**.

Author:

Displays the creator of the app.

Description:

Displays the description of the app.

Display on Device

Set whether or not to display the app on the `Home` screen of the control panel.

Delete App

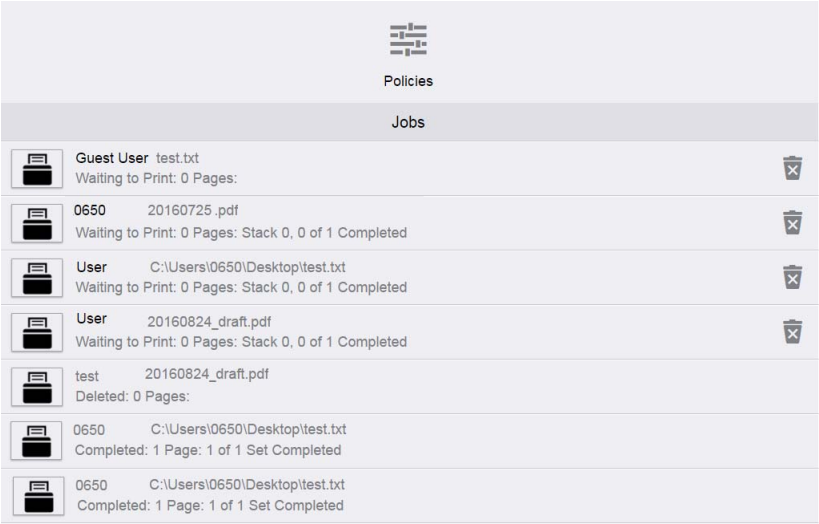
Deletes the app. This button is displayed only for the apps that can be deleted.

Jobs

The **Jobs** menu contains information on the List of **Active Jobs** and **Completed Jobs**. These pages show the details of the status regarding each protocol or job.

NOTE:

- The jobs stored as **Secure Print** jobs can only be displayed in the job list on the device control panel. For details, see "Checking active/pending jobs".



NOTE:

- You can scroll the feature list up and down.

List of Active Jobs

Displays the jobs that are being processed.

List of Completed Jobs

Displays the completed jobs. Up to the last 200 jobs are displayed.

Deleting a Job

1. Select a job you want to delete.
2. Select **Delete** button.

   NOTE:

   - Only **Print** jobs can be deleted.

Policies

Displays the **Jobs Policies**. You can configure settings related to the **Jobs** feature.

Print Around

Specify time period to disable print jobs.

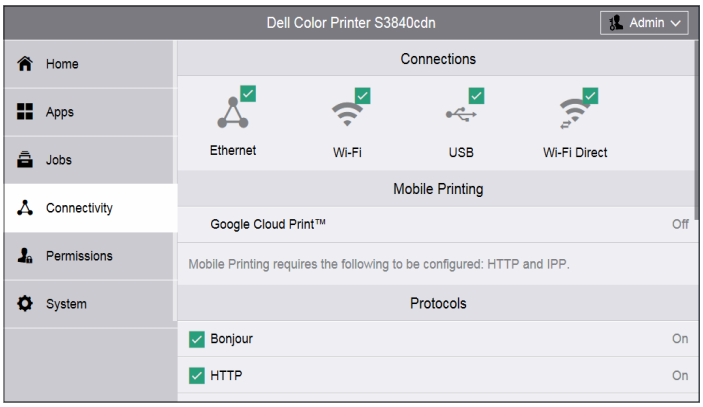
Conceal Job Names

Select whether or not to conceal job names.

Stored Print Job Settings

Sets the stored print job settings.

Connectivity



NOTE:

- The displayed features may vary depending on your settings.
- You can scroll the feature list up and down.
- When wired and wireless connections are used at the same time, it is recommended to use different subnets for the primary and secondary interfaces.
  Either the wired or wireless connection can be designated as the primary network interface.
  Only the primary network interface can use the following protocols:
  IPsec, SMTP/POP, SNTP, WSD Scan*, Scan To (Email/Network/ FTP), LDAP, UPnP Discovery, Email Notifications, FTP Server, WebDAV, App Platform Web Services
  *: WSD stands for Web Services on Devices.

Connections

Ethernet

MAC Address:

Displays the MAC address.

Rated Speed

Select a communication speed for the Ethernet interface.

- **Auto (Default)**
- **10 Mbps Half-Duplex**
- **10 Mbps Full-Duplex**
- **100 Mbps Half-Duplex**
- **100 Mbps Full-Duplex**
- **1 Gbps Full-Duplex**

Common

Tap **Edit** for the settings.

Host Name:

Enter the host name with up to 32 single-byte characters.

Primary Network

Allows you to select **Ethernet** or **Wi-Fi**. This is displayed when you are using multiple interface.

IP Mode:

Allows you to select the TCP/IP operation mode.

IPv4

Select this option for IPv4.

IPv6

Select this option for IPv6.

Dual Stack

Select this option for an environment using both IPv4 and IPv6.

IPv6 Priority over IPv4 at Domain Name Resolution:

Select this to prioritize IPv6 for the domain name resolution feature.

IPv4

Click **Edit** for the settings.

Mode:

Allows you to select a method for obtaining the IP address, subnet mask, and gateway address.

DHCP

The address, subnet mask, and gateway address will automatically be set via DHCP.

STATIC

Allows you to manually specify an IP address, a subnet mask, and a gateway address.

BOOTP

The address, subnet mask, and gateway address will automatically be set via BOOTP.

IP Address

Enter the IP address when selecting **STATIC** at **Mode**.

NOTE:

- Enter the address in the format "xxx.xxx.xxx.xxx", where "xxx" is a numeric value from of 0 to 255.
- Specify an IP address using numbers (0 to 9) and periods (.).

Subnet Mask

Enter the subnet mask when selecting **STATIC** at **Mode**.

NOTE:

- Enter the address in the format "xxx.xxx.xxx.xxx", where "xxx" is a numeric value from of 0 to 255.
- Specify a subnet mask using numbers (0 to 9) and periods (.).

Gateway Address

Enter the gateway address when selecting **STATIC** at **Mode**.

NOTE:

- Enter the address in the format "xxx.xxx.xxx.xxx", where "xxx" is a numeric value from of 0 to 255.
- Specify a gateway address using numbers (0 to 9) and periods (.).

Release current IP when the Device is powered off.

For **DHCP**, select this to return the IP address to the DHCP server when the printer is powered off.

IPv6

Click **Edit** for the settings.

Link-Local Address

Displays the Link-Local address.

Self-Assigned Address 1:, Self-Assigned Address 2:, Self-Assigned Address 3:

Displays the self-assigned address.

DHCPv6

Purpose

Select a purpose of using DHCPv6.

- **Directed by Router**
- **Address Assignment and Configuration Data**
- **Configuration Data**

DHCPv6 Address:

Displays the DHCPv6 address.

Manual Address:

Allows you to select whether or not to configure the IPv6-address settings manually.

Manual Address

Enter an Address.

NOTE:

- Enter the address in the format "xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx", where "xxxx" is a hexadecimal value.
- Specify an address using alphanumeric characters (0 to 9 and A to F) and colons (:).

Gateway Address:

Specify a gateway address.

NOTE:

- Enter the address in the format "xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx", where "xxxx" is a hexadecimal value.

Automatically Configured Gateway Address:

Displays the gateway address automatically configured.

DNS

Click **Edit** for the settings.

Domain Name

Enter a domain name.

Connection Timeout

Sets the time-out period between 1 and 60 seconds.

IPv4 DNS Servers

Use DHCP to Assign Address

Set whether or not to automatically obtain the address of the DNS server from the DHCP server.

Primary Server, Alternate Server 1, Alternate Server 2

Set DNS server addresses.

IPv6 DNS Servers

Use DHCPv6-lite to Assign Address

Set whether or not to automatically obtain the address of the DNS server from the DHCPv6 server.

Primary Server, Alternate Server 1, Alternate Server 2

Set DNS server addresses.

DNS Search Domains

Generate Domain Search List Automatically

Select this to automatically generate a search list.

Primary Domain, Alternate Domain 1, Alternate Domain 2

Enter domains when you disable **Generate Domain Search List Automatically**.

802.1X

Configure the IEEE 802.1x settings.

Enable 802.1X	Set whether or not to use IEEE 802.1X authentication.

Authentication Method	Select from **EAP-MD5**, **PEAPv0/EAP-MS-CHAPv2**, **EAP-MS-CHAPv2**, or **EAP-TLS**.
Certificate Verification	Select whether or not to verify a server certificate when **PEAPv0/EAP-MS-CHAPv2** or **EAP-TLS** is selected in **Authentication Method**.
User Name (Device Name)	Enter the login user name with up to 128 characters.
Password	Enter the login password with up to 128 characters.
Retype Password	Re-enter the login password for confirmation.

Wi-Fi

Enable

To specify whether to enable the Wi-Fi feature.

MAC Address:

Displays the MAC address.

Link Channel:

Displays the channel used for wireless communication.

Link Quality:

Displays the status of wireless communication.

- **Good**
- **Acceptable**
- **Poor**

Wi-Fi Band

Select a frequency band.

- **Auto**
- **2.4 GHz**
- **5 GHz**

SSID

To set the name that identifies the wireless network with up to 33 alphanumeric characters.

Network Type

To set the type of wireless network. Select **Infrastructure** when you configure the wireless settings through the access point such as a wireless router. Select **Ad hoc** to configure the wireless settings without the access point such as a wireless router.

TCP/IP Settings

Common

Displays the host name.

IPv4
Displays the IPv4 address.

IPv6
Displays the IPv6 address.

DNS
Displays the domain name.

Security Settings

Encryption
Select a type of encryption.
- **No Encryption**
- **WEP**
- **WPA2 Personal**
- **WPA2 Enterprise**
- **Mixed Mode Personal (AES/TKIP)**
- **Mixed Mode Enterprise (AES/TKIP)**

Transmit Key
For **WEP**, select a WEP key for sending encryption.

WEP Key 1 to 4, Retype WEP Key 1 to 4
For **WEP**, specifies the WEP key to use through the wireless network.

Passcode, Retype Passcode
For **WPA2 Personal** or **Mixed Mode Personal (AES/TKIP)**, specifies the passphrase.

Authentication Method
For **WPA2 Enterprise** or **Mixed Mode Enterprise (AES/TKIP)**, specifies the EAP authentication method used for WPA Enterprise.
- **PEAPv0 MS-CHAPv2**
- **EAP-TLS**
- **EAP-TTLS/PAP**
- **EAP-TTLS/CHAP**
- **EAP-TTLS/MS-CHAPv2**

Root Certificate
Specifies the sequence ID of the root certificate. To register no certificate, enter “0”.

Client Certificate
Specifies the sequence ID of the client certificate. To register no certificate, enter “0”.
For **EAP-TLS**, this setting is mandatory.

EAP-Identity

Specifies the EAP identity for the first authentication.

Login Name

Specifies the login name to be used for the second authentication for EAP-Enterprise. Up to 33 alphanumeric characters are available. The entry can be the same string as **EAP-Identity**.

Password, Retype Password

Specifies the password for the login name.

USB

Enable

Select this to use USB interface.

USB Port

Select this to enable the port.

PJL

PJL (Printer Job Language) is a job control language and a PJL command is data prepended to the top of the print jobs. Usually select this.

Print Mode

Select the printer language to use on the machine. The available options are **Auto**, **PostScript 3**, **HP-GL/2**, **PCL 6/5e**, and **TIFF/JPEG**. Selecting **Auto** enables the machine to automatically determine and use the most suitable language to print data received from the host device.

Auto Job Timeout

Configure the time that the data so far received by the machine will automatically be printed since data is no longer sent to the printer.

Adobe Communication Protocol

Standard

Select this when the output protocol of the print driver is in the ASCII format.

Binary

Select this when the output protocol of the print driver is in the BCP format.

TBCP

Select this when the output protocol of the print driver is in the TBCP format.

RAW

Select this when the output protocol of the print driver is in the ASCII or binary format. The data is printed without being controlled by the Adobe communication protocol.

PostScript Wait Timeout (RAW Mode)

The machine automatically terminates a connection when the machine does not receive data for a certain period of time. When data is being printed with **RAW** selected for **Adobe Communication Protocol**, disable this if you want to use the time period set in **Auto Job Timeout** or enable this if you want to use the timeout period of PostScript.

Wi-Fi Direct

Enable

Select this to enable the Wi-Fi Direct network.

NOTE:

- In multi-interface environment, Wi-Fi Direct becomes disabled if the address range is duplicated with Ethernet or Wi-Fi.

Paired Device

Displays the status of the Wi-Fi Direct connections between the printer and connected devices.

Current Role

Displays the role currently configured for the printer: **Group Owner** or **Client**.

Current SSID

Displays the SSID currently configured for the printer.

Group Role

Select `Auto` to automatically resolve the group role for Wi-Fi Direct according to the group formation.

Select `Group Owner` to make it possible for your Wi-Fi mobile devices to discover this printer. The SSID of the printer will then be displayed in a list of wireless networks on your Wi-Fi mobile devices.

Device Name:

Displays the device name.

This appears when **Group Role** is set to **Auto**.

DHCP Server

IP Address

Displays the IP address.

Subnet Mask

Displays the subnet mask.

IP Address Lease Time

Specify the lease time of an IP address.

Group Owner

SSID

Displays the name that identifies the Wi-Fi Direct network. You can specify the name with up to 23 alphanumeric characters after "**DIRECT-****".

Passcode

Enter a passphrase with 8 to 63 alphanumeric characters, or with a hexadecimal value of 64 digits.

Mobile Printing

You can configure settings related to the **Mobile Printing** feature.

AirPrint

Configures the detailed setting of **AirPrint**.

To use **AirPrint**, check the box to enable.

Enabling **Airprint** will automatically enable required underlining protocols such as IPP and Bonjour.

AirPrint™	**Enable**	Set whether or not to use **AirPrint**.
Bonjour	**Printer Name**	Enter the name that is to be displayed as an **AirPrint** Printer.
	Location	Enter the location of the printer.
	Longitude	Enter the longitude.
	Latitude	Enter the latitude.
IPP Authentication	**Basic Authentication**	Set whether or not to enable **Basic Authentication**.
	User Name	Enter the user name.
	Password	Enter the user password.
	Retype Password	Retype the user password for confirmation.
Security Certificates	**Edit**	Change the security certificate settings.
Supplies	**Check Status**	Displays the toner status.

Google Cloud Print™

To use **Google Cloud Print™** feature, check the box to enable.

Mopria™

Select **On** to enable **Mopria™**.

Protocols

Bonjour

Port

Select this to use Bonjour.

NOTE:

- To print from a printer detected by **Bonjour**, the LPD port must be activated in advance.

Wide-Area Bonjour

Select this to enable the Wide-Area Bonjour protocol.

NOTE:

- In multi-interface environment, this setting is for primary interface only.

Host Name

Sets the host name.

Printer Name

Sets the printer name.

HTTP

Port Number

Enter a port number.

NOTE:

- Do not use a number that is the same as a port number of another port. However, you can use the same port number for a port that uses HTTP (IPP, Internet Services (HTTP), UPnP Discovery, SOAP, WebDAV, and Web Services on Devices (WSD)).

CSRF Protection

Select this to enable Cross-Site Request Forgery (CSRF) protection for security. This feature protects the settings on **Dell Printer Configuration Web Tool** from being altered if a user unknowingly accesses a malicious website.

HTTPS (SSL)

Select this to enable HTTPS (SSL).

HTTPS Port Number

Enter a port number from 1 to 65535.

Maximum Connections

Enter the maximum number of simultaneous connections.

Connection Timeout

Sets the connection time-out period.

Device Certificate

Select a device certificate.

Proxy Server

Select this to configure the settings for using inbound/outbound access.

NOTE:

- Do not set this item unless you use services requiring proxy server settings.

Proxy Setup

Select a type of proxy connections. This is displayed when you are using multiple interface.

- **Common Proxy**
- **Different Proxies**

Setup

Select a type of proxy server settings.

To set up automatically, select **Automatic**.

To enter the URL of a configurations script, select **Configuration Script**.

To enter proxy server information, select **Manual**.

Type

For **Manual**, select a type to specify the proxy server.

According to the type you selected, enter an address or a host name with up to 256 alphanumeric characters, underscore, period, or colon, and enter the port number between 1 and 65535.

Password Required

Select this when authenticating with a password to connect to the proxy server.

Login Name

Enter a login name.

Password, Retype Password

Enter a password.

Exception List

Enter addresses not using the proxy server. You can use the IPv4, IPv6, or FQDN format. You can use wildcards "*" and delimiters ";".

IPP

Port

Select this when you want to use IPP (Internet Printing Protocol) to print via the Internet.

Port Number

Enter a port number.

PJL

Select this to enable PJL. PJL allows you to specify the printer language to use for your next job regardless of the printer language currently being used.

Print Mode

Select a print mode. The available options are **Auto**, **PostScript 3**, **HP-GL/2**, **PCL 6/5e**, and **TIFF/JPEG**. Selecting **Auto** enables the machine to automatically determine and use the most suitable language to print data received from the host device.

Alternate Port (IPP), Alternate Port (IPPS)

Select this to accept a port number other than the standard port number. Enter a port number in **Alternate Port Number (IPP)** or **Alternate Port Number (IPPS)**.

NOTE:

- Do not use a number that is the same as a port number of another port. However, for IPP, you can use the same port number for a port that uses HTTP (IPP, Internet Services (HTTP), UPnP Discovery, SOAP, WebDAV, and Web Services on Devices (WSD)). For IPPS, you can use 443 (HTTPS), and cannot use 80 (HTTPS) or a well-known port (HTTPS).

TBCP Filter

Select this to enable TBCP filter for PostScript data. When the transmission data includes binary data or EPS data, disable this.

Password Required

Select this to authenticate with a password.

Connection Timeout

Select this to set the timeout.

Timeout

Sets the connection time-out period.

Spool

Select **On** to enable spooling.

IPsec

Configure the IPsec settings.

NOTE:

- For **IKE Authentication Method**, **Preshared Key**, **DH Group**, and **PFS**, consult your network administrator.

Enable	Select whether or not to enable IPsec communications.
IKE Authentication Method	Set the IKE authentication method. Select from **Digital Signature** or **Preshared Key**.
Preshared Key	Enter a preshared key. This setting is valid when **IKE Authentication Method** is set to **Preshared Key**.
Retype Preshared Key	Re-enter the preshared key for confirmation.

Device Certificate	Select a certificate for IPsec communications. Select a certificate when **IKE Authentication Method** is set to **Digital Signature**. A self-signed certificate created by **Dell Printer Configuration Web Tool** cannot be used.
IKE SA Lifetime	Specify IKE SA lifetime from 5 to 28800 minutes in 1 minute increments. **NOTE:** • The value must be equal to or greater than the value set in **IPsec SA Lifetime**.
IPsec SA Lifetime	Specify IPSec SA lifetime from 300 to 172800 seconds in 1 second increments. **NOTE:** • The value must be equal to or smaller than the value set in **IKE SA Lifetime**.
DH Group	Set DH group. Select from **G1**, **G2**, and **G14**.
PFS	Select whether or not to enable PFS.
Specify Destination IPv4 Address	Set the IPv4 address of the destination. When entering an IP address, enter the address in the format "xxx.xxx.xxx.xxx", where "xxx" is a numeric value from 0 to 255.
Specify Destination IPv6 Address	Set the IPv6 address of the destination. When entering an IP address, enter the address in the format "xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx", where "xxxx" is a hexadecimal value.
Communicate with Non-IPsec Devices	Select whether or not to communicate with non-IPSec devices.

LDAP

LDAP Servers

Server Information	**IP Address/Host Name : Port**	Enter the server IP address and the port number. **NOTE:** • For IPv4, enter the address in the format "xxx.xxx.xxx.xxx", where "xxx" is a numeric value from 0 to 255. • For IPv6, enter the address in the format "xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx", where "xxxx" is a hexadecimal value.
	Backup IP Address/Host Name : Port	Enter the backup server IP address and the port number. **NOTE:** • For IPv4, enter the address in the format "xxx.xxx.xxx.xxx", where "xxx" is a numeric value from 0 to 255. • For IPv6, enter the address in the format "xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx", where "xxxx" is a hexadecimal value.

Advanced Settings	**Search Directory Root**	Enter a search root character string with up to 255 characters. **NOTE:** • Enter the distinguished name of the root node. (Example: CN=users, DC=mydomain, DC=dell, DC=com)
	Login Name	Enter the login name for searching in LDAP server up to 255 characters.
	Password	Set a login password for the user specified in **Login Name**. Up to 32 characters are allowed.
	LDAP Referrals	Specify whether or not to re-establish connection to another LDAP server if a currently connected LDAP server requests to do so.
	Maximum Number of LDAP Referral Hops	When using the Referral feature, specify how many times that a user is allowed to hop servers within 1 to 5 times.
Search Criteria	**Display Name**	Set whether or not to use the name attribute type as a search entry when a name is used as a search key.
	Surname	Set whether or not to use the surname attribute type when a name is used as a search key.
	Given Name	Set whether or not to use the given name attribute type when a name is used as a search key.
Perform Search On	**Perform Search On**	Sets the search order.

LDAP Authentication

Authentication Method	Select the method for authentication from **Direct Authentication** and **Authentication of User Attributes**.
Common Name	Enter the attribute of user name. Up to 32 characters can be entered. This attribute is used to search user name in the LDAP Server. Enter the LDAP attribute for user name typed on the control panel. When users enter the e-mail address, specify "Mail".
Login User Name	Enter the attribute of login user name. Up to 32 characters can be entered. As the attribute for authentication, enter one of the login user names registered in the LDAP server.
User ID	Enter the user name attribute to be used for Smart Card ID search when executing LDAP authentication using the Smart Card. The user name is notified to the remote service as authentication information. Up to 32 characters can be entered. This item is displayed when a smart card is used with remote accounts.
Smart Card	Enter the attribute of login user name. Up to 32 characters can be entered. This item is displayed when a smart card is used with remote accounts.

Use Added Text String	Select whether or not to automatically add text strings in **Added Text String** when you enter the authentication information from the control panel.
Added Text String	Enter the fixed string when **Use Added Text String** is enabled. Up to 64 characters can be entered. For example, when "host" is set in **Common Name** and the user's mail address is "host@mail.com", this user needs to enter "host@mail.com". However, when **Use Added Text String** is enabled and "@mail.com" is set in **Added Text String**, this user needs to enter only "host" on the control panel. The machine append "@mail.com".

Custom Filters

User ID Query Filter	Specify the text string to be used when searching user ID upon network authentication. Up to 128 characters can be entered.

LPD

Port

Select this to use LPD.

Port Number

Enter a port number.

PJL

Select this to enable PJL. PJL allows you to specify the printer language to use for your next job regardless of the printer language currently being used.

Print Mode

Select a print mode. The available options are **Auto**, **PostScript 3**, **HP-GL/2**, **PCL 6/5e**, and **TIFF/JPEG**. Selecting **Auto** enables the machine to automatically determine and use the most suitable language to print data received from the host device.

TBCP Filter

Select this to enable TBCP filter for PostScript data. When the transmission data includes binary data or EPS data, disable this.

Timeout

Sets the connection time-out period.

Maximum Number of Sessions

Enter the maximum number of client sessions using LPD. You can enter a number from 1 to 10 in 1 session increments.

Parameter Text String Encoding

Select an encoding format for parameter text strings.

- **Follow Device Settings**

- **UTF-8**

Spool
Select **On** to enable spooling.

TCP-MSS
Select this to enable the TCP-MSS mode.

IPv4 Subnet 1 to 3
Enter a subnet address.

Port 9100

Port
Select this to use Port 9100.
Select this option when the communication protocol is in RAW format for Windows® Standard TCP/IP port monitor.

Port Number
Enter a port number for Port 9100 from 1 to 65535.

The default value is 9100.

NOTE:
- Do not use the numbers assigned to the other ports.

PJL
Select this to enable PJL. PJL allows you to specify the printer language to use for your next job regardless of the printer language currently being used.

Print Mode
Select a print mode. The available options are **Auto**, **PostScript 3**, **HP-GL/2**, **PCL 6/5e**, and **TIFF/JPEG**. Selecting **Auto** enables the machine to automatically determine and use the most suitable language to print data received from the host device.

Timeout
Sets the connection time-out period.

TBCP Filter
Select this to enable TBCP filter for PostScript data. When the transmission data includes binary data or EPS data, disable this.

TCP-MSS
Select this to enable the TCP-MSS mode.

IPv4 Subnet 1 to 3
Enter a subnet address.

SMB

Port
Select this to enable the port.

WINS Server Address Acquisition by DHCP
Select this to get a server address through DHCP. This is effective when the **Mode** setting for **IPv4** is set to **DHCP**.

Primary WINS Server Address, Secondary WINS Server Address
When disabling **WINS Server Address Acquisition by DHCP**, enter a server address.

SMTP
Configure the SMTP server settings.

Email Submission
Set whether or not to enable the e-mail submission port.

Email Notification
Set whether or not to enable the e-mail notification port.

Device Email
Enter the E-mail address of the machine with up to 128 characters.

SMTP Server
- **Server Address**

  Opens the screen to set the SMTP server address.

  Enter the address manually or click **Select Server from List** to search the SMTP server to set the server address.
- **Outgoing SMTP Port Number**

  Enter a port number in the range from 1 to 65535.

  The default value is 25.

  NOTE:
  - Do not use the numbers assigned to the other ports.

Connection Security
Set the SSL / TLS communication for SMTP.

Outgoing SMTP Authentication
- **SMTP Authentication**

  Select the authentication method for sending E-mail.

  NOTE:
  - If **POP Before SMTP** is selected, the POP3 settings must be set.
  - AUTH GSSAPI (only for Kerberos), AUTH NTLMv2, AUTH NTLMv1, AUTH PLAIN, AUTH-LOGIN, or AUTH CRAM-MD5 can be used as an authentication method.

- **SMTP AUTH User Name**
  Enter the user name for verification purposes at the SMTP server with up to 64 characters.
- **SMTP AUTH Password**, **Retype Password**
  Enter the password for verification purposes at the SMTP server. Up to 64 single-byte characters are allowed.

SNMP

Port
Select this to use SNMP, when you use any web applications to control the machine on the network.

Send Authentication Error Traps
Select this to notify authenticate error traps.

SNMPv1/v2
Select this to change the settings for **SNMPv1/v2**.

Enable
Select this to enable SNMPv1/v2.

Community Names

Community Name Read Only
Specify the community name to use for Read Only.

Community Name Read/Write
Specify the community name to use for Read/Write.

Default Trap Community Name
Specify the community name to use for trap notification.

System Administrator Login ID
Specify the login ID of the system administrator.

SNMPv3
Select this to change the settings for **SNMPv3**. This is available when HTTPS (SSL) is enabled.

Enable
Select this to enable SNMPv3.

System Administrator Account

User Name
Displays the user name of the System Administrator.

Message Digest Algorithm
Select a type of algorithm.

Authentication Password, Retype Password
Enter a password with up to 33 bytes.

Message Encryption Algorithm
Select a message encryption algorithm from **DES** and **AES-128**.

Encryption Password, Retype Password
Enter a password with up to 33 bytes.

Print Drivers Account

Message Digest Algorithm
Displays the type of algorithm.

Message Encryption Algorithm
Displays the message encryption algorithm: **DES** or **AES-128**.

Reset to Default Password
Resets the password.

Trap Destination
Allows you to register destinations.

NOTE:
- In multi-interface environment, set for each interface.

Trap Destination
Select **(Available)** to register an address.

SNMP Version
Sets the SNMP version.

Type
Select an address type.

IP Address : Port
Enter an address and a port number.

Trap Community Name
Sets the trap community name for **SNMPv1/v2**.

User Name
Select **Xadmin** or **Xdrivers** for **SNMPv3**.

Traps to Be Received

Select types of traps to be received.

- **Printer Traps**
- **Job Monitoring Traps**
- **Cold Start Traps**
- **Warm Start Traps**
- **Authentication Error Traps**

SNTP

Time Server Synchronization

You can synchronize the machine clock with a time server (NTP: Network Time Protocol), receiving time information from the server.

Select this to enable synchronization.

Time Server Address

Set the server name or IP address of the time server.

Time Synchronization Interval

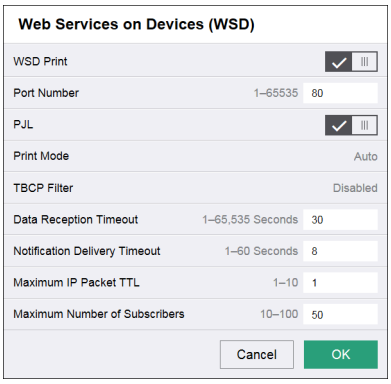
Enter a time interval value to connect to the time server.

SOAP

Port

Select this to enable the SOAP port.

Web Services on Devices (WSD)



WSD Print

This feature is for Web Services on Devices (WSD) Print, and is enabled by factory default. It is recommended that you do not disable this feature. You can search your networks for your printer from Windows Vista, Windows 7, Windows 8.1, Windows 10, Windows Server 2008 R2, Windows Server 2012 R2, or Windows Server 2016.

Port Number

Enter a port number from 1 to 65535.

The default value is 80.

NOTE:

- Do not use a number that is the same as a port number of another port. However, you can use the same port number for a port that uses HTTP (IPP, Internet Services (HTTP), UPnP Discovery, SOAP, WebDAV, and Web Services on Devices (WSD)).

PJL

Select this to enable PJL. PJL allows you to specify the printer language to use for your next job regardless of the printer language currently being used.

Print Mode

Select a print mode. The available options are **Auto**, **PostScript 3**, **HP-GL/2**, **PCL 6/5e**, and **TIFF/JPEG**. Selecting **Auto** enables the machine to automatically determine and use the most suitable language to print data received from the host device.

TBCP Filter

Select this to enable TBCP filter for PostScript data. When the transmission data includes binary data or EPS data, disable this.

Data Reception Timeout

Enter a timeout period for receiving data from Web Services on Devices (WSD) clients.

Notification Delivery Timeout

Enter the timeout period for delivering notification to Web Services on Devices (WSD) clients.

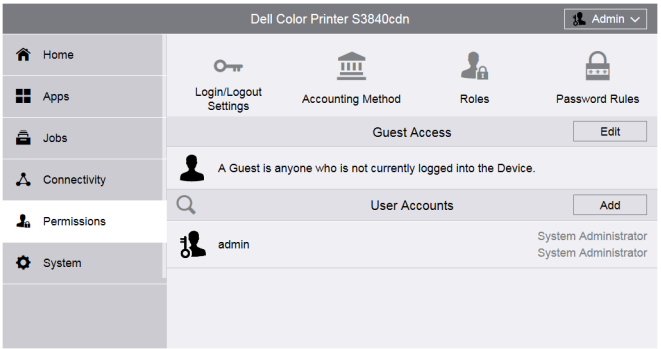
Maximum IP Packet TTL

Enter a value for the maximum TTL.

Maximum Number of Subscribers

Enter the maximum number for reserved notification.

Permissions



Guest Access

A Guest is anyone who is not currently logged in to the printer.

You can set the Guest permissions on operations from the control panel and **Dell Printer Configuration Web Tool**. You can also set permissions on printing features.

To set the Guest permissions on operations from the control panel or **Dell Printer Configuration Web Tool**, click **Edit** and select **Device User Role**. For details, see "Device User Roles".

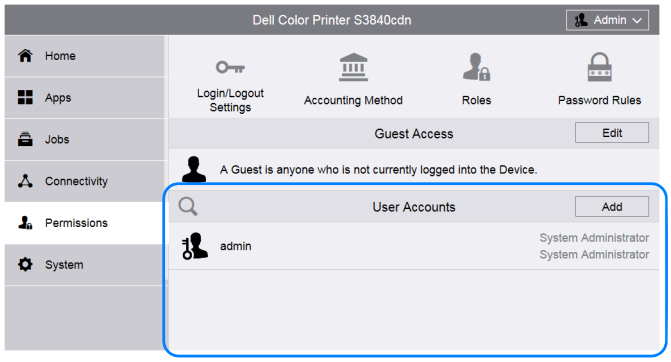
To set the Guest permissions on printing features, click **Edit** and select **Printing User Role**. For details, see "Printing User Roles".

NOTE:

- A feature allowed for Guest will be automatically allowed for all the other roles.

User Accounts

In **User Accounts**, You can add a new user account and edit the existing user accounts.



To add a new user account, click **Add**. For details, see "Creating New Accounts from the Dell Printer Configuration Web Tool".

To edit an existing user account, select the user account. The button allows you to search a user. For details, see "Editing User Accounts from the Dell Printer Configuration Web Tool".

Login/Logout Settings

Login Method

Select the login method and make the settings for the method.

Simple

Authenticates users based on the user information registered on the printer.

Passwords are not required to log in to the printer.

Select **Pick their user name from a list.** or **Type in their user name.**

Local

Authenticates users based on the user information registered on the printer.

Passwords are required to log in to the printer.

Select **Pick their user name from a list.** or **Type in their user name.**

Network

You can set **Kerberos (Windows ADS)**, **SMB (Windows ADS)**, and **LDAP**.

- **Kerberos (Windows ADS)**

Default Server	**Realm**	Specify the realm.
	Server Address	Specify the server address.
Add Additional Server	Clicking **Add Additional Server** adds the **Alternate Server** section to the screen. Set **Realm** and **Server Address** for the alternate server.	

- **SMB (Windows ADS)**

Specify Server By	Select the server specification method from **Domain Name** and **Domain Name and Host Name/IP Address**.	
Default Server	**Domain**	Enter the domain name of the server. **NOTE:** • Use the NetBIOS or Active Directory domain name for the domain name.
	Server Address	Specify the server address.
Add Additional Server	Clicking **Add Additional Server** adds the **Alternate Server** section to the screen. You can set **Domain** and **Server Address** for the alternate server.	

- **LDAP**

  For details on the LDAP settings, see "LDAP".

Convenience

Set the following **Convenience Login** settings:

NOTE:
- This feature requires an additional application to be developed.

Server	**Type**	You can select the server type from **IPv4** and **Host Name**.
	IP Address : Port	When selecting **IPv4**, enter the server IP address and the port number. When selecting **Host Name**, enter the host name. **NOTE:** • For IPv4, enter the address in the format "xxx.xxx.xxx.xxx", where "xxx" is a numeric value from 0 to 255. Do not use the numbers assigned to the other ports.
	Path	Enter the server path.
Alternate Login	Select whether or not to allow users to log in without their card.	
Card Reader	Select whether or not to disable the printer if the card reader is disconnected.	
Accounting Codes	Select from **Get codes automatically from server.** and **Users must manually enter codes at the Device.**	
Device Website Login Method	You can select the website login method.	

Smart Card

Set the following **Smart Card** settings:

Domain Controller	• When no domain controller is registered: Click **Add** or + to add a domain controller. The **Add Domain Controller** screen appears. Set the new domain controller settings in the **Add Domain Controller** screen. • When any controller is registered: The controller is displayed under **Domain Controller**. To edit an existing controller, click the controller. The **Edit Domain Controller** screen appears. Set the existing domain controller settings in the **Edit Domain Controller** screen. **NOTE:** • Smart Card requires at least one domain controller.	
Validate	Enable the following as necessary: **Validate the domain controller certificate returned by the domain controller server against the domain controller certificate stored on the Device.**	
Options	**Timeout**	Set the time-out between 1 and 120 seconds in 1 second increments.
	SNTP	Select whether or not to enable SNTP.
Device Website Login Method	You can select the website login method.	

Logout Confirmation

Select the log-out confirmation method from the following:

Log out user immediately.
Ask user for confirmation before logging out.

Advanced Settings

Input Settings

Case Sensitive User Name	Select whether or not to ignore the case for log-in user name. **NOTE:** • This item is displayed when **Login Method** is set to other than **Convenience**.

Authentication Settings

Log Failed Login Attempts	Set the failure count to detect unauthorized access. An error is logged if authentication fails the number of times specified in **Failed Login Attempt Limit** within a predetermined time (10 minutes).
Limit Login Attempts of System Administrator	This feature protects the settings from being changed by someone impersonating your system administrator. If authentication for a system administrator's ID fails more than specified times continuously, access is denied. You can specify a login attempt count from 1 to 10. **NOTE:** • The failure count is reset when the machine is restarted. • To cancel the access rejection state, restart the machine by switching off and on the power.
Server Authentication Response Timeout	Set the server time-out response between 1 and 75 seconds in 1 second increments.

Search Timeout	Set the user information search time-out between 1 and 120 seconds in 1 second increments.
Display User Name	Select from **Hide**, **Hide Smart Card ID**, and **Show**.
Obtain User Information at Login	When you select **On**, the following user information is acquired at authentication. • Certificate for encryption
Store Login Information on Device	Select whether or not to save the user information used for remote authentication. While the user information is saved in the machine, the machine can authenticate the user using the information saved in the machine even when the remote server is off. **NOTE:** • This setting applies only to a user who is authenticated by a card.
Delete Saved Login Information	Select whether or not to delete the user information saved in the machine for remote authentication. Select from **Off**, **Weekly**, and **Monthly**. For **Weekly**, you can set the day and time. For **Monthly**, set the date and time. To delete the user information immediately, click **Delete Now**. **NOTE:** • This setting applies only to a user who is authenticated by a card.

Accounting

Click **Accounting Method** to select the accounting method and make the accounting settings.

NOTE:

- In the Permissions screen, **Accounting** is displayed instead of **Accounting Method** when **Accounting Method** is set to **ColorTrack**. To select the accounting method, click **Accounting** and then select **Accounting Methods**. To set general accounts, click **Accounting** and then select **General Accounts**.

Accounting Method

No Accounting

Does not perform accounting.

ColorTrack

Accounting is carried out based on the user information and account information pre-registered on the machine. Set the following settings:

- **What to Track**

  You can set whether to track the number of all prints or only the number of color prints.

Exceptions	**Allow Guests (No Accounting Code)**	Set whether or not to allow the print jobs of Guests (jobs with no accounting code).
	Allow IPP (Including AirPrint™ and Mopria™)	Set whether or not to allow the print jobs via IPP. When you enable this setting, select whether or not to allow invalid accounting codes.
	Allow Specific Computers	Set whether or not to allow the print jobs from specific computers. When you enable this setting, enter the address or hostname, and user ID to specify the computer.

- **User ID**

– **Mask Input**

To mask the entered user ID, enable **Mask Input**.

- **Schedule Usage Data Reset**

  Selecting **Reset** for **ColorTrack** on the **Accounting Method** screen displays the **Schedule Usage Data Reset** screen. You can reset the usage data automatically at a specified time. Select **Yearly**, **Quarterly**, or **Monthly**, and specify the date and time to delete the usage data.

- **Download Report**

  Selecting **Report** for **ColorTrack** on the **Accounting Method** screen displays the **Download Report** screen. Select whether or not to include the user names to the report, and click **Download**.

Network Accounting

Performs accounting based on the user information managed on a remote service. User information is registered on the remote service.

NOTE:

- When **Network Accounting** is selected, users are prompted to enter their Account ID on the login screen that is displayed when attempting to use services required for accounting.

Limits	**Limits Server**	Enter the server URL and specify the connection time-out.
	What to Limit	Specify the features to limit.
	Job Limit Communication Error Handling	Select the way of handling a print job error.
Tracking Information	Set the information to be collected.	
	Set **Default Label**, **Default Value**, **Ask Users**, and **Mask Input** for **User ID** and **Account ID**.	
	Under **When to Prompt**, select **No Prompt**, **Always Prompt**, or **Color Only**.	
Information Verification	**Enable**	Allows you to set whether or not to verify user information.
	Verify All Jobs Including Network Print Jobs	Select from **Off**, **On**, and **On With Exceptions**.
Exceptions	**Allow Guests (No Accounting Code)**	Set whether or not to allow the print jobs of Guests (jobs with no accounting code).
	Allow IPP (Including AirPrint™ and Mopria™)	Set whether or not to allow the print jobs via IPP. When you enable this setting, select whether or not to allow invalid accounting codes.
	Allow Specific Computers	Set whether or not to allow the print jobs from specific computers. When you enable this setting, enter the address or hostname, and user ID to specify the computer.

Roles

The device user roles define the permissions on operations from the control panel and **Dell Printer Configuration Web Tool**, and the printer user roles define the permissions on printing features. You can create roles and assign each role to the users.

Also you can set the permissions server and the LDAP permissions group.

Device User Roles

- Adding new roles

  You can add new roles by selecting +. Selecting + displays **Add New Role** and **Add New Role from Existing**.

  To create a new role, select **Add New Role**. For details, see "Add Role".

  To use the settings of an existing role as a base to create a new role, select **Add New Role from Existing**. For details, see "Add New Role from Existing".

- Checking and editing existing roles

  The existing user roles are displayed under **Device User Roles**.

  To change the settings of a role, click **Edit**.

  To check, add, or delete the role members, click **Members**.

  NOTE:
  - The number of the role members is displayed after **Members**.
  - The **System Administrator** role cannot be edited or deleted.

  – **Edit Role**

  In the **Edit Role** screen, you can set the role settings. For details on the settings, see "Add Role".

  – **Members**

  The role members registered on the machine are displayed under **Members**.

  To add a new member to the role, click +.

  To change the settings of a member, click the user name and make the settings in the user details screen. For details, see "Editing User Accounts from the Dell Printer Configuration Web Tool".

Add Role

- **Role Name**

  Enter the role name.

  You can enter the description of the role.

- **Control Panel Permissions**

  You can select the default permissions on operations from the control panel from **Everything Except Setup** and **Access All**.

  To give the role permissions other than above, set custom permissions. Selecting **Custom Permissions** allows setting the **Custom Permissions Setup**, where you can set the detailed permissions for each feature.

The following shows the **Custom Permissions** settings.

NOTE:

- Some settings may differ from the list depending on the software version.

Device Permissions	**Access Device**
	View Information Pages (under About) and Support Page
	Configure Paper Tray Settings
	View Supplies
	Configure Supplies Settings
	View Billing/Usage
	View General, Apps, and Connectivity
	View Network Information
Home Permissions[*1]	**Access Home**
Jobs Permissions	**Access Jobs**
	View Completed Jobs
	View Job Details
	Delete Jobs
Print from USB Permissions	**Access USB**
	Access Print from USB
App Platform Permission[*2]	**Access App Platform**[*2]

*1: This item is displayed only when you set the Guest permissions.

*2: The application name is displayed instead of "App Platform".

- **Device Website Permissions**

  You can select the default permissions on operation from **Dell Printer Configuration Web Tool** from **Everything Except Setup** and **Home Only**.

  To give users permissions other than above, set custom permissions. Selecting **Custom Permissions** allows setting the **Custom Permissions Setup** screen, where you can set the detailed permissions for each feature.

  The following shows the **Custom Permissions** settings.

Home Permissions[*1]	**Access Home**
Jobs Permissions	**Access Jobs Page**
	View Completed Jobs
	View Job Details
	Delete Jobs

*1: This item is displayed only when you set the Guest permissions.

Add New Role from Existing

You can use an existing role as a base to create a new role. Select a base role from the existing roles, and select whether or not to transfer any members to the new role.

When transferring any members registered on the machine to the new role, select the members in the **Add Members** screen and click **Done**.

Set the subsequent settings as in creating a new role.

Printing User Roles

- Adding new roles

  You can add new roles by selecting +. Selecting + displays **Add New Role** and **Add New Role from Existing**.

  To create a new role, select **Add New Role**. For details, see "Add Role".

  To use the settings of an existing role as a base to create a new role, select **Add New Role from Existing**. For details, see "Add New Role from Existing".

- Checking and editing existing roles

  The existing user roles are displayed under **Printing User Roles**.

  To change the settings of a role, click **Edit**.

  To check, add, or delete the role members, click **Members**.

  NOTE:
  - The number of the role members is displayed after **Members**.
  - **Basic Printing User** is automatically assigned to a user with no role assigned.

  – **Edit Role**

  In the **Edit Role** screen, you can set the role settings. For details on the settings, see "Add Role".

  – **Members**

  The role members registered on the machine are displayed under **Members**.

  To add a new member to the role, click +.

  To change the settings of a member, click the user name and make the settings in the user details screen. For details, see "Editing User Accounts from the Dell Printer Configuration Web Tool".

Add Role

- **Role Name**

  Enter the role name.

  You can enter the description of the role.

- **Printing Permissions**

Unlimited Printing	Users can print documents without restrictions.
Weekdays, 8 AM to 5 PM	Users can print documents on Monday through Friday from 8 AM to 5 PM. Users can print 1-sided and in color.
Eco-Friendly	Users can only print 2-sided and in black-and-white.
Unlimited Black & White Printing, No Color Allowed	Users can only print in black-and-white without restrictions. **NOTE:** • When color printing is not allowed, a print job instructed as color printing is automatically output in black-and -white.

Custom Permissions	**Print Time Permissions**	You can set the permissions on black-and-white printing and color printing for specific days and times.
	Allowed Job Types	You can set permissions on the printing job types.
	1-Sided Output	You can set whether or not to allow 1-sided printing. **NOTE:** • When 1-sided printing is not allowed, a print job instructed as 1-sided printing is automatically output 2-sided.
	Allowed Paper Trays	You can set the permissions on the use of trays.

Add New Role from Existing

You can use an existing role as a base to create a new role. Select a base role from the existing roles, and select whether or not to transfer any members to the new role.

When transferring any members registered on the machine to the new role, select the members in the **Add Members** screen and click **Done**.

Set the subsequent settings as in creating a new role.

Setup LDAP Permissions Groups

You can enable permissions to be handled by a remote server.

To register a new LDAP server, select **New LDAP Server** and click **OK**. Make the settings in the LDAP screen. For information on the LDAP settings, refer to "LDAP".

NOTE:

- This item is displayed when no permission server is used.

Edit Permissions Server

You can change the server being used or stop using permissions groups.

NOTE:

- This item is displayed when **Permissions Server** is set to other than **Off - Do not use a Permissions Server.**

Edit LDAP Groups

You can add, edit, and delete LDAP groups.

NOTE:

- This item is displayed when **Permissions Server** is set to other than **Off - Do not use a Permissions Server.**

- Adding LDAP groups

  To add an LDAP group, select + . Make the settings for the LDAP group in the **Add LDAP Group** screen.

  1. Enter a group name and click the button.
  2. Select the group from **Results**, and click **Next**.
  3. Select a device user role in the **Select Device User Role** screen, and click **Next**.
  4. Select a printing user role in the **Select Printing User Role** screen.

- Editing LDAP groups

  Selecting an existing LDAP group displays the following.

Change Device User Role	You can change a device user role set to the LDAP group.
Change Printing User Role	You can change a printing user role set to the LDAP group.
View Members	The user names related to the LDAP group are listed.
Remove Group	Removes the LDAP group.

Password Rules

Minimum Length

Set this item when you specify the minimum number of digits allowed for registering a passcode.

Set a value from 1 to 63 in 1 digit increments.

Maximum Length

Set this item when you specify the maximum number of digits allowed for registering a passcode.

Set a value from 1 to 63 in 1 digit increments.

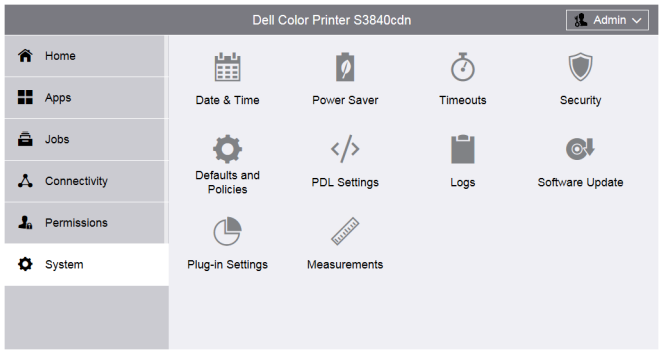
Password Contains User Name

Select whether or not to allow a password which contains the user name.

Password Complexity

You can select if passwords must include a number or a non-alphanumeric character.

System



Date & Time

Set the date and time for the system clock of the machine. The date and time set here will be printed on all lists and reports.

Date

Date Format

Select a date format.

- **Year/Month/Day**
- **Month/Day/Year**
- **Day/Month/Year**

Date

Enter the today's date. You can use the calendar to specify the date.

Time

Select **12-Hour Clock** or **24-Hour Clock** for the time format.

AM/PM

When selecting **12-Hour Clock** for **Time**, select **AM** or **PM**.

Time

Enter the current time.

Time Zone

Select a time zone.

Daylight Savings Time

You can set daylight saving time. During daylight saving time period, the machine moves the clock forward by one hour.

SNTP Settings

Select **Edit** to confirm or change the settings.

See "SNTP".

Power Saver

Power Saving

The Power Saver mode has two modes: the Low Power and Sleep modes. When a specified period of time has elapsed, the machine switches to these modes in the following order to reduce power consumption.

Last operation on the machine → Low Power mode → Sleep mode

NOTE:

- For **Low Power Timeout** and **Sleep Timeout**, you can enter values of up to 60 minutes in total.

Low Power Timeout

Specify a time period to enter the Low Power mode after the last operation.

Sleep Timeout

Specify a time period to enter the Sleep mode after entering the Low Power mode.

Auto Power Off

Auto Power Off

Automatically turns the printer off after a specified time has elapsed from the Sleep mode. When using this feature, enter a value for turning the printer off in **Auto Power Off Timeout**.

- **Off**
  Does not use this feature.
- **On**
  Turns the printer off when the specified time has elapsed.
- **Only When Conditions Are Met**
  Turns the printer off only when the following conditions are all met for the specified time.
  - The USB device port is not used.
  - The wired network port is not used.
  - The wireless connection is not used.

Timeouts

Reset Device Control Panel

System Timeout

Specify the time lapsed without any operation on the control panel until the machine resets the settings and logs you out automatically.

Reset Device Website

Device Website Timeout

Specify the time lapsed without any operation on **Dell Printer Configuration Web Tool** until you log out automatically.

Security

Firmware Verification

Set whether or not to perform self test when the machine is turned on and started up.

If any abnormal condition such as intentional program modification is found during the program diagnosis, the machine stops starting up and records the information in the audit log.

NOTE:

- The information may not be recorded in the audit log depending on the status of program malfunction.

Feature Enablement

Entering **Unique Function Code** enables custom features specially provided to the user.

Service Rep. Restricted Operation

Allows you to select whether or not to restrict the operation by our service representative to protect the security settings from being altered by someone impersonating our service representative.

When enabling this setting, you can set a **Maintenance Password** of 4 to 12 digits.

Entering the passcode is required when our service representative performs maintenance.

NOTE:

- When enabling this setting, note the followings:
  - If you lose the System Administrator's passcode, the items restricted to the service representative cannot be changed.
  - If you lose the passcode, our service representative cannot perform maintenance in the case when an error occurs in the machine.
- To change the restricted items or perform maintenance, the electric circuit board of the machine must be replaced.
  You will be charged for the electrical circuit board and handling cost.
  Be sure not to lose the System Administrator's passcode.

Certificates

Security Certificates

Set the certificate settings.

Select the certificate type from **Device Certificates**, **Trusted Root CA Certificates**, **Intermediate CA Certificates**, **Other Certificates**, and **CRL**.

- Creating a device self-signed certificate

  Select **Device Certificates** from the dropdown menu, and click **Create**. Then select **Create Self-Signed Certificate**. Set the following for the new device certificate.

Hash Algorithm	Select from **RSA/SHA-256**, **RSA/SHA-384**, and **RSA/SHA-512**.
Public Key Length	Select from **1024 Bits** and **2048 Bits**.
Issuer	Enter the name of the certificate issuer.
Validity Period	Select the **Validity Period** from 1 to 9999 days.

- Creating a certificate signing request (CSR)

  Select **Device Certificates** from the dropdown menu, and click **Create**. Then select **Create Certificate Signing Request (CSR)**. Set the following for the CSR.

Hash Algorithm	Select from **RSA/SHA-1** and **RSA/SHA-256**.
Public Key Length	Select from **1024 Bits** and **2048 Bits**.
2-Letter Country Code (C)	Specify the information required to create the CSR.
State/Province Name (ST)	
Locality Name (L)	
Organization Name (O)	
Organization Unit (OU)	
Common Name (CN)	
Email Address	

- Importing a certificate

  Select a certificate type from the drop down menu, and click **Import**.

The **Import Certificate** screen appears.

Select the certificate and enter the password. Then click **Import**.

- Deleting a certificate
  Check the certificate to delete and click **Delete**.
- Checking certificate details
  Clicking the certificate displays the **Certificate Details** screen, where you can check the following settings.

Category	Displays the certificate category.
Subject	Displays the owner of the certificate.
Issuer	Displays the issuer of the certificate.
Serial Number	Displays the serial number of the certificate.
Hash Algorithm	Displays the hash algorithm of the certificate.
Public Key Length	Displays the minimum encryption key length of the certificate.
Valid From	Displays the start date and time of the validity period of the certificate.
Valid To	Displays the end date and time of the validity period of the certificate.
Validity	Displays the current validity of the certificate.
Certificate Use	Displays the purpose of the certificate.
Selected Usage	Displays the setting status of the certificate in the machine.

Clicking **Export** exports the certificate to the client computer.

Automatic Self-Signed Certificate Creation

This feature automatically creates a self-signed certificate when no device certificate is available, and also automatically updates the certificate before expiration.

NOTE:
- Manually created self-signed certificates are not automatically updated.

Certificate Path Validation

Select whether or not to enable the certificate path validation.

Certificate Revocation Settings

Configure the settings for certificate revocation retrieval.

Level of Certificate Verification	Select a level of certificate verification from **Low**, **Medium**, or **High**. Selecting **Low** does not verify the validity of certificates. Selecting **Medium** verifies the validity of certificates. If a certificate cannot be verified because of a network error or any other problems, the certificate is determined as valid. Selecting **High** verifies the validity of certificates, and determines only certificates that have not been revoked as valid.
Certificate Revocation Check	Select the method to verify the validity of certificates. Select **By Retrieving CRL** if the machine retrieves a CRL (Certificate Revocation List) from the validation authority to verify the revocation status of the certificate. Select **By OCSP** if the machine uses OSCP (Online Certificate Status Protocol), which can verify the validity revocation status of the certificate, to have the certificate authority or validation authority check the revocation status.

OCSP	**Send Query to Responder With**	Select how to access an OCSP responder from **URL as Specified in Certificate** or **URL as Specified by Administrator**.
	Responder URL	Enter the URL of an OCSP responder when **URL as Specified by Administrator** has been selected for **Send Query to Responder With**. Up to 255 characters are allowed.
	Communication Timeout	Specify a time-out value for OCSP communication from 5 to 60 seconds in 1 second increments.
CRL Retrieval	**Auto Retrieval of CRL**	Select whether or not to automatically retrieve a CRL.
	Communication Timeout	Specify a time-out value to retrieve a CRL from 5 to 60 seconds in 1 second increments.

Smart Card

Select from **Off** and **On - PKI Only**.

Select **On - PKI Only** to use smart cards only for the security feature, not for authentication or job control.

Smart Card Certificate Verification

Set whether or not to verify the smart card certificate when a user uses the smart card.

When this setting is enabled, the owner of the smart card is verified not only by PIN code verification but by certification verification of the smart card and private key match. In this case, the upper level CA certificate of the smart card certification must be registered on the machine.

When this setting is disabled, the owner of the smart card is verified by PIN code verification.

Network Security

FIPS 140-2

Select whether or not to enable FIPS140 validation mode.

NOTE:

- Although the following features work with the FIPS140 validation mode, using them is not recommended because they use encryption algorithms which do not comply with FIPS140.
  - SMB (Scan To/SMB authentication) (using DES and MD4 used in SMB authentication (NTLMv2/NTLMv1/LM))
  - LDAP Authentication (using DES and MD4 used in NTLM authentication selected by the automatic selection "SASL-Bind (NTLM) → Simple-Bind")
  - SMTP Authentication (using DES and MD4 used in NTLM authentication selected by the automatic selection "NTLM → CRAM-MD5 → LOGIN → PLAIN")
  - HTTP Authentication for External Access (using DES and MD4 used in NTLM authentication selected by the automatic selection "NTLM → Digest → Basic authentication")
  - PDF Direct Print (using RC4 required in decrypting a PDF document encrypted with a password (RC4))

SSL/TLS Settings

Configure the SSL/TLS settings.

Select the protocol from **SSL 3.0**, **TLS 1.0**, **TLS 1.1**, and **TLS 1.2**.

Device Certificate - Server	Select a certificate for SSL/TLS communications.
HTTP - SSL/TLS Communication	Select whether or not to enable HTTP SSL/TLS communications.
HTTP - SSL/TLS Port Number	Set the port number used for HTTP SSL/TLS communication from 1 to 65535. The default value is 443. **NOTE:** • Do not use the numbers assigned to the other ports.
LDAP - SSL/TLS Communication	Set whether or not to enable the SSL/TLS communications for authentication and searches. If you enable the LDAP SSL/TLS communications, you must set **IP Address/Host Name : Port** and **Backup IP Address/Host Name : Port** under **LDAP Servers/Directory Services**. The port number for SSL/TLS communications of the LDAP directory server is normally set to 636.
SMTP - SSL/TLS Communication	Select the SSL/TLS communication from **Disabled**, **STARTTLS (If Available)**, **STARTTLS**, and **SSL/TLS**.
Device Certificate - Client	Select a certificate for HTTP SSL/TLS communications.
Verify Remote Server Certificate	When the machine is operated as an SSL client, select whether or not to verify the certificate of the remote server.

Port Settings

Displays a list of available ports. To register a port, click **Add**.

Add New Port

Port Number

Enter a port number.

Port Type

Select the type of the port.

- **Source**
- **Destination**

Protocol

Select the type of the protocol.

- **TCP**
- **UDP**

IP Address Filtering

Allows you to register IP addresses that can access the printer.

NOTE:

- Up to 25 IP addresses and IP masks can be added for each interface.

IPv4 Address Filtering

Select this to register IPv4 addresses that the machine accepts connection from.

Allowed IP Address/Subnet Mask

Select **Add**, and then enter an IP address and an IP mask (Subnet Mask).

To set an IP mask, enter a number from 0 through 32. The number range corresponds to the 32-bit binary number comprising IP addresses.

For example:

- When only one IP address (192.0.2.1) can be used:
  - IP Address: 192.0.2.1
  - IP Mask: 32
- When multiple IP addresses (192.168.10.1 to 192.168.10.255) can be used:
  - IP Address: 192.168.10.1
  - IP Mask: 24

NOTE:

- The setting applies to all features using TCP/IP, such as Print and **Dell Printer Configuration Web Tool**.

IPv6 Address Filtering

Select this to register IPv6 addresses that the machine accepts connection from.

Allowed IP Address/Subnet Mask

Select **Add**, and then enter an IP address and an IP mask (Subnet Mask).

To set an IP mask, enter a number from 0 through 128. The number range corresponds to the 128-bit binary number comprising IP addresses.

For example:

- When only one IP address (2001:D880:ABCD:EF01:0:20:3:4567) can be used:
  - IP Address: 2001:D880:ABCD:EF01:0:20:3:4567
  - IP Mask: 128
- When multiple IP addresses (2001:D880:ABCD:EF01:1:1:1:1 to 2001:D880:ABCD:EF01:FFFF:FFFF:FFFF:FFFF) can be used:
  - IP Address: 2001:D880:ABCD:EF01:0:20:3:4567
  - IP Mask: 64

NOTE:

- The setting applies to all features using TCP/IP, such as Print and **Dell Printer Configuration Web Tool**.

Domain Filtering

Select an option to filter domains.

When **Allow Specific Domains** is selected, you can specify domains to permit transmissions. When **Block Specific Domains** is selected, you can specify domains to prohibit transmissions.

To disable this feature, select **Off**.

Allowed Domains, Blocked Domains

When **Domain Filtering** is set to **Allow Domains** or **Block Domains**, you can specify up to 50 domains to allow or block transmissions.

Defaults and Policies

Common

Startup Page

Select whether to automatically print a startup page every time the printer is powered on.

- **Do Not Auto Print**
  Does not print a startup page.
- **Auto Print**
  Prints a startup page automatically.

Paper Supply

Adjust Paper Type

Select a type of image processing used for each of the following paper types: **Plain**, **Hole Punched**, **Pre-Printed**, and **Labels**.

Printer Settings

You can configure related to the paper used in the printer.

Memory Settings

You can change memory settings.

Specified Paper Is Unavailable

When there is no tray containing the paper size selected by the Auto Paper selection, select whether or not to print with paper loaded in another paper tray. In the event of using a substitute tray, select the **Use Closest Size**.

NOTE:

- When documents are printed using emulation such as ESC/P, the substitute tray setting is not valid and a message prompting you to load paper displayed on the screen.

Bypass Tray Paper Type and Size Confirmation

Select whether or not to confirm bypass tray paper type and size.

Resume Print After Error

Set whether or not to automatically cancel a print job when the print job was suspended because of an error.

NOTE:

- The machine will enter the off-line state to restrict subsequent print jobs.

Auto Resume

Automatically cancels the print job to print subsequent jobs.

Manual Resume

Displays a confirmation screen before cancelling the print job. After the confirmation, the machine cancels the print job to print the subsequent jobs.

When Paper Jam Occurs

Specify how the machine handles print jobs after a paper jam is cleared.

Resume Print After Jam Clearance

When a paper jam is cleared, the machine automatically resumes printing from the next page of the page which was output correctly.

Cancel Print

The machine cancels printing and removes the print job.

NOTE:

- For print files stored in a folder such as **Secure Print** and **Sample Set**, the machine resumes printing after the paper jam is cleared.

Print Banner Pages

Set whether or not to print banner pages.

You can output a banner sheet to separate different jobs by users not to be mixed the outputs. The machine outputs the banner sheet before or after the job.

A date, time, user name, and file name are printed on the banner sheet.

NOTE:

- When a document is printed from a Macintosh, the document name is not printed on the banner sheet.
- When printed, banner sheets are counted by meter.

Paper Tray

Select a paper tray used for banner pages.

Allow Print Driver to Override

Select the check box to print a banner sheet according to the banner sheet print settings of the print driver.

Detect Client Banner Pages

Set whether or not to detect client banner pages.

Toner/Power Optimization

Select whether or not to apply **Eco Mode**.

- **Off**

  Eco Mode is not applied.

- **Eco Mode**

  Skip Blank Pages, **2-Sided Print** and toner saving always applies for printing jobs.

  Low Power Timeout settings is changed to 1 minute.

PDL Settings

This section describes the features you can select on the **PDL Settings** screen.

PCL 6/5e Settings

Use the **PCL 6/5e** menu to change printer settings that only affect jobs using the Printer Control Language (PCL) emulation printer language.

Print Quantity Priority

Sets the default print quantity priority.

Print Quantity

Sets the default print quantity. Set the number of copies required for a specific job from the print driver. Values selected from the print driver always override values selected from the operator panel.

Paper Tray

Specifies the default paper tray.

Paper Size

Specifies the default paper size.

Paper Size (Bypass Tray)

Specifies the default paper size of bypass tray.

Custom Paper Size Width

Specifies the width of custom size paper.

Custom Paper Size Length

Specifies the length of custom size paper.

Output Color

Specifies the color mode. This setting is used for a print job that does not specify a Print Mode.

2-Sided

Specifies whether to print on **1-Sided** or **2-Sided** of a sheet of print media. For a **2-Sided** printing, you can specify **Flip on Long Edge** or **Flip on Short Edge**.

Remove Blank Pages

Specifies whether or not to remove the blank pages.

Original Orientation

Specifies how text and graphics are oriented on the page.

Wide A4

Specifies whether to enable the wide A4.

Pitch Size
Specifies the font pitch for scalable mono spaced fonts.

Point Size
Specifies the font size for scalable typographic fonts.

Font Name
Specifies the default font from the fonts registered in the printer.

Symbol Set
Specifies a symbol set for a specified font.

Lines per Page
Specifies the number of lines on page.

CR=CR, LF=CR+LF, FF=CR+FF
Sets line termination processing.

- **Off**
  The line termination command is not added.
- **On**
  The LF/FF command is added.
  CR+LF/CR+FF

CR=CR, LF=CR+LF, FF=CR+FF
Sets line termination processing.

- **Off**
  The line termination command is not added.
- **On**
  The CR command is added.
  CR+LF

Hex Dump
Specifies whether to enable the Hex Dump feature, which helps to isolate the source of a print job problem. With **Hex Dump** selected, all data sent to the printer is printed in hexadecimal and character representation. Control codes are not executed.

Image Enhancement
Specifies whether to enable the Image Enhancement feature, which makes the boundary line between black and white smoother to decrease jagged edges and enhance the visual appearance.

PostScript®

Use the **PostScript®** menu to change printer settings that only affect jobs using the PostScript 3 emulation printer language.

Print Error Sheet

Specifies whether to print the contents of the errors concerning PostScript Compatible page description language.

Paper Supply

Specifies the way to select the tray for PostScript mode.

Auto Select	The tray is selected as the same setting as in the PCL mode.
PostScript Tray Setting	The tray is selected in a method compatible with regular PostScript printers.

PDF Settings

Use the PDF menu to change printer settings that only affect the PDF Jobs.

Decomposer

Select the print processing mode.

Print Quantity

Specifies the number of copies to print.

Paper Size

Specifies the output paper size for the PDF file.

Output Color

Specifies the default output color.

2-Sided

Specifies whether to print on one side or both sides of a sheet of print media. For a two-sided printing, you can specify the printout to be bound by the long edge or short edge.

Collated

Specifies whether to sort the PDF job.

Print Mode

Specifies the output layout.

- **Standard**
  For documents with normal sized characters.

- **High Speed**

Prints with the higher speed than the Normal mode, but the quality is less.

- **High Quality**
  For documents with small characters or thin lines, or documents printed using a dot-matrix printer.

Layout
Specifies the output layout.

- **Auto Reduce/Enlarge**
  Prints the document in the layout specified by the printer.

- **Booklet Creation**
  Prints on both sides of a sheet of paper bound by the edge.

- **2 Pages per Sheet**
  Prints two pages on one side of a sheet of paper.

- **4 Pages per Sheet**
  Prints four pages on one side of a sheet of paper.

- **100%**
  Prints in the same size as the document.

Password
Specifies the password to print a PDF file secured with a password to open the PDF file.

TIFF/JPEG Settings

Use the **TIFF/JPEG** menu to change printer settings that only affect the TIFF/JPEG jobs.

Paper Size
Specifies the paper size.

Logs

Audit Log

Allows you to enable the **Audit Log** feature which logs the operations on the printer, and retrieve the audit log.

Device Log

The **Device Log** feature always logs the debug log and report information.

Software Update

You can update the software of the printer when an update is available.

Users with the system administrator permissions can update the software by specifying an update file on the computer.

Plug-in Settings

You can register, view, and enable plug-ins to be used for custom services.

Platform Version

Displays the platform version.

Authentication on Registration

Select this to perform authentication when registering or updating a plug-in.

Plug-in Feature

Set whether to enable embedded plug-ins.

Plug-ins

Displays a list of plug-ins. Select a plugin, and then change the status.

To Add a plug-in, click **Add**.

Measurements

Units

Allows you to select a unit of measurement displayed on the screen from **Millimeters** or **Inches**.

Paper Size Preference

Allows you to select the unit of default paper size to be used for printer settings.

To use the A4 size paper for the following printer settings by default and to set the **Units** setting to **Millimeters**, select **Metric**.

To use the Letter size paper for the following printer settings by default and to set the **Units** setting to **Inches**, select **Inch**.

- Default paper size for printing
- Default custom paper sizes displayed on the screen for each paper tray
- Default paper size of each paper tray and the bypass tray

Print Media Guidelines

Print media refers to paper, labels, envelopes, and coated paper among others. Your printer provides high-quality printing on a variety of print media. Selecting the appropriate print media for your printer helps avoid printing troubles. This section describes selecting and caring for print media.

NOTE:

- Use only laser print media. Do not use ink jet paper in your printer.

Supported Print Media

Bypass Tray

Paper Size	A6[*1] A5 A4 JIS B6[*1] JIS B5 5.5 x 8.5[*1] 7.25 × 10.5″ 8.5 × 11″ 8.5 × 13″ 8.5 × 14″ 4 × 6″[*1] No. 10 Env.[*1] Monarch Env.[*1] DL Env.[*1] C5 Env.[*1] Custom[*1*2*3] **NOTE:** • XML Paper Specification (XPS) driver does not support custom size paper.
Paper Type	Bond Plain Recycled Hole Punched Letterhead Pre-Printed Lightweight Cardstock Cardstock[*1] Envelope[*1] Light Glossy Cardstock Glossy Cardstock Labels[*1]
Loading Capacity	150 sheets of the standard paper

*1: Paper sizes and types that are not supported by the duplex printing feature
*2: Width: 76.2 mm (3 inches) to 215.9 mm (8.5 inches), Length: 127 mm (5 inches) to 355.6 mm (14 inches).
*3: Custom paper smaller than 148.5 mm (5.8 inches) in width and 210 mm (8.3 inches) in length is not supported by the duplex printing feature.

Tray 1 and Optional 550-Sheet Feeder

Paper Size	A5 A4 JIS B5 7.25 × 10.5″ 8.5 × 11″ 8.5 × 13″ 8.5 × 14″ Custom*1 **NOTE:** • XML Paper Specification (XPS) driver does not support custom size paper.
Paper Type	Bond Plain Recycled Hole Punched Letterhead Pre-Printed Lightweight Cardstock Cardstock*2 Light Glossy Cardstock Glossy Cardstock*2
Loading Capacity	550 sheets of the standard paper

*1: Width: 148.5 mm (5.8 inches) to 215.9 mm (8.5 inches), Length: 210 mm (8.3 inches) to 355.6 mm (14 inches)
*2: Paper sizes and types that are not supported by the duplex printing feature

Supported Paper Weight

Paper type	**Weight (g/m^2)**
Bond	81-105
Plain	60-90
Recycled	60-90
Hole Punched	60-90
Letterhead	81-105
Pre-Printed	60-90
Lightweight Cardstock	106-163
Cardstock	164-216
Envelope	-
Light Glossy Cardstock	106-163
Glossy Cardstock	164-216
Labels	-

Unacceptable Print Media

- Chemically treated paper used to make copies without carbon paper, also known as carbonless paper, carbonless copy paper (CCP), or no carbon required (NCR) paper.
- Preprinted paper with chemicals that may contaminate the printer.
- Preprinted paper that can be affected by the temperature in the fusing unit.
- Preprinted paper that requires a registration (the precise print location on the page) greater than ±0.09 inches, such as optical character recognition (OCR) forms.

  In some cases, you can adjust registration with your software program to successfully print on these forms.
- Coated paper (erasable bond), synthetic paper, and thermal paper.
- Rough-edged, rough or heavily textured surface paper, or curled paper.
- Recycled paper containing more than 25 % post-consumer waste that does not meet DIN 19 309.
- Multiple-part forms or documents.
- Print quality may deteriorate (blank spaces or blotches may appear in the text) when printing on talc or acid paper.

Recommended Print Media

- For the best print quality and feed reliability, use 75 g/m^2 (20 lb) xerographic paper.
- Business paper designed for general business use also provides acceptable print quality. Only use paper able to withstand high temperatures without discoloring, bleeding, or releasing hazardous emissions. The laser printing process heats paper to high temperatures. Check with the manufacturer or vendor to determine whether the paper you have chosen is acceptable for laser printers.

Recommended Pre-Printed Media and Letterheads

- Use grain long paper for best results.
- Use only forms and letterheads printed using an offset lithographic or engraved printing process.
- Select paper that absorb ink, but does not bleed.
- Avoid paper with rough or heavily textured surfaces.
- Use paper printed with heat-resistant inks designed for use in xerographic copying machines. The ink must withstand temperatures of 225 °C (437 °F) without melting or releasing hazardous emissions.
- Use inks that are not affected by the resin in the toner or the silicone in the fusing unit. Inks that are oxidation-set or oil-based should meet these requirements; latex inks might not. If you are in doubt, contact your paper supplier.

Recommended Pre-Punched Print Media

- Paper should be punched at the paper manufacturer and not drilled into paper already packaged in a ream. Drilled paper can cause jams when multiple sheets feed through the printer.
- Pre-punched paper can include more paper dust than standard paper. Your printer may require more frequent cleaning and feed reliability may not be as good as standard paper.

- Weight guidelines for pre-punched paper are the same as non-punched paper.

Recommended Envelopes

Depending on the envelopes, it is possible to expect variable levels of wrinkling.

- Use only high-quality envelopes that are designed for use in laser printers.
- Set the print media source to the bypass tray. Set the paper type to **Envelope**, and select the correct size of envelope from the printer driver.
- Use envelopes made from 75 g/m^2 (20 lb bond) paper. You can use up to 105 g/m^2 (28 lb bond) weight for the envelope feeder as long as the cotton content is 25 % or less. Envelopes with 100 % cotton content must not exceed 90 g/m^2 (24 lb bond) weight.
- Use only freshly unpackaged, undamaged envelopes.
- Use envelopes that can withstand temperatures of 205 °C (401 °F) without sealing, excessive curling, wrinkling, or releasing hazardous emissions.
- Use one envelope size during a print job.
- Ensure that the humidity is low because high humidity (more than 60 %) and the high printing temperatures may seal the envelopes.
- For best performance, do not use envelopes that:
  - Have excessive curl or twist
  - Are stuck together or damaged in any way
  - Contain windows, holes, perforations, cutouts, or embossing
  - Use metal clasps, string ties, or metal folding bars
  - Have an interlocking design
  - Have postage stamps attached
  - Have any exposed adhesive when the flap is in the sealed or closed position
  - Have nicked edges or bent corners
  - Have rough, cockle, or laid finishes

Recommended Labels

- Label adhesives, face sheet (printable stock), and topcoats must be able to withstand temperatures of 205 °C (401 °F) and pressure of 173 kPa (25 psi).
- Use labels that can be without sealing, excessive curling, wrinkling, or releasing hazardous emissions.
- Do not use label sheets with a slick backing material.

When printing on labels:

- Use labels that can withstand temperatures of 205 °C (401 °F) without sealing, excessive curling, wrinkling, or releasing hazardous emissions.
- Set the paper type to **Label** in the printer driver.
- Load labels in the bypass tray.
- Do not load labels together with paper in the bypass tray.
- Do not print within 1 mm (0.04 inches) of the die-cut.
- Do not print within 1 mm (0.04 inches) of the edge of the label, of the perforations, or between die-cuts of the label.
- Do not print a label through the printer more than once.

- Portrait orientation is preferred, especially when printing bar codes.
- Do not use labels that have exposed adhesive.
- Use full label sheets. Partial sheets may cause labels to peel off during printing, resulting in a jam.
- Do not use label sheets that have adhesive to the edge of the sheet. It is recommended that zone coating of the adhesive is done at least 1 mm (0.04 inches) away from edges. Adhesive material contaminates your printer and could void your warranty.

⚠ **WARNING:**
- **Otherwise a jam occurs in the printer and contaminate your printer and your cartridge with adhesive. As a result, could void your printer and cartridge warranties.**

Print Media Storage Guidelines

For proper print media storage, the following guidelines will help to avoid media feeding problems and uneven print quality.

- Store print media in an environment where the temperature is approximately 21 °C (70 °F) and the relative humidity is 40 %.
- Store cartons of print media on a pallet or shelf, rather than directly on the floor.
- If you store individual packages of print media out of the original carton, ensure that they rest on a flat surface so that the edges do not buckle or curl.
- Do not place anything on top of the print media packages.

Loading Print Media

Loading print media properly helps prevent jams and ensures trouble-free printing.

Before loading any print media, identify the recommended print side of the print media. This information is usually indicated on the print media package.

Before Loading

The following instructions describe how to avoid paper jams:

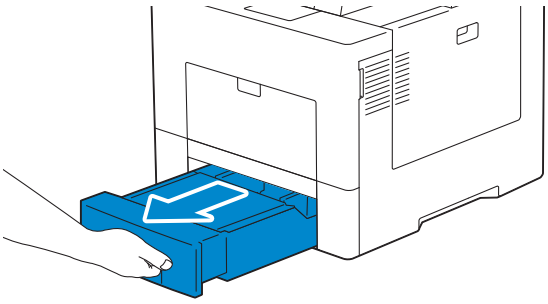
- Use only laser print media. Do not use ink jet paper in the printer.
- Use only recommended print media.
- Keep print media stored in an acceptable environment.
- Do not overload the print media sources. Make sure that the print media stack height does not exceed the maximum height indicated by the load-line labels in the tray.
- Do not load wrinkled, creased, damp, or curled print media.
- Flex, fan, and straighten the print media before loading.
- Do not use print media that you have cut or trimmed.
- Do not mix different print media sizes, weights, or types in the same print media source.
- Make sure that the recommended print side is facing up when you load the print media.
- Do not remove the feeding tray during printing.
- Make sure that all cables that connect to the printer are attached correctly.
- Overtightening the guides may cause jams.
- If jams caused by misfeeding paper occur frequently, wipe the retard rollers in the tray with a cloth moistened with water.
- Do not perform a printing operation with the bypass tray removed.

Loading Print Media in Tray 1 and the Optional 550-Sheet Feeder

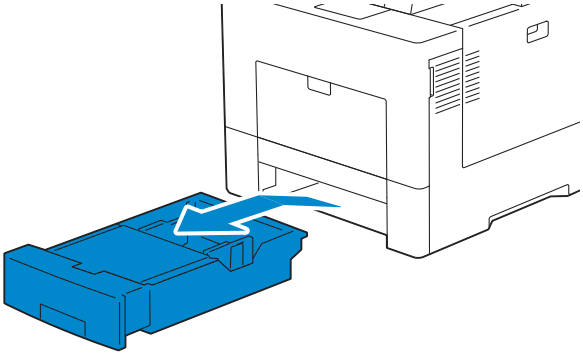
NOTE:

- To avoid paper jams, do not remove the tray while printing is in progress.

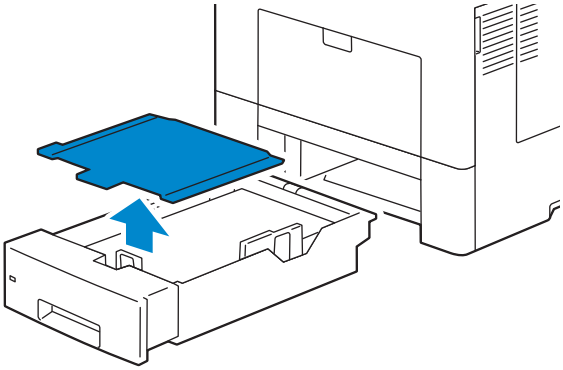
1 Pull the tray halfway out of the printer.



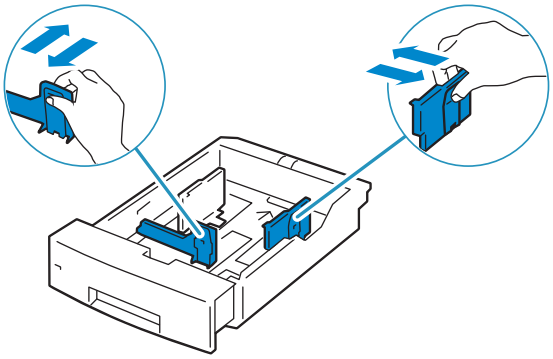
2 Hold the tray with both hands, and remove it from the printer.



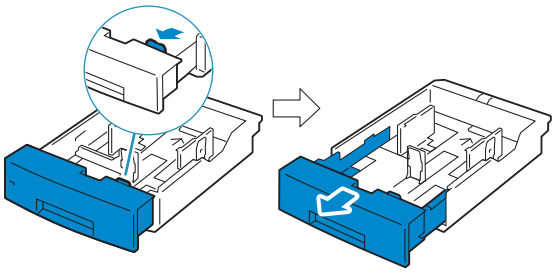
3 Remove the security cover if installed.



4 Adjust the paper guides.



5 When you load Legal-size paper, extend the tray while pushing the lever located on the front part of the tray.



6 Before loading the print media, flex the sheets and fan them. Straighten the edges of the stack on a level surface.

7 Load the print media into the tray with the recommended print side facing up.

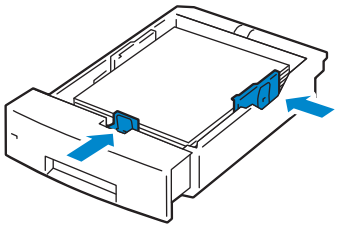
NOTE:

- Do not exceed the maximum fill line in the tray. Overfilling the tray may cause paper jams.
- When loading coated paper, load one sheet at a time.

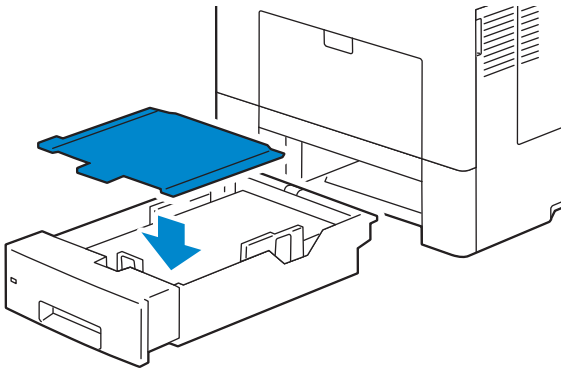
8 Align the width guides against the edges of the paper.

NOTE:

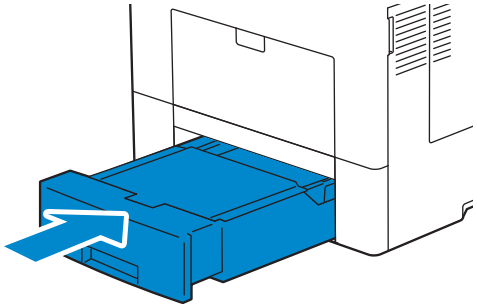
- Overtightening the guides may cause jams.
- When loading user-specified print media, adjust the width guides and slide the extendable part of the tray by pinching the length guide and sliding it until it rests lightly against the edge of the paper.



9 Reinstall the security cover as necessary.

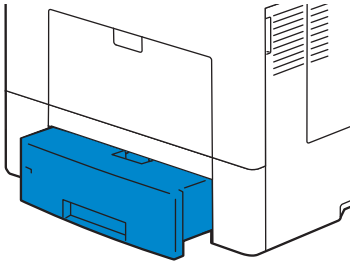


10 Insert the tray into the printer and push until it stops.



NOTE:

- If the front side of the tray is extended, the tray protrudes when it is inserted into the printer.



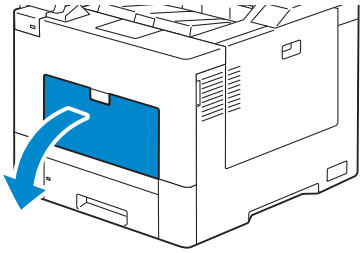
11 Set the paper size and paper type on the touch panel.

Loading Print Media in the Bypass Tray

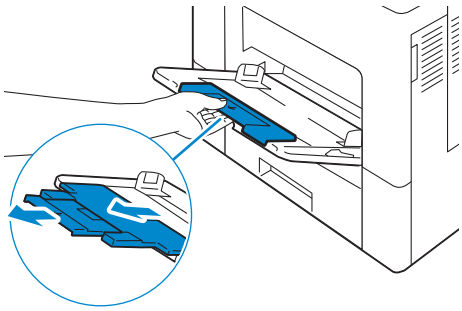
NOTE:

- Do not add or remove print media when there is still print media in the bypass tray or when the printer is printing from the bypass tray. This may result in a paper jam.
- Do not place objects on the bypass tray.
- Do not apply excessive force on the bypass tray or press it down.
- If a jam occurs with print media, feed one sheet at a time through the bypass tray.
- The label on the bypass tray shows how to load the bypass tray with paper, and how to turn an envelope for printing.

1 Gently pull and open the bypass cover.



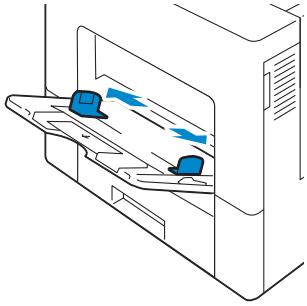
2 Extend the extension tray as necessary.



3 Slide the width guides to the edge of the tray. The width guides should be fully extended.

NOTE:

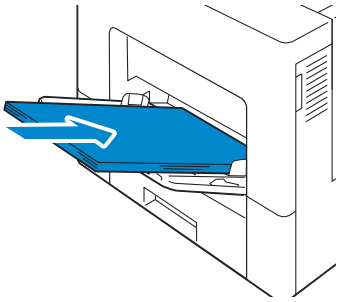
- Do not force the print media into the tray.
- When loading coated paper, load one sheet at a time.



4 Insert all media face up and top edge first into the bypass tray.

NOTE:

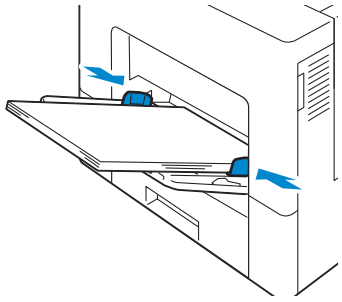
- Do not force the print media into the tray.
- When loading coated paper, load one sheet at a time.



5 Slide both width guides until they rest lightly against the edge of the print media stack.

NOTE:

- Overtightening the guides may cause jams.



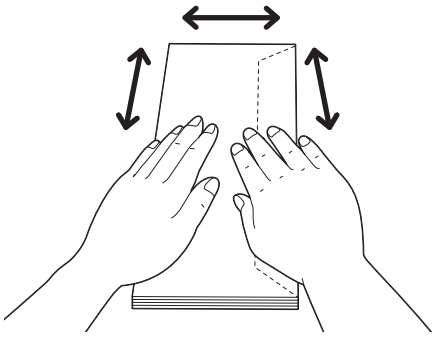
6 Set the paper size and paper type on the touch panel.

Loading Envelopes in the Bypass Tray

The following guidelines describe how to load envelopes.

- Use only recommended envelopes.
- Use only freshly unpackaged and undamaged envelopes

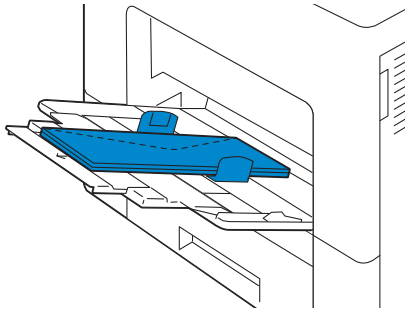
  If you do not load envelopes in the bypass tray right after they have been removed from the package, they may bulge. To avoid jams, press firmly across the whole envelopes to flatten them as shown in the illustration before loading the envelopes in the bypass tray.



- Use only same size envelopes for a single print job.
- The maximum height of envelopes that can be loaded in the bypass tray is approximately 15 mm.
- When printing on envelopes, set the print media source to the bypass tray. From the print driver, select **Envelope** for the paper type, and then select the correct size of the envelope.
- Adjust the width guides accordingly after envelopes are loaded.

Envelope #10, Monarch, DL

Load the envelopes with the flaps closed and the print side facing up. Make sure that the flaps are on the left side when you face towards the printer.

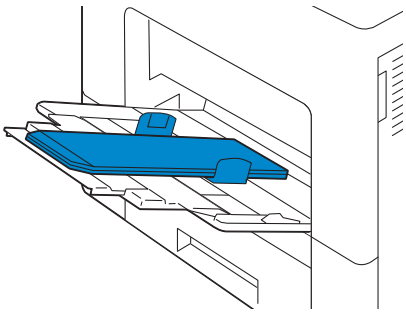


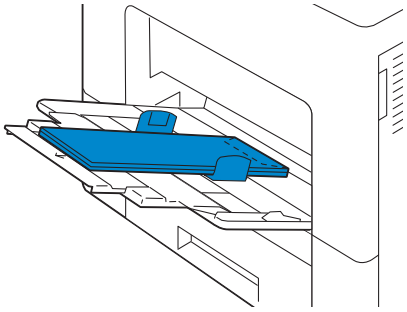
C5

Load the envelopes in the short edge feed orientation with the flaps open or closed and the print side up. Ensure that the flaps come at the bottom with the flaps open or at the top with the flaps closed when you face towards the printer.

NOTE:

- When you print with the flaps open, position of the envelopes may be distorted on the output tray. In this case, close the flaps when you load the envelopes.





Linking Trays

The printer links the Tray 1 and the optional 550-sheet feeder when you load the same size and type of print media in them. The first tray is utilized until the print media runs out after which the next tray is used.

NOTE:

- The print media should be the same size and type in each tray.
- The bypass tray cannot be linked to any of the tray sources.

After loading the selected trays with the same size and type of print media, specify the paper type for the trays under **Trays** in the **Dell Printer Configuration Web Tool**.

To disable tray linking, change the paper type for one of the trays to a unique value.

NOTE:

- If different types of print media of the same size are loaded in the trays, the printer links them if the paper type is not specified in the print driver properties/preferences.

4

Printing

Printing

This chapter covers tips for printing, how to print certain information from your printer, and how to cancel a job.

NOTE:
- For information on printing with the SharePoint Connector, see "SharePoint Connector".

Tips for Successful Printing

Tips on Storing Print Media

Store your print media properly. For more information, see "Storing Print Media".

Avoiding Paper Jams

CAUTION:
- **Before buying large quantities of any print media, it is recommended that you try a sample first.**

By selecting appropriate print media and loading it properly, you can avoid paper jams. See the following instructions on "Loading Print Media":

- "Before Loading"
- "Loading Print Media in Tray 1 and the Optional 550-Sheet Feeder"
- "Loading Print Media in the Bypass Tray"

If you encounter a paper jam, see "Clearing Jams".

Sending a Job to Print

Install the printer driver to use all the features of the printer. When you choose **Print** from an application, a window representing the printer driver opens. Select the appropriate settings for the specific job that you are sending to print. Print settings selected from the driver override the default menu settings selected from the operator panel.

You may need to click **Preferences** from the initial **Print** box to see all of the available system settings. If you are not familiar with a feature in the printer driver window, open the online Help for more information.

To print a file from a typical Microsoft® Windows® application:

1. Open the file you want to print.
2. From the **File** menu, select **Print**.
3. Verify that the correct printer is selected in the dialog box. Change the print settings if needed.
4. Click **Preferences** to adjust system settings that are not available from the first screen, and then click **OK**.
5. Click **OK** or **Print** to send the job to the selected printer.

Canceling a Print Job

You can cancel a job using the operator panel or a computer.

Canceling a Job From the Operator Panel

To cancel a job before it has started printing:

1. Press the button.
2. Select `Jobs`.
3. Select the job to be deleted.
4. Select `Delete`.

Canceling a Job From a Computer

Canceling a Job From the Taskbar (Windows® Only)

When you send a job to print, a small printer icon appears in the bottom right corner of the taskbar.

1. Double-click the printer icon.
   A list of print jobs appears in the printer window.
2. Select the job you want to cancel.
3. Press the <Delete> key.

Canceling a Job From the Dock (OS X Only)

When you send a job to print, the printer icon appears in the Dock.

The following procedure uses OS X 10.10 as an example.

1. Click the printer icon.
   A list of print jobs appears in the printer window.
2. Click the delete job button on the left.

Duplex Printing

Duplex printing allows you to print on both sides of a sheet of paper.

Duplex Printing With Duplex Unit

For Windows®:

The following procedure uses a typical Windows® program on Windows® 7/Windows® 10 as an example.

1. Open the file you want to print.
2. Open the print dialog box from the program.
3. Select the print driver, and then click **Preferences** → **General**.
4. In the Paper Source drop-down list box, select a paper tray.

5 In the **Duplex** drop-down list box, select **Flip on Short Edge** or **Flip on Long Edge**.

NOTE:
- For details on the **Flip on Short Edge** and **Flip on Long Edge** options, see "Flip on Short Edge" and "Flip on Long Edge."

6 Click **OK**.

7 Click **Print**.

For OS X:

The following procedure uses TextEdit on OS X 10.10 as an example.

1 Open the file you want to print.

2 From the **File** menu, select **Print**.

3 Make sure that the **Two-Sided** check box is selected in the dialog box.

4 In the print options pop-up menu, select **Layout**.

5 In the **Two-Sided** drop-down list box, select **Long-Edge binding or Short-Edge binding.**

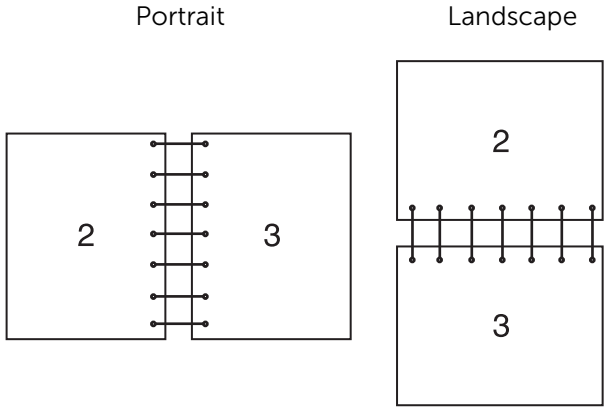
6 Click **Print**.

Using Booklet Print

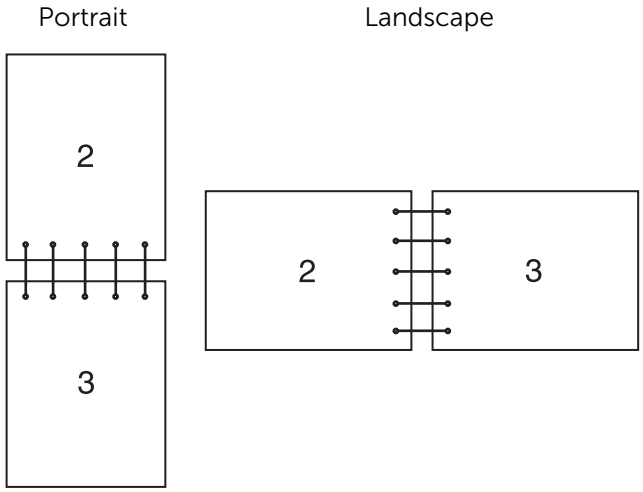
To use the booklet print feature, select the **Enable** check box of the **Booklet Printing** in the **Layout** tab.

NOTE:
- When the XML Paper Specification (XPS) or PS driver is used, booklet print is not available.
- You must select **Flip on Long Edge** in the **Duplex** when using the Booklet Print feature.

Flip on Long Edge	Assumes binding along the long edge of the page (left edge for portrait orientation and top edge for landscape orientation). The following illustration shows long-edge binding for portrait and landscape pages:



Flip on Short Edge	Assumes binding along the short edge of the page (top edge for portrait orientation and left edge for landscape orientation). The following illustration shows short-edge binding for portrait and landscape pages:



Using Stored Print

When you send a job to the printer, you can specify in the printer driver to store the job in the memory. When you are ready to print the job, go to the printer and use the operator panel to identify which job in the memory you want to print.

NOTE:

- The data in the memory is cleared when the printer is turned off.
- The storage capacity for all stored jobs is 400MB.
- The maximum number of stored print jobs is 200 per user ID.
- The print job will be aborted and a notification will be displayed if either the maximum storage capacity or the maximum number of stored jobs is reached.

Overview

You can specify the following job types in the printer driver.

Secure Print

You can temporarily store print jobs secured with a password in the memory. Users with the password can print them from the operator panel. This feature can be used to print confidential documents. A stored print job will be deleted after you print it or at a designated time.

Sample Set

The collated print job is stored in the memory, but a single page is printed automatically so you can check the print result. If you do not have problems with the print result, you can choose to print more copies. This prevents large number of misprinted copies from being printed at one time.

Using Secure Print and Sample Set

To use **Secure Print** and **Sample Set** feature, you need to select **Secure Print** or **Sample Set** from **Job Type** in the **General** tab of the print driver. The job will be stored in the

memory until you request to print it from the operator panel.

NOTE:

- You must specify a passcode for the **Secure Print** job.
- For details about a printer driver feature, see the help of the printer driver.

Procedures for Printing Stored Jobs

NOTE:

- The stored print feature is available when using the PCL or PS driver.

1. Press the button.
2. Select `Jobs`.
3. Select a job to print.

Printing Secure Print Jobs From Operator Panel

This section describes how to print **Secure Print** jobs.

In case of you are logged in except Simple authentication

If authentication is enabled and the user ID on the secure print jobs matches the login user ID on the device, you can access the secure print jobs without entering the passcode specified at the printer driver.

1. Press the button.
2. Select `Jobs`.
3. Select `Secure Jobs` button.
4. Your secure print jobs are displayed. Select a job to print.

   NOTE:

   - If you want to print all jobs, select `Print All`. If you want to delete all jobs, select `Delete All`.

In case of you are not logged in

If authentication is not enabled or you are logged in using Simple authentication, use following procedure.

1. Press the button.
2. Select `Jobs`.
3. Select `Secure Jobs` button.
4. Secure print user's folders are displayed. Select your folder.
5. Enter the passcode that you specified printer driver and select the `OK` button.
6. Your secure print jobs are displayed. Select a job to print.

   NOTE:

   - If you want to print all jobs, select `Print All`. If you want to delete all jobs, select `Delete All`.

Deleting a Print Job

To delete printing a job, use the following procedure.

1 Press the button.

2 Select Jobs.

3 Select the job to be deleted.

4 Select Delete.

NOTE:
- **Secure Print** job will be deleted after printing.
- Existing jobs will be deleted at a time designated in the **Dell Printer Configuration Web Tool**. For details. see "Stored Print Job Settings".

Print From USB

The Print from USB feature allows you to print files stored in a USB flash drive without using a computer.

Files in the following file formats can be printed directly from a USB flash drive:

- PDF
- TIFF
- JPEG
- XPS
- EXIF2.0-2.2

CAUTION:
- **To prevent damage to the printer, do not connect any device other than a USB flash drive to the front USB port of the printer.**
- **Do not remove the USB flash drive from the front USB port until the printer has finished printing.**

NOTE:
- XPS stands for XML Paper Specification.

Printing Procedure

1 Insert the USB memory device into the USB memory slot.

2 Select desired file.

3 Select OK.

4 Select Print.

Printing With Wi-Fi Direct

This section provides information for Wi-Fi Direct printing. Wi-Fi Direct allows your Wi-Fi mobile devices such as computers, smart phone, and tablets, to connect to the printer directly via a Wi-Fi network. With Wi-Fi Direct, you can print documents, photos, or e-mail on your Wi-Fi mobile devices directly without a wireless access point.

NOTE:

- Wi-Fi Direct is available even if the printer is connected to your wireless network connection.
- Only printing function is available via the Wi-Fi Direct network.
- The maximum number of devices that can be connected via the Wi-Fi Direct network is 3.
- You cannot connect your mobile device to the Internet via the printer's Wi-Fi Direct network.
- Depending on the device, the channel used to connect the device to the printer via Wi-Fi Direct may differ from the channel used by the printer to connect to a network via Wi-Fi infrastructure mode. In such a case, simultaneous connection with Wi-Fi Direct and Wi-Fi infrastructure mode may not work properly.
- The printer connected with Wi-Fi Direct supports the following protocols; LPD, Port9100, Web Services on Devices (WSD) (print), Bonjour (mDNS), SNMPv1/v2c, Dell Printer Configuration Web Tool.

Setting Up Wi-Fi Direct

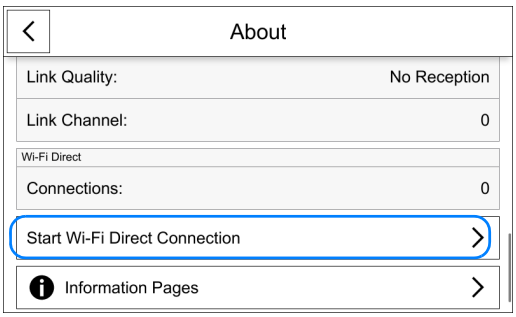
To use Wi-Fi Direct, you need to first set up the Wi-Fi Direct settings from the operator panel of the printer. To connect the mobile device to the printer via Wi-Fi Direct, select the SSID of the printer from the list of wireless networks on the mobile device and enter the passphrase necessary for connection.

Setting Up the Printer

1. Tap `Device`.
2. Tap `Connectivity`.
3. Tap `Wi-Fi Direct`.
4. In the `Wi-Fi Direct` menu, sets `Wi-Fi Direct` to `On`.
5. Tap `Setup`.
6. Tap `Group Role`, and then select the desired mode.

   NOTE:

   - For the `Auto` mode, the passcode is automatically created so the `SSID Suffix` and `Passcode` fields are ignored. For the `Group owner` mode, the password is what must be entered on the client device.
   - If `Auto` mode is selected, you need to complete the Wi-Fi Direct setup via the operator panel. Tap `Device`, then select `About`. Scroll down and select `Start Wi-Fi Direct Connection`, then select `Yes` to allow pairing with the device.



7 The printer must be rebooted after you set `Wi-Fi Direct`.

8 If `Group owner` mode is selected, tap `Device`, and then select `About` to check what the SSID Prefix and Passcode are.

Connecting the Mobile Device

1 Connect the mobile device to the Wi-Fi Direct network.
The following procedure uses Windows® 7, Windows® 10, OS X 10.11, iOS, and Android as examples.

For Windows® 7:

a Click the network icon on the taskbar.
b Click the printer's SSID, and then click **Connect**.
c Enter the passphrase, and then click **OK**.
d Click **Cancel**, and then exit the **Set Network Location** window.

For Windows® 10:

a Click the **Start** button, and then click **Settings.**
b Click the Wi-Fi icon.
c Click the printer's SSID, and then click **Connect**.
d Enter the passphrase, and then click **OK**.

For OS X 10.11:

a Click the network icon on the Menu Bar.
b Click the printer's SSID.
c Enter the passphrase, and then click **Join**.

For iOS:

a Tap **Settings** → **Wi-Fi**.
b Tap the printer's SSID.
c Enter the passphrase, and then tap **Join**.

For Android:

The procedure varies depending on your mobile device you are using. Refer to the manual provided with your mobile device.

2 Install the printer on the mobile device.
Before printing, you are required to install the print driver accordingly.

For Windows® 7, Windows® 10:

You need to install the printer driver on the mobile device. See "Installing Printer Drivers on Windows® Computers".

For OS X 10.11:

You need to install the printer driver on the mobile device. See "Installing Printer Drivers on Macintosh Computers".

For iOS:

You need to install the printing program from App Store, and then the printer is ready for use.

For Android:

You need to install the printing program from Google Play™, and then the printer is ready for use.

The printing procedure varies depending on your mobile device you are using. Refer to the manual supplied with your mobile device to print as you normally do from the mobile device.

Printing via Wi-Fi Direct

The printing procedure varies depending on your mobile device you are using. Refer to the manual provided with your mobile device to print as you normally do from the device.

Disconnecting Wi-Fi Direct Network

1. Tap `Device`.
2. Tap `Connectivity`.
3. Turn off Wi-Fi Direct.

Mobile Printing

The printer supports printing from a variety of mobile devices.

AirPrint

AirPrint allows you to print through a network with the device running iOS or OS X.

Be sure to install the latest version of iOS for iOS device. For OS X, be sure to update OS X and the apps you have purchased from the App Store using the Software Update.

Setting Up AirPrint on Your Printer

1. Make sure that the printer is connected to the network.
2. Start **Dell Printer Configuration Web Tool**. For more information, see "Starting the Dell Printer Configuration Web Tool".
3. Click **Connections** → **Mobile Printing** → **AirPrint™**.
4. Click the toggle to on.

5 Click **OK**, and then restart the printer.

Printing via AirPrint

The following procedure uses the iPhone running iOS 8.1 as an example.

1 Open your email, photo, web page, or document you want to print.

2 Tap the action icon .

3 Tap **Print**.

4 Select your printer and set printer options.

5 Tap **Print**.

Google Cloud Print™

By registering the printer to your Google™ account, you can use the Google Cloud Print™ service to print from the Google Chrome™ browser without installing the printer drivers to your device. You can also share the printer with the specified users over the Internet.

The printer supports the following versions of the Google Cloud Print™ service:

- Google Cloud Print™ version 1.1
- Google Cloud Print™ version 2.0

NOTE:

- Use the latest version of the Google Chrome™ browser for Google Cloud Print™.

Preparing to Use the Printer with Google Cloud Print™

To use **Google Cloud Print™**, you need the following preparations in advance:

- "Enabling Google Cloud Print™ on the Printer"
- "Selecting the Version of the Google Cloud Print™"
- "Registering the Printer to the Google Cloud Print™"
- "Sharing the Printer Using the Google Cloud Print™ Service"

NOTE:

- To register the printer to the **Google Cloud Print™** service, the printer needs to be connected to the Internet.
- **Google Cloud Print™** supports only IPv4 connection.
- If the printer is connected to a network that uses a proxy server, you need to specify the settings in **Proxy Server** from the **Dell Printer Configuration Web Tool**. For more information, see "Proxy Server".
- Acquire a Google™ account and a Gmail™ address in advance.

Enabling Google Cloud Print™ on the Printer

1 Launch the **Dell Printer Configuration Web Tool** by entering IP address of the printer in your web browser. For more information, see "Setting Up the Dell Printer Configuration Web Tool" and "Starting the Dell Printer Configuration Web Tool".

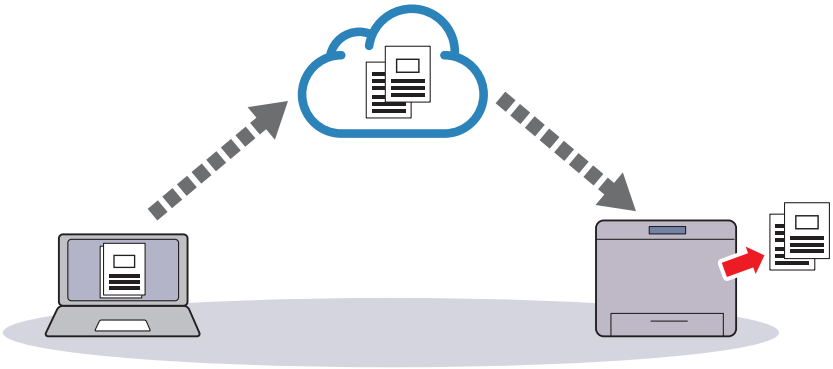
2 Click **Connections** → **Mobile Printing** → **Google Cloud Print™**.

3 Check the box to enable.

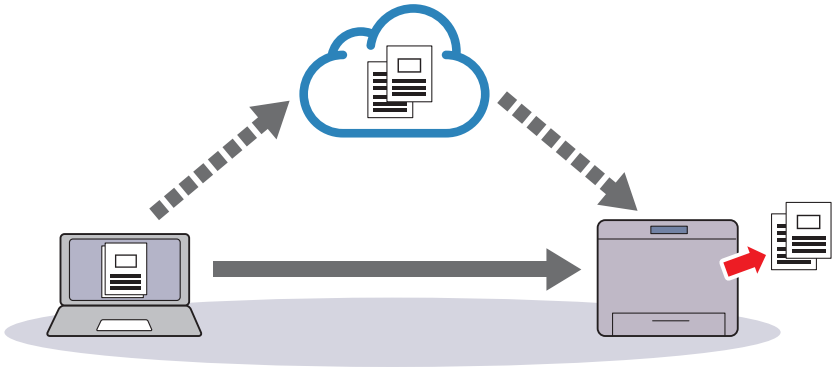
4 Click **OK**, and then restart the printer.

Selecting the Version of the Google Cloud Print™

Select the version of the Google Cloud Print™ from either version 1.1 or version 2.0.
Google Cloud Print™ version 1.1 sends the print data to the printer via Internet. For this version, the printer needs to be connected to the Internet.



Google Cloud Print™ version 2.0 sends the print data to the printer either via Internet or via local network. This version is recommended for the environment where the Internet connection cannot be used.



NOTE:

- Available options for printing may vary according to your device or the version of the Google Cloud Print™ service.
- You cannot use both version 1.1 and version 2.0 of the Google Cloud Print™ service on a printer.

Registering the Printer to the Google Cloud Print™

Before registering the printer to the Google Cloud Print™, prepare the Google™ account to which the printer is registered.

NOTE:

- To register the printer to the **Google Cloud Print™**, the printer needs to be connected to the Internet.
- The Google™ account which is used in the registration procedure will be registered as the owner.

For Google Cloud Print™ Version 1.1

1. Start **Dell Printer Configuration Web Tool**.
   See "Starting the Dell Printer Configuration Web Tool".
2. Click **Connectivity** → **Mobile Printing** → **Google Cloud Print™** → **Printer Registration**.

3 Select the interface → Click **Register**.

4 Select **Continue** to proceed to register your printer. Instructions for printer registration will be printed.

5 Enter the web address on the registration paper to the address box of the browser, and press the <Enter> key.

NOTE:
- You can also access the registration web page with a smartphone, reading the QR code on the registration paper with its camera.

6 Enter the Google™ account and passcode of the user using this feature, and log in.

7 On the Google Cloud Print™ registration web site, click **Finish printer registration**.

8 Click **Manage your printers**. Your printer will be listed in the **Printers** list and will be ready for use with the Google Cloud Print™ service.

For Google Cloud Print™ Version 2.0

1 Launch the Google Chrome™ browser. When you are using the Google™ Chromebook, start and log in to the Chromebook.

2 Click ≡ in the top right corner, and select **Settings**.

3 Click **Show advanced settings** in the bottom of the page.

4 Click **Manage** under the **Google Cloud Print** menu.

NOTE:
- If a message is displayed under **New Devices** to request you to sign in to Chrome, click **sign in** and sign in to Chrome.

5 Click **Register** for the printer you want to register.

6 When the window to confirm the registration appears, click **Register**.

The window appears to show that the printer is being added.

7 On the machine's control panel, select `Device` →`Connectivity` → `Google Cloud Print Registration`.

8 On the next screen, click `Register`.

9 When the printer name appears in the **My devices** list, the registration is completed.

NOTE:
- It may take about 5 minutes or more until the printer name appears in the **My devices** list.

Sharing the Printer Using the Google Cloud Print™ Service

You can share the printer registered for the Google Cloud Print™ service with other users.

1 Launch the Google Chrome™ browser. When you are using the Google™ Chromebook, start and log in to the Chromebook.

2 Click ≡ in the top right corner, and select **Settings**.

3 Click **Show advanced settings** in the bottom of the page.

4 Click **Manage** under the **Google Cloud Print** menu.

NOTE:
- If a message is displayed to request you to sign in to Chrome, click **sign in** and sign in to Chrome.

5 Click **Manage** for the printer you want to share.

6 In the **Google Cloud Print** window, click **Share**.

7 In the window to specify the printer sharing, enter the Google™ accounts of the users you want to invite to share the printer, and click **Share**.

NOTE:
- When the invited users log in to the Google Cloud Print™ web page, a message appears to show that the printer owner made the sharing settings. Accept the sharing invitation.

Canceling Registration to Google Cloud Print™

1 Start **Dell Printer Configuration Web Tool**.
See "Starting the Dell Printer Configuration Web Tool".

2 Click **Connectivity** → **Mobile Printing** → **Google Cloud Print™** → **Printer Registration**, and click **Unregister**.

3 Confirm that the message **Unregistered** appears.

Printing via Google Cloud Print™

The printing procedure varies depending on the application or the device you are using. You can see the application list that supports Google Cloud Print™ service on the Google™ web site.

Printing From an Application on a Mobile Device

The following procedure uses the Google Drive™ application on an Android mobile device as an example.

1 Install the Google Drive™ application on your mobile device.

NOTE:
- You can download the application from Google Play™.

2 Access the Google Drive™ application from your mobile device and select the document.

3 Select **Print** from the application menu.

4 Select your printer from the list.

5 Select printer options and then tap **Print**.

Printing From Google Chrome™

The following procedure uses the Google Chrome™ browser on the computer running a Microsoft® Windows® operating system as an example.

1 Open the Google Chrome™ browser.

2 Open the web page or e-mail that you want to print.

3 Click or (varies depending on the version of the Google Chrome™ browser) in the top right corner and then click **Print**.

4 Click **Change** in the **Destination** area.

5 Choose your printer from the Google Cloud Print™ area.

NOTE:
- When your printer is registered to Google Cloud Print™ version 2.0, you can print the document by way of the local print with the printer in your local network. In this case, select your printer in **Local Destinations**.

6 Click **Print**.

Printing From Google™ Chromebook

1 Open the web page or e-mail that you want to print.

2 Click in the top right corner and then click **Print**.

3 Confirm that your printer is specified in the **Destination area**. If not, click **Change** and select your printer.

NOTE:
- When your printer is registered to Google Cloud Print™ version 2.0, you can print the document by way of the local print with the printer in your local network. In this case, select your printer in **Local Destinations**.

4 Click **Print**.

Mopria™ Print Service

Mopria™ Print Service allows any Android phone or tablet (Android version 4.4 or later) to connect and print to Mopria-certified printers without additional set up. Firstly, download and install the Mopria™ Print Service app from Google Play™ store to your Android mobile device:
https://play.google.com/store/apps/.
In order to print, connect your mobile device to the same network as the printer or use the Wi-Fi Direct functionality to connect your mobile device to the printer.

NOTE:
- Mopria™ Print Service might be preloaded in your mobile device. If your mobile device does not have the Mopria™ Print Service, you can easily download it from the Google Play™ store. To learn more about Mopria™ Print Service, visit http://www.mopria.org/.
- The new Enterprise features from Mopria™ 2.0 is not supported.

Setting Up Mopria™ Print Service on Your Printer

1 Make sure that the printer is connected to the network.

2 Start **Dell Printer Configuration Web Tool**. See "Dell Printer Configuration Web Tool".

3 Click **Connections** → **Mobile Printing** → **Mopria™**.

4 Select **On** to enable **Mopria™**.

5 Click **OK**, and then restart the printer.

Printing via Mopria™ Print Service

1. Open your e-mail, photo, web page, or document that you want to print.
2. Tap the menu, and then select **Print**.
3. Tap **All printers** in the menu.
4. Select the printer, and then set printer options.
5. Tap **Print**.

5

Know Your Printer

User Authentication and Accounting

Types of Users

The Authentication feature restricts operations according to the user type.

System Administrator

The system administrator can register and change system settings to adapt to the environment to be used.

The system administrator uses a specific user ID called a system administrator's user ID.

To login as the system administrator, enter the system administrator's user ID in the user ID entry field on the screen.

NOTE:

- The default user ID for the system administrator is “admin”.
- The default password for the system administrator is “admin”.

Login User

Login User is a user registered on the machine or a remote server.

To use restricted features, enter the user ID and passcode on the screen.

Unregistered User

Unregistered User is a user not registered on the machine.
Unregistered User cannot use restricted services.

Roles

Role is used to control the permissions on printer features and access to some settings. You can create and assign roles to users to give them appropriate permissions.

The following shows the types of roles.

For details on the settings, see "Roles".

System Administrator

System Administrator is assigned to the system administrator account by default.

The **System Administrator** role cannot be customized.

Basic User

Basic User is automatically assigned to a user with no device user role assigned, and **Basic Printing User** is automatically assigned to a user with no printing user role assigned.

Features other than setup and configuration are allowed by default.

You can customize the basic user permissions.

Custom

You can create roles and set custom permissions to the roles.

Types of Authentication

The following describes the types of authentication available on the machine.

User ID Authentication

The machine requires users to enter their user information with the touch screen of the machine.

Authentication is performed using user information registered on the machine or user information registered on a remote server.

Simple Authentication and Local Authentication

The Simple authentication and the Local authentication use the user information registered on the machine to manage authentication.

The Local authentication requires passcodes and the Simple authentication does not.

A print job directly sent to the machine from a computer can be received on the machine after being authenticated through cross-checking process whereby the authentication information configured on the client's driver with the information registered on the machine.

NOTE:

- For information on driver settings, refer to the help of the driver.

Network Authentication

Authentication is performed for a remote server. User information is not registered on the machine.

The **Network** authentication uses the user information registered on a remote authentication server (LDAP, Kerberos, or SMB) to perform authentication.

NOTE:

- When you change **Login Method**, user information registered on the machine will be deleted.
- When you register user information on a remote authentication server, use up to 32 single-byte characters for a user ID and up to 128 single-byte characters for a password. Note, however, that up to 32 single-byte characters are allowed for an SMB authentication password.

Convenience Authentication

Authentication is performed using a card reader.

NOTE:

- This feature requires an additional application to be developed.

Smart Card Authentication

Authentication is performed using the smart card reader.

Types of Account Administration

NOTE:

- Some accounting methods may not be selected depending on the **Login Method** selected. See "Authentication and Accounting Relationship".

ColorTrack

Account administration is performed using the user information and account information registered on the machine. Also, accounting information is counted using various counters automatically created for each user. Accounting reports are created in CSV format using **Dell Printer Configuration Web Tool**.

NOTE:

- For information on downloading reports, refer to "ColorTrack".
- For information on driver settings, refer to the help of the driver.
- When setting the user information or account information for another machine, we recommend that you use the **Cloning** feature of **Dell Printer Configuration Web Tool**.

Network Accounting

Network Accounting performs account administration using user information managed by a remote service.

In **Network Accounting**, the remote server collects job data stored on the machine and counts up the numbers of pages processed for each user.

NOTE:

- User information managed by the remote service is sent to be registered on the machine. When the user information on the remote service is updated, the updated information must be sent from the remote service to the machine.

Authentication and Accounting Relationship

You can individually select **Login Method** and **Accounting Method** and can combine them as described in the following table.

		Accounting Types		
		No Accounting	**ColorTrack**	**Network**
Login Types	Simple and Local	O	O	O
	Network	O	O	O
	Convenience	O	O	O
	Smart Card	O	-	O

O :Available

- :Not available

User Authentication Operations

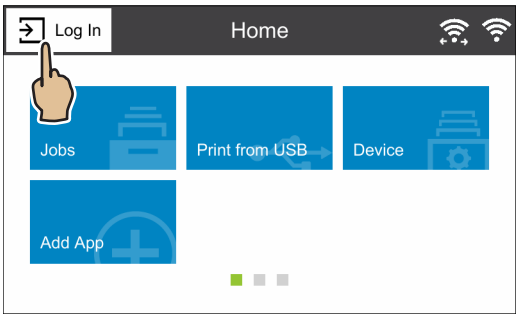
Authenticating Login Users

This section describes how to log in to the printer using the control panel or cards, how to log in to **Dell Printer Configuration Web Tool**, and how to log out.

Log In/Log Out from the Printer

Log In from the Control Panel

1 Select `Log In`.



2 Select the user account from the list, or enter the user name.

NOTE:

- Enter the user name for the Network authentication. For the Local or Simple authentication, the user identification varies depending on the settings.

3 Enter the passcode.

NOTE:

- The Simple authentication does not require passcodes.
- When the Network authentication system is Kerberos or SMB, entering the realm or domain is required.
- When you select the service restricted, the log-in screen appears. Enter the required information to use the service.

Log In Using a Card Reader

1 Touch the smart card to the smart card reader.

NOTE:

- Entering a passcode may be required depending on the settings. Entering a realm or domain may also be required.

Log Out of User Authentication

1 Select the user name.

a If the confirmation screen appears, select `Log Out`.

b If the dropdown menu appears, select `Log Out of Accounting`.

NOTE:

- For details on the log-out confirmation method, see "Logout Confirmation".

Log In/Log Out from the Dell Printer Configuration Web Tool

Log In to the Dell Printer Configuration Web Tool

1 Select **Log In**.

2 Select the user account from the list, or enter the user name.

NOTE:
- Enter the user name for the Network authentication. For the Local and Simple authentication, the user identification varies depending on the settings.
- When the Network authentication system is Kerberos or SMB, entering the realm or domain is required. For Kerberos, enter the user name and realm in the UPN format (<username>@<realm>). For SMB, enter the user name and domain in the NetBIOS format (<domain>\<username>).

3 Enter the passcode.

NOTE:
- The Simple authentication does not require passcodes.
- When you select the service restricted, a log-in screen appears. Enter the required information to use the service.

Log Out of the Dell Printer Configuration Web Tool

1 Select the user name.

2 Select **Log Out**.

Creating and Editing User Accounts

Creating New Accounts from the Dell Printer Configuration Web Tool

1 In the **User Accounts** screen or the **Log In** screen which appears when the screen requires authentication, select **Add New Account**.

2 Enter the user name in the **Add New Account** screen.

3 If the password is required for authentication, set the password.

4 Set the contact details in the **Contact Details** screen.

Editing User Accounts from the Dell Printer Configuration Web Tool

You can edit the user accounts in the user details screen which is displayed when you select **Permissions** → desired user name under **User Accounts**.

Roles	You can set a device user role and printing user role to the user.
Personalizations	You can reset the personalized settings for the user.
PC User Names	You can link PC user names to accounts on the printer.
Accounting	Shows the number of prints made by the user. Selecting **Edit** allows you to change the limits and relate the ColorTrack general accounts to the user. **NOTE:** • The items on the **Edit Accounting** screen vary depending on the **What to Track** settings. • Up to 100 ColorTrack general accounts can be related to a user.

Deleting User Accounts from the Dell Printer Configuration Web Tool

Select **Permissions** → desired user name under **User Accounts** → **Delete User**.

Changing Password from the Dell Printer Configuration Web Tool

- Administrator

  Select **Permissions** → **Admin** under **User Accounts** → **User Accounts**.
- User

  Select **Permissions** → desired user name under **User Accounts** → **Delete User**.

User Authentication for Accounting

- ColorTrack

  Selecting a tracked feature displays the `Accounting` screen*. Enter the user ID and, if required, enter the passcode. When the account is successfully authenticated, you can use the feature.

  When a general account is related to the user, the `Accounting Summary` screen appears. You can change the account by setting `My User Account` and check the number of remaining or used jobs. You can also print the account report and check the account details (limits, used number and remaining number for each job).

  *: This step can be skipped if the user is already logged in through remote authentication and the same user name used to authenticate is registered as a ColorTrack user.

- Network Accounting

  Selecting a tracked feature displays the `Accounting` screen. Enter the user ID and, if required, enter the account ID.

Screen Customization

Customizing the Home Screen

You can customize the Home screen to suit your preference or work style.

Adding, Moving, or Removing Tiles on the Home Screen

See "Moving, Adding or Removing the Tiles".

Customizing App Screens

You can customize App screens to suit your preference or work style.

NOTE:

- The procedures described in this section are available only for the system administrator.

Feature List

On the App screens, you can change the order of features, and hide or show features.

NOTE:

- Feature List is not available for some features on the App screens.

Changing the Order of Features on an App Screen

1. On an App screen, tap Customize, and then tap Feature List to enter the Customize Mode.
2. Touch a feature and then drag it to the desired position.
3. Tap Done at the upper right corner of the screen to exit the Customize Mode.

Hiding a feature on an App screen

1. On an App screen, tap Customize, and then tap Feature List to enter the Customize Mode.
2. Touch of the feature to be hidden. The icon changes to .
3. Tap Done at the upper right corner of the screen to exit the Customize Mode.

Showing a feature on an App screen

1. On an App screen, tap Customize, and then tap Feature List to enter the Customize Mode.
2. Touch of the feature to be shown. The icon changes to .
3. Tap Done at the upper right corner of the screen to exit the Customize Mode.

Presets

You can delete Presets you have created.

1. On an App screen, tap Customize, and then tap Presets to enter the Customize Mode.

2 Select the trash icon on the row of a Preset to be deleted.

An alert notification appears.

3 Select `Delete`.

NOTE:

- To delete more than one Preset, repeat steps 2 and 3.

4 Tap `Done` at the upper right corner of the screen to exit the Customize Mode.

Remove App Customization

You can reset an `App` screen that you have customized.

1 On an `App` screen, tap `Customize`, and then tap `Remove App Customization`.

An alert notification appears.

2 Select `OK`. The settings of the screen that you have customized are reset to their defaults.

Encryption and Digital Signature Settings

Encryption and Digital Signature Overview

Types of Certificates

To use the Encryption feature and the Signature feature on the machine, a certificate is required.

The following two types of device certificate can be used on the machine:

- A self-signed certificate created by **Dell Printer Configuration Web Tool** (The valid period can be specified from1 to 9,999 days.)
- A certificate issued by another CA

When you use a certificate issued by another CA, import the certificate using **Dell Printer Configuration Web Tool**.

Types of Encryption	Types of Certificates	
	Self-Signed Certificate	Certificate Issued by Another CA
Encrypting HTTP communications from a client to the machine (SSL/TLS server)	O	O
Encrypting HTTP communications from the machine to a remote server (SSL/TLS client)	X	O
Encryption using IPSec	X	△*1

O :Available

△ :Set as necessary

X :Not available

*1 : Available when **IKE Authentication Method** is set to **Digital Signature**.

*2 : Personal certificates in smart cards can only be used for the e-mail digital signature.

Requesting another CA to issue a certificate

If **Create** is selectable in the **Security Certificates** screen on **Dell Printer Configuration Web Tool**, you can create a CSR required to get a certificate issued by another CA in the following procedure.

Encryption Features for Communication

The data sent between the machine and computers on a network can be encrypted.

Encrypting HTTP Communications from a Client to the Machine (SSL/TLS Server)

The SOAP, Internet Services (HTTP), IPP, and WebDAV ports use the HTTP server of the machine.

The SSL/TLS protocol is used to encrypt the HTTP communications between a client and

the machine.

To encrypt communications, either one of the device certificate is required: a self-signed certificate or a certificate issued by another CA.

NOTE:

- By encrypting HTTP communications, communications data can be encrypted at the time of printing using IPP (SSL encrypted communications).

Encrypting HTTP Communications from the Machine to a Remote Server (SSL/TLS Client)

The SSL/TLS protocol is used to encrypt the HTTP communications between a remote server and the machine.

No certificate is required in general. However; if a remote server is set to require an SSL client certificate, you can use a certificate issued by another CA.

When verification of server certificates is enabled to verify the SSL/TLS certificate of a remote server, import a certificate issued by another CA using **Dell Printer Configuration Web Tool** to the machine.

Encryption using IPSec

IPSec enables IP-level (not application-level) encrypted communications with remote devices.

If you select **Digital Signature** for **IKE Authentication Method**, a certificate issued by another CA is required.

If you select **Preshared Key**, no device certificate is required.

NOTE:

- If the certificate for IPSec contains the V3 extension (keyUsage), "digitalSignature" bit must be asserted.

To verify the certificate of the remote device, you must register a root certificate created by a CA of the remote device on the machine.

NOTE:

- To use certificates that have already been created, import them with **Dell Printer Configuration Web Tool**.

Configuration of HTTP Communications Encryption

This section describes the settings to encrypt HTTP communications.

Step 1 Configuration on the Machine

Configure a certificate on the machine. When **Automatic Self-Signed Certificate Creation** is set to **On**, a self-signed certificate is automatically created as the SSL server certificate. If necessary, import a certificate issued by another CA.

NOTE:

- **Automatic Self-Signed Certificate Creation** is set to **On** by default.

The following describes the procedures to set up a certificate by **Dell Printer Configuration Web Tool**.

Setting up a Certificate using Dell Printer Configuration Web Tool

To set up a certificate using **Dell Printer Configuration Web Tool**, you can have the

machine create a self-signed certificate for SSL server or can import any registered certificate (issued by another CA) to the machine.

NOTE:

- When performing SSL communications using a self-signed certificate created on the machine, or a certificate with which the character code is encoded with UTF-8, you will not be able to connect with SSL if Internet Explorer is used with Mac OS X v10.2 or later.
  This is because the operating system cannot recognize the character code (UTF-8) of the certificate. Use Netscape 7 in the above-mentioned OS environments.
- You cannot import a certificate that has been already registered in **Device Certificates** or **Other Certificates**. Delete the registered certificate before importing.

Setting the self-signed certificate and the HTTP - SSL/TLS communication

1. Set the self-signed certificate settings as necessary.
   For details, see "Security Certificates".
2. Select **Security** → **SSL/TLS Settings**.
3. Enable **HTTP - SSL/TLS Communication**.
4. Set **HTTP - SSL/TLS Port Number**.

Importing a certificate issued by another CA

1. Import the certificate.
   For details, see "Security Certificates".
2. Select the certificate in the **Security Certificates** screen.
3. In the certificate details screen, make sure that **Category** is set to **Device Certificate**, and **Certificate Use** is set to **SSL Server**.

Step 2 Configuration on the Computer

To encrypt communications between a web browser and the machine, enter an address beginning with "https" instead of "http" in the address box of the web browser.

- Example of IP address entry:
  https://192.0.2.1/ (IPv4)
  https://[2001:DB8::1234]/ (IPv6)
- Example of Internet address entry:
  https://myhost.example.com/

When encrypting IPP communications (Internet printing) and adding a printer from **Add Printer**, enter an address beginning with "https" instead of "http" as the URL of the printer.

Configuration of Encryption using IPSec

This section describes how to encrypt communications using IPSec.

Step 1 Import and Configuration of a Certificate

The following describes configuration procedures to set up a certificate with **Dell Printer Configuration Web Tool**.

When **IKE Authentication Method** is set to **Digital Signature**, configure a certificate on the machine. No certificate is registered on the machine by factory default.

To configure a certificate using **Dell Printer Configuration Web Tool**, configure the encryption settings for HTTP communications, and then import a certificate issued by another CA to use it for the IPSec certificate.

NOTE:

- You cannot use a self-signed certificate created with **Dell Printer Configuration Web Tool** for IPSec.
- The machine supports the capability to import the RSA® public key (up to 4096 bits).
- If a certificate to be imported as an IPSec certificate contains V3 extension "KeyUsage", "digitalSignature" bit must be asserted.
- For details on how to configure the encryption settings for HTTP communication, refer to "Configuration of HTTP Communications Encryption".

1 Import a certificate.

For details, see "Security Certificates".

NOTE:

- You cannot import a certificate that has been already registered in **Device Certificates** or **Other Certificates**. Delete the registered certificate before importing.
- If the certificate to be imported contains the V3 extension "keyUsage", "digitalSignature" must be asserted.

2 Select the certificate in the **Security Certificates** screen.

3 In the **Certificate Details** screen, make sure that **Category** is set to **Device Certificate**, and **Certificate Use** is set to **IPsec**.

Step 2 Configuration on the Computer

Configure the following settings on the computer.

- Create an IP security policy
- Assign the IP security policy

NOTE:

- For details on the settings, refer to the help of the computer.

Configuration of Wireless LAN WPA-Enterprise (EAP-TLS)

NOTE:

- To manage digital certificates, you must set up HTTPS communication.
- WPA-Enterprise is available only when **Infrastructure** is selected as the **Network Type**.
- Be sure to import the certificate with Internet Explorer®.
- After importing a PKCS#12 format certificate, the secret key is not exported even if you execute exporting.

1 Import the certificate to be used with Wireless LAN (server or root certificate). For details, see "Security Certificates".

2 Make sure that the **Validity** of the certificate is **Valid** in the **Certificate Details** screen.

3 Make sure that the check mark is displayed on the right of the certificate in the **Certificate Details** screen, which ensures that the certificate is associated with the purpose of use and currently used.

4 Import the certificate to be used with Wireless LAN (client or client certificate). For details, see "Security Certificates".

5 Make sure that the **Validity** of the certificate is **Valid** in the **Certificate Details** screen.

6 Make sure that the check mark is displayed on the right of the certificate in the **Security Certificates** screen, which ensures that the certificate is associated with the purpose of use and currently used.

7 Select **Connectivity** → **Wi-Fi**.

8 Select **Encryption** in the **Wi-Fi** screen.

9 Set **Encryption** to **WPA2 Enterprise** or **Mixed Mode Enterprise (AES/TKIP)**.

Settings appear under **Security Settings**.

NOTE:

- **WPA2 Enterprise** or **Mixed Mode Enterprise (AES/TKIP)** becomes available only when the following steps are set correctly.
  - Importing a Digital Certificate
  - Setting a Digital Certificate

10 Set **EAP-Identity**.

11 Set **Authentication Method** to **EAP-TLS**.

Configuration of Wireless LAN WPA-Enterprise (PEAPV0-MS-CHAPV2, EAP-TTLS PAP, EAP-TTLS CHAP)

NOTE:

- To manage digital certificates, you must set up HTTPS communication.
- WPA-Enterprise is available only when **Infrastructure** is selected as the **Network Type**.
- Be sure to import the certificate with Internet Explorer®.
- After importing a PKCS#12 format certificate, the secret key is not exported even if you execute exporting.

1 Import the certificate to be used with Wireless LAN (server or root certificate). For details, see "Security Certificates".

2 Make sure that the **Validity** of the certificate is **Valid** in the **Certificate Details** screen.

3 Make sure that the certificate is checked in the **Security Certificates** screen, which ensures that the certificate is associated with the purpose of use and currently used.

4 Select **Connectivity** → **Wi-Fi**.

5 Select **Encryption** in the **Wi-Fi** screen.

6 Set **Encryption** to **WPA2 Enterprise** or **Mixed Mode Enterprise (AES/TKIP)**. Settings appear under **Security Settings**.

- **WPA2 Enterprise** or **Mixed Mode Enterprise (AES/TKIP)** becomes available only when the following steps are set correctly.

– Importing a Digital Certificate

– Setting a Digital Certificate

7 Set **Authentication Method** to **PEAPv0 MS-CHAPv2**, **EAP-TTLS/PAP**, or **EAP-TTLS/CHAP**.

8 Set **EAP-Identity**, **Login Name**, and **Password**.

Understanding Printer Messages

Status Codes

The touch panel displays error messages describing the current state of the printer and indicates possible printer problems you must resolve. This chapter provides a list of status codes or error messages, and informs you what you can do to clear error messages. When you contact customer support about an error, have the status codes and error messages ready.

CAUTION:

- **When an error occurs, the print data remaining on the printer and the information accumulated in the memory of the printer may be corrupted.**

NOTE:

- A status code is included in an error message.
- For status codes that are not listed in this chapter, refer to instructions in each error message.

"005-001" - "011-999"

Status Code	Cause and Remedy
010-105	Remove the jammed paper, and then try printing again.
010-106	
010-319	An error occurred in the machine. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
010-328	
010-329	
010-331	
010-332	
010-333	
010-334	
010-335	
010-338	
010-339	
010-340	Turn off the printer, and then install the fusing unit. Contact customer support if this failure is repeated.
010-344	Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
010-345	
010-346	
010-355	
010-420	The fusing unit needs to be replaced soon. Prepare a new fusing unit.
010-421	Replace the fusing unit.

"016-001" - "016-999"

Status Code	Cause and Remedy
016-210 016-211 016-212 016-213 016-215 016-217 016-218 016-219 016-230	Software error. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
016-233	Software error. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
016-234 016-235	An error occurred in the Authentication feature of the machine. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
016-242 016-244	An error occurred in the machine. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
016-245	An accessory that is not available for the authentication and accounting settings is attached. After changing the settings related to the accessory in the System Administration mode, turn off the printer, remove the accessory, and then turn on the printer. Configure the authentication and accounting settings again, and then restart the printer.
016-246	An accessory that is not available for the authentication and accounting settings is attached. After changing the settings related to the accessory in the System Administration mode, turn off the printer, remove the accessory, install the correct accessory, and then turn on the printer.
016-310 016-322 016-324 016-325 016-326 016-327 016-328	An error occurred in the machine. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
016-329	An error occurred in the page memory. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
016-330 016-331 016-332	An error occurred in the machine. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
016-333 016-334	An error occurred in the page memory. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.

Status Code	Cause and Remedy
016-335 016-336 016-337 016-338 016-339 016-340 016-341 016-342 016-343 016-345 016-347 016-348 016-349 016-350 016-351 016-352 016-353 016-354 016-355 016-356 016-357 016-358 016-359 016-360 016-361 016-362 016-363 016-364 016-365 016-366 016-367 016-368 016-370 016-371	An error occurred in the machine. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
016-383	Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
016-400	Confirm and correctly enter the user name or password. If the error still is not resolved, check whether the network environment is set correctly.
016-401	Set the authentication method of the machine to the same method as set for the authentication server.
016-402	Confirm the network connection and switch setting of the authentication device physically connected to the machine via a network, and check whether it is connected to the machine correctly.

Status Code	Cause and Remedy
016-403	The root certificate did not match. Confirm the authentication server and store the root certificate of the server certificate of the authentication server into the machine. If you cannot acquire the root certificate of the server certificate, disable the certification verification of IEEE 802.1x settings.
016-404	An internal error occurred. Contact customer support if this failure is repeated.
016-405	Initialize the certificate.
016-406	• Store an SSL client certificate in the machine, and set it as the SSL client certificate. • If an SSL client certificate cannot be set on the machine, select an option other than EAP-TLS for the authentication method.
016-407 016-408 016-409 016-410 016-411 016-412	After automatically obtaining the IP address, the machine failed to retrieve proxy server settings from the DHCP server. Modify the customized program and install it again.
016-422	• When another error message is displayed, solve the problem first. • When the printer is in maintenance mode, complete the maintenance operation. • When another device is accessing the printer, wait until the access is complete. If the problem persists, turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
016-423	• When another error message is displayed, solve the problem first. • When another device is accessing the printer, wait until the access is complete. If the problem persists, turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
016-424 016-425	Exit the Power Saver mode. If the problem persists, turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
016-427	The user name or password for 802.1x authentication did not match in the setting of Ethernet 2. Enter the correct user name and password in the setting of Ethernet 2. If the error is repeated, check whether the network environment is set correctly.
016-428	The 802.1x authentication method cannot be processed in the setting of Ethernet 2. Set the authentication method of the machine to the same method as set for the authentication server in the setting of Ethernet 2.
016-429	Confirm the network connection of Ethernet 2 and switch setting of the authentication device physically connected to the machine via a network, and check whether it is connected to the machine correctly.
016-430	Confirm the authentication server and store the root certificate of the server certificate of the authentication server into the machine. If you cannot acquire the root certificate of the server certificate, disable the server certificate verification of IEEE 802.1x for Ethernet 2.
016-431	An internal error occurred. Contact customer support if this failure is repeated.
016-432	SSL client certificate error for Ethernet 2. Take one of the following measures: Store an SSL client certificate in the machine to set the SSL client certificate. If an SSL client certificate cannot be set on the machine, select an option other than EAPTLS for the authentication method.
016-450	The SMB host name already exists. Change the host name.

Status Code	Cause and Remedy
016-453	Updating of the IPv6 address and host name for the DNS server failed. Check whether the IP address of the DNS server is set correctly.
016-454	Unable to retrieve the IP address from DNS. Confirm the DNS configuration and IP address retrieve setting.
016-455	Confirm the network cable connection and the IP address of the SNTP server are correct.
016-456	Received a message from the SNTP server stating that the server is not synchronized with the standard time source. Check the SNTP settings.
016-500 016-502	An error occurred in the machine. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
016-514	An error occurred during processing of an XPS document. If an error occurred while printing from a driver which supports XPS, print from the application using another print driver (PCL, etc.). If an error occurred while direct printing an XPS document, print using the print driver (PCL, etc.) from XPS Document Viewer. **NOTE:** • XPS stands for XML Paper Specification.
016-515	There was insufficient memory during processing of an XPS document. Take one of the following measures: • Set the image quality setting to standard. See the help of the print driver. • Print using the print driver (PCL, etc.) from XPS Document Viewer. **NOTE:** • XPS stands for XML Paper Specification.
016-516	The Print Ticket included in the XPS document includes an invalid description or a print setting not supported by the machine. Check whether there is a problem with the method of using the application that sent the print job, or with the content of the print instruction. If your application usage and print instruction are correct, check with the application manufacturer that sent the print job for operations of the application. Contact customer support if this failure is repeated. **NOTE:** • XPS stands for XML Paper Specification.
016-517	Print with the PostScript driver. Modify ProcessColorModel described in the PostScript file so that the color mode does not change.
016-518	With the PostScript driver, specifying a combination of booklet and Watermark/UUID is not possible. Cancel one of them.
016-519	Printable page limit is exceeded. Have your system administrator change the maximum limit of printable pages.
016-521	Switch off the machine power and connect the smart card reader, and then switch on the machine power.
016-522	The LDAP server is requesting an SSL client certificate. Set an SSL client certificate on the machine.
016-523	The machine cannot trust the SSL certificate of the LDAP server. Register the root certificate for the LDAP server's SSL certificate to the machine.
016-524 016-525	Change the SSL certificate of the LDAP server to a valid one. You can clear this error by disabling SSL/TLS communication for LDAP; however, note that this will not ensure the validity of the LDAP server.
016-526	Set the same LDAP server address to the machine and to the SSL certificate of the LDAP server. You can clear this error by disabling SSL/TLS communication for LDAP; however, note that this will not ensure the validity of the LDAP server.

Status Code	Cause and Remedy
016-527	LDAP server SSL authentication error. Contact Dell.
016-528	Log in to the machine with the smart card, and then execute the operation again.
016-533	Check whether the clocks on the machine and Kerberos server are correctly set. Also check whether the summer time and the time zone are correctly set on the machine and Kerberos server.
016-534	Check whether the domain name and the server address have been correctly set on the machine. For connection to **Windows 2003 Server**, specify the domain name in uppercase.
016-539	Kerberos server authentication protocol error Contact Dell.
016-543	The specified domain was deleted from your authentication management software. Select **Refresh** on the **Domain** screen, and update the domain information, or add the domain to your authentication management software.
016-545	Adjust the times of the computer of Active Directory and the computer on which your authentication management software is installed. Also, if the **Windows** Time Service of the computer on which the software is installed has stopped, start the service. **NOTE:** • For more information on the process, refer to the manual for your authentication management software.
016-546	A Local User tried to obtain the information of another user. Contact Dell.
016-548	Register the machine in your authentication management software. **NOTE:** • For more information on the process, refer to the manual for your authentication management software.
016-553	You must upgrade your authentication management software.
016-554	Correctly set the login name and password used for domain user authentication of your authentication management software.
016-555	Check whether you can connect from your authentication management software to the database or Active Directory. **NOTE:** • For more information on the process, refer to the manual for your authentication management software.
016-556	Because the service is overloaded, wait for a while and try the same operation again. If the error still is not resolved, check your authentication management software. **NOTE:** • For more information on the process, refer to the manual for your authentication management software.
016-557	Check your authentication management software. **NOTE:** • For more information on the process, refer to the manual for your authentication management software.
016-559	A remote download parameter error occurred. Confirm the settings for essential system data.
016-560	Check whether the network cable is connected, and confirm the settings of your authentication management software. Also, print a Configuration Report, and if the DNS address of the server is set to "Server Name / IP Address" for "Authentication Agent", check whether DNS is enabled.
016-562	Correct the guest database entries of Active Directory so that they do not contain the same smart card information.

Status Code	Cause and Remedy
016-565	Make sure that the USB memory device is inserted securely. If this error occurs during data backup, make sure on your computer that a folder named "backup" exists in the USB memory device.
016-567	The capacity is not sufficient for backup. Delete existing backup files to make free space.
016-570	Increase the size of memory for job tickets, switch off the machine power, make sure that the touch screen is blank, and then switch on the machine power. Try the same operation.
016-571	Unable to print because the content of the job ticket is incorrect. Correct the print settings, and then send the print job again.
016-572	Unable to print because the paper size, quality, or color attribute specified for the job ticket is not supported. Correct the paper attribute.
016-573	Unable to print because the content of the job ticket is incorrect. Check if the print driver is supported by the machine, and is installed on the computer correctly. Also check the operating conditions for the print driver.
016-700	On the print driver, set the passcode string equal to or longer than the value specified in **Minimum Passcode Length for Stored Jobs**.
016-701	Stop unnecessary ports or delete unnecessary data to increase memory.
016-702	Print page buffer is insufficient. • Lower the print image quality. See the help of the print driver. • Increase the print page buffer size by adding memory.
016-705	Use the print driver appropriate for the machine. Contact customer support if this failure is repeated.
016-706	Delete unnecessary files from the machine, and delete unnecessary Secure Print users.
016-707	A **Sample Set** job error. Contact Dell.
016-708	Delete unnecessary data from the storage space.
016-709	An error occurred during print processing. Contact Dell.
016-710	
016-711	• Reduce the number of pages of the document. • Lower the resolution with **Resolution**. • Reduce the magnification with **Reduce/Enlarge**. • Ask your system administrator to increase the value set for **Maximum Total Data Size**.
016-715	Enter the correct password of the ESCP form.
016-716	Unable to spool TIFF file because of insufficient storage space. Delete unnecessary files and users from the storage space.
016-717	Unable to create a report. The information required for creating the report is not stored in the memory. After completing the job that you want to confirm in a report, do not execute 200 or more jobs before printing the report.
016-718	The available memory is too small to store the document. Reduce the resolution, or cancel 2 sided printing or N up feature, and then print again.
016-719	Increase the size of the print page buffer.
016-720	An invalid command is included in PCL print data. Confirm the print data and try printing again.
016-721	ESC/P-K command error occurred. Confirm the print data.
016-726	The printer could not select a printer language automatically. Contact customer support if this failure is repeated.
016-728	An unsupported tag is included in the TIFF file. Confirm the print data.
016-729	Change the number of colors or resolution for the TIFF file, and execute the operation again.

Status Code	Cause and Remedy
016-731	Unable to print TIFF data because it was interrupted. Try the same operation.
016-732	The form specified by emulation has not been registered at the host side. Resend the form data.
016-738	Specify a paper size supported for booklet creation, and try printing again.
016-739	Specify a combination of document size and paper size supported for booklet creation, and try printing again.
016-740	Specify a paper tray supported for booklet creation, and try printing again.
016-741 016-742 016-743 016-744 016-745	An error occurred during the update process of the machine. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
016-746	An unsupported feature is included in the received PDF. Print using a print driver.
016-747	Insufficient memory. • Increase the annotation image size. • Reduce the value of Repeat Image.
016-748	Reduce the number of print pages by dividing the print data or by printing one copy at a time when printing multiple copies.
016-749	The print language is not supported. For a print job, use the machine's print driver. Contact customer support if this failure is repeated.
016-750	The machine received a printing job ticket with a PDF or XPS from an application that allows direct transmissions of files, but the printing job ticket data had a grammar or print instruction unsupported by the machine. Check whether you are correctly using the application and whether the print instruction was correct. If your application usage and print instruction are correct, check with the application manufacturer that sent the print job for operations of the application. If the error still is not resolved, have the Configuration Report, the Job History Report, and the print data with the printing job ticket ready, and contact Customer Support at **dell.com/contactdell**. **NOTE:** • XPS stands for XML Paper Specification.
016-751	Probable causes are as follows: • During the PDF Bridge processing, a syntax or parameter error occurred, an undefined command was used, and a PDF file was damaged. Use the print driver to print the document. • When Print Processing Mode ([**408**]) for the PDF Direct Print feature has been set to PS ([**1**]), memory is insufficient. Use the print driver to print the document or increase PostScript memory. • When Print Processing Mode ([**408**]) for the PDF Direct Print feature has been set to PS ([**1**]), a PDF file including OpenType fonts is processed. Create a PDF file in which OpenType fonts are not included.
016-752	Unable to process for PDF Bridge because of insufficient memory space. Lower the image quality to reduce the data size.
016-753	Enter the correct password on the printer.
016-755	Cancel the print protection using Adobe Reader, and try printing again.
016-756	No permission to use the service. Contact your system administrator.
016-757	The account is not registered. Contact your system administrator.

Status Code	Cause and Remedy
016-758	No permission to use the service. Contact your system administrator.
016-759	The number of pages reached the maximum number of pages for this service. Contact your system administrator.
016-760	• Enable **High Speed Image Processing**. See the help of the print driver. • Increase PostScript memory.
016-761	Enable **High Speed Image Processing**. See the help of the print driver. If the error is not resolved, set **Print Page Mode** to **On**.
016-762	Specify correct printer language.
016-772	Set the DNS server address.
016-792	The specified job history does not exist. Try the same operation.
016-798	Unable to print a document due to insufficient storage space. Contact customer support if this failure is repeated.
016-799	Check the parameter of the print data of the application and the Print Setup settings, and try printing again.
016-910	The paper requested by the selected print settings are not installed. Install the paper or replace the paper.
016-911	Cancel the job. Install the paper or replace the paper.
016-917	The toner cartridge (yellow) is empty. Replace the toner cartridge with a new one.
016-918	The toner cartridge (magenta) is empty. Replace the toner cartridge with a new one.
016-919	The toner cartridge (cyan) is empty. Replace the toner cartridge with a new one.
016-920	The paper specified for printing cannot be detected. Change the settings. Or, replace the tray.
016-940	Different size settings for side 1 and side 2 were detected after the job had started with duplex printing specified. Change the settings, and try again.
016-941	Mixed size/direction set for the page with images was detected after the job had started with Booklet specified. Change the settings, and try again.
016-942	Different size settings for side 1 and side 2 were detected after the pages with duplex printing specified had been deleted. Change the settings, and try again.
016-943	Different size settings for side 1 and side 2 were detected after the document and separators had been inserted for the pages with duplex printing specified. Change the settings, and try again.
016-944	The document collate setting for the pages including the cover with images or the document with separators with Document Attachment specified was detected. Change the settings, and try again.
016-945	The documents that do not support 2-Sided Print has been inserted for the pages for duplex printing. Change the settings, and try again.
016-946	A document or separator has been inserted between Cover pages or Separator pages. Change the settings, and try again.
016-948	The covers with images, separators, or blank pages were detected after the job had started with Booklet specified. Change the settings, and try again.

Status Code	Cause and Remedy
016-949	The document with a different size/orientation from the operated page was tried to be inserted for the job with Attachment specified. Change the settings, and try again.

"017-001" - "017-999"

Status Code	Cause and Remedy
017-500	Illegal response from the Job Limit Server. Check the job parameter settings, and try again. Contact customer support if this failure is repeated.
017-501	Consult your system administrator to change your authorization.
017-503	The number of digits of the print job password exceeded the maximum limit. Use the smaller number of digits for your print job password and try the same operation.
017-504 017-505	Connection to the Job Limit server failed. Check the network status. Check if the Job Limit server is working.
017-506	The job was canceled due to rejection by the job limit server. Consult your system administrator.
017-507	The direct print feature is disabled on the printer. Enable the direct print feature.
017-720	Correct the value of Contact Type specified in the PJL command, and try again.
017-721	Correct the value of Geographic Region specified in the PJL command, and try again.
017-722	Try the operation when the total impressions are up to 9,999,900.
017-729	• Enable **Spool** for **IPP** on **Dell Printer Configuration Web Tool** of the destination machine. • Wait for a while and try the same operation again.
017-730	Check the following: • The network cable is connected properly. • The storage destination machine is powered on. • The IPP port of the storage destination machine is enabled. Contact customer support if this failure is repeated.
017-731	Check the following: • The IP address of the POP server is set on the machine. • The network cable is connected properly.
017-732	Set the print mode to online on the destination machine. Contact customer support if this failure is repeated.
017-733	An internal error occurred when the job is sent to the destination device. Contact customer support if this failure is repeated.
017-734	Send the print job again by using the printer driver or software that does not use IPP. Contact customer support if this failure is repeated.
017-735	Device usage is prohibited by the user. Contact customer support if this failure is repeated.
017-755	Software download error. Take one of the following measures: • Check the settings of **Software Update** on **Dell Printer Configuration Web Tool**. • Download the software through USB.
017-759	Software update error. Contact our Customer Support at **dell.com/contactdell**.
017-771	Software error. Contact customer support if this failure is repeated.
017-778	The sending queue became full, because no IP address is set or assigned. The message sending is rejected.

Status Code	Cause and Remedy
017-779	Unplugged network cable is detected on the device side. Confirm the network cable connection.
017-780	A job suspended with **Print Around** was automatically deleted after a certain period of time. Change the settings of **Print Around** if necessary.
017-787	Google Cloud Print error. Use a method other than Google Cloud Print.
017-789	Check the job parameter settings, and try again. Contact customer support if this failure is repeated.
017-790 017-791	Check the time permitted for the operation for you, and try again. Consult your system administrator to change your authorization.
017-792 017-793 017-794 017-795 017-796 017-797 017-798 017-799	You are not permitted to print. Consult your system administrator to change your authorization.

"018-001" - "020-999"

Status Code	Cause and Remedy
018-400	IPsec setting error. Remove the inconsistency of the IPSec settings, and enable IPSec again. • When **Preshared Key** is set in **IKE Authentication Method**, set the passcode. • When **Digital Signature** is set in **IKE Authentication Method**, set an IPSec certificate.
018-405	An error occurred during LDAP authentication. The account is disabled in Active Directory of the authentication server, or the access is set to disabled. Consult your network administrator.
018-406 018-407	The machine detected the same IP address for Ethernet 1 and Ethernet 2 on different networks. Set different IP addresses to Ethernet 1 and Ethernet 2. If you want to set the same IP address, contact our Customer Support at **dell.com/contactdell**.
018-408	IPv4 address duplication on the network of Ethernet 2. Change the IPv4 address of Ethernet 2.
018-409	IPv6 address duplication on the network of Ethernet 2. Change the IPv6 address of the device in the network.
018-410	Updating of the IPv4 address and host name for the DNS server failed on the network of Ethernet 2. Check whether the IP address of the DNS server is set correctly.
018-411	Updating of the IPv6 address and host name for the DNS server failed on the network of Ethernet 2. Check whether the IP address of the DNS server is set correctly.
018-412 018-413	The IPv6 address already exists on the network of Ethernet 2. Change the IPv6 address of the network in which the address already exists.
018-414	IP address for IPv6 set manually in Ethernet 2 is incorrect. Set the IP address correctly.

Status Code	Cause and Remedy
018-415	IP address for IPv6 set manually in Ethernet 2 is incorrect. Change the `Manual Address` on the machine, or the IP address of IPv6 on the network device, to remove the duplication of addresses.
018-416	The IPv6 address already exists in the network of Ethernet 2. Change the IPv6 address of the network in which the address already exists.
018-424 018-425	The root or client certificate for WPA-Enterprise does not exist. Register the root or client certificate in the printer. If you cannot obtain any of these certificates, Use an option other than WPA-Enterprise.
018-426	The server certificate for WPA Enterprise is invalid or could not be obtained. • Check if the server certificate has not expired. Check the certificate format and digital signature algorithm are correct. • If you cannot have a valid server certificate, select an option other than WPA-Enterprise.
018-427	Address range duplication between Wi-Fi and Wi-Fi Direct. Change the IP address setting of the DHCP server of Wi-Fi Direct to avoid duplication.
018-428	The wireless LAN module is not connected correctly. Turn off the printer, and then check the connection.
018-429	IPv4 address duplication on the network used for Wi-Fi. Change the IPv4 address of either the printer or the device on the network.
018-430	IPv4 address duplication on the network used for Wi-Fi Direct. Change the IPv4 address of either the printer or the device on the network.
018-431	IPv6 address (self-assigned address 1 or DHCPv6 address) duplication on the network used for Wi-Fi. Change the IPv6 address of the device on the network.
018-432	IPv6 address (self-assigned address 2) duplication on the network used for Wi-Fi. Change the IPv6 address of the device on the network.
018-433	IPv6 address (self-assigned address 3) duplication on the network used for Wi-Fi. Change the IPv6 address of the device on the network.
018-434	The IPv6 address (manual) is invalid on the network used for Wi-Fi. Change the IPv6 address manually configured for the printer.
018-435	IPv6 address (manual) duplication on the network used for Wi-Fi. Change the IPv6 address manually configured for the printer, or change the address of the device.
018-436	The link-local address of the printer is duplicated on the network used for Wi-Fi. Change the IPv6 address of the device of the network.
018-500	The certificate does not exist in the authentication server. Configure the server certificate. Or, cancel authentication.
018-439	Wi-Fi Direct error due to `Ad hoc` confliction. Change `Network Type` for `Wi-Fi` to `Infrastructure`.
018-440	Wi-Fi Direct error due to IPv6 confliction. Change **IP Mode:** to **Dual Stack** or **IPv4**.
018-441	Wi-Fi Direct error due to 5 GHz mode confliction. Change the `Wi-Fi Band` to `Auto` or `2.4 Ghz`.
018-501	Check the network connection and the address of the CA server.
018-503 018-504	Communications with the CA server set in the machine failed. Execute the authentication operation again.
018-506	Communications with the CA server set in the machine failed. Try the same operation. Contact customer support if this failure is repeated.
018-507	Enter the correct user name or password.
018-508	Check the status of the authentication server.
018-557	The specified file name contains invalid characters.
018-558	Check whether the specified directory and file exist on the HTTP server.

Status Code	Cause and Remedy
018-559	The same file name already exists. Select any option other than **Do Not Save** in If File Already Exists.
018-560	A user authentication error occurred. (Received HTTP Status 401). Check the following: • Login name • Login password • The HTTP server name • The HTTP server path name
018-561	The hostname or the script storage location is not correct. (Received HTTP Status 404). Check the following: • The HTTP server name • The HTTP server path name
018-562	A client-side error occurred. (Received HTTP Status 4xx other than 401 and 404). Check the following: • The server settings
018-563	A server-side error occurred. (Received HTTP Status 5xx). Check the following: • The server settings
018-564	DNS resolution for the specified hostname failed. Check the following: • The machine is connected to the DNS server. • The address of the DNS server is set on the machine.
018-565	DNS resolution for the proxy server name set on the machine failed. Check the following: • The proxy server name set on the machine is registered on the DNS server. • The machine is connected to the DNS server. • The address of the DNS server is set on the machine.
018-566	Unable to connect to the HTTP server. Check the following: • The network cable connection on the machine
018-568	An SSL/TLS connection error occurred. Check the following: • SSL settings for the HTTP server is correct. • The HTTP server name • The HTTP server path name
018-569	The SSL server certificate may have a problem. • Check whether the SSL server certificate is registered on the HTTP server. • Check whether the SSL server certificate is valid. Check the following: The certificate is unexpired. The time set on the machine is correct. The certificate is not on the discard list. • Check the certificate path to the SSL server certificate, and import the required CA certificate. • If the SSL server certificated is not registered on the HTTP server, disable the **Verify Remote Server Certificate** setting.
018-570	A client certificate authentication error occurred on the HTTP server. Check the following: • The SSL client certificate is registered on the machine. • The device certificate is correctly registered on the HTTP server.
018-571	Try the same operation. Contact customer support if this failure is repeated.
018-588	When **Append a Number** or **Append Date & Time** is set as the process to be executed in case of a file name duplication, confirm that the file format is not multi-page.

Status Code	Cause and Remedy
018-589	When **Append a Number** or **Append Date & Time** is set as the process to be executed in case of a file name duplication, check the NEXTNAME.DAT file is correct.
018-590	A file or folder of the same name was detected on the server. • Execute the operation again when other machines are not accessing the folder. • Contact customer support if this failure is repeated.
018-595	Multiple entries containing the same smart card information were detected in the database of the LDAP server. Correct the temporary user entries of the LDAP server so that they do not contain the same smart card information.
018-596	An error occurred during LDAP server authentication. Contact customer support if this failure is repeated.
018-700	The network for Web Applications is being initialized. Wait for a while and try the same operation again.
018-709	Network communication error For IPv4 environment • Check the IPv4 address of the machine. • Confirm whether the network cable is connected correctly. • Check the address of the DHCP server. For IPv6 environment • Confirm whether the global address distributed from an IPv6 router is assigned to the IPv6 address of the machine. • Confirm whether the network cable is connected correctly. • Confirm whether the IPv6 router is set correctly.
018-715	There is no authentication method which supports both the machine authentication and Kerberos server authentication. • Set the appropriate authentication method in the Kerberos server. • Disable the FIPS140 validation mode of the machine. Contact customer support if this failure is repeated.
018-722	The machine cannot connect to Google Cloud Print, because of a network error. Check that the network cable is connected properly. Also check that the environmental settings are adequate.
018-723	The machine cannot connect to Google Cloud Print, because of a certificate error. Check that the root CA certificate registered to the machine and the certificate verification settings are correct.
018-724	The machine cannot connect to Google Cloud Print, because of an SSL communication error. Check the SSL settings.
018-725	The user password set in the Kerberos server expired.
018-726	The root (or intermediate) CA certificate on the smart card is not registered on the machine. Register the root (or intermediate) CA certificate on the smart card to the machine.
018-727	Check the certificate on the smart card, and then update the certificate if it is invalid or revoked. Also, check whether the certificate is enabled in the server.
018-728	• When the root CA certificate of the KDC certificate is not registered, register the root CA certificate. • When the KDC certificate is revoked, update the KDC certificate of the server. • Confirm that the address of the Kerberos server set in the machine and the address on the KDC certificate of the server match.
018-729	The machine cannot connect to Google Cloud Print, because of a time out error. Wait for a while and try the same operation again. If the problem still exists even after the remedy, check that the network cable is connected properly. Also check that the environmental settings are adequate.

Status Code	Cause and Remedy
018-730	The machine cannot connect to Google Cloud Print, because of a network error. Check that the network cable is connected properly. Also check that the environmental settings are adequate. Contact customer support if this failure is repeated.
018-731	Check the data storage capacity, and delete unnecessary data. Complete all the active jobs, and then execute the operation again.
018-737	An internal error occurred. Contact customer support if this failure is repeated.
018-738	The machine cannot connect to Google Cloud Print, because of a network error. Check that the network cable is connected properly. Also check that the environmental settings are adequate.
018-739	An internal error occurred. Contact customer support if this failure is repeated.
018-740	The machine cannot connect to Google Cloud Print, because of a certificate error. Check that the root CA certificate registered to the machine and the certificate verification settings are correct.
018-741	An internal error occurred. Contact customer support if this failure is repeated.
018-743	The machine cannot connect to Google Cloud Print, because of a proxy connection error. Check that the proxy server settings are adequate.
018-744	The machine cannot connect to Google Cloud Print, because DNS failed to resolve the name. Check that the DNS settings are adequate.
018-745	The machine cannot connect to Google Cloud Print, because of a proxy connection error. Check that the proxy server settings are adequate.
018-746	The machine cannot connect to Google Cloud Print, because DNS failed to resolve the name. Check that the DNS settings are adequate. Contact customer support if this failure is repeated.

Status Code	Cause and Remedy
018-747	• Confirm the connection of the network cable. • Check whether the IP address is correct when an IP address is used for the transferring destination address. • Ensure that the port to be used for SMB transfer (*1) is not blocked on the server, or on the router between the machine and the server. <SMB server> Check that the port to be used for SMB transfer (*1) is not blocked by virus scan or firewall software on the server. <Name resolution server> When the server name is 15 characters or shorter and the communication is done through subnet, check the WINS server settings to see if the server address is resolved correctly. <Windows networks> For Windows networks, ensure that an unexpected master browser (*2) is running. If the master browser is an unexpected PC, existing servers may not be displayed and this problem may occur. **NOTE:** • (*1) File sharing service : port 137/NetBIOS Name Service(UDP), port 138/NetBIOS Datagram Service(UDP), port 139/NetBIOS Session Service(TCP) Direct hosting service : port 445 (TCP) • (*2) A master browser manages a list of computers on Windows networks as a browse list. (In general, the domain controller is a master browser.) After the remedy written above, try logging in to the SMB server from a computer using the same user name, and then try saving a file in the same location on the server. If this is successful, try the same operation from your machine. If the problem persists, contact customer support with the server information such as the manufacturer, model, and OS.
018-755	• Confirm the file Sharing service (communicating via port 139 (TCP), and port 445 (TCP)) is authorized for the transferring destination server, router between the machine and server, and virus security software or firewall software on the forwarding destination server. • If two or more gateways exist and the communication over subnet fails, check the gateway address configuration on the machine. • After the remedy written above, try logging in to the SMB server from a computer using the same user name, and then try saving a file in the same location on the server. If this is successful, try the same operation from your machine. If the problem persists, contact customer support with the server information such as the manufacturer, model, and OS.
018-758	• Check whether the save location is correct. • Check whether the specified folder name can be used in the SMB server.
018-759	• Confirm the save location name does not include the following 10 invalid characters:" / : | < > ; , * ?. • Confirm the file name does not include the following 11 invalid characters: " / : | < > ; , * ? \. • Confirm there is no space in the head and end of a string of characters. • Confirm there is no period in the head and end of a string of characters. It is recommended that you do not use machine-dependent characters. After the remedy written above, try logging in to the SMB server from a computer using the same user name, and then try saving a file in the same location on the server. If this is successful, try the same operation from your machine. If the problem persists, contact customer support with the server information such as the manufacturer, model, and OS.
018-762	Check whether the virus security software is working on the saving destination PC. If the software is working, reduce the number of document pages to scale down the file size.
018-763	The character code conversion failed in the machine. Confirm the server name, share name, and path name do not contain invalid characters.

"021-001" - "022-999"

Status Code	Cause and Remedy
021-210 021-211 021-212	Check the connection between the smart card reader and the machine. Turn off the printer, and turn it on again. If the error still is not resolved, the smart card reader may be defective. Connect an unbroken smart card reader and execute the operation again.
021-213	There is a problem with the unit price table settings for the connected product. Export the unit price table and modify it using **Dell Printer Configuration Web Tool**. Set the number from 1 to 9,999,999.
021-214	An error occurred during encrypted communication between the machine and the USB memory device. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
021-215	The accounting/billing device connected does not match the device specified on the machine. Change the setting on the machine or connect the correct accounting/billing device, and switch off the machine power, make sure that the touch screen is blank, and then switch on the machine power.
021-360 021-361	An error occurred in the machine. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
021-401	The number of authentication devices such as a smart card reader connected exceeds the setting value. Disconnect the authentication device.
021-500	Wait until the active job finishes.
021-700 021-701	USB interface error. Check the USB connection. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
021-947	An error occurred during the scanning process. For operation with the smart card, the machine detects the remaining value of the smart card, and it causes a job to be temporarily stopped.
021-948	An error occurred during the printing process. For operation with the smart card, the machine detects the remaining value of the smart card, and it causes a job to be temporarily stopped.
021-949	An error occurred when a job is temporarily stopped, not while a job is in progress. For operation with the smart card, the machine detects the remaining value of the smart card, and it causes a job to be temporarily stopped.

"023-001" - "025-999"

Status Code	Cause and Remedy
024-340 024-341 024-342 024-343 024-345 024-346 024-347 024-348 024-349 024-350 024-351 024-352 024-353 024-354 024-355 024-356 024-357 024-358 024-359 024-360 024-361 024-362 024-363 024-364 024-365 024-366 024-367 024-368 024-370 024-371 024-372 024-373 024-375 024-376	An error occurred in the machine. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
024-700	The memory capacity required to use the optional feature is not installed. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
024-701	Specify a paper type that is compatible with the Face Up/Down setting.
024-702	Remove the jammed paper, and then try printing again.
024-703	Unable to print because the number of booklet pages exceeds the maximum number allowed. Use paper of less weight. Or, cancel the booklet creation.
024-705	The template was not found. Delete the data, and try the same operation again.

Status Code	Cause and Remedy
024-707	The paper type is not supported for duplex or inversion. Change the paper type, or change to 1-sided printing.
024-708	The paper type is not supported for duplex or inversion. Change the paper type, or change to face-up printing.
024-742	The number of pages exceeded the maximum number allowed for booklet creation. Change the printer properties setting to split the pages to create separate volumes, or to cancel the booklet creation setting.
024-746	The specified paper type is not compatible with the specified paper size, paper tray, output tray, or 2 sided printing.
024-747	The combination of the specified features such as Document Size, Paper Size, Paper Tray, 2 sided printing, and Output Tray is incompatible.
024-775	The number of pages exceeded the maximum number allowed for booklet creation.
024-910	A paper size mismatch error occurred on Tray 1. Make sure that the size of paper loaded in the tray is correct and that the paper guides are set correctly.
024-911	A paper size mismatch error occurred on Tray 2. Make sure that the size of paper loaded in the tray is correct and that the paper guides are set correctly.
024-923	The toner cartridge (yellow) is empty. Replace the toner cartridge with a new one.
024-924	The toner cartridge (magenta) is empty. Replace the toner cartridge with a new one.
024-925	The toner cartridge (cyan) is empty. Replace the toner cartridge with a new one.
024-933	Replace the drum cartridges.
024-940	
024-941	
024-947	The machine detected that Tray 2 was not installed.
024-950	Load the paper to Tray 1.
024-951	Load the paper to Tray 2.
024-954	Load the paper to the bypass tray.
024-958	The paper size specified for the job does not match the size of paper loaded in the bypass tray. Load the correct size of paper in the bypass tray.
024-959	The paper size specified for the job does not match the size of paper loaded in the bypass tray. Load the correct size of paper in the Tray 1.
024-960	The paper size specified for the job does not match the size of paper loaded in Tray 2. Load the correct size of paper in Tray 2.
024-965	The paper specified for printing is not loaded in the tray.
024-966	The paper specified for printing cannot be detected. Change the settings.
024-985	The bypass tray stopped running due to an obstruction. Check that the settings of paper size, orientation and paper type are correct.
025-596	An error occurred. Contact Dell.
025-597	

"026-001" - "026-999"

Status Code	Cause and Remedy
026-400	Connect up to two devices to the USB host port. Turn off the printer, and turn it on again.
026-402	Wait until the job finishes.
026-703	Authentication was canceled when you added a document. Authenticate when documents are added.

Status Code	Cause and Remedy
026-712	An error occurred while operating from **Dell Printer Configuration Web Tool**. Wait for a while and try the same operation again.
026-718	The combination of the specified features such as Paper Size, Paper Tray, 2 sided printing, and Output Tray is incompatible.
026-720	The available space of the USB memory device is not sufficient. Confirm the amount of available space.
026-722	Initialize the USB memory device on a computer with the following file format, and then execute the operation again. • Supported file formats: FAT12, FAT16 (FAT), FAT32 **NOTE:** • NTFS is not supported. • A software-encrypted USB memory device is not supported. Contact customer support if this failure is repeated.
026-726	Modify the machine configuration information in the print driver screen to match the actual machine configuration.
026-727	• Remove unusable characters from the path name of the file location. • Set the path in the range of 1 to 255 bytes.
026-730	Check whether the paper guides are correctly positioned in the tray, and then try again.
026-731	Correct the PIN number specified in the PJL command, and try again.
026-732	Correct the print count value specified in the PJL command, and try again.
026-733	Correct the password specified in the PJL command, and try again.
026-734	Wait more than 1 minute after user operation is completed, and then start downloading.

"027-001" - "032-999"

Status Code	Cause and Remedy
027-442	Change the **Self-Assigned Address 1:** for IPv6 or the DHCPv6 address on the machine, or the IP address of IPv6 on the network device, to remove the duplication of addresses.
027-443	Change the **Self-Assigned Address 2:** for IPv6 on the machine, or the IP address of IPv6 on the network device, to remove the duplication of addresses.
027-444	Change the **Self-Assigned Address 3:** for IPv6 on the machine, or the IP address of IPv6 on the network device, to remove the duplication of addresses.
027-445	The manually configured IPv6 address of the printer is not valid. Change the IPv6 address of printer.
027-446	Change the **Manual Address** for IPv6 on the machine, or the IP address of IPv6 on the network device, to remove the duplication of addresses.
027-447	Change the **IPv6 Link-Local Address:** for IPv6 on the machine, or the IP address of IPv6 on the network device, to remove the duplication of addresses.
027-452	IPv4 address duplication on the network. Change the IPv4 address of the printer or the device on the network.
027-701	Connect the network cable securely if the cable is disconnected.
027-720	Unable to find the server of an application interface destination. Confirm the DNS server address. Or, check whether the computer on which the application is installed has been registered on the DNS server.
027-721	The application does not exist. Check whether the application is operating correctly.
027-722	The jobs timed out during connection to the application. Try the same operation. Contact customer support if this failure is repeated.

Status Code	Cause and Remedy
027-724	The application could not be accessed. Check whether the application is operating correctly. If it is operating correctly, confirm the log.
027-725	A job operation failed using the application. Check whether the application is operating correctly. If it is operating correctly, confirm the log. If it is not operating, confirm the network environment.
027-726	The status of the application is unknown. Check whether the application is operating correctly. If it is operating correctly, confirm the log.
027-727	Illegal parameter. Check the job flow settings to see if the parameters are correct.
027-728	The number of files that are to be sent to external services exceeded the maximum number.
027-730	Increase the number of pages allowed for the Split Send feature, or reduce the number of the document pages.
027-735	Enable the SSL setting, or specify HTTP for the transfer protocol.
027-736	The server certificate verification feature of the machine is disabled when the server certificate verification is required. Enable the server certificate validation. Or, disable the server certificate validation for data transfer.
027-751	Confirm the settings of the job flow.
027-752	• Do not link folders to job flows that have mandatory entry fields. • Set the default values to the mandatory fields of the job flow.
027-757	Check the connection between the machine and the server, and between the machine and the DNS server using the ping or traceroute command. Import the CA certificate and intermediate certificate reliable to the SSL server to the machine. Check whether or not the machine communicates via the SSL proxy server which enables you to confirm the SSL communication. When the machine uses the server, set the machine not to use the SSL proxy server. Check the encryption method supported on the machine. Set the available encryption method to the SSL server setting. Import the SSL client certificate and configure the setting to use the certificate. Check the date and time registered on the machine is precise. If they are not, correct it.
027-758	The LDAP server sent back RFC2251 Result Message No "49" (invalid credentials). Make sure the login name and password are correctly set in the LDAP server/directory settings. Contact customer support if this failure is repeated.
027-759	The connection to the LDAP server specified in the LDAP server/directory settings failed. Make sure the network settings. Contact customer support if this failure is repeated.
027-760	An invalid parameter was specified by XJT command.
027-761	When multiple documents are to be printed, reduce the number of documents, and then execute the operation again.
027-763	The machine failed to verify the user information against the remote accounting server. • Check whether the remote accounting server is operating properly. • Check whether there is no network failure. • Connect the network cable securely. • Confirm the settings on the machine.
027-765	• Check if the destination WebDAV server is registered in the DNS server. • Check the connection to the DNS server. • Check the setting of the DNS server address.

Status Code	Cause and Remedy
027-766	• Check if the Proxy server is registered in the DNS server. • Check the connection to the DNS server. • Check the setting of the DNS server address.
027-767	• Check if the destination WebDAV server is accessible from a computer. • Check the SSL settings in the destination WebDAV server. • Check the name of the destination WebDAV server. • Check the path to the destination in the WebDAV server.
027-768	• Check if the destination WebDAV server is accessible from a computer. • Check if the SSL server certificate for the destination WebDAV server is registered in the printer. • Check if the SSL server certificate for the destination WebDAV server is not expired, or is not in the certificate revocation list. Check the time setting in the printer. Check the certificate path for the SSL server certificate, and import the CA certificate. • If a certificate is not registered in the destination WebDAV server, disable certificate validation.
027-769	• Check the network cable connection. • Check if the destination WebDAV server is accessible from a computer. • Check the network interface.
027-770	The print job has a problem. Try the same operation. Contact customer support if this failure is repeated.
027-771	The memory space is full. Delete unnecessary data from the server.
027-780	Network interface error. Check the network interface.
027-782	Check the re-direct setting in the WebDAV server to see if a re-direct loop occurs.
027-783	• Check if the destination WebDAV server is accessible from a computer. • Check the login user name and password. • Check the name of the destination WebDAV server. • Check the path to the destination in the WebDAV server.
027-784	Check the user name and password for the proxy server set in the printer.
027-785 027-786	WebDAV server connection timeout. Wait for a while and try the same operation again. Consult your network administrator if this failure is repeated.
027-787	Select an option other than **Do Not Save** for the file name duplication setting.
027-788	• Check if the specified drive and directory in the destination WebDAV server is accessible. • Try the same operation. Contact customer support if this failure is repeated.
027-789	• Share the destination file and folder to permit reading and writing. • Check the path to the destination.
027-790	Check if the specified directory exists in the destination WebDAV server.
027-791	• Check if the destination is a WebDAV server. • Share the destination file and folder to permit reading and writing. • Check the path to the destination.
027-792	• Check the path to the destination.
027-793	• Check if the destination WebDAV server is accessible from a computer. • Try the same operation. Contact customer support if this failure is repeated.
027-794	• Check the WebDAV server is working correctly. • Check if the destination WebDAV server is accessible from a computer.
027-795	• Check if the destination is a WebDAV server. • Share the destination file and folder to permit reading and writing.
027-798	The specified document does not exist. Specify an existing document and try again.
027-799	Make sure that there is available space in the server.

Status Code	Cause and Remedy
028-910	Replace the fusing unit.
028-986	The paper size specified for the job does not match the size of paper loaded in the tray. Load the correct size of paper in the tray, and then try the same operation.
028-987	The paper specified for printing cannot be detected. Change the settings.
029-700	• Check the WebDAV server is working correctly. • Check if the destination WebDAV server is accessible from a computer.
029-701	• Check if the destination WebDAV server is accessible from a computer. • Check the server settings. Contact customer support if this failure is repeated.
029-702	Try the same operation. Contact customer support if this failure is repeated.
029-704	Wi-Fi error. The format of the proxy auto-config (PAC) file is invalid. Ask your network administrator to see if the format is available for JavaScript, and if the file size is 64 KB or less. Contact customer support if this failure is repeated.
029-705	Wi-Fi error. A timeout error occurred when the printer obtains a proxy auto-config (PAC) file. Check and correct the following: • LAN cable connection • Default gateway configuration • Subnet mask configuration • DNS server address configuration If the failure persists, the network or the HTTP server may have a problem. Consult your network administrator. Contact customer support if this failure is repeated.
029-706	Wi-Fi error. A connection error occurred when he printer obtains a proxy auto-config (PAC) file. Check and correct the following: • LAN cable connection • Default gateway configuration • Subnet mask configuration • DNS server address configuration If the failure persists, the network or the HTTP server may have a problem. Consult your network administrator. Contact customer support if this failure is repeated.
029-707	Wi-Fi error. An error occurred when the printer obtains a proxy auto-config (PAC) file. The file was not found. When **Setup** in **Enable Proxy Server** is set to **Manual**, check the file location setting. When **Setup** in **Enable Proxy Server** is set to **Configuration Script**, the file location setting on the DHCP server may have a problem. Consult your network administrator. If the file location setting is correct, check on the HTTP server to see if the PAC file exists. Contact customer support if this failure is repeated.
029-708	Wi-Fi error. The proxy auto-config (PAC) file is invalid. When **Setup** in **Enable Proxy Server** is set to **Manual**, check the file location setting. When **Setup** in **Enable Proxy Server** is set to **Configuration Script**, the file location setting on the DHCP server may have a problem. Consult your network administrator. Contact customer support if this failure is repeated.
029-709	Wi-Fi error. A timeout error occurred when the printer obtains the URL of a proxy auto-config (PAC) file. Check and correct the following: • LAN cable connection • Default gateway configuration • Subnet mask configuration If the failure persists, the network or the DHCP server may have a problem. Consult your network administrator. Contact customer support if this failure is repeated.

Status Code	Cause and Remedy
029-710	Wi-Fi error. An error occurred when the printer obtains a proxy auto-config (PAC) file. The file was not found. Check with your network administrator to see if the URL of the PAC file is registered in the DHCP server. Contact customer support if this failure is repeated.
029-711	Ethernet 1 error. The proxy auto-config (PAC) file is invalid. Ask your network administrator to see if the format is appropriate for JavaScript, and if the file size is 64 KB or less. Contact customer support if this failure is repeated.
029-712	Ethernet 1 error. A timeout error occurred when the printer obtains a proxy auto-config (PAC) file. Check and correct the following: • LAN cable connection • Default gateway configuration • Subnet mask configuration • DNS server address configuration If the failure persists, the network or the HTTP server may have a problem. Consult your network administrator. Contact customer support if this failure is repeated.
029-713	Ethernet 1 error. A connection error occurred when the printer obtains a proxy auto-config (PAC) file. Check and correct the following: • LAN cable connection • Default gateway configuration • Subnet mask configuration • DNS server address configuration If the failure persists, the network or the HTTP server may have a problem. Consult your network administrator. Contact customer support if this failure is repeated.
029-714	Ethernet 1 error. An error occurred when the printer obtains a proxy auto-config (PAC) file. When **Setup** in **Enable Proxy Server** is set to **Manual**, check the location setting. When **Setup** in **Enable Proxy Server** is set to **Configuration Script**, the location setting on the DHCP server may have a problem. Consult your network administrator. If the location setting is correct, check on the HTTP server to see if the PAC file exists. Contact customer support if this failure is repeated.
029-715	Ethernet 1 error. The proxy auto-config (PAC) file is invalid. When **Setup** in **Enable Proxy Server** is set to **Manual**, check the location setting. When **Setup** in **Enable Proxy Server** is set to **Configuration Script**, the location setting on the DHCP server may have a problem. Consult your network administrator. Contact customer support if this failure is repeated.
029-716	Ethernet 1 error. A timeout error occurred when the printer obtains a proxy auto-config (PAC) file. Check and correct the following: • LAN cable connection • Default gateway configuration • Subnet mask configuration If the failure persists, the network or the DHCP server may have a problem. Consult your network administrator. Contact customer support if this failure is repeated.
029-717	Ethernet 1 error. An error occurred when the printer obtains a proxy auto-config (PAC) file. The file was not found. The PAC file location setting on the DHCP server may have a problem. Consult your network administrator. Contact customer support if this failure is repeated.
029-718	A timeout error occurred when the printer attempts to access the server for the **App Platform** service. Check the network connection status. Wait for a while, and try the same operation.
029-719	**App Platform** service error. The data does not exist on the server, or the printer could not access the server. Check the settings on the server.

Status Code	Cause and Remedy
029-720	**App Platform** service error. The printer could not access the file server. Check the proxy server settings, and the user name and password to be used for accessing the server.
029-721	Proxy connection error for the **App Platform** service. The printer could not access the proxy server. Check the settings of the proxy server and the DNS server.
029-722	Network error for the **App Platform** service. The printer could not access the file server or the proxy server. Check the settings of those servers and connection status.
029-723	SSL error for the **App Platform** service. The printer could not access the server. Check the access privilege and the SSL settings.
029-724	An error occurred during data reception. Turn off the printer and then on, and try the same operation. Consult your system administrator if this failure is repeated.
029-725	The printer could not access the file server. Check the settings of the DNS and file server settings.
029-726	An error occurred inside the printer. If two or more jobs are in progress, wait until the jobs are complete, turn the printer off and on, and then try the same operation. Consult your system administrator if this error occurs again. Contact customer support if this failure is repeated.
029-727	An error occurred inside the printer. Turn the printer off and on, and then try the same operation. Consult your system administrator if the error occurs again.

"041-001" - "044-999"

Status Code	Cause and Remedy
041-310 041-318 041-321 041-322 041-340 042-325 042-348 042-398 045-310 045-311	An error occurred in the machine. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.

"058-001" - "061-999"

Status Code	Cause and Remedy
058-310 058-311 058-312 059-321 059-326 060-310 061-320 061-340 061-346 061-348	An error occurred in the machine. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.

"071-001" - "076-999"

Status Code	Cause and Remedy
071-101	Remove the jammed paper, and try again.
072-101	
072-310 072-311	Tray 2 malfunction Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
075-100	Remove the jammed paper, and try again.
075-911	An error occurred in the machine. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.

"077-001" - "077-999"

Status Code	Cause and Remedy
077-101	Remove the jammed paper, and try again.
077-104	
077-119	
077-123	
077-300	Close the front cover.
077-302	Close the right side cover.
077-322 077-323	An error occurred in the machine. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
077-327	Tray modules exceeding the prescribed number or the ones for other machine types are connected. Remove unnecessary tray modules.
077-909	Remove the jammed paper, and try again.
077-911	Remove the jammed paper, and check that the paper size, paper orientation and paper type settings are correct.
077-968	The paper type specified for the job does not match the type of paper loaded in the tray. Load the correct type of paper in the tray, and then try the same operation.

"081-001" - "091-999"

Status Code	Cause and Remedy
091-300	Close the rear cover.
091-312	An error occurred in the machine. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
091-400	The waste toner box is close to full. Prepare a new waste toner box.
091-401	Drum cartridges need to be replaced soon. Prepare new drum cartridges.
091-402	Replace the drum cartridges.
091-405	The waste toner box is close to full. Prepare a new waste toner box.
091-411	Drum cartridges need to be replaced soon. Prepare new drum cartridges.
091-421	
091-431	
091-444	Drum cartridges need to be replaced soon. Order new drum cartridges to prepare replacement.

Status Code	Cause and Remedy
091-445	Drum cartridges need to be replaced very soon. Replace the drum cartridges.
091-446	Drum cartridges need to be replaced. Replace the drum cartridges.
091-480	Replace the drum cartridges.
091-481	
091-482	
091-911	Replace the waste toner box.
091-913	Replace the drum cartridges.
091-914	Ensure that the drum cartridge (black) is installed correctly.
091-915	Replace the drum cartridges.
091-916	Ensure that the drum cartridge (black) is installed correctly.
091-917	Ensure that the drum cartridge (yellow) is installed correctly.
091-918	Ensure that the drum cartridge (magenta) is installed correctly.
091-919	Ensure that the drum cartridge (cyan) is installed correctly.
091-920	Replace the drum cartridges.
091-921	Ensure that the drum cartridge (black) is installed correctly.
091-922	Replace the drum cartridges.
091-923	
091-924	
091-925	
091-926	
091-927	Ensure that the drum cartridge (yellow) is installed correctly.
091-928	Ensure that the drum cartridge (magenta) is installed correctly.
091-929	Ensure that the drum cartridge (cyan) is installed correctly.

"092-001" - "092-999"

Status Code	Cause and Remedy
092-316	Temperature sensor detected abnormality. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
092-318	Density of Yellow color is low. Turn off the printer, and turn it on again. If the same message is displayed again, pull out the drum and toner cartridges of that color, and then insert them again. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
092-319	Density of Magenta color is low. Turn off the printer, and turn it on again. If the same message is displayed again, pull out the drum and toner cartridges of that color, and then insert them again. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
092-320	Density of Cyan color is low. Turn off the printer, and turn it on again. If the same message is displayed again, pull out the drum and toner cartridges of that color, and then insert them again. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
092-321	Density of Black color is low. Turn off the printer, and turn it on again. If the same message is displayed again, pull out the drum and toner cartridges of that color, and then insert them again. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.

"093-001" - "093-999"

Status Code	Cause and Remedy
093-320	Turn off the printer and turn it on again.
093-339	Turn off the printer and turn it on again. Contact customer support if this failure is repeated.
093-406	The toner cartridge (black) needs to be replaced soon. Prepare a new toner cartridge (black).
093-407	The toner cartridge (yellow) needs to be replaced soon. Prepare a new toner cartridge (yellow).
093-408	The toner cartridge (magenta) needs to be replaced soon. Prepare a new toner cartridge (magenta).
093-409	The toner cartridge (cyan) needs to be replaced soon. Prepare a new toner cartridge (cyan).
093-444	The toner cartridge (black) is empty. Replace the toner cartridge with a new one.
093-445	
093-480	The toner cartridge (yellow) is empty. Replace the toner cartridge with a new one.
093-481	The toner cartridge (magenta) is empty. Replace the toner cartridge with a new one.
093-482	The toner cartridge (cyan) is empty. Replace the toner cartridge with a new one.
093-912	The toner cartridge (black) is empty. Replace the toner cartridge with a new one.
093-913	Ensure that the toner cartridge (yellow) is installed correctly.
093-914	Ensure that the toner cartridge (magenta) is installed correctly.
093-915	Ensure that the toner cartridge (cyan) is installed correctly.
093-916	Ensure that the toner cartridge (black) is installed correctly.
093-924	
093-925	
093-926	
093-927	Ensure that the toner cartridge (yellow) is installed correctly.
093-928	Ensure that the toner cartridge (magenta) is installed correctly.
093-929	Ensure that the toner cartridge (cyan) is installed correctly.
093-933	Ensure that the toner cartridge (yellow) is installed correctly.
093-934	Ensure that the toner cartridge (magenta) is installed correctly.
093-935	Ensure that the toner cartridge (cyan) is installed correctly.
093-937	Ensure that the toner cartridge (yellow) is installed correctly.
093-938	Ensure that the toner cartridge (magenta) is installed correctly.
093-939	Ensure that the toner cartridge (cyan) is installed correctly.

"094-001" - "099-999"

Status Code	Cause and Remedy
094-310 094-311	An error occurred in the machine. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
094-319	Clean the CTD sensor. After the cleaning, turn off the printer, and turn it on again. Contact customer support if this failure is repeated.

Status Code	Cause and Remedy
094-325 094-326 094-417 094-420	An error occurred in the machine. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
094-911	Ensure that the transfer belt unit is installed correctly.
095-912	Replace the drum cartridges.
099-396 099-397 099-398 099-399	An error occurred in the machine. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.

"102-001" - "115-999"

Status Code	Cause and Remedy
102-311 102-312 102-313 102-314 102-315 102-316 102-317 102-318 102-319 102-356 103-314	An error occurred in the machine. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.

"116-001" - "116-999"

Status Code	Cause and Remedy
116-220	Failed to enter the Download mode. Contact Dell.

Status Code	Cause and Remedy
116-310 116-311 116-312 116-313 116-314 116-315 116-316 116-317 116-318 116-319 116-320 116-321 116-322 116-323 116-324 116-325 116-328 116-329 116-330 116-331 116-334 116-336 116-337 116-338 116-339 116-340 116-341	An error occurred in the machine. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
116-342	A printer system error. Contact Dell.

Status Code	Cause and Remedy
116-343 116-345 116-348 116-349 116-353 116-354 116-355 116-356 116-357 116-359 116-360 116-361 116-362 116-363 116-364 116-365 116-366 116-367 116-368 116-370 116-371 116-372 116-373 116-374 116-376 116-377 116-378 116-379 116-380 116-381 116-382 116-383 116-384 116-385 116-387	An error occurred in the machine. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
116-389	An error occurred in the machine. Turn off the printer, and turn it on again.
116-390	Follow the message displayed on the touch screen and initialize the memory of the machine.

Status Code	Cause and Remedy
116-391 116-392 116-393 116-394 116-395 116-396 116-397 116-399	An error occurred in the machine. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
116-701	Memory space is insufficient. Remove unnecessary data to make space.
116-702	A print job was processed using a substitute font. Check the print data.
116-703	Check the print data, or increase the value for **PostScript Memory**.
116-710	The correct document size could not be judged because the receive data exceeded the HP-GL/2 spool size. Increase the size assigned to HP-GL/2 auto layout memory.
116-713	The data has been divided into several jobs because of insufficient data storage space. Delete unnecessary data from the data storage space.
116-714	An HP-GL/2 command error occurred. Check the print data.
116-719	Cancel XPIF parameters not supported by the printer.
116-720	An error occurred during print processing because of insufficient memory. Stop unnecessary ports or delete unnecessary data to free up the data storage space.
116-721	Check the time permitted for the operation for you, and try again, or consult your system administrator to change your authorization.
116-722 116-723 116-724	Consult your system administrator to change your authorization.
116-725	Try the same operation. Contact customer support if this failure is repeated.
116-726 116-727 116-728	Consult your system administrator to change your authorization.
116-738	Match the size and orientation of the paper with the form specified, and print again.
116-739	The form or logo data cannot be registered because memory for the form and logo data or memory capacity is insufficient. Delete unnecessary data, or free up the space for the form memory.
116-740	A numerical value operation error occurred because a value exceeding the value limit of the machine was used in the print data. Check the print data.
116-741	The form cannot be registered because the number of the form registration exceeds the maximum number allowed. The maximum number allowed is 2048.
116-742	The logo data cannot be registered because the number of the logo data registration exceeds the maximum number allowed. Delete unnecessary logo data.
116-743	The logo data or form cannot be registered because the memory for the form and logo data is insufficient. Increase memory.
116-746	The form specified is not registered.

Status Code	Cause and Remedy
116-747	The paper margin value is too large for the HP-GL/2 active coordinates area. Decrease the paper margin value, and then execute the operation again.
116-748	There is no plot data in the HP-GL/2 print data. Check the print data.
116-749	The job was cancelled because the specified font does not exist. Install the font, or set the print driver to replace the font.
116-750	Banner sheet tray malfunction Restore the tray to normal condition or change the Banner sheet tray.
116-751	The process has been canceled because the data storage space is full. Delete stored data from the data storage space. If the error still is not resolved, split the file and send the job again.

"117-001" - "117-999"

Status Code	Cause and Remedy
117-312	An error occurred in the machine. Contact Dell.
117-313 117-314 117-315 117-316	An error occurred in the machine. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
117-317 117-318	Wait until the printer restarts.
117-319 117-320 117-321 117-322 117-323 117-324 117-325 117-326 117-327 117-329 117-330 117-331 117-332 117-333 117-335 117-336 117-337 117-338 117-342	An error occurred in the machine. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
117-343	An error occurred in the machine. Contact Dell.
117-344	An error occurred in the machine. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.

Status Code	Cause and Remedy
117-345	An error occurred in the machine. Contact Dell.
117-347 117-348 117-349 117-354 117-355 117-356 117-357 117-358	An error occurred in the machine. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
117-360	The year in the `Date & Time` setting is out of the available range. Turn off the printer, and turn it on again. Change the year to a correct value.
117-364	The TPM key information is illegal. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
117-365	Wi-Fi diagnostic error. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.

"118-001" - "122-999"

Status Code	Cause and Remedy
118-310	An error occurred in the machine. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
118-311	An error occurred during software processing. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
121-310	An error occurred in the machine. Turn off the printer, and turn it on again.
121-311	An error occurred between the machine and the device connected. Once a smart card reader is connected to the machine, the machine automatically changes the **Passcode Entry for Smart Card Login** setting to **On**. Change the setting as required.
121-314 121-316 121-317 121-318 121-322 121-323	An error occurred between the machine and the device connected. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.
121-325	The machine detects unacceptable combination. • Smart Card authentication was enabled and Control Panel authentication was disabled when the smart card reader was connected. No measure is required. • When only the USB IC card reader is connected to the machine and both Smart Card and Control Panel Login are used, contact our Customer Support Center.
121-327 121-328	An error occurred in the machine. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.

"123-001" - "126-999"

Status Code	Cause and Remedy
123-310 123-311 123-312 123-325 123-326 123-333 123-343 123-344 123-350 123-352 123-353 123-354 123-355 123-356 123-357 123-358 123-362 123-368 123-369 123-371 123-374 123-377 123-379 123-380 123-381 123-382 123-383 123-384 123-389 123-390 123-392 123-393 123-395 123-396 123-397 123-398 123-399	An error occurred in the machine. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.

Status Code	Cause and Remedy
124-310 124-311 124-312 124-313 124-314 124-315 124-316 124-317 124-318 124-319 124-320 124-321 124-322 124-323 124-324 124-325 124-326 124-327 124-328 124-331 124-333 124-334 124-335 124-337 124-338 124-339 124-340 124-341 124-342 124-343 124-344 124-345 124-346 124-347 124-348 124-349 124-350 124-351 124-352 124-353 124-354 124-355 124-356 124-357 124-360	An error occurred in the machine. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.

Status Code	Cause and Remedy
124-361 124-362 124-363 124-372 124-373 124-374 124-380 124-381 124-382 124-383 124-390 124-391 124-392 124-393 125-311	An error occurred in the machine. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.

"127-001" - "132-999"

Status Code	Cause and Remedy
127-210 127-211 127-212	A communication error occurred between the machine and the Print Server. Disconnect the print server cable, and then securely insert the cable into the connector. Turn off the printer, and turn it on again.
127-213	A communication error occurred between the machine and the Print Server. Update the machine and the Print Server software to the latest versions.
127-220 127-221	A communication error occurred between the machine and the Print Server. Disconnect the print server cable, and then securely insert the cable into the connector. Turn off the printer, and turn it on again.
127-310 127-311 127-312 127-313 127-314 127-315 127-320 127-353 127-354 127-396 127-398 127-399	An error occurred in the machine. Turn off the printer, and turn it on again. Contact customer support if this failure is repeated.

NOTE:

- If you cannot resolve an error despite following the instructions described in the tables, contact Customer Support at **dell.com/contactdell**.

Other Errors

Error Message	Cause and Remedy
Power off the Device.Wait for all Control Panel lights to go out.Power on the Device. If problem persists, refer to online Knowledge Base, or contact your System Administrator. xxx-yyy	Turn off the printer, and turn it on again. Refer to this User's Guide for details on the status code. Contact customer support if this failure is repeated.
Completed (Error) xxx-yyy	The job was completed with an error. Refer to this User's Guide for details on the status code.

Specifications

Operating System Compatibility

Supported Operating Systems	Windows Vista Windows Vista 64-bit Edition Windows 7 Windows 7 64-bit Edition Windows 8 Windows 8 64-bit Edition Windows 8.1 Windows 8.1 64-bit Edition Windows 10 Windows 10 64-bit Edition Windows Server 2008 Windows Server 2008 64-bit Edition Windows Server 2008 R2 Windows Server 2012 Windows Server 2012 R2 Windows Server 2016 Mac OS X 10.6 Mac OS X 10.7 OS X 10.8 OS X 10.9 OS X 10.10 OS X 10.11 macOS 10.12 Sierra Red Hat® Enterprise Linux® Desktop 6 (x86, x64) SUSE® Linux Enterprise Desktop 11 (x86, x64) Ubuntu 12.04 LTS

Power Supply

Rated voltage		110 VAC - 127 VAC
Frequency		50/60 Hz
Current		10 A or less
Power consumption **NOTE:** • The values of the power consumption may vary depending on use conditions and environment.	Ready Low Power Sleep* Offline	54 W 16 W 0.9 W 0.23 W
TEC value		1.9 kWh

* This condition is equivalent to Network standby mode, the power consumption in this condition is that all wired network ports are connected and all wireless network ports are activated.

Dimensions

Height	439 mm (17.3 inches)
Width	454 mm (17.9 inches)
Depth	485 mm (19.1 inches)

Weight

Weight (including toner cartridges and drum cartridges)	26 kg

Memory

Memory	2 GB
Speed	DDR3: 667 MHz

Page Description Language (PDL)/Emulation, Operating System, and Interface

PDL/Emulations	PCL5c, PCL 6 (PCLXL 2.1), PostScript 3 (Native Adobe), XML Paper Specification, PDF v1.7, PWG Raster (for Google Cloud Print), URF (for AirPrint)

Operating systems	Windows Vista	
	Windows Vista 64-bit Edition	
	Windows 7	
	Windows 7 64-bit Edition	
	Windows 8	
	Windows 8 64-bit Edition	
	Windows 8.1	
	Windows 8.1 64-bit Edition	
	Windows 10	
	Windows 10 64-bit Edition	
	Windows RT 8	
	Windows RT 8.1	
	Windows Server 2008	
	Windows Server 2008 64-bit Edition	
	Windows Server 2008 R2	
	Windows Server 2012 R2	
	Windows Server 2016	
	Windows Cluster Server Environment (No status monitor)	
	Mac OS X 10.7	
	OS X 10.8	
	OS X 10.9	
	OS X 10.10	
	OS X 10.11	
	macOS 10.12 Sierra	
	Red Hat® Enterprise Linux® Desktop 6 (x86, x64)	
	SUSE® Linux Enterprise Desktop 11 (x86, x64)	
	Ubuntu 12.04 LTS	
Interfaces (front)	USB 2.0 host port (for the Print from USB feature)	
Interfaces (rear)	Optional wireless network:	IEEE 802.11a/802.11b/802.11g/802.11n
		Wi-Fi Direct (up to 3 connections)
		2.4 GHz/5 GHz
	USB 3.0 device port	
	USB 2.0 host port	
	Ethernet port (10 Base-T/100Base-TX/1000Base-T)	

Management Information Base (MIB) Compatibility

MIB is a database containing information about network devices such as adapters, bridges, routers, or computers. This information helps network administrators manage the network and analyze performance, traffic, errors, and so on. Your printer complies with standard industry MIB specifications, allowing the printer to be recognized and managed by various printer and network management software systems.

Environment

Operation

Temperature	10 °C - 32 °C
Relative humidity	10 % - 85 % RH (no condensation)

Print Quality Guarantee

Temperature range	15 °C - 28 °C
Relative humidity	20 % - 70 % RH (no condensation)

Storage

Temperature	-20 °C to 40 °C (0 °F to 104 °F)
Storage humidity range	5 % - 85 % RH (no condensation)

Altitude

Operating	Up to 3,100 m (10,170 feet)
Storage	Up to 3,100 m (10,170 feet)

Cables

Your interconnection cable must meet the following requirements:

	Connection type	Connection specifications and symbols	
1	Ethernet	**10Base-T/100Base-TX/ 1000Base-T**	
2	USB	**USB 3.0/2.0**	
3	Phone connector		
4	Wall jack connector		

Print Specifications

Item	Description
Print resolution	600 dpi x 600 dpi 1200 dpi x 1200 dpi

Item	Description
Print speed	Simplex: Color 36 ppm, Black & White 36 ppm (Letter) Duplex: Color 24 ppm, Black & White 24 ppm (Letter)
Paper size	Letter SEF, Executive SEF, A6 SEF, A5 SEF, A4 SEF, B6 SEF, B5 SEF, Legal13 SEF, Legal14 SEF, Com-10 SEF, Monarch SEF, DL SEF, C5 SEF, Post Card (4 x 6 inch), Statement

Wireless Connection Specifications

Item	Description
Connectivity technology	Wireless
Compliant standards	IEEE 802.11a, 802.11b, 802.11g, and 802.11n
Bandwidth	IEEE 802.11n, 802.11g and 802.11b: 2.4 GHz IEEE 802.11n and 802.11a: 5 GHz
Data transfer rate	IEEE 802.11n: 72 Mbps IEEE 802.11g and 802.11a: 54, 48, 36, 24, 18, 12, 9, and 6 Mbps IEEE 802.11b: 11, 5.5, 2, and 1 Mbps
Security	64 (40-bit key)/128 (104-bit key) WEP, WPA- PSK (TKIP, AES), WPA2-PSK (AES), WPA-Enterprise (TKIP, AES)*1, WPA2-Enterprise (AES)*1
Wi-Fi Protected Setup (WPS)*2	Push-Button Configuration (PBC), Personal Identification Number (PIN)
Wireless mode	Infrastructure, Ad-hoc, Wi-Fi Direct

*1 EAP method supports PEAPv0, EAP-TLS, EAP-TTLS PAP, and EAP-TTLS CHAP.

*2 WPS 2.0 compliant.

6

Maintaining Your Printer

Maintaining Your Printer

You need to complete certain tasks to maintain optimum print quality.

Determining the Status of Supplies

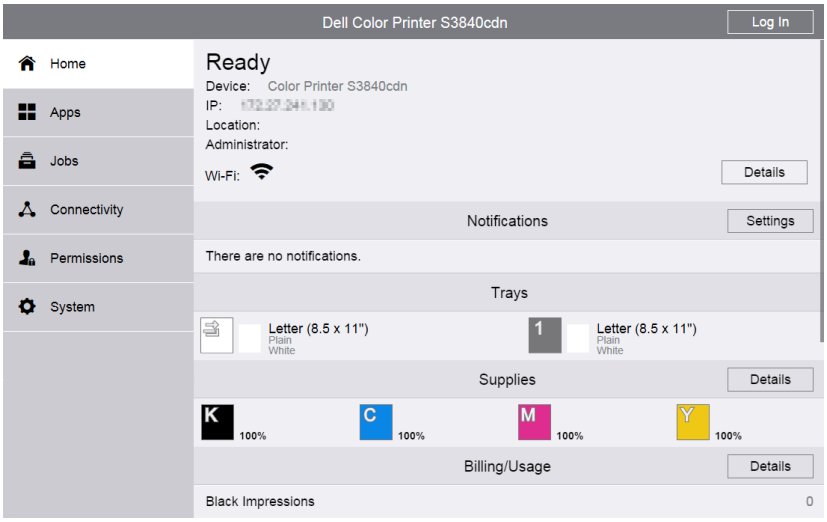
If the printer is connected to the network, **Dell Printer Configuration Web Tool** can provide instant feedback on remaining toner levels. Enter the printer's IP address in your web browser to view this information. You can also set the printer to send you an e-mail alert when the printer needs supplies.

On the touch panel screen, you can also confirm the following:

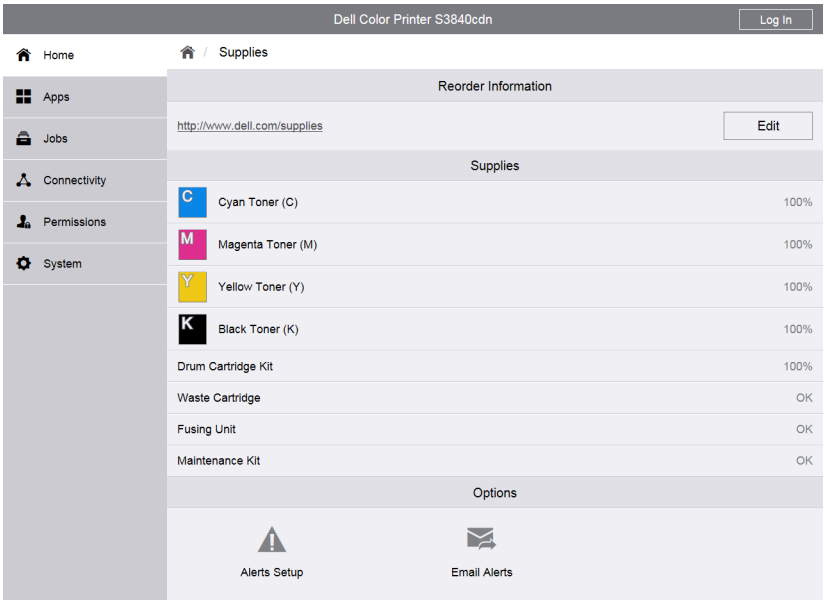
- Any supply or maintenance items that require attention replacing.
- Amount of toner remaining in the toner cartridge.

To set up e-mail alerts:

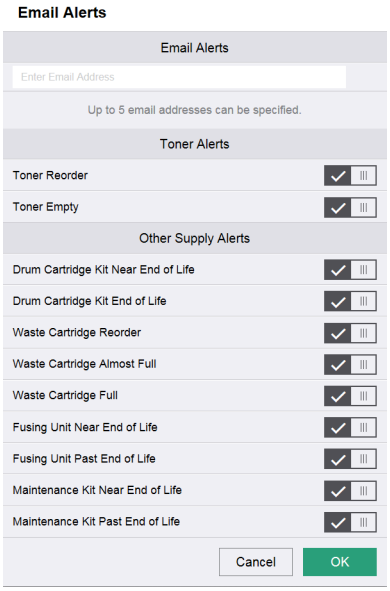
1. Launch the **Dell Printer Configuration Web Tool**. See "Starting the Dell Printer Configuration Web Tool".
2. Click **Details** in the **Supplies** section of the **Home** screen.



3 Click **Email Alerts** in the **Options** section of the **Supplies** screen.



4 Enter your or key operator's e-mail address in the **Email Alerts** text box.



5 Click **OK**.

Conserving Supplies

You can change several settings in your printer driver to conserve toner cartridge and paper.

Supply	Setting	Function
Toner cartridge	**Toner Saver** in the **Others** tab	This drop-down menu allows the users to select a print mode that uses less toner. The image quality will be lower when this feature is used.
Print media	**Multiple Up** in the **Layout** tab	The printer prints two or more pages on one side of a sheet.
Print media	**Duplex** in the **General** tab	The printer prints on both sides of a sheet of paper.

Ordering Supplies

You can order consumables (toner cartridges, drum cartridges, and waste toner box) online at **www.dell.com/supplies**.

Storing Print Media

To avoid potential paper feeding problems and uneven print quality, there are several things you can do:

- To achieve the best possible print quality, store print media in an environment where the temperature is approximately 21 °C (70 °F) and the relative humidity is 40 %.
- Store cartons of print media on a pallet or shelf, rather than directly on the floor.
- If you store individual packages of print media out of the original carton, ensure that they rest on a flat surface so the edges do not buckle or curl.
- Do not place anything on top of the print media packages.

Storing Consumables

Store consumables in their original packaging until you need to use them. Do not store consumables in:

- Temperatures greater than 40 °C (104 °F).
- An environment with extreme changes in humidity or temperature.
- Direct sunlight.
- Dusty places.
- A car for a long period of time.
- An environment where corrosive gases are present.
- A humid environment.

Replacing the Toner Cartridges

⚠ **WARNING:**

- **Before performing any of the following procedures, read and follow the safety instructions in the *Important Information*.**

Dell toner cartridges are available only through Dell. You can order cartridges online at **www.dell.com/supplies**.

It is recommended to use Dell toner cartridges for your printer. Dell does not provide warranty coverage for problems caused by using accessories, parts, or components not supplied by Dell.

WARNING:

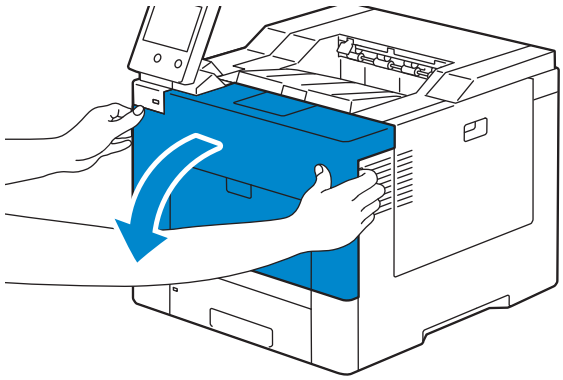
- **Never throw a toner cartridge into an open flame. Remaining toner in the cartridge may catch fire and cause burn injuries or explosion.**
- **Never use a vacuum cleaner for spilled toner and residual toner in this product, toner cartridge or toner container. It may catch fire by electric sparks inside a vacuum cleaner and cause explosion. Use a broom or a wet cloth to wipe off the spills. If you spill a large volume of toner, contact Dell.**
- **Do not shake the used toner cartridge. This may cause toner spills.**

Removing the Toner Cartridge

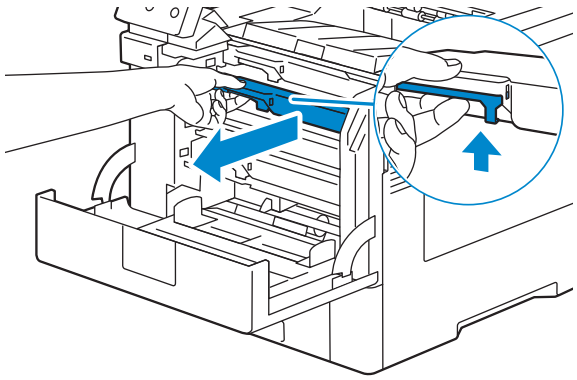
NOTE:

- Ensure that you remove all the paper from the bypass tray and close the bypass tray cover before removing the toner cartridge.

1 Grasp the grips on both sides of the front cover, and then pull it down to open.



2 Grasp the handle on the toner cartridge that you want to replace, and then pull it out.



WARNING:

- **Do not shake the toner cartridge as it may cause toner spills.**
- **Never throw a toner cartridge into an open flame. Remaining toner in the cartridge may catch fire and cause burn injuries or explosion.**

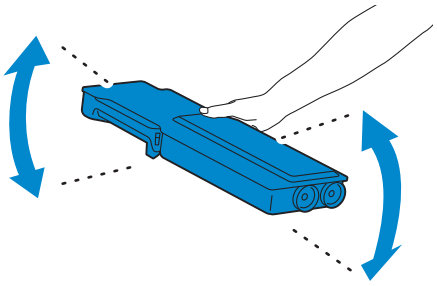
NOTE:

- Slide out the toner cartridge gently. Otherwise, toner may spill from the cartridge.

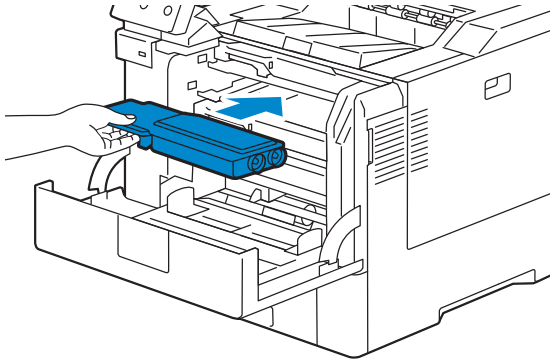
Installing a Toner Cartridge

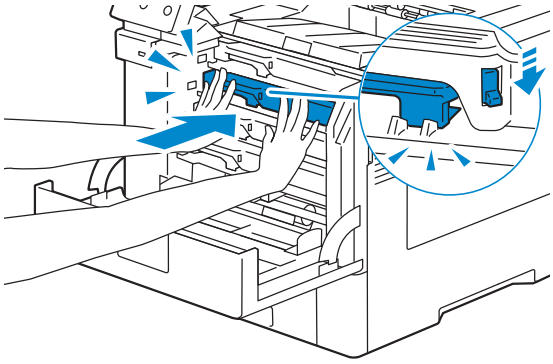
1 Unpack a new toner cartridge of the desired color.

2 Shake the new toner cartridge five or six times to distribute the toner evenly.



3 Insert the toner cartridge into the associated cartridge slot, and then push until it clicks into place.





4 Close the front cover.

NOTE:

- If the front cover is not closed completely, a message appears and the machine will remain paused.

Replacing the Drum Cartridges

You need to replace all drum cartridges (yellow, magenta, cyan, and black) at a time.

WARNING:

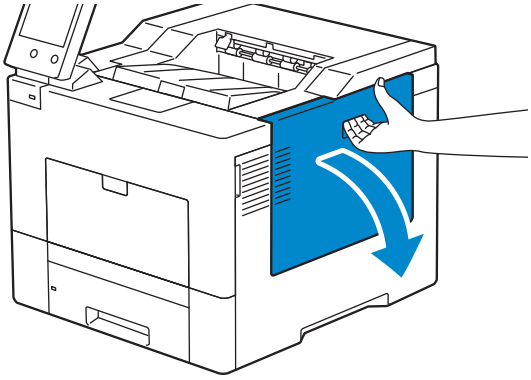
- **Before performing any of the following procedures, read and follow the safety instructions in the *Important Information*.**

CAUTION:

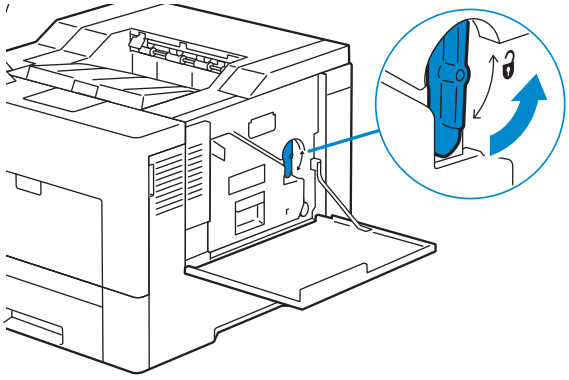
- **Protect the drum cartridge against bright light. If the front side cover remains open for more than 3 minutes, print quality may deteriorate.**

Removing the Drum Cartridges

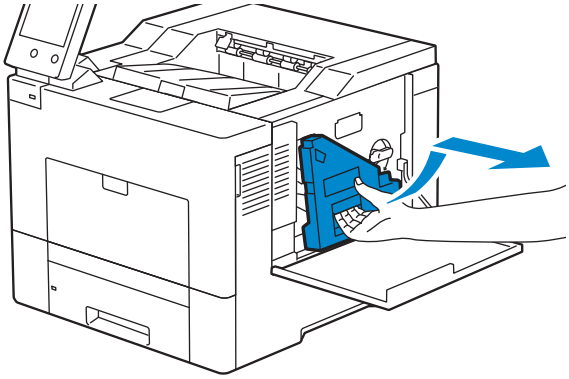
1 Open the right side cover.

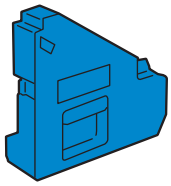


2 Turn the waste toner box lock lever 90-degrees counterclockwise to unlock the waste toner box.



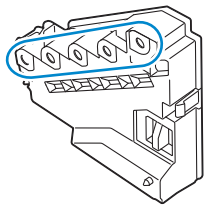
3 Grasp the handle on the waste toner box and pull it out making sure to hold it upright so that the waste toner does not spill out.



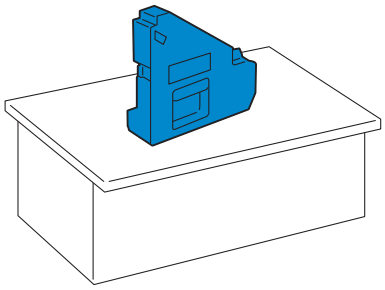


CAUTION:

- **Take care not to drop the waste toner box while you are removing it.**
- **After removing the waste toner box, do not touch the parts shown in the illustration. Toner can dirty or stain your hands.**

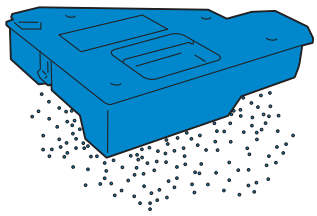


4 Stand the removed waste toner box upright on a level surface.

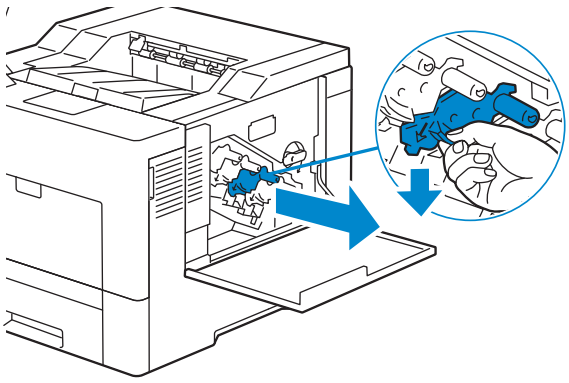


WARNING:

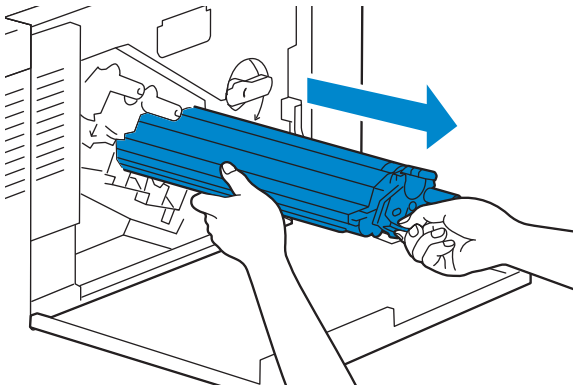
- **Never lay the waste toner box on its side as this may cause its malfunction or toner spills.**



5 Slightly pressing down the tab on the drum cartridge that you want to replace, pull it out halfway with one hand.



6 Support the drum cartridge with the other hand from underneath, and then pull it out completely.

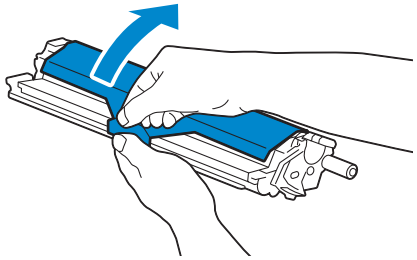


7 Repeat steps 5 and 6 to remove the other three cartridges.

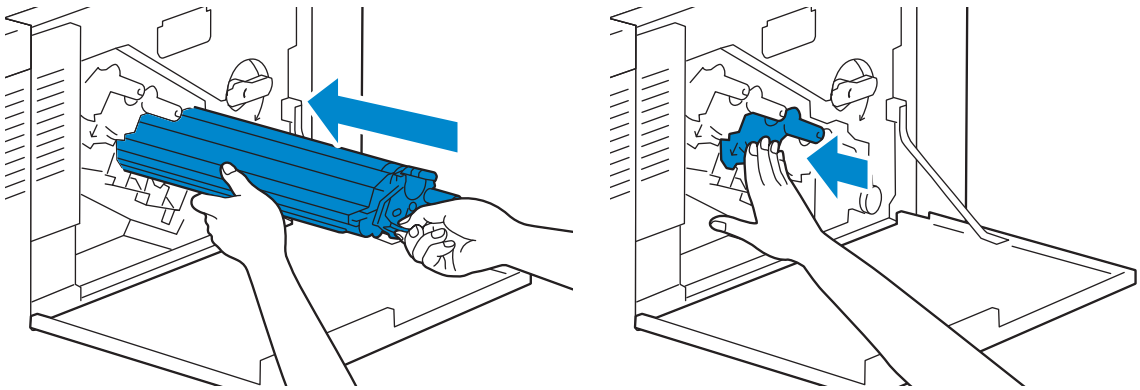
Installing Drum Cartridges

1 Unpack a new drum cartridge of the desired color.

2 Remove the orange protective cover from the drum cartridge.

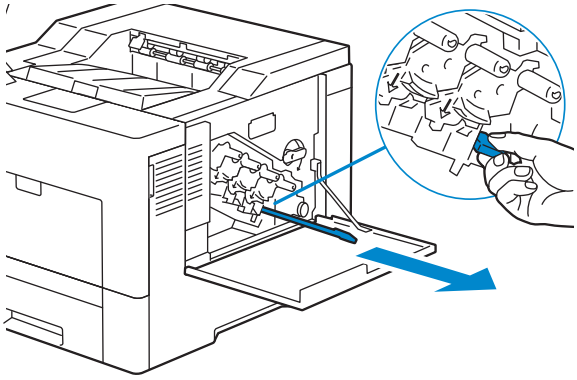


3 Insert the drum cartridge into the associated cartridge slot, and then push until it stops.

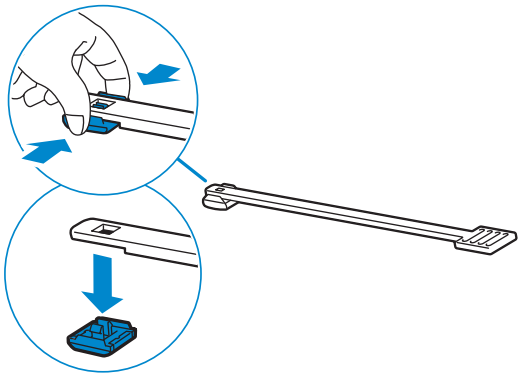


4 Repeat steps 1 to 3 to insert the other three cartridges.

5 Remove the cleaning rod from inside the printer.

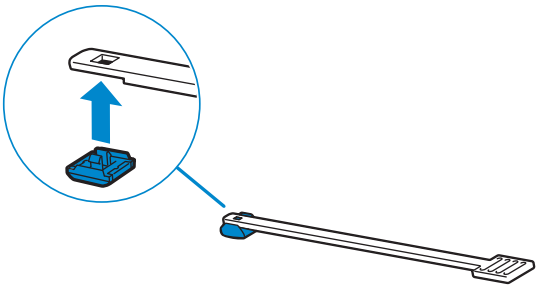


6 Remove the cleaning pad by pressing the white tabs between your thumb and index finger.

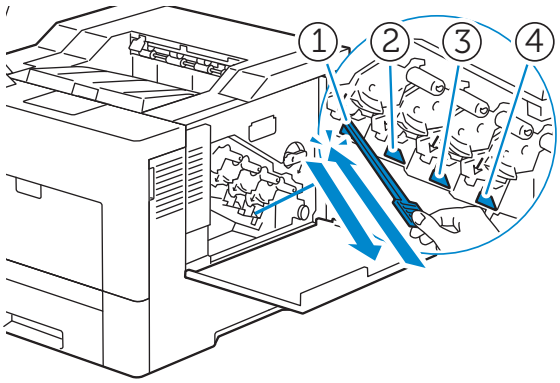


7 Unpack a new cleaning pad.

8 Attach the new cleaning pad to the cleaning rod.



9 Insert the cleaning rod fully into one of the four holes until it clicks into the interior of the printer as illustrated below, and then pull it out.

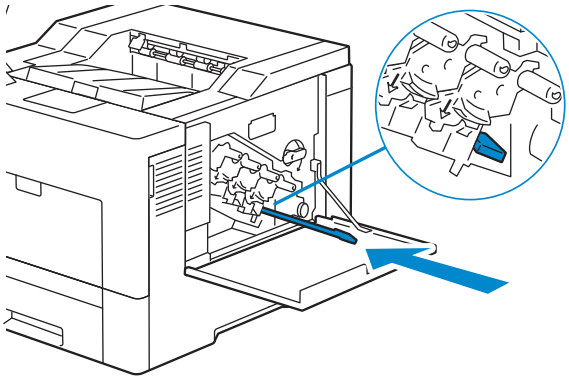


NOTE:

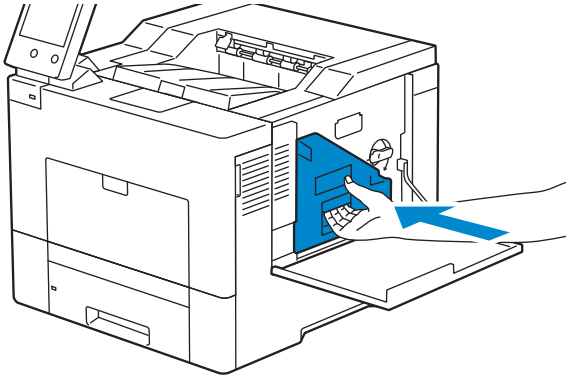
- This cleaning step prevents deterioration of printing quality. See "Cleaning the Raster Optical Scanner (ROS) Window".

10 Repeat step 9 also on the other three holes. One time insertion is enough for each hole.

11 Return the cleaning rod to its original location.



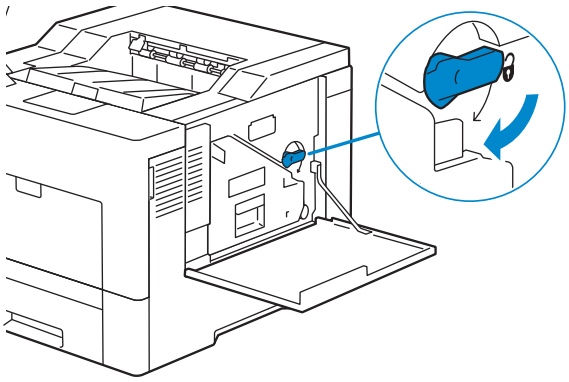
12 Reinsert the removed waste toner box.



CAUTION:

- **If the waste toner box does not fit into place properly, make sure that the drum cartridge is fully inserted in the previous step.**

13 Turn the waste toner box lock lever 90-degrees clockwise to lock the waste toner box.



14 Close the right side cover.

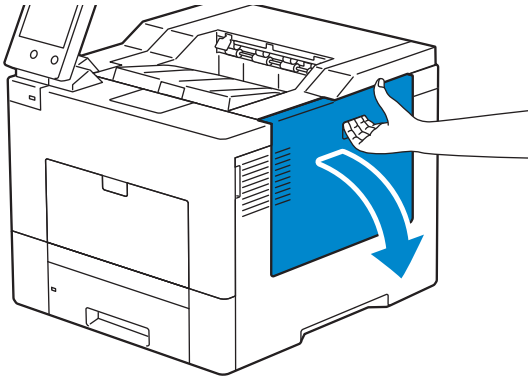
Replacing the Waste Toner Box

⚠ **WARNING:**

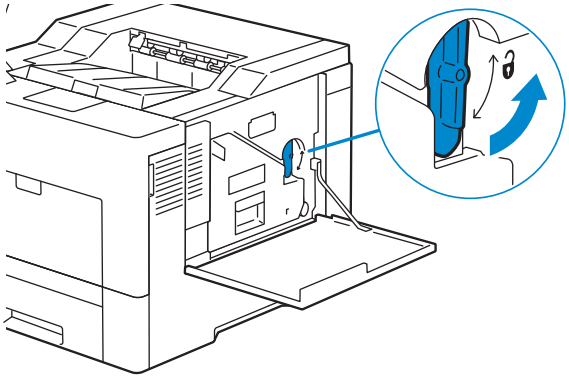
- **Before performing any of the following procedures, read and follow the safety instructions in the *Important Information*.**

Removing the Waste Toner Box

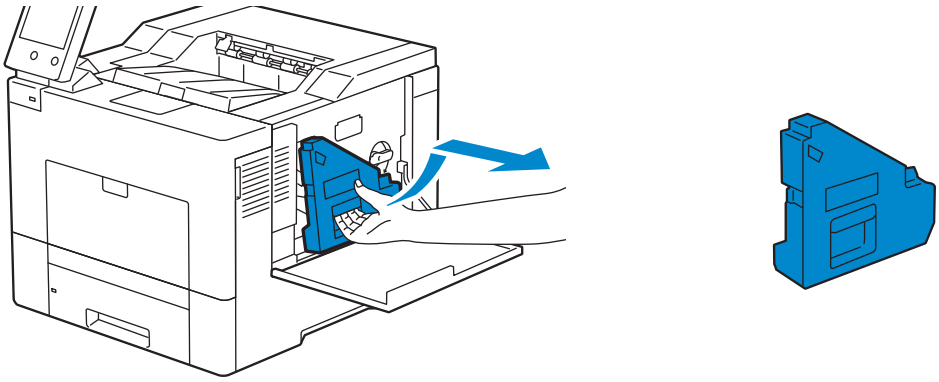
1 Open the right side cover.



2 Turn the waste toner box lock lever 90-degrees counterclockwise to unlock the waste toner box.

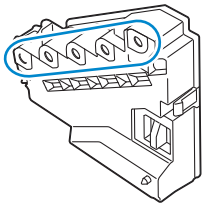


3 Grasp the handle on the waste toner box and pull it out making sure to hold it upright so that the waste toner does not spill out.



CAUTION:

- **Take care not to drop the waste toner box while you are removing it.**
- **After removing the waste toner box, do not touch the parts shown in the illustration. Toner can dirty or stain your hands.**

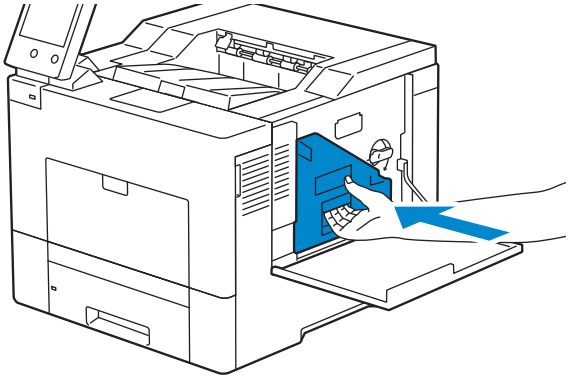


4 Insert the used waste toner box into the plastic bag that came with the new waste toner box and seal the bag.

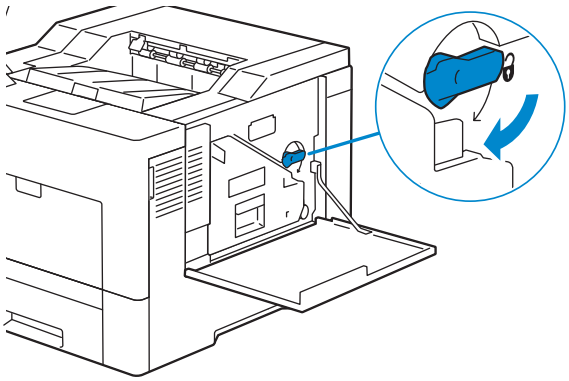
Installing a Waste Toner Box

1 Unpack a new waste toner box.

2 Insert the waste toner box.



3 Turn the waste toner box lock lever 90-degrees clockwise to lock the waste toner box.



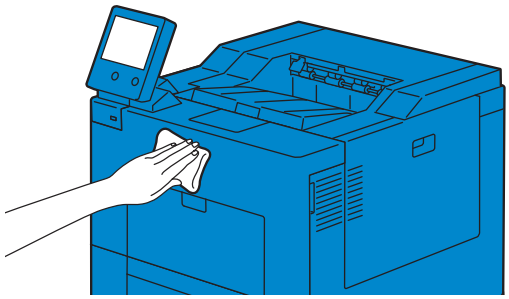
4 Close the right side cover.

Cleaning the Exterior

NOTE:

- Do not use benzene, paint thinner, or other volatile liquids or spray insect repellent on the machine as they might discolor, deform, or crack covers.
- Cleaning the machine with an excessive amount of water may cause the machine to malfunction or damage documents during printing.

1 Wipe the exterior with a firmly wrung soft cloth moistened with water.



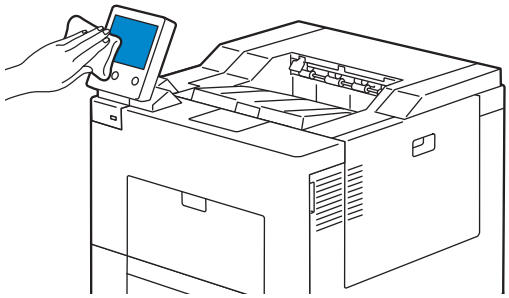
NOTE:

- Do not use cleaning agents other than water or neutral detergent.
- If you cannot remove the dirt easily, gently wipe the machine with a soft cloth moistened with a small amount of neutral detergent.

2 Wipe off any excess water with a soft cloth.

Cleaning the Touch Screen

1 Wipe only the LCD area with a soft cloth moistened with neutral detergent or alcohol.



NOTE:

- When you moisten the cloth with neutral detergent or alcohol, do not allow the excess liquid to drip down from the cloth. If the cloth is moistened with the excess liquid, wring the cloth gently before wiping the LCD area.
- Do not use any volatile liquids on the machine such as benzene and paint thinner, or insect repellent as these may discolor, deform, or crack the machine exterior.
- Cleaning the touch screen with an excessive force may cause the screen to be damaged. Wipe the screen gently.

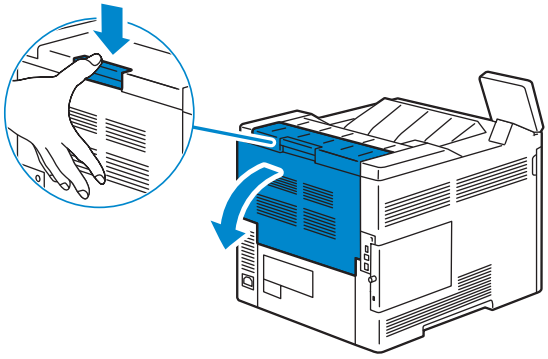
Cleaning Inside the Printer

Cleaning the CTD Sensor

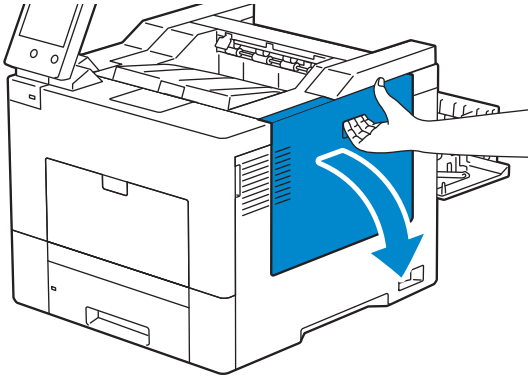
Clean the Color Toner Density (CTD) sensor only when an alert for the CTD sensor is shown on the touch panel screen. See "Understanding Printer Messages".

1 Ensure that the printer is turned off.

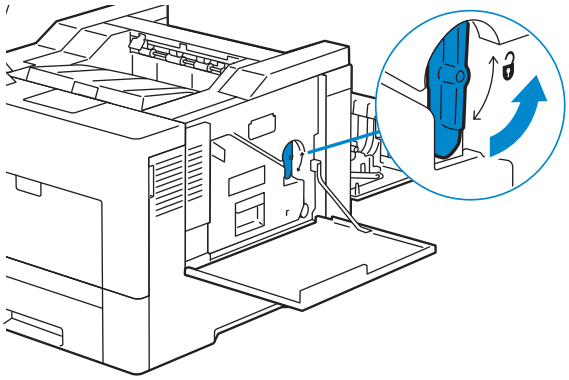
2 Push down the latch to open the rear cover.



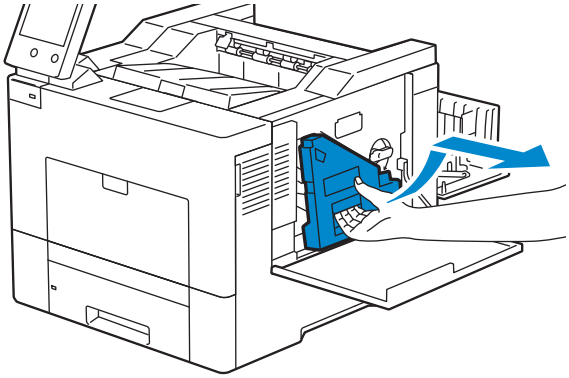
3 Facing the front of the printer, open the right side cover.

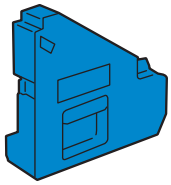


4 Turn the waste toner box lock lever 90-degrees counterclockwise to unlock the waste toner box.



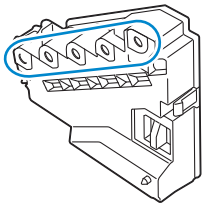
5 Grasp the handle on the waste toner box and pull it out making sure to hold it upright so that the waste toner does not spill out.



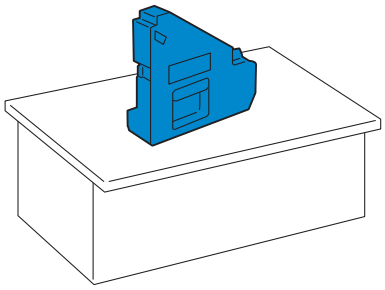


CAUTION:

- **Take care not to drop the waste toner box while you are removing it.**
- **After removing the waste toner box, do not touch the parts shown in the illustration. Toner can dirty or stain your hands.**

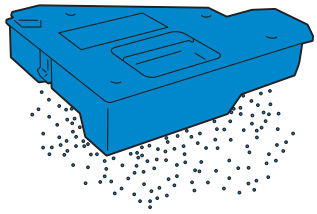


6 Stand the removed waste toner box upright on a level surface.

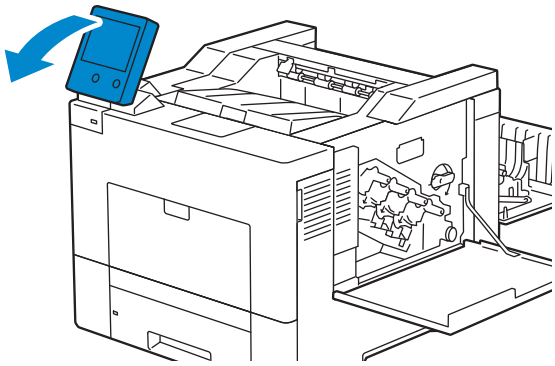


WARNING:

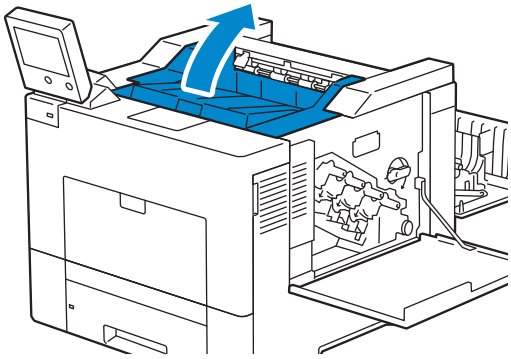
- **Never lay the waste toner box on its side as this may cause its malfunction or toner spills.**



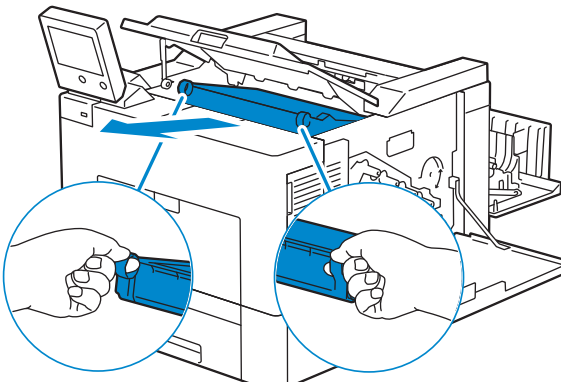
7 Tilt the control panel forward.



8 Open the top cover.

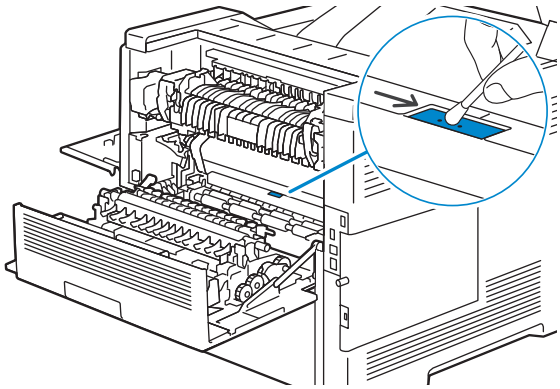


9 Put your fingers through the loops on both sides of the transfer belt unit, and then pull it out.

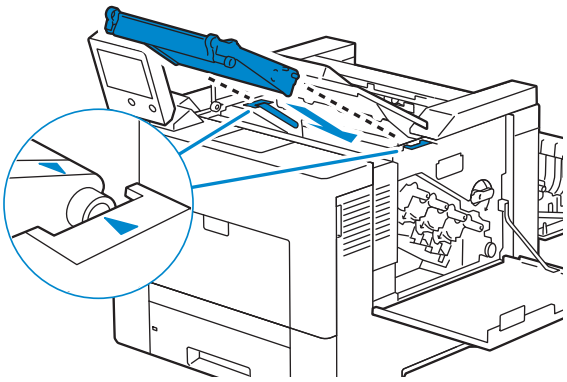


10 Accessing the printer from its rear, look for the CTD sensor.

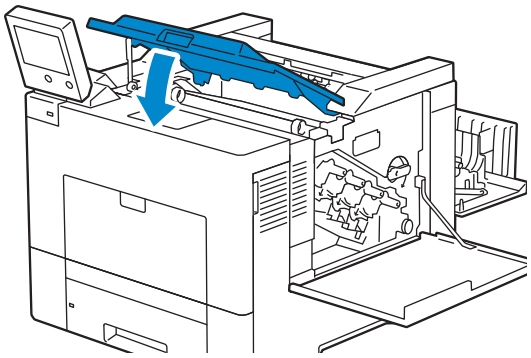
Clean the CTD sensor (as shown) with a clean, dry cotton swab.



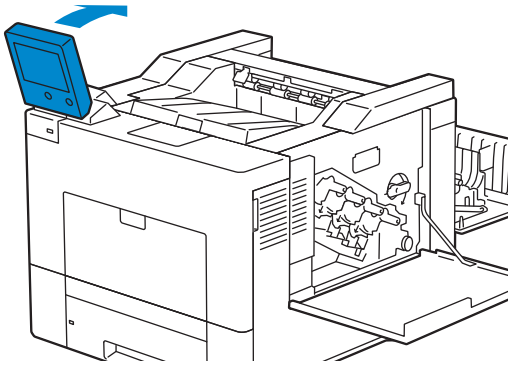
11 Make sure that the arrow marks on the transfer belt unit and the printer face each other, and then insert the unit into the printer until it clicks.



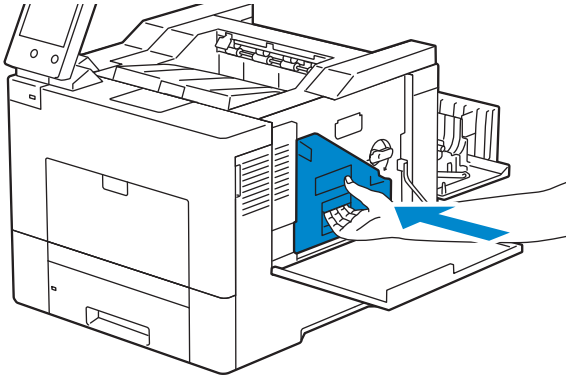
12 Close the top cover.



13 Tilt the control panel backward to its original position.

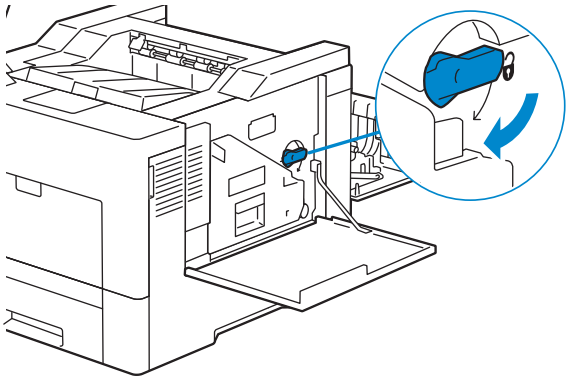


14 Reinsert the removed waste toner box.



CAUTION:
- **If the waste toner box does not fit into place properly, make sure that the transfer belt unit is fully inserted.**

15 Turn the waste toner box lock lever 90-degrees clockwise to lock the waste toner box.



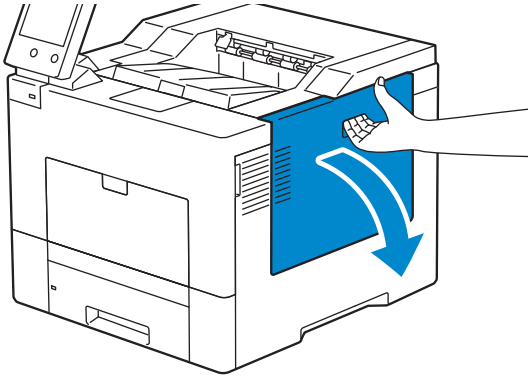
16 Close the right side cover.

17 Close the rear cover.

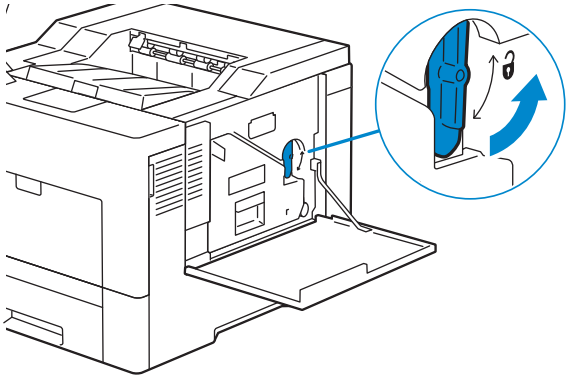
Cleaning the Raster Optical Scanner (ROS) Window

To prevent deterioration of printing quality due to stains inside the printer, clean inside the printer regularly by using the cleaning rod whenever you replace drum cartridges.

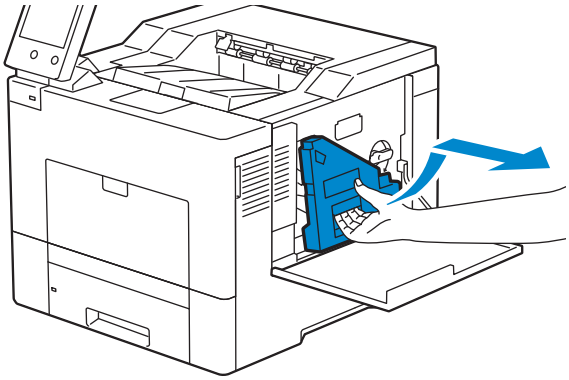
1 Open the right side cover.

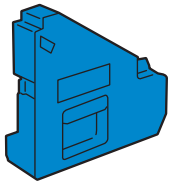


2 Turn the waste toner box lock lever 90-degrees counterclockwise to unlock the waste toner box.



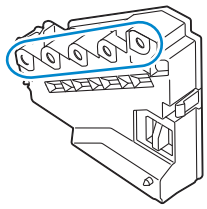
3 Grasp the handle on the waste toner box and pull it out making sure to hold it upright so that the waste toner does not spill out.



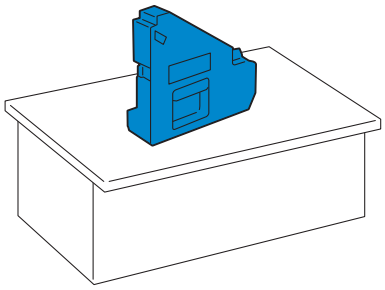


CAUTION:

- **Take care not to drop the waste toner box while you are removing it.**
- **After removing the waste toner box, do not touch the parts shown in the illustration. Toner can dirty or stain your hands.**

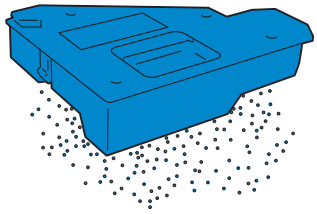


4 Stand the removed waste toner box upright on a level surface.

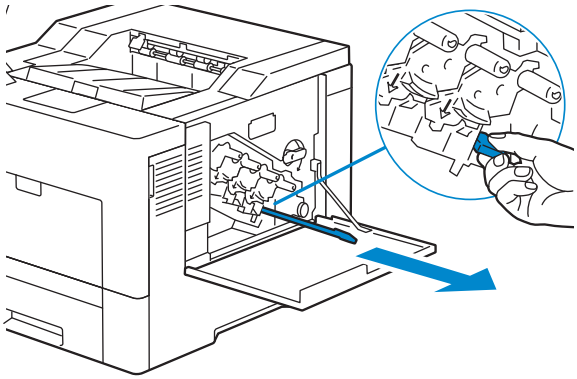


WARNING:

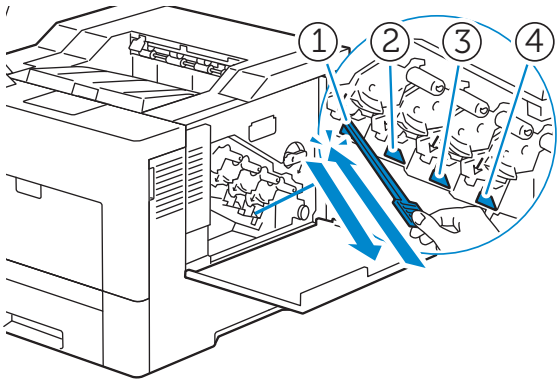
- **Never lay the waste toner box on its side as this may cause its malfunction or toner spills.**



5 Remove the cleaning rod from inside the printer.

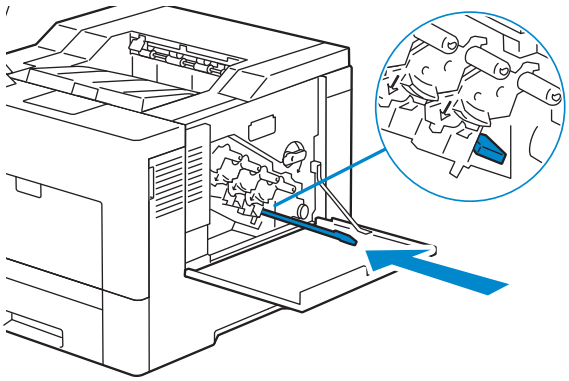


6 Insert the cleaning rod fully into one of the four holes until it clicks into the interior of the printer as illustrated below, and then pull it out.

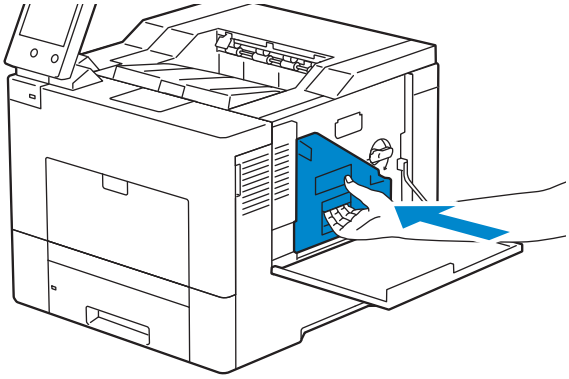


7 Repeat step 6 also on the other three holes. One time insertion is enough for each hole.

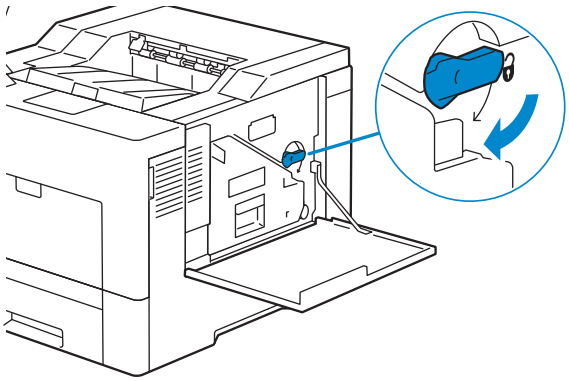
8 Return the cleaning rod to its original location.



9 Reinsert the removed waste toner box.



10 Turn the waste toner box lock lever 90-degrees clockwise to lock the waste toner box.



11 Close the right side cover.

Moving the Printer

WARNING:

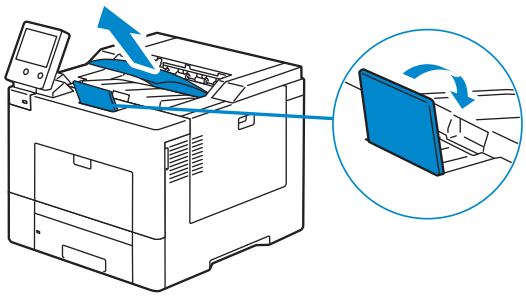
- **Two people are required to move the printer.**
- **To prevent you from dropping the printer and getting backache or injuries, lift the printer by firmly gripping the recessed areas on both sides of the printer. Never lift the printer by gripping any other areas.**
- **If the optional 550-sheet feeder has been installed, uninstall the optional 550-sheet feeder before moving the printer. If the optional 550-sheet feeder is not fixed securely to the printer, it may fall to the ground and cause injuries.**

1 Turn off the printer and disconnect the power cable, interface cable, and any other cables.

NOTE:

- The data in the memory are cleared when the printer is turned off.

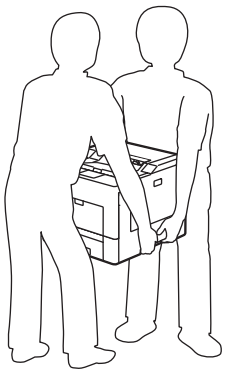
2 Remove any paper in the output tray and retract the output tray extension.



3 Lift the printer and move it gently.

NOTE:

- If you move the printer over a long distance, remove the toner cartridges from the printer to prevent toner from spilling, and pack the printer inside a box.



Adjusting Color Registration

When you first install the printer or after moving it to a new location, adjust the color registration in `Device` > `Support` > `Color Registration - Automatic`.

If you need to adjust the color registration manually, follow the procedure below.

Printing a Sample Page

1 Load a sheet of Letter-sized paper in the bypass tray.

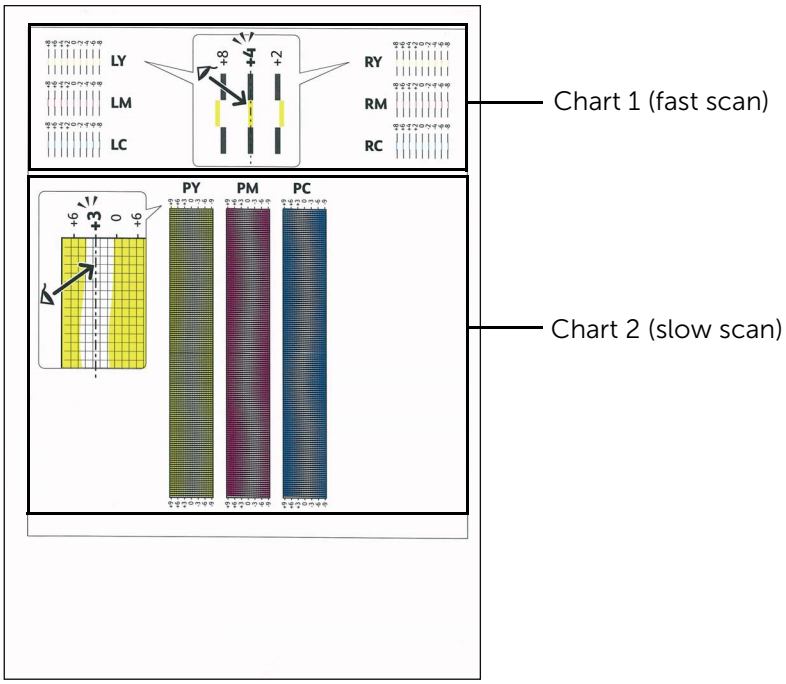
2 Select `Device` > `Support` > `Color Registration - Manual`.

3 Select `Print Sample`.

4 Select `Start` to print a sample page.

Determining Values

On the sample page, there are two types of charts: Chart 1 (fast scan) and Chart 2 (slow scan).



The Chart 1 is used to adjust the color registration for the fast scan direction, which is vertical to paper feed direction. The Chart 2 is used to adjust the color registration for the slow scan direction, which is horizontal to paper feed direction.

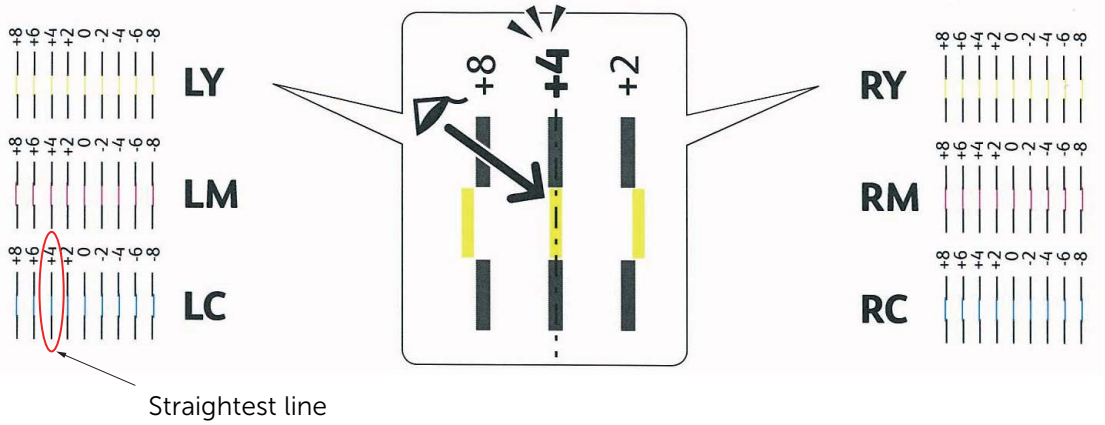
The following sections explain how to determine the adjustment values for the fast scan and the slow scan using Chart 1 and Chart 2.

Fast Scan

On the Chart 1, find the straightest lines where the two black lines and the colored line are most closely aligned for each color (**LY**, **LM**, **LC**, **RY**, **RM**, and **RC**). If you find the straightest line, make a note of the value (**-8** to **+8**) indicated by the straightest line for each color.

When the value is **0** for each color, you do not need to adjust the color registration for the fast scan.

When the value is not **0**, enter the value using the procedure in "Entering Values".



NOTE:

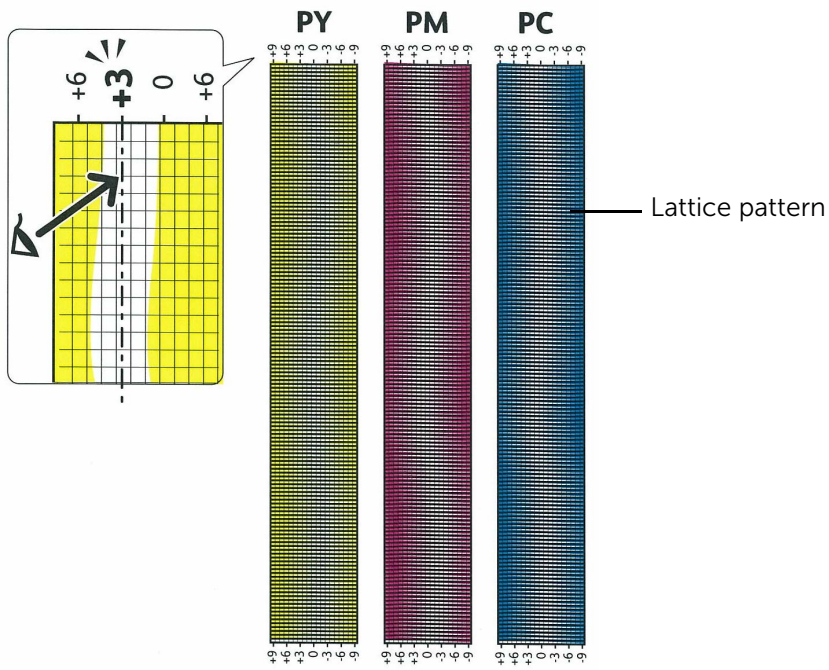
- If it is difficult to choose only one value, as in the case that there seem to be two values closest to a straight line, take the value between the two. For example, in the figure above, -6 and -8 are the values closest to a straight line, so you would enter the value -7.

Slow Scan

On the Chart 2, find the medium line within the range of white area for each color pattern (**PY**, **PM**, and **PC**). If you find the medium line, make a note of the value (**-9** to **+9**) indicated by the medium line for each color.

When the value is **0** for each color, you do not need to adjust the color registration for the slow scan.

When the value is not **0**, enter the value using the procedure in "Entering Values."



Entering Values

1. Select `Device` > `Support` > `Color Registration - Manual`.
2. Select the color you want to adjust.

3 Tap - or + to specify the values for left colors (LY, LM, and LC).

4 Tap - or + to specify the values for right colors (RY, RM, and RC).

5 Tap - or + to specify the values for process colors (PY, PM, and PC).

NOTE:

- The registration values are always shown as 0 the next time you enter the menu.

6 Select `OK`.

7 Repeat steps 2 to 6 for all colors you want to adjust.

8 Select `Print Sample`.

9 Select `Start` to print the sample page with the new values.

10 If any of the straightest lines is not at the value of 0, adjust the values again.

11 Select `Adjust`.

NOTE:

- After printing the sample page, do not turn off the printer until the printer motor has stopped running.

Removing Options

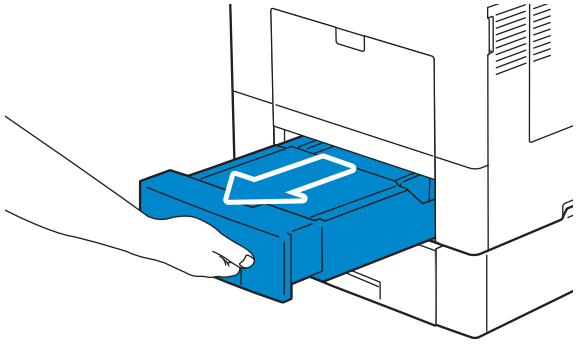
If the printer location needs to change or the printer and print media handling options need to be shipped to a new location, all print media handling options must be removed from the printer. For shipping, pack the printer and print media handling options securely to avoid damage.

Removing the Optional 550-Sheet Feeder

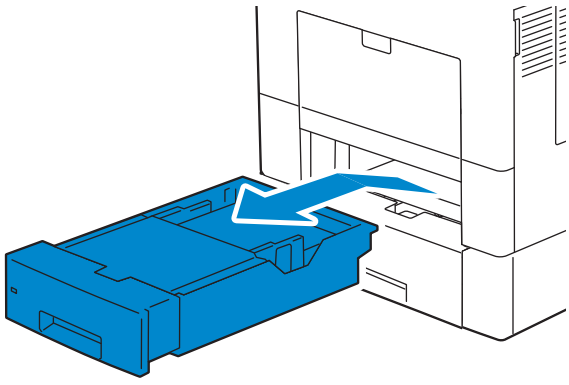
⚠ **WARNING:**

- **When you remove the optional 550-sheet feeder (Tray 2), be sure to turn off the printer, unplug the power cable, and disconnect all cables from the rear of the printer before starting these tasks.**

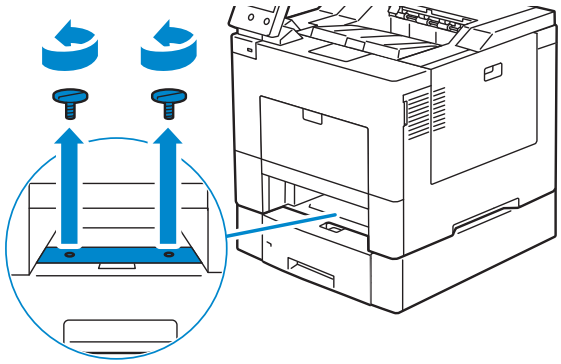
1. Ensure that the printer is turned off, and then disconnect all cables from the rear of the printer.
2. Pull Tray 1 out of the printer about 200 mm.



3. Hold Tray 1 with both hands, and remove it from the printer.

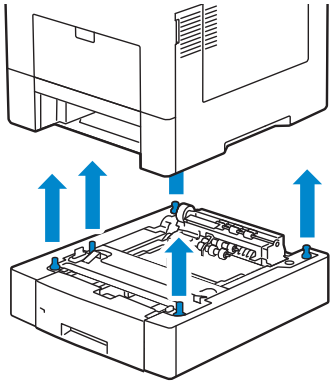


4 Remove the two screws joining the printer and the optional 550-sheet feeder by unscrewing them with a coin or similar object.

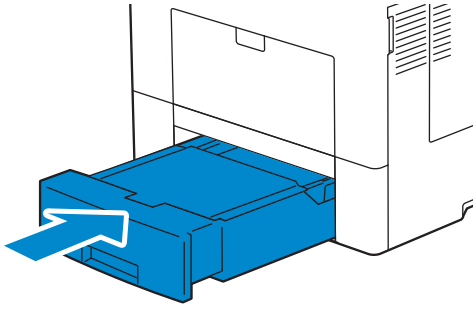


5 Gently lift the printer off the optional 550-sheet feeder, and place it on a level surface.

WARNING:
- **Two people are required to lift the printer.**



6 Insert Tray 1 into the printer, and push until it stops.



CAUTION:
- **Do not use excessive force on the tray. Doing so could damage the tray or the inside of the printer.**

7 Re-connect all cables into the rear of the printer and turn on the printer.

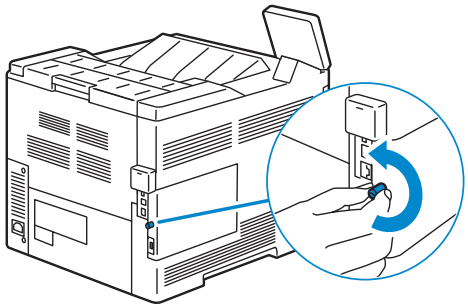
Removing the Optional Wireless Adapter

WARNING:

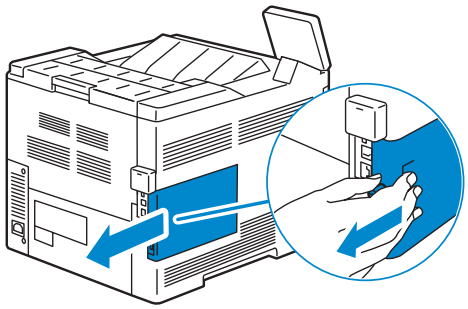
- **When you remove the optional wireless adapter, be sure to turn off the printer, unplug the power cable, and disconnect all cables from the back of the printer before starting these tasks.**

1 Ensure that the printer is turned off.

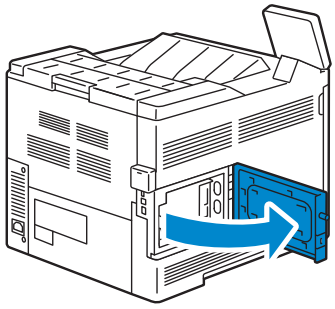
2 Turn the screw on the left side cover counterclockwise to loosen it.



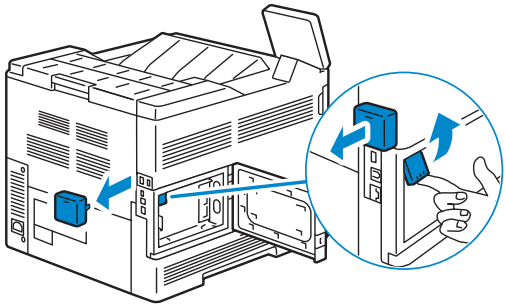
3 Slide the left side cover towards the back of the printer.



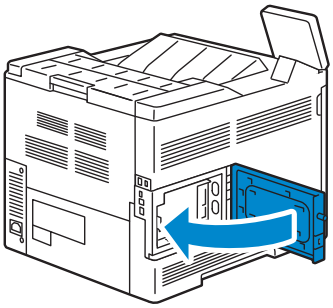
4 Open the left side cover completely.

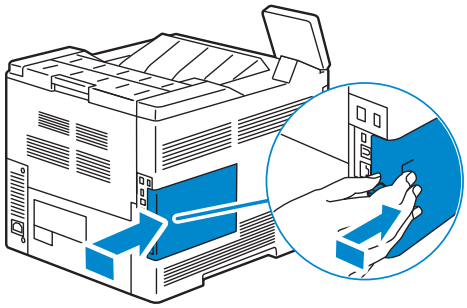


5 Remove the wireless adapter from the printer by releasing the adapter's hook.

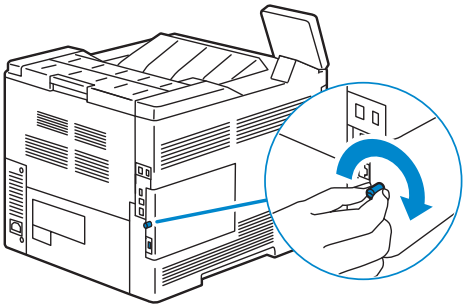


6 Close the left side cover, and then slide it towards the front of the printer.

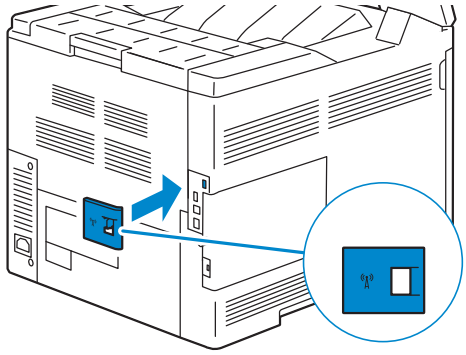




7 Turn the screw clockwise.



8 Return the cap removed upon installation of the wireless adapter.



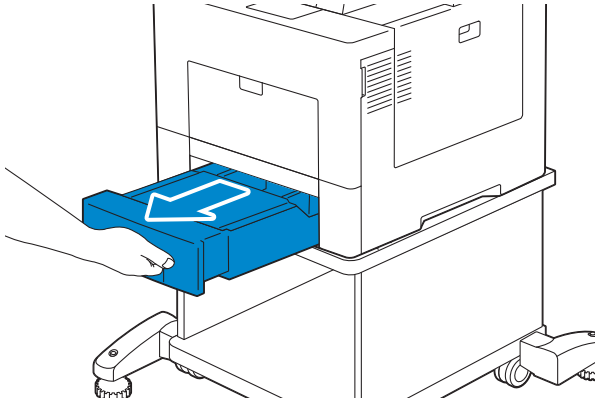
9 Turn on the printer.

CAUTION:
- **Make sure that the power cable is connected to the printer and to a power source before pressing the button on the control panel.**

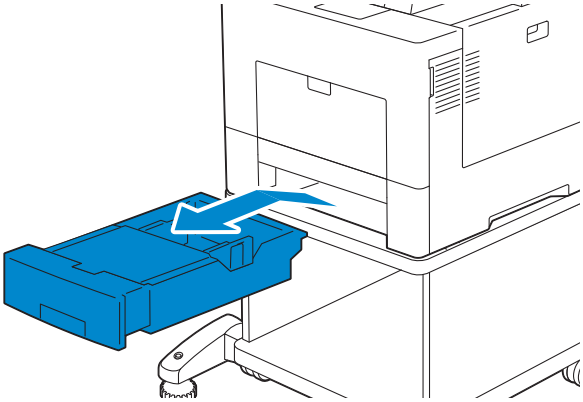
Removing the Optional Caster Cabinet

WARNING:
- **When you remove the optional caster cabinet, be sure to turn off the printer, unplug the power cable, and disconnect all cables from the back of the printer before starting these tasks.**

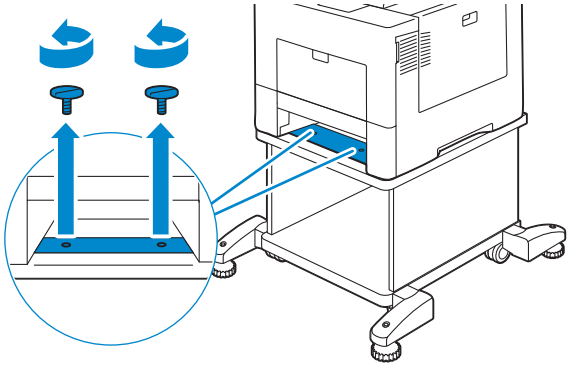
1 Pull the tray out of the printer about 200 mm.



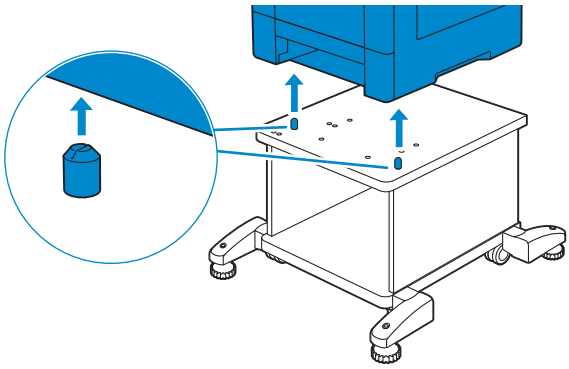
2 Hold the tray with both hands, and remove it from the printer.



3 Remove the two screws joining the printer and the optional caster cabinet by unscrewing them with a coin or similar object.



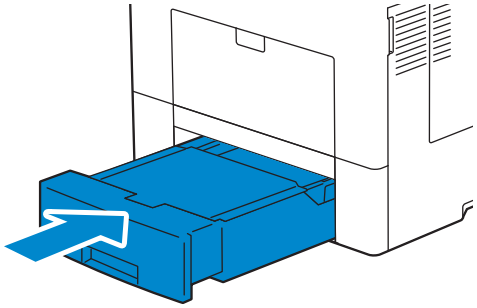
4 Gently lift the printer off the optional caster cabinet, and place it on a level surface.



WARNING:

- **Two people are required to lift the printer.**

5 Insert the tray into the printer, and push until it stops.



CAUTION:

- **Do not use excessive force on the tray. Doing so could damage the tray or the inside of the printer.**

7

Troubleshooting

Clearing Jams

Careful selection of appropriate print media and proper loading allow you to avoid paper jams. See "Print Media Guidelines" for more information.

NOTE:

- Before buying large quantities of any print media, it is recommended to try a sample first.
- To resolve the error displayed on the touch panel, you must clear all print media from the print media path.

Avoiding Jams

- Do not overload the print media sources. Ensure that the print media stack height does not exceed the maximum height indicated by the load-line labels in the tray.
- Do not load wrinkled, creased, damp, or curled print media.
- Flex, fan, and straighten print media before you load it. If a jam occurs with print media, try feeding one sheet at a time through the bypass tray.
- Do not use print media that you have cut or trimmed yourself.
- Do not mix print media sizes, weights, or types in the same print media source.
- Ensure that the recommended print side is face up when you insert the print media.
- Keep print media stored in an acceptable environment. For more information, see "Storing Print Media".
- Do not remove the feeding tray during a print job.
- Push Tray 1 or the optional 550-sheet feeder (Tray 2) in firmly after loading.
- Ensure that all cables that connect to the printer are correctly attached.
- Overtightening the guides may cause jams.
- Wipe the retard rollers in the tray or bypass tray with a cloth that is slightly dampened with water if jams caused by misfeeding paper occur frequently.

Identifying the Location of Paper Jams

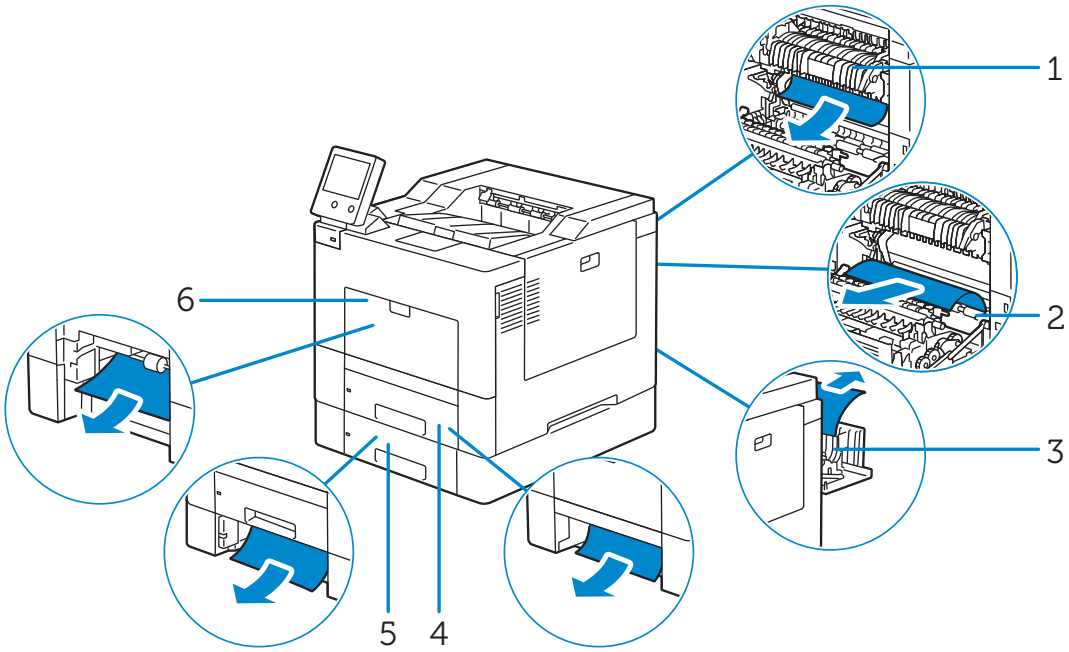
WARNING:

- **Do not attempt to clear any jams using tools or instruments. This may permanently damage the printer.**

CAUTION:

- **Do not attempt to remove a paper deeply jammed inside the product, particularly a paper wrapped around the fusing unit or the heat roller. Otherwise, it may cause injuries or burns. Switch off the product immediately and contact Dell.**

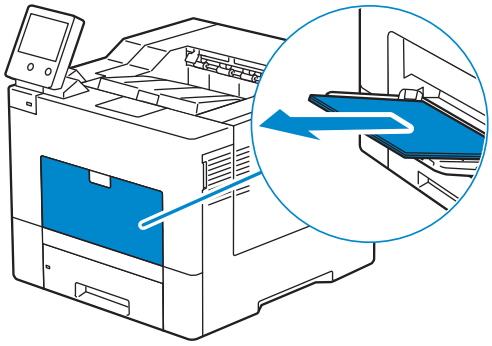
The following illustration shows where paper jams may occur along the print media path.



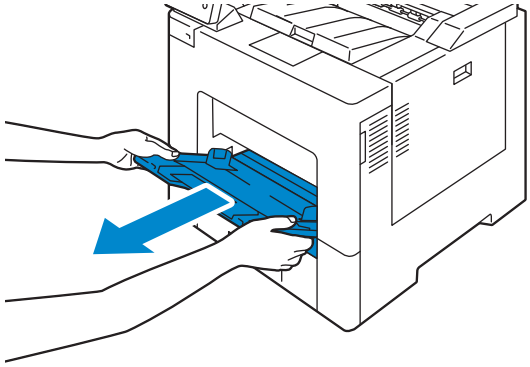
1	Fusing Unit
2	Regi Roll
3	Duplexer
4	Tray 1
5	Optional 550-Sheet Feeder (Tray 2)
6	Bypass Tray (Tray 5)

Clearing Paper Jams From the Bypass Tray

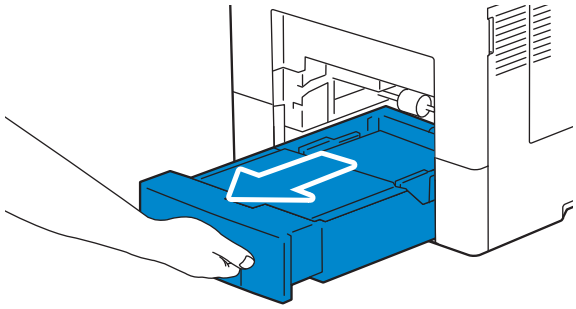
1 Remove any paper loaded on the bypass tray.



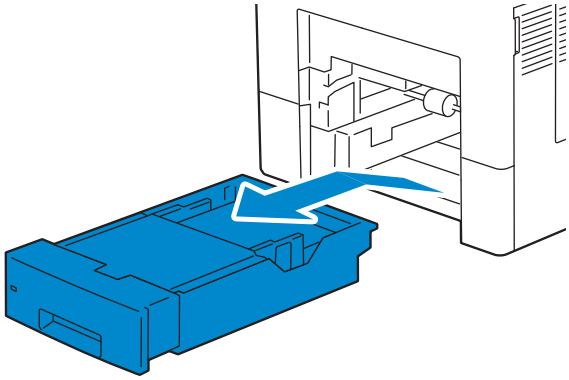
2 Grasp both sides of the bypass tray, and then pull it out of the printer.



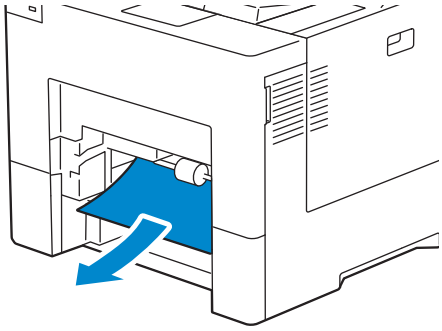
3 Pull Tray 1 out of the printer about 200 mm.



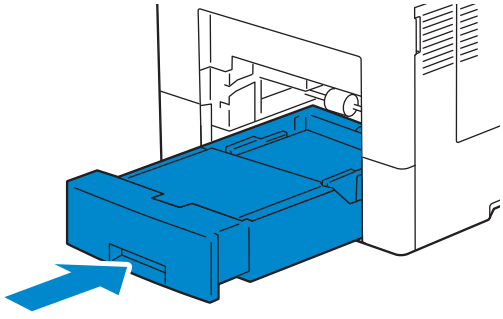
4 Hold Tray 1 with both hands, and remove it from the printer.



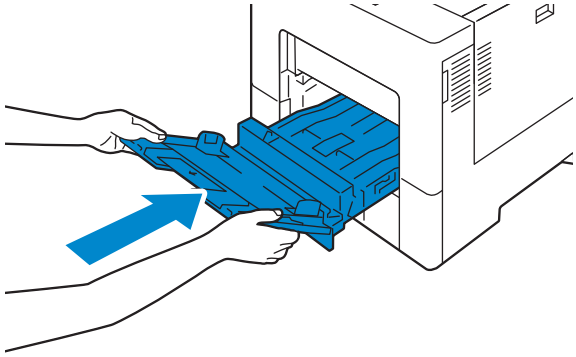
5 Remove the jammed paper.



6 Insert Tray 1 into the printer, and push until it stops.

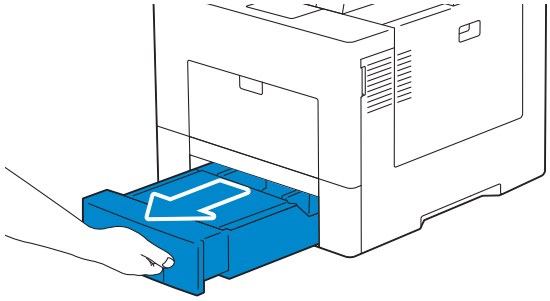


7 Insert the bypass tray into the printer.

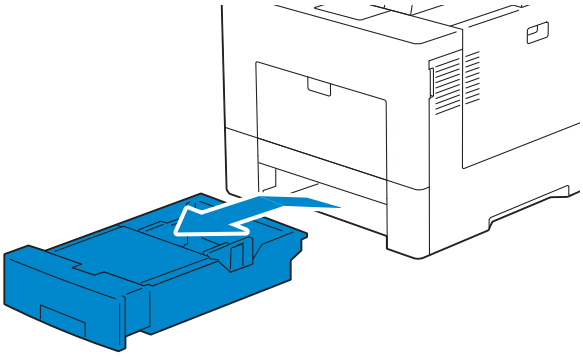


Clearing Paper Jams From Tray 1

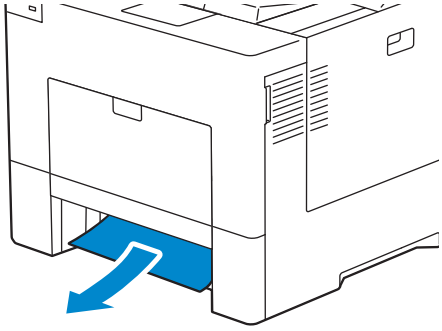
1 Pull Tray 1 out of the printer about 200 mm.



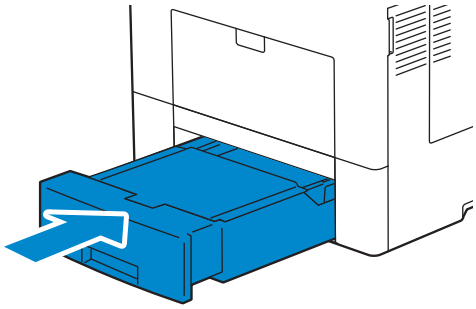
2 Hold Tray 1 with both hands, and remove it from the printer.



3 Remove the jammed paper.



4 Insert Tray 1 into the printer, and push until it stops.

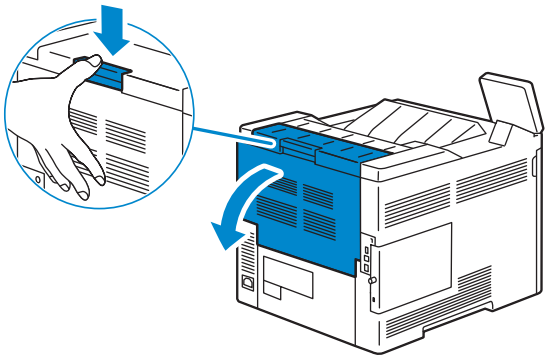


5 Tap `Confirm`.

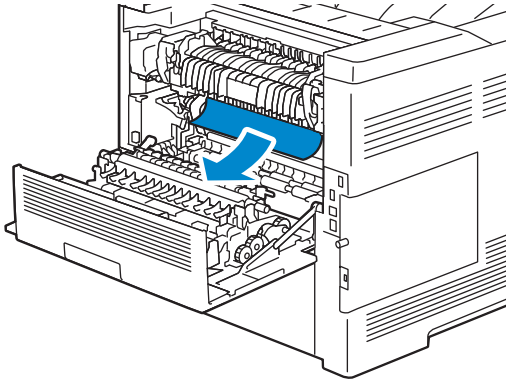
Clearing Paper Jams From Inside the Rear Cover

Clearing Paper Jams From the Fusing Unit

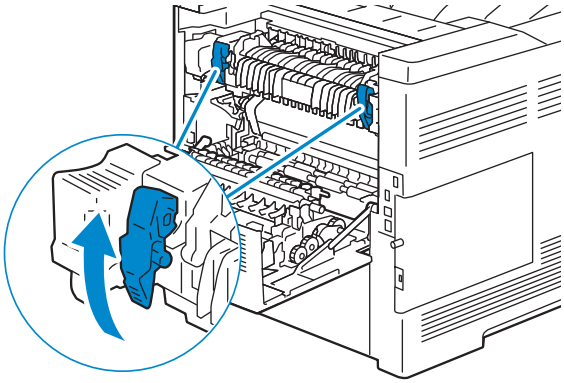
1 Push down the latch to open the rear cover.



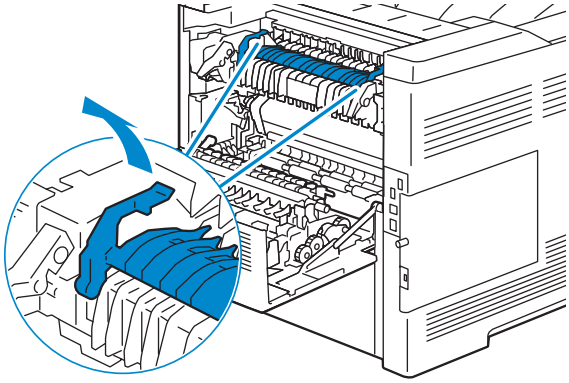
2 Remove the jammed paper.



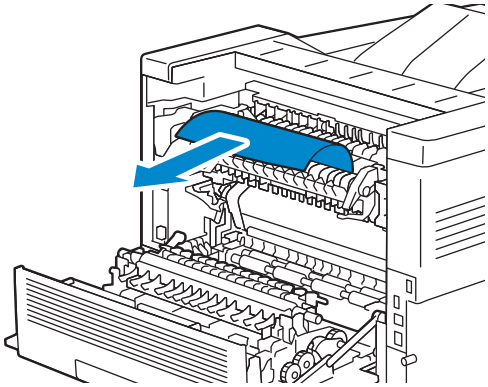
3 If you cannot see the jammed paper, lift the lever on both sides of the fusing unit.



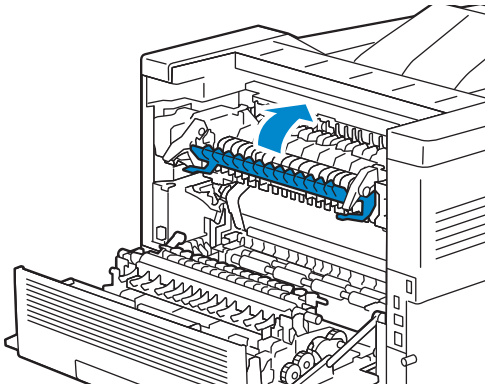
4 Hold and lower the tabs to open the inner part.



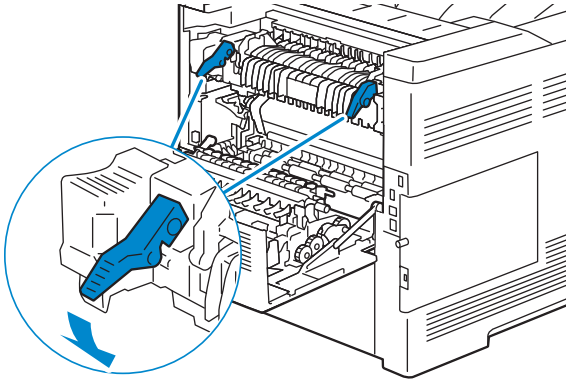
5 Remove the jammed paper.



6 Replace the inner part.



7 Press down the lever on both sides of the fusing unit, and then close the rear cover.

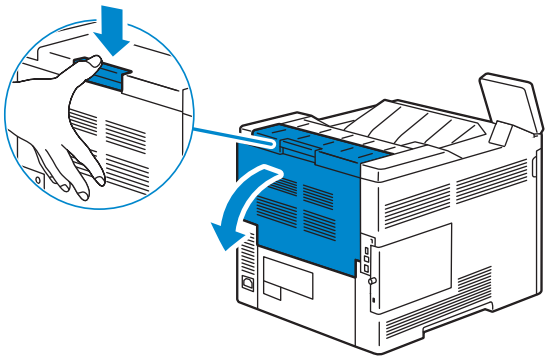


Clearing Paper Jams From the Duplexer

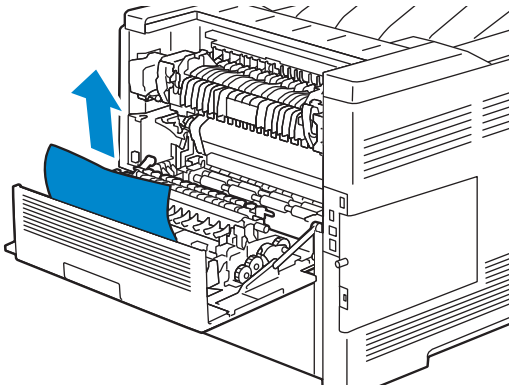
△ **CAUTION:**

- **Ensure that nothing touches or scratches the surface (the roll made with sponge) of the transfer unit. Scratches, dirt, or oil from your hands on the roll of the transfer unit may reduce print quality.**
- **Protect the drum of the drum cartridge against bright light. If the rear cover remains open for more than 3 minutes, print quality may deteriorate.**

1 Push down the latch to open the rear cover.



2 Remove the jammed paper from the duplexer.



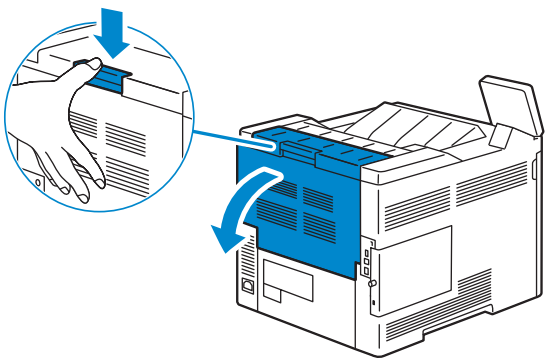
3 Close the rear cover.

Clearing Paper Jams From the Regi Roll

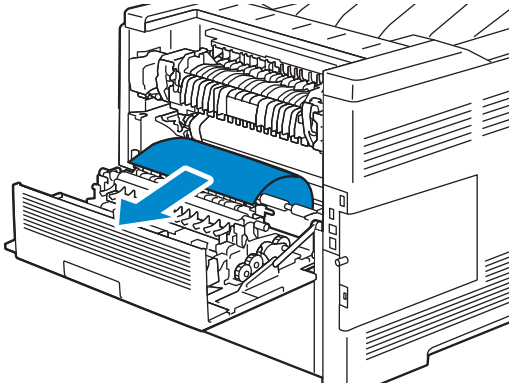
△ **CAUTION:**

- **Ensure that nothing touches or scratches the surface (the roll made with sponge) of the transfer unit. Scratches, dirt, or oil from your hands on the roll of the transfer unit may reduce print quality.**
- **Protect the drum of the drum cartridge against bright light. If the rear cover remains open for more than 3 minutes, print quality may deteriorate.**

1 Push down the latch to open the rear cover.



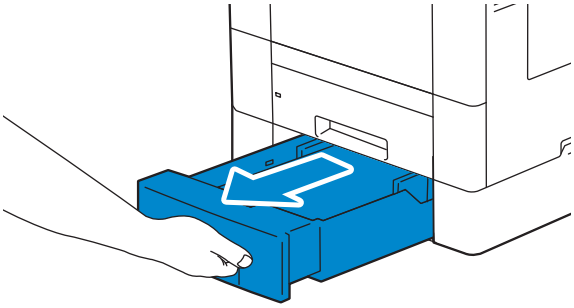
2 Remove the jammed paper from the regi roll.



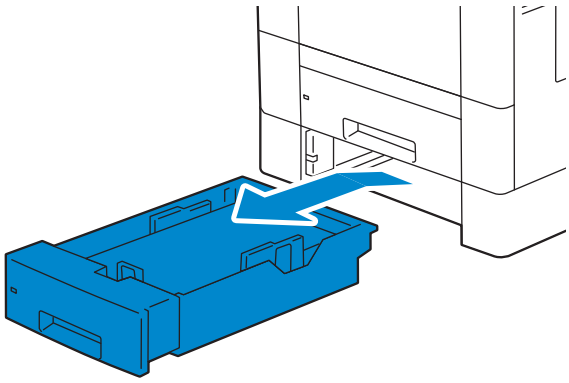
3 Close the rear cover.

Clearing Paper Jams From the Optional 550-Sheet Feeder

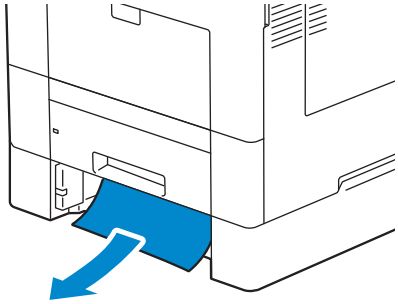
1 Pull the optional 550-sheet feeder out of the printer about 200 mm.



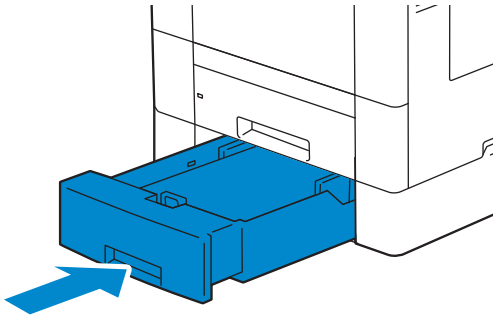
2 Hold the optional 550-sheet feeder with both hands, and remove it from the printer.



3 Remove the jammed paper.



4 Insert the optional 550-sheet feeder into the printer, and push until it stops.



Basic Printer Problems

Some printer problems can be easily resolved. If a problem occurs with your printer, check each of the following:

- The power cable is plugged into the printer and a properly grounded electrical outlet.
- The printer is not plugged into a power strip or uninterruptible power supply.
- The printer is turned on.
- The electrical outlet is not turned off at any switch or breaker.
- Other electrical equipment plugged into the outlet is working.
- All options are properly installed.

If you have checked all of the above and still have a problem, turn off the printer, wait for 10 seconds, and then turn on the printer. This often fixes the problem.

Display Problems

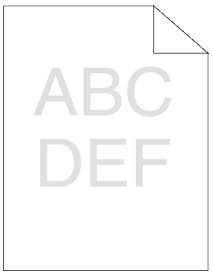
Problem	Action
Menu settings changed from the control panel have no effect.	Settings in the software program, the printer driver, or the printer utilities are overriding the settings made on the control panel.

Printing Problems

Problem	Action
Job did not print or incorrect characters printed.	Ensure that the top menu appears on the touch panel before you send a job to print.
	Ensure that the print media is loaded in the printer.
	Verify that the printer is using the correct Page Description Language (PDL).
	Verify that you are using the correct printer driver.
	Ensure that the correct USB or Ethernet cable is securely connected to the printer.
	Verify that the correct print media size matches the document.
	If you are using a print spooler, verify that the spooler has not stalled.
	Verify that the current interface settings are correct.
Print media misfeeds or multiple feeds occur.	Ensure that the print media you are using meets the specifications for your printer.
	Fan the print media before loading it.
	Ensure that the print media is loaded correctly.
	Ensure that the width and length guides of the print media sources are against the media and the media is touching the back of the tray.
	Ensure that the tray unit is securely inserted.
	Do not overload the tray.
	Do not force print media into the bypass tray when you load it; otherwise, it may skew or buckle.
	Ensure that the print media is not curled.
	Face the recommended print side up.
	Turn the print media over or around and try printing again to see if feeding improves.
	Do not mix print media types.
	Do not mix reams of print media.
	Remove the top and bottom curled sheets of a ream before loading the print media.
	Load print media only when the tray is empty.
	Wipe the retard rollers in the tray with a cloth moistened with water.
The envelope is creased after printed.	Make sure that the envelope is loaded in the appropriate tray properly. **NOTE:** • Some wrinkling is normal, try different brands of envelopes to minimize wrinkling.
Page breaks in unexpected places.	Increase the time-out value.
Print media does not stack neatly in the output tray.	Turn the print media stack over in the tray.
Cannot print from a tray other than the bypass tray.	Load the print media into the bypass tray.

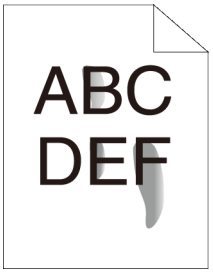
Print Quality Problems

The output is too light



Action		Yes	No
1	If you are using non-Dell brand toner cartridges, enable the Non-Dell Toner option. Does this solve your problem?	The task is complete.	Go to action 2.
2	Disable the toner saver feature in the printer driver. Does this solve your problem?	The task is complete.	Go to action 3.
3	The print media surface may be uneven. Try changing the paper type setting in the printer driver. Does this solve your problem?	The task is complete.	Go to action 4.
4	Verify that the correct print media is being used. If not, use the print media recommended for the printer. Does this solve your problem?	The task is complete.	Go to action 5.
5	If only one color is light, replace the drum cartridges. If all colors are light, replace the 2nd Belt Transfer Roller (2nd BTR). Does this solve your problem?	The task is complete.	Contact Dell.

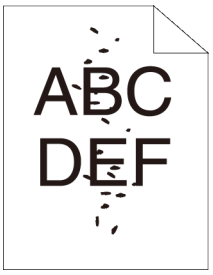
Toner smears or print comes off



Action		Yes	No
1	The print media surface may be uneven. Try changing the paper type setting in the printer driver. Does this solve your problem?	The task is complete.	Go to action 2.
2	Verify that the correct print media is being used. If not, use the print media recommended for the printer. Does this solve your problem?	The task is complete.	Go to action 3.

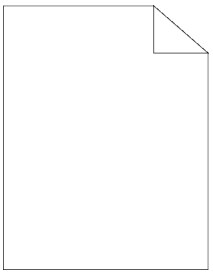
Action		Yes	No
3	Increase the temperature level of the fusing unit in `Device` > `Support` > `Fusing Unit Temperature Adjustment`. Does this solve your problem?	The task is complete.	Go to action 4.
4	Replace the fusing unit. Does this solve your problem?	The task is complete.	Contact Dell.

Random spots/Blurred images



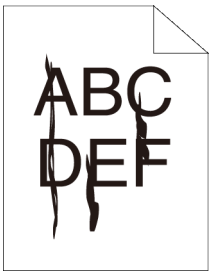
Action		Yes	No
1	Ensure that the toner cartridges are installed correctly. Does this solve your problem?	The task is complete.	Go to action 2.
2	Ensure that the drum cartridges are installed correctly. Does this solve your problem?	The task is complete.	Go to action 3.
3	Replace the drum cartridges. Does this solve your problem?	The task is complete.	Contact Dell.

The entire output is blank



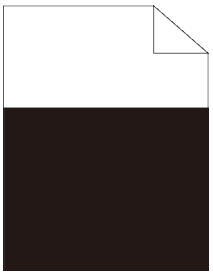
Action		Yes	No
1	If you are using non-Dell brand toner cartridges, enable the Non-Dell Toner option. Does this solve your problem?	The task is complete.	Go to action 2.
2	If only one color is blank, replace the drum cartridges. If all colors are blank, check the 2nd Belt Transfer Roller (2nd BTR) to make sure it is seated correctly or replace the 2nd Belt Transfer Roller (2nd BTR). Does this solve your problem?	The task is complete.	Contact Dell.

Dark or colored streaks appear on the output



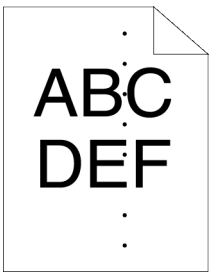
Action		Yes	No
1	Replace the drum cartridges. Does this solve your problem?	The task is complete.	Contact Dell.

Part of the entire output is black or a color (CMY) is missing



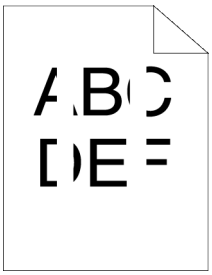
Action		Yes	No
1	Ensure that the drum cartridges are installed correctly. Does this solve your problem?	The task is complete.	Go to action 2.
2	Ensure the output color is set to color in the printer driver. Does this solve your problem?	The task is complete.	Go to action 3.
3	Replace the drum cartridges. Does this solve your problem?	The task is complete.	Contact Dell.

Dark and color dots repeating at the same interval



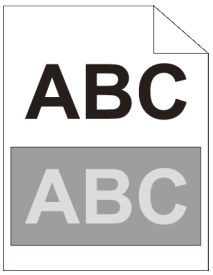
Action		Yes	No
1	Locate the cause of the problem using `Device` > `Support` > `Repeating Defects`. Is the cause of the problem located?	Proceed to the action corresponding to the location of the problem: • Drum cartridge - 2 • Fusing unit - 3 • Transfer belt unit - 4	Contact Dell.
2	Replace the drum cartridges. Does this solve your problem?	The task is complete.	Contact Dell.
3	Replace the fusing unit. Does this solve your problem?	The task is complete.	Contact Dell.
4	Replace the transfer belt unit, the 2nd BTR, and the retard roller. Does this solve your problem?	The task is complete.	Contact Dell.

Vertical voids or lighter areas



Action		Yes	No
1	Clean the Raster Optical Scanner (ROS) Windows by using the cleaning rod. **NOTE:** • Sometimes this cleaning has to be repeated several times. If the print quality defect is improving, repeat the cleaning process. Does this solve your problem?	The task is complete.	Go to action 2.
2	Ensure the light path is not covered. **1** Remove the drum cartridges, and store them in the dark place. **2** Check the ROS windows, and remove any obstructions, usually a torn off piece of paper or label. **3** Re-install the drum cartridges. Does this solve your problem?	The task is complete.	Go to action 3.
3	Replace the drum cartridges. Does this solve your problem?	The task is complete.	Contact Dell.

Ghosting

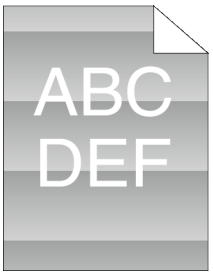


Action		Yes	No
1	Locate the cause of the problem using `Device` > `Support Pages` > `Ghosting Print`. Is the type of the problem identified?	Proceed to the action corresponding to the type of ghosting. • Positive ghost - 2a • Negative ghost - 2b	Contact Dell.
2a	Replace the drum cartridges. Does this solve your problem?	The task is complete.	Go to action 3.
2b	If you are using non-recommended print media, use the print media recommended for the printer. Does this solve your problem?	The task is complete.	Contact Dell.
3	Adjust the transfer bias. If the problem persists, reset the transfer bias to 0 and decrease the temperature level of the fusing unit. Does this solve your problem?	The task is complete.	Contact Dell.

Light-induced fatigue

NOTE:

- This is caused by leaving one or more drum cartridges exposed to light outside the machine for an extended time period.

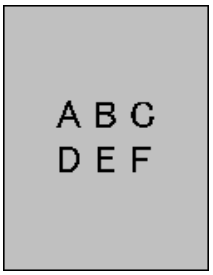


Action		Yes	No
1	Locate the cause of the problem using `Device` > `Support Pages` > `Repeating Defects`. Does the pattern on the output match with the chart?	Go to action 2.	Contact Dell.
2	Replace the drum cartridges. Does this solve your problem?	The task is complete.	Contact Dell.

Fog (background)

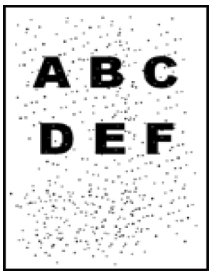
NOTE:

- This can occur on glossy or coarse media. Before checking anything else, try adjusting the 2nd Belt Transfer Roller (2nd BTR) to eliminate or minimize background.



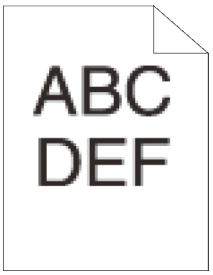
Action		Yes	No
1	If you are using non-Dell brand toner cartridges, enable the Non-Dell Toner option. If the fog is occurring in only one color and that color has a Non-Dell toner cartridge installed, try changing the toner cartridge to a Dell branded toner cartridge and make enough prints to purge the toner. Does this solve your problem?	The task is complete.	Go to action 2.
2	Replace the drum cartridges. Does this solve your problem?	The task is complete.	Contact Dell.

Bead-Carry-Out (BCO)



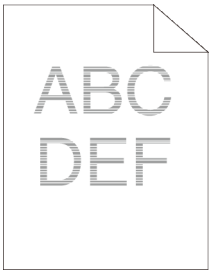
Action		Yes	No
1	If the printer is installed in a high altitude location, set the altitude of the location using `Device` > `Support` > `Altitude Adjustment`. Does this solve your problem?	The task is complete.	Go to action 2.
2	Replace the drum cartridges. Does this solve your problem?	The task is complete.	Contact Dell.

Jagged characters



Action		Yes	No
1	Set **Screen** to **Fineness** in the printer driver. Does this solve your problem?	The task is complete.	Go to action 2.
2	Set **Print Mode** to **High Quality** in the printer driver. Does this solve your problem?	The task is complete.	Go to action 3.
3	Enable **Bitmap Smoothing** in the printer driver. Does this solve your problem?	The task is complete.	Go to action 4.
4	Enable **Print Page Mode** in the printer driver. Does this solve your problem?	The task is complete.	Go to action 5.
5	If using a downloaded font, ensure that the font is recommended for the printer, operating system, and the application being used. Does this solve your problem?	The task is complete.	Contact Dell.

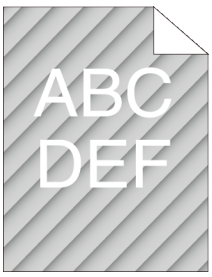
Banding



Action		Yes	No
1	Locate the cause of the problem using `Device` > `Support Pages` > `Repeating Defects`. Is the cause of the problem located?	Proceed to the action corresponding to the location of the problem: • Drum cartridge - 2 • Fusing unit - 3 • Transfer belt unit - 4	Contact Dell.
2	Replace the drum cartridges. Does this solve your problem?	The task is complete.	Contact Dell.
3	Replace the fusing unit. Does this solve your problem?	The task is complete.	Contact Dell.

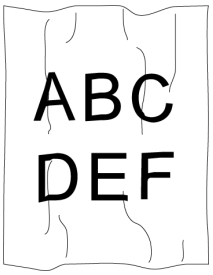
Action		Yes	No
4	Replace the transfer belt unit, the 2nd BTR, and the retard roller. Does this solve your problem?	The task is complete.	Contact Dell.

Auger mark



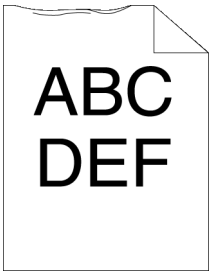
Action		Yes	No
1	Locate the cause of the problem using `Device` > `Support Pages` > `Repeating Defects`. Does the output match with the pattern for auger mark?	Go to action 2.	Contact Dell.
2	Replace the drum cartridges. Does this solve your problem?	The task is complete.	Contact Dell.

Wrinkled/Stained paper



Action		Yes	No
1	Verify that the correct print media is being used. If not, use the print media recommended for the printer. Does this solve your problem?	The task is complete.	If printing on an envelope, go to action 2. If printing on print media other than envelopes, contact Dell.
2	Check the wrinkle. Is the wrinkle within 30 mm of the four edges of the envelope? Does this solve your problem?	This type of wrinkle is considered normal. Your printer is not at fault.	Go to action 3.
3	Load the envelopes in the bypass tray properly. Does this solve your problem?	The task is complete.	Contact Dell.

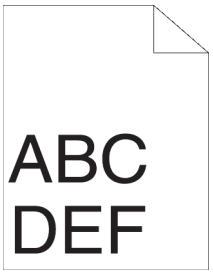
Damage on the leading edge of paper



Action		Yes	No
1	When you use the bypass tray, reverse the paper and then try again. When you use any of the other trays, change the paper and then try again. Does this solve your problem?	The task is complete.	(Bypass Tray) Go to action 2. (Other trays) Contact Dell.
2	Change the paper with another one and then try again. Does this solve your problem?	The task is complete.	Go to action 3.
3	Use any of the other trays in place of the bypass tray. Does this solve your problem?	The task is complete.	Contact Dell.

Jam/Alignment Problems

The top and side margins are incorrect

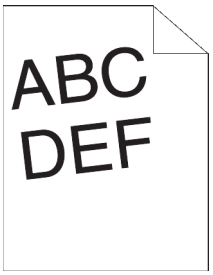


Action		Yes	No
1	Ensure that the margins are set correctly on the application being used. Does this solve your problem?	The task is complete.	Go to action 2.
2	Adjust the paper guides properly. Does this solve your problem?	The task is complete.	Contact Dell.

Color registration is out of alignment

Action		Yes	No
1	Adjust the settings of the paper type on the printer driver to those of the tray. Does this solve your problem?	The task is complete.	Go to action 2.
2	Execute auto color registration adjustment. **1** Select `Device` > `Support` > `Color Registration – Automatic` > `Start`. Does this solve your problem?	The task is complete.	Contact Dell.
3	Do you have spare drum cartridges?	Go to action 4a.	Go to action 4b.
4a	Replace the drum cartridges. Does this solve your problem?	The task is complete.	Contact Dell.
4b	Manually correct the color registration. **1** Select `Device` > `Support` > `Color Registration – Manual`. **2** Follow the instructions in "Adjusting Color Registration". Does this solve your problem?	The task is complete.	Contact Dell.

Images are skewed



Action		Yes	No
1	Adjust the paper guides properly. Does this solve your problem?	The task is complete.	Go to action 2.
2	Install the transfer belt unit, the 2nd Belt Transfer Roller (2nd BTR), and the retard roll according to an appropriate procedure. Does this solve your problem?	The task is complete.	Contact Dell.

Tray 1/Optional 550-Sheet Feeder Misfeed Jam

Action		Yes	No
1	Ensure that Tray 1 or the optional 550-sheet feeder is properly inserted. Does this solve your problem?	The task is complete.	Proceed to the action corresponding to the type of the print media being used: • Thick - 2a • Thin - 2b • Coated - 2c If using paper other than the above, go to action 2d, 2e.
2a	Use thick paper that is 216 g/m^2 or less. Does this solve your problem?	The task is complete.	Go to action 3a.
2b	Use thin paper that is 60 g/m^2 or more. Does this solve your problem?	The task is complete.	Go to action 3a.
2c	Load coated paper one sheet at a time. Does this solve your problem?	The task is complete.	Go to action 3b.
2d	Ensure that the print media is not curled. Does this solve your problem?	The task is complete.	Go to action 3a.
2e	Is the print media damp?	Go to action 3c.	Go to action 3a.
3a	Fan the print media. Does this solve your problem?	The task is complete.	Go to action 3b.
3b	Wipe the retard roller in Tray 1 or the optional 550-sheet feeder with a cloth moistened with water. Does this solve your problem?	The task is complete.	Contact Dell.
3c	Turn over the print media. Does this solve your problem?	The task is complete.	Go to action 4.

Action		Yes	No
4	Use print media that is not damp. Does this solve your problem?	The task is complete.	Go to action 3a.

Bypass Tray Misfeed Jam

Action		Yes	No
1	Ensure that the tray is properly inserted. Does this solve your problem?	The task is complete.	Proceed to the action corresponding to the type of the print media being used: • Thick - 2a • Thin - 2b • Envelope - 2d If using paper other than the above, go to action 2d, 2e.
2a	Use thick paper that is 216 g/m^2 or less. Does this solve your problem?	The task is complete.	Go to action 3a.
2b	Use thin paper that is 60 g/m^2 or more. Does this solve your problem?	The task is complete.	Go to action 3a.
2c	Load coated paper one sheet at a time. Does this solve your problem?	The task is complete.	Go to action 3b.
2d	Ensure that the envelope is properly loaded in the tray. Does this solve your problem?	The task is complete.	Go to action 3c.
2e	Is the print media damp?	Go to action 3d.	Go to action 3a.
3a	Fan the print media. Does this solve your problem?	The task is complete.	Go to action 3b.
3b	Wipe the pick up roller, retard roller, and feed roller in the tray with a cloth moistened with water. Does this solve your problem?	The task is complete.	Go to action 4b.
3c	If the envelope is deformed, correct it or use another envelope. Does this solve your problem?	The task is complete.	Go to action 3a.
3d	Turn over the print media. Does this solve your problem?	The task is complete.	Go to action 4a.
4a	Use print media that is not damp. Does this solve your problem?	The task is complete.	Go to action 3a.
4b	Replace the drum cartridges. Does this solve your problem?	The task is complete.	Contact Dell.

Regi Jam (Exit Sensor On JAM)

Action		Yes	No
1	Ensure that the fusing unit is installed properly. Does this solve your problem?	The task is complete.	Go to action 2.

Action		Yes	No
2	Replace the fusing unit, the transfer unit, and the retard roller. Does this solve your problem?	The task is complete.	Go to action 3.
3	Replace the fusing unit. Does this solve your problem?	The task is complete.	Go to action 4.
4	Ensure that the transfer belt unit is installed correctly. Does this solve your problem?	The task is complete.	Go to action 5.
5	Replace the transfer belt unit, the 2nd BTR, and the retard roller. Does this solve your problem?	The task is complete.	Contact Dell.

Exit Jam (Exit Sensor Off JAM)

Action		Yes	No
1	Ensure the fusing unit is installed correctly. Does this solve your problem?	The task is complete.	Go to action 2.
2	Replace the fusing unit. Does this solve your problem?	The task is complete.	Contact Dell.

Tray 1/Optional 550-Sheet Feeder Multi-feed Jam

Action		Yes	No
1	Ensure that Tray 1 or the optional 550-sheet feeder is properly inserted. Does this solve your problem?	The task is complete.	If using rough surface paper, go to action 2. If using another type of print media, go to action 3.
2	Load rough surface paper one sheet at a time. Does this solve your problem?	The task is complete.	Go to action 4.
3	Use print media that is not damp. Does this solve your problem?	The task is complete.	Go to action 4.
4	Fan the print media. Does this solve your problem?	The task is complete.	Go to action 5.
5	Wipe the retard roller in Tray 1 or the optional 550-sheet feeder where the multi-feed occurred with a cloth moistened with water. Does this solve your problem?	The task is complete.	Contact Dell.

Bypass Tray Multi-feed Jam

Action		Yes	No
1	Ensure the media type you are using. If using rough surface paper, go to action 2. If using another type of print media, go to action 3.	-	-
2	Load rough surface paper one sheet at a time. Does this solve your problem?	The task is complete.	Go to action 4.

Action		Yes	No
3	Use print media that is not damp. Does this solve your problem?	The task is complete.	Go to action 4.
4	Fan the print media. Does this solve your problem?	The task is complete.	Go to action 5.
5	Wipe the retard roller in the tray where the multi-feed occurred with a cloth moistened with water. Does this solve your problem?	The task is complete.	Go to action 6.
6	Decrease the number of print media to be loaded to the bypass tray. Does this solve your problem?	The task is complete.	Contact Dell.

Noise

Action		Yes	No
1	To specify the cause of the noise, perform the Auto Registration Adjustment. Does this solve your problem?	The task is complete.	Go to action 2.
2	Replace the transfer belt unit, the 2nd BTR, and the retard roller. Does this solve your problem?	The task is complete.	Go to action 3.
3	Replace the fusing unit. Does this solve your problem?	The task is complete.	Go to action 4.
4	Replace the waste toner box. Does this solve your problem?	The task is complete.	Go to action 5.
5	Replace the drum cartridges. Does this solve your problem?	The task is complete.	Go to action 3.
6	Replace the toner cartridge (K). Does this solve your problem?	The task is complete. (The toner cartridge (K) has been damaged. Replace it with a new one.)	Go to action 7.
7	Replace the toner cartridge (Y). Does this solve your problem?	The task is complete. (The toner cartridge (Y) has been damaged. Replace it with a new one.)	Go to action 8.
8	Replace the toner cartridge (M). Does this solve your problem?	The task is complete. (The toner cartridge (M) has been damaged. Replace it with a new one.)	Go to action 9.
9	Replace the toner cartridge (C). Does this solve your problem?	The task is complete. (The toner cartridge (C) has been damaged. Replace it with a new one.)	Contact Dell.

Digital Certificate Problems

Symptom	Cause	Action
Import cannot be selected on the **Security Certificates** screen.	SSL communication is disabled.	Create a self-signed certificate and enable SSL.
The certificate cannot be imported.	The time setting is incorrect.	Confirm validity period of the certificate as well as the time setting of the device.
	The certificate file is incorrect.	Confirm whether the password is correct.
		Confirm whether the file type is PKCS#7/#12 or x509CACert (extension: p7b/p12/pfx/cer/crt).
		Confirm whether the attribute information (key Usage/Extended key usage) of the certificate to be imported is set correctly.
	The browser is incorrect.	Use Internet Explorer®.
016-404 is displayed when trying to use security functions that require certificates.	The certificate data stored in internal memory is either deleted, corrupt, or is not readable.	Import the certificate and enable the security settings again.
A certificate cannot be set in **Security Certificates**.	The validity period is invalid.	The validity period of the certificate is invalid. Confirm whether the time setting of the machine is correct, and whether the validity period of the certificate has expired.
	The certificate path is invalid.	The certificate chain (path validation) of the imported certificate may not be correctly validated. Confirm whether all of the high-level certificates (Trusted/Intermediate) have been imported and are not deleted, and whether the validity period has expired.
Although a certificate was imported, it is not displayed on the **Security Certificates** screen.	The type of the certificate is incorrect.	To import a certificate for use with the device (own device), import the secret key and a certificate of the PKCS#12 (p12/pfx) format as a pair.
Server validation is not operating correctly.	The certificate chain is incorrect when importing.	Although importing a root certificate (Trusted) to use for server authentication, an Intermediate certificate may be required when validating the path. When executing a certificate file with the certification authority, create the certificate with a format including all paths and then import that certificate.

Network-related Problems

When using SMB

When you cannot communicate with the machine or other SMB machines

Cause	Check point	Remedy
If **Auto Master Mode** of SMB is set to **On**, the number of machines whose information can be stored is limited. The number depends on the network environment.	The machine or other SMB machines cannot be searched from the Network Computers icon.	Confirm the setting of **Auto Master Mode** of SMB. If the setting is enabled, change it to **Off**.

When using TCP/IP

Windows Vista, Windows 7, Windows 8.1, Windows 10, Windows Server 2008 R2, Windows Server 2012 R2, or Windows Server 2016

When you cannot print

Cause	Check point	Remedy
The IP address is incorrect.	Request your network administrator to check the machine's IP address.	Set a correct IP address on the machine.
The volume of the print data sent in an instruction from a computer exceeded the maximum receivable volume when the LPD spool is set to memory spool.	Confirm the memory amount for the LPD spool and the volume of the print data transmitted by an instruction.	If the one file of print data exceeds the memory amount, divide the file so as not to exceed the amount.
		If the print data is divided into multiple files and exceeds the memory amount, decrease the number of files so as not to exceed the amount.
An unrecoverable error occurred during the printing process.	Confirm whether any error messages are displayed on the control panel.	Restart the machine. Wait until the screen completely goes out to switch on the machine power.
The machine is not set to the transport protocol supported by the computer.	Confirm the transport protocol selected on the machine.	Select the transport protocol supported by the computer.
The machine is trying to process a data format that does not match the data format of the print data transmitted from a computer.	-	Set not to output Ctrl-D.

When print result is not what was expected

Cause	Check point	Remedy
Selected printer language on the machine does not match the printer language of the print data.	Confirm the selected printer language on the machine and the printer language of the print data.	Select the printer language on the machine to match the print data.
The computer is not using the print driver supplied with the machine (is using another company's print driver).	Confirm whether the print driver on the computer is the one supplied with the machine.	On the computer, select the print driver supplied with the machine. If the print driver is not listed for selection, install the print driver and then select it. Operation is not guaranteed if another company's print driver is used.

Mac OS X 10.7/10.8/10.9/10.10/10.11

When you cannot print

Cause	Check point	Remedy
The LPD port is not activated.	Confirm whether the LPD port is activated.	When printing with a printer detected by using Bonjour, enable **Port**.

E-mail Features Problems

Symptom	Remedy
Cannot receive e-mail.	Is the e-mail address for the machine configured?
	Are the SMTP server settings configured correctly?
	Is **Domain Filtering** set? Confirm whether your own domain is set to **Allowed Domains**, on **Dell Printer Configuration Web Tool**.
	Is the SMTP server operating properly? Consult your network administrator.
	Is the mail address correct? Enter the correct mail address.
	Doesn't the data size exceed the maximum e-mail size? Change the maximum e-mail size, or lower the resolution.
A **Confirmation Report - Job Undelivered** is output.	Unable to transmit because of an error. Check the Transmission Results in the **Confirmation Report - Job Undelivered**. If the status code is displayed, refer to "Status Codes".

Internet/Intranet Connection Problems

When connection to the Internet/Intranet fails

Cause	Remedy
The Authentication feature used on the remote server is not supported by the machine.	Only Basic Authentication is supported by the machine. The machine does not support NTLM/digest. For security purposes, change to the Authentication feature using SSL.

Cause	Remedy
The remote linkage services used does not support the model or accessories of the machine.	Purchase products/models/accessories supported by the remote linkage services.
The IP address is incorrect.	Confirm the IP address. If the IP address is incorrect, either set a static IP address or resolve the IP address using DHCP or Autonet.
The IP gateway address is incorrect.	Set the correct IP gateway address when connecting to the proxy server, or to a Web server via the IP gateway.
The subnet mask is incorrect.	Set the correct subnet mask corresponding to your environment.
The DNS server address is incorrect.	Confirm the DNS server address.
The DNS server selected cannot resolve the address.	Select a DNS server that can resolve the address. • When connecting via the proxy server Set the IP address of a DNS server that can resolve the address of the proxy server. • When not connecting via the proxy server Set the IP address of a DNS server that can resolve the destination address.
The address that does not use a proxy server is incorrect.	Confirm whether only addresses that do not use a proxy server are set. Even if addresses not through a proxy server are specified using the FQDN, if a server is directly accessed using its IP address, the registered server is not excluded. Set the address not to use a proxy server. Likewise, even if you directly specify an address that does not use a proxy server, if a server is accessed with the FQDN, the registered server is not excluded. Set an IP address with the FQDN not to use a proxy server.
The desired server, or the proxy server is down.	Confirm whether the desired server or the proxy server is operating correctly.
The network cable is not connected, or broken.	Confirm whether the network cable is correctly connected. We recommend using a spanning-tree configuration, with which network disconnection rarely occurs.
Cannot communicate because of overloading of the server application.	Wait for a while and try accessing again.
An error that is not displayed on the control panel occurs.	Even though an error occurs during background processing, no message appears on the control panel. Tap Jobs on the Home screen, or print the Job History Report to confirm the result.
Cannot access the proxy server, firewall, or Web server as a result of access control.	The following types of access control are used. Confirm the configured access control. • Address (port) restriction • SSL restriction • User access restriction (including access right levels) • Content block • Scheme restriction (cannot use HTTP etc.) • Transfer data size restriction • Method restriction (cannot use POST etc.) • HTTP header restriction (only accepting specified browsers etc.) • Time restriction (only available during a specific period of time etc.)

When connection to a desired Web server fails

Cause	Remedy
The setting to use the proxy server is not configured.	In the environment using the proxy server, you must configure the machine to use the proxy server to connect to a desired Web server. Make sure that you configure the settings to use the proxy server.
The setting to use a proxy server is configured even though the environment does not use a proxy server.	In an environment that does not use a proxy server, such as when connecting to an intranet, do not make the settings to use the proxy server.
The proxy server address is incorrect.	When the settings to use a proxy server are configured, you cannot connect to a desired Web server if the IP address of the proxy server is wrong. Set the correct IP address of the proxy server.
When the proxy server access requires authentication, you cannot connect to the server because the user name or password is incorrect.	Set the user name and password on the machine that allow connection to the proxy server.

IPv4 and IPv6 Connection Problems

Unable to connect using an IPv4 address

Symptom	Remedy
When 0 (zero) is prepended to the head of a value for the IPv4 address (for example: 192.0.2.010), connection fails.	Do not prepend 0 (zero) to each value of an IPv4 address.

Unable to connect using an IPv6 address

Symptom	Remedy
You cannot connect to the machine with the link-local address.	When you specify the machine's link-local address, a scope ID must be appended to the address. For example, when you use Internet Explorer 11 on Windows 7 to access the address "fe80::203:baff:fe48:9010", you must append the Ethernet adapter local area connection number (for example, 8) for Windows 7 to the address as follows: fe80::203:baff:fe48:9010%8
The machine cannot connect to a computer running Windows OS that supports IPv6.	Assign a static IPv6 address to the computer running Windows OS that supports IPv6. Then, register the IPv6 address on the machine as host address to allow communication.
A device outside the router cannot be searched.	When searching for a device outside the router via SMB, directly specify the address. Multicasting is supported only within a local link (FF02::1).
When SSL is enabled on Dell Printer Configuration Web Tool, even if you specify "http://[IPv6 address]", you are not redirected to "https://[IPv6 address]".	When SSL is enabled, directly specify "https://[IPv6 address]".

Unable to print using an IPv6 address

Symptom	Remedy
On an IPv6 network without a DNS server, a computer running Windows OS that supports IPv6 cannot be connected to a Windows shared printer.	Register the computer name of the machine on the "hosts" file stored on the computer running Windows OS that supports IPv6. For example, register in the following file: C:\Windows\system32\driver\etc\hosts

Other problems on IPv6 addresses

Symptom	Remedy
Unable to search devices with IPv6 addresses in UPnP.	In an IPv6 environment, use Function Discovery of Web Services on Devices (WSD).
In an IPv6 network with no DNS server installed, authentication fails if an SMB authentication server is specified using the computer name.	Directly specify the IPv6 address to specify the computer name of an authentication server.
IPv6 addresses are not correctly recorded on output job logs.	Use an IPv4 network for correct logging.

Problems With Installed Optional Accessory

If an option does not operate correctly following installation or stops working:

- Turn off the printer, wait for 10 seconds, and then turn on the printer. If this does not fix the problem, unplug the printer, and check the connection between the option and the printer.
- Print the configuration report to see if the option is listed in it. If the option is not listed, re-install it.
- Ensure the option is selected in the printer driver you are using.

The following table lists printer's options and corrective actions for related problems. If the suggested corrective action does not correct the problem, call customer service.

Problem	Action
550-sheet feeder	• Ensure the 550-sheet feeder is correctly installed on the printer. Re-install the feeder. • Ensure the print media is loaded correctly.
Wireless Adapter	• Ensure the wireless adapter is securely inserted to the correct slot.

Wi-Fi Direct Problems

Problem	Action
The mobile device cannot discover the printer.	The printer may be connected to another device via Wi-Fi Direct. Disconnect the printer and the device. See "Disconnecting Wi-Fi Direct Network".
The printer cannot disconnect from the device even when the procedure in "Disconnecting Wi-Fi Direct Network" has been performed.	Ensure that the release lever is properly positioned. The device may be automatically reconnecting to the printer. Reset the passphrase for **Wi-Fi Direct** and disconnect the device.
The network mode of the printer cannot be set to the **Ad-hoc** mode.	Ensure that **Wi-Fi Direct** is set to **Disable**.
Wi-Fi Direct cannot be set to **Enable**.	Ensure that the network mode is set to the **Infrastructure** mode.
	Ensure that the IP mode is set to other than **IPv6**.

Other Problems

Problem	Action
Condensation has occurred inside the printer.	This usually occurs within several hours after you heat the room in winter. This also occurs when the printer is operating in a location where relative humidity reaches 85% or more. Adjust the humidity or relocate the printer to an appropriate environment.

Contacting Service

When you call for printer service, be prepared to describe the problem you are experiencing or the error message that appears.

You need to know the model type and Service Tag number of your printer. See the label located inside the front cover of your printer and write down the Service Tag number.

For details on the location of the Service Tag, see Express Service Code and Service Tag in the "Finding Information".

Appendix

SharePoint Connector

SharePoint Connector Introduction

The SharePoint Connector provides connectivity to the Microsoft SharePoint Server (MSPS). This application supports SharePoint server versions 2010 and 2013.

Pre-requisite setup on SharePoint server:

Dell SharePoint application expects the following highlighted additions in SharePoint server's web.config under 'customHeaders' section. The 'web.config' file is located in 'C:\inetpub\wwwroot\wss\VirtualDirectories\[PortName]' on SharePoint 2010 server and SharePoint 2013 server.

```
<system.webServer>
  <httpProtocol>
   <customHeaders>
     <add name="X-MS-InvokeApp" value="1; RequireReadOnly" />
     <add name="Access-Control-Allow-Headers" value="Authorization,Content-
  Type,SOAPAction" />
     <add name="Access-Control-Allow-Methods" value="GET,PUT,OPTIONS" />
     <add name="Access-Control-Allow-Origin" value="*" />
     <add name="Access-Control-Expose-Headers" value="WWW-Authenticate,Access-Control-
  Allow-Headers,Access-Control-Allow-Methods,Access-Control-Allow-Origin,Access-Control-
  Expose-Headers" />
   </customHeaders>
  </httpProtocol>
     .......
     .......
</system.webserver>
```

Dell SharePoint application expects the following Authentication settings:

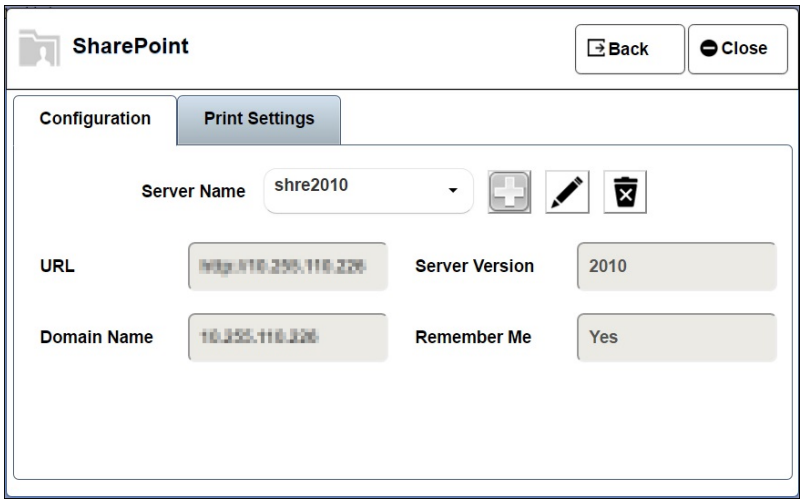
- Disable Anonymous Authentication.
- Enable Basic Authentication.

Login as Admin

1 From the Control panel, select → **SharePoint** → **Admin**. The Admin home page screen appears.

NOTE:

- Admin should login on device to access Admin features in this application.



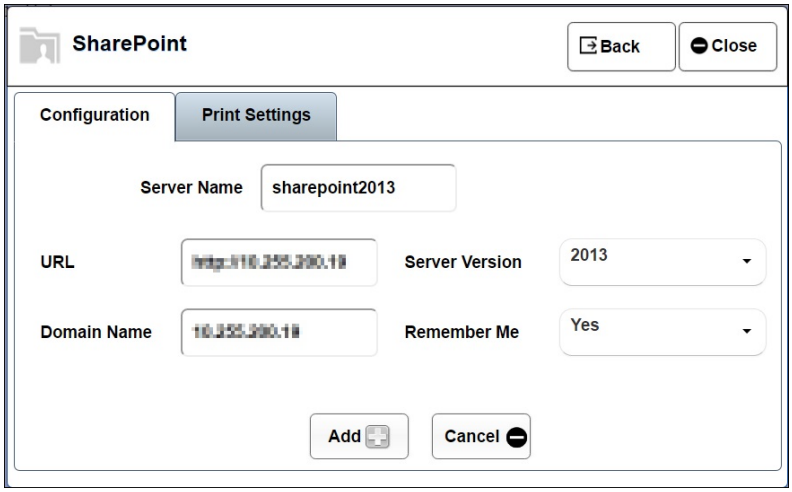
- **Overview of the Admin Page content**

The Admin Page contains the following tabs:

Configuration

To add a new MSPS

1 Click on **Add Server** Icon, enter server name (Server name is an alias name for MSPS URL), MSPS URL, domain name, select server version, Remember Me and Click on **Add** button.



NOTE:

- Setting **Remember Me** as 'Yes' gives "Remember Me" field in the main login page for a normal user.

To edit an existing MSPS

1. Select the server name to edit from the Server Name field and click on the **Edit** Server Icon .
2. Edit the fields and click on the **Update** button to save the changes.

To delete an existing MSPS

1. Select the server name to delete from the Server Name field and click on the **Delete Server** Icon .
2. Select **Yes** button from the confirmation dialog to delete the server.

Print Settings

Available Print Settings

Option	Description
Display Print Options	Sets whether or not to show Print Options to Normal User otherwise default print parameters set in this page is considered for printing.
Two-Sided Printing	Sets whether to print on both sides of a sheet of paper.
Output Color	Sets whether to print in color or in black and white.
Print Quantity	Sets the number of copies required for a specific job.

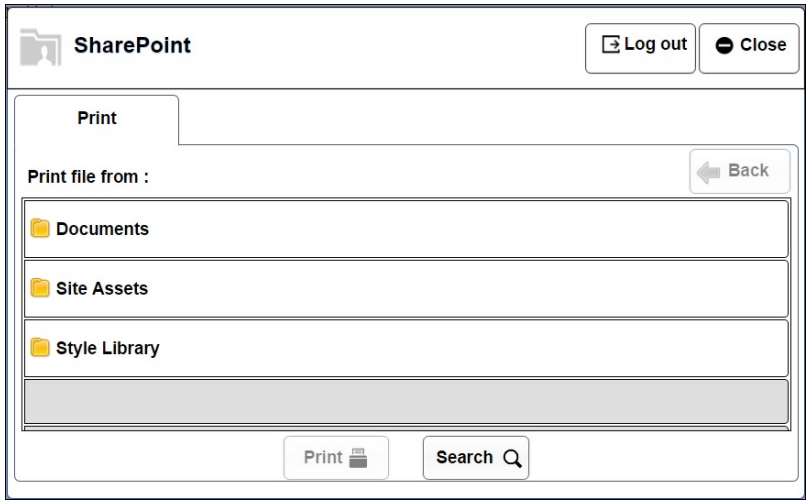
Setting the Print feature options

1. From Admin page → Print Settings tab.
2. Select options from two sided printing and output color.
3. Enter number of the copies and click on **Save** button.
4. Select **Reset** to revert back all Print Settings options to its default values.

Login as User

1. From the Control panel → **SharePoint**.
2. Select server name from the **Server Name** list or enter the server **URL**.

3 Enter User name, password and click on **Login** button.



NOTE:

- If Shared Document library is already available in MSPS site, then the page will appear by default with **Shared Document** Library where the user can directly print a document. Otherwise, the User home page will appear with available **Document libraries (root folder)** where the user can select any of the folders to print a file.

Print

To print a file from an MSPS server

1 Select the file from a folder to print.

2 Click on the **Print** button.

Print a file from an MSPS server with print feature settings

NOTE:

- To use this settings, Admin should enable the **Display Print Options** in the Print Setting tab.

1 Select the file from a folder to print and click on the **Print** button.

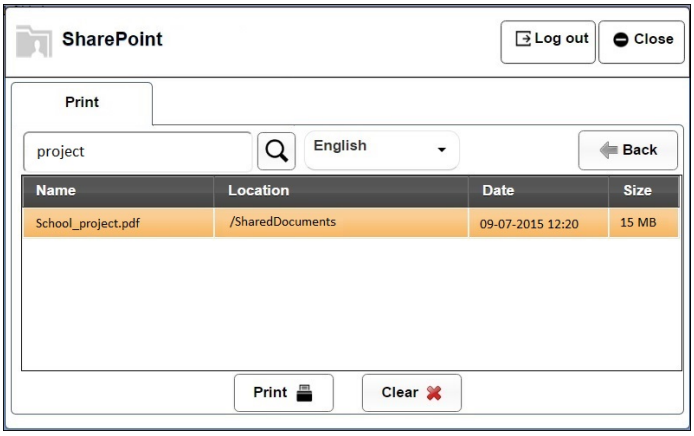
2 Tap on the **Basic Print** feature, set two-sided printing, output color, and number of copies.

3 Click on the **OK** button.

To search for PDF files stored in an MSPS site

1 Select **Search** button from the Print tab. This is to search for PDF file names and their content.

2 Enter text in the search box and click on the search icon .



3 Select the file from the displayed list to print.

Dell™ Technical Support Policy

Technician-assisted technical support requires the cooperation and participation of the customer in the troubleshooting process and provides for restoration of the operating system, software program and hardware drivers to the original default configuration as shipped from Dell, as well as the verification of appropriate functionality of the printer and all Dell-installed hardware. In addition to this technician assisted technical support, online technical support is available at Dell Support. Additional technical support options may be available for purchase.

Dell provides limited technical support for the printer and any Dell-installed software and peripherals. Support for third-party software and peripherals is provided by the original manufacturer, including those purchased and/or installed through Software & Peripherals (DellWare), ReadyWare, and Custom Factory Integration (CFI/DellPlus).

Online Services

You can access Dell Support through the following websites:

- You can access Dell Support through the following websites:

  Product support and manuals

  www.dell.com/support

  www.dell.com/support/manuals

  www.dell.com/printer

Warranty and Return Policy

Dell Inc. ("Dell") manufactures its hardware products from parts and components that are new or equivalent to new in accordance with industry-standard practices. For information about the Dell warranty for your printer, see **dell.com/support**.

Recycling Information

It is recommended that customers dispose of their used computer hardware, monitors, printers, and other peripherals in an environmentally sound manner. Potential methods include reuse of parts or whole products and recycling of products, components, and/or materials.

For specific information on Dell's worldwide recycling programs, visit **www.dell.com/recycle**.

Contacting Dell

You can contact Dell electronically using the following addresses:

- World Wide Web
  www.dell.com/contactdell

About License

Dell Color Smart Printer | S3840cdn

This product includes open source software ("OSS") distributed under the terms of various open source licenses. Please see the following table and each license below.

About software applied to GPL

This product includes open source software ("OSS") distributed under the terms of GNU General Public License ("GPL") Version 2.

You have a right to obtain, modify and redistribute the source codes of this software.

We will deliver the GPL software associated with this product to you when we receive a request to do so.

http://opensource.dell.com/

OSS Table

Applied License	OSS	Copyright Notice
Apache License, Version 2.0	Bonjour 107.6	Copyright (c) 2002-2003 Apple Computer, Inc.
	Jetty 6.1.26	Copyright 2004-2008 Mort Bay Consulting Pty. Ltd.
	commons net 3.3	Copyright 2001-2013 The Apache Software Foundation
	JETTSON 1.3.3	Copyright 2006 Envoi Solutions LLC
	NFCTools for Java 1.0-M8	Copyright 2011-2012 Adrian Stabiszewski, as@nfctools.org
Apache License Version 1.1	crimson 1.1.3	Copyright (c) 1999-2002 The Apache Software Foundation.
MIT license	expat 1.2	Copyright (c) 1998, 1999, 2000 Thai Open Source Software Center Ltd
	expat 2.1.0	Copyright (c) 1998, 1999, 2000 Thai Open Source Software Center Ltd and Clark Cooper Copyright (c) 2001, 2002, 2003, 2004, 2005, 2006 Expat maintainers.
	JSON-C 0.8	Copyright (c) 2004, 2005 Metaparadigm Pte Ltd
	DES encryption for NTLM	Copyright 1997-2005 Simon Tatham.
	libxml2 2.9.1	Copyright (C) 1998-2012 Daniel Veillard.
	jQuery 1.10.2	Copyright 2013 jQuery Foundation and other contributors
	jQuery 2.1.1	Copyright jQuery Foundation and other contributors
	jQuery UI 1.10.4	Copyright 2014 jQuery Foundation and other contributors
	jQuery UI 1.11.2	Copyright jQuery Foundation and other contributors
	jQuery UI Touch Punch 0.2.3	Copyright 2011–2014, Dave Furfero
	jQuery Watermark Plugin 1.0.2	Licensed under MIT license. http://opensource.org/licenses/MIT

Applied License	OSS	Copyright Notice
	html5shiv 3.6.2	Copyright (c) 2014 Alexander Farkas (aFarkas).
	colResizable 1.3	Copyright (c) 2014 Silvacom Ltd.
	globalize 0.1.1	Copyright Software Freedom Conservancy, Inc.
	jQuery validate plugin 1.11.1	Copyright Jörn Zaefferer
	wayland 1.5	Copyright © 2008-2012 Kristian Høgsberg Copyright © 2010-2012 Intel Corporation Copyright © 2010-2011 Benjamin Franzke Copyright © 2011-2012 Collabora, Ltd. Copyright © 2010 Red Hat <mjg@redhat.com>
	weston 1.5	Copyright © 2008-2012 Kristian Høgsberg Copyright © 2010-2012 Intel Corporation Copyright © 2010-2011 Benjamin Franzke Copyright © 2011-2012 Collabora, Ltd. Copyright © 2010 Red Hat <mjg@redhat.com>
	pixman 0.32.4	Copyright 1987, 1988, 1989, 1998 The Open Group Copyright 1987, 1988, 1989 Digital Equipment Corporation Copyright 1999, 2004, 2008 Keith Packard Copyright 2000 SuSE, Inc. Copyright 2000 Keith Packard, member of The XFree86 Project, Inc. Copyright 2004, 2005, 2007, 2008, 2009, 2010 Red Hat, Inc. Copyright 2004 Nicholas Miell Copyright 2005 Lars Knoll & Zack Rusin, Trolltech Copyright 2005 Trolltech AS Copyright 2007 Luca Barbato Copyright 2008 Aaron Plattner, NVIDIA Corporation Copyright 2008 Rodrigo Kumpera Copyright 2008 Andre Tupinamba Copyright 2008 Mozilla Corporation Copyright 2008 Frederic Plourde Copyright 2009, Oracle and/or its affiliates.
	slick 1.3.6	Copyright (c) 2014 Ken Wheeler
	nanoScroller 0.8	Copyright (c) 2012 James Florentino
	jQuery Form plugin 3.51	Copyright 2006-2013 (c) M. Alsup
	Hammer.js 2.0.4	Copyright (C) 2011-2014 by Jorik Tangelder (Eight Media)
	moment.js 2.9.0	Copyright (c) 2011-2014 Tim Wood, Iskren Chernev, Moment.js contributors
	Backbone.js 1.1.2	Copyright (c) 2010-2014 Jeremy Ashkenas, DocumentCloud
	Underscore.js 1.8.2	Copyright (c) 2009-2015 Jeremy Ashkenas, DocumentCloud and Investigative
	libunwind 1.0.1	Copyright (c) 2002 Hewlett-Packard Co

Applied License	OSS	Copyright Notice
	curl 7.32.0	Copyright (c) 1996 - 2015, Daniel Stenberg, <daniel@haxx.se>.
	expat 2.1.0	Copyright (c) 1998, 1999, 2000 Thai Open Source Software Center Ltd and Clark Cooper
	libffi 3.0.13	Copyright (c) 2007, 2009, 2010 Red Hat, Inc.
	libice 1.0.8	Copyright © 2003 Keith Packard
	libjson 0.9	Copyright (c) 2004, 2005 Metaparadigm Pte. Ltd.
	libsm 1.2.1	Copyright (c) 2002, Oracle and/or its affiliates.
	libx11 1.6.1	Copyright 1987, 1988, 1990 by Digital Equipment Corporation, Maynard
	libxau 1.0.8	Copyright (C) 1994-2013 Free Software Foundation, Inc.
	libxcb 1.9.1	Copyright (C) 2001-2006 Bart Massey, Jamey Sharp, and Josh Triplett.
	libxdmcp 1.1.1	Copyright 1989 Network Computing Devices, Inc., Mountain View, California.
	libxml2 2.9.1	Copyright (C) 1998-2012 Daniel Veillard.
	ncurses	Copyright (c) 1998-2009,2010 Free Software Foundation, Inc.
	ossp-uuid	Copyright (c) 2004-2008 Ralf S. Engelschall <rse@engelschall.com>
	pixman 0.30.2	Copyright 1987, 1988, 1989, 1998 The Open Group
	popt 1.16	Copyright (c) 1998 Red Hat Software
	shadow-securetty 4.1.4.3	-
MIT Type license	STL C++	Copyright (c) 1994 Hewlett-Packard Company
MIT/X derivate License	libcurl 7.15.3	Copyright (c) 1996 - 2006, Daniel Stenberg, <daniel@haxx.se>.
	libcurl 7.40.0	Copyright (c) 1996 - 2015, Daniel Stenberg, <daniel@haxx.se>.
Mozilla Public License Version 1.0	asn.1 2.12	Copyright (c) 1993-1998 Equivalence Pty. Ltd. Copyright (c) 2001 Institute for Information Industry, Taiwan, Republic of China
NETSCAPE PUBLIC LICENSEVer 1.1	Mozilla Rhino 1.4R3	Copyright (C) 1997-1999 Netscape Communications Corporation. All Rights Reserved.
GPL Version 2	iptables 1.4.7	(C) Copyright 2000-2004 netfilter project http://www.netfilter.org/
	NDisc6 1.0.2	Copyright © 2005-2006 Rémi Denis-Courmon
	ping(ipuitils) s20121221	Copyright (c) 1989 The Regents of the University of California.
	cryptsetup 1.6.3	Copyright (C) 2004, Christophe Saout <christophe@saout.de> Copyright (C) 2004-2007, Clemens Fruhwirth <clemens@endorphin.org> Copyright (C) 2009-2012, Red Hat, Inc. All rights reserved. Copyright (C) 2009-2013, Milan Broz
	gplinterceptor	Copyright (c) 2010-2012, AuthenTec Inc, all rights reserved.
	cryptAPI 1.03	Copyright (c) 2002, Dr Brian Gladman <brg@gladman.me.uk>, Worcester, UK. All rights reserved.

Applied License	OSS	Copyright Notice
	acl 2.2.51	copyright (c) 2009 by andreas gruenbacher
	attr 2.4.46	copyright (c) 2001-2002 silicon graphics, inc. all rights
	base-files 3.0.14	-
	base-passwd 3.5.26	copyright 2007 david mandelberg, copyright 2002, 2003, 2004, 2005, 2007 colin watson, copyright: copyright 2001, 2002 joey hess, written by ian murdock <imurdock@debian.org> and, copyright 2002, 2003, 2004 colin watson <cjwatson@debian.org>, copyright: copyright 1999-2002 wichert akkerman <wichert@deephackmode.org>
	beecrypt 4.2.1	copyright (c) 2000, 2001, 2002, 2005 x-way rights bv copyright (c) 2004 bob deblier
	busybox 1.21.1	Copyright (C) 1999-2004 by Erik Andersen Copyright (c) 1983, 1993 The Regents of the University of California. Copyright (c) 1989, 1991, 1993, 1994 The Regents of the University of California. Copyright (c) 1997-2005 Herbert Xu Copyright (c) 2001 Aaron Lehmann Copyright (c) University of Delaware 1992-2009 Copyright (C) 1999 by Randolph Chung Copyright (C) 1991-2, RSA Data Security, Inc. Copyright (C) 2011 Davide Cavalca Copyright 2010 Lennart Poettering Copyright (C) 2009 Denys Vlasenko Copyright (c) 2002 by David I. Bell copyright (c) 2008 denys vlasenko. copyright (c) 2010 sergey naumov copyright 2006 bernhard reutner-fischer copyright 2006 rob landley copyright (c) 1999 by randolph chung copyright (c) 2001,2002 vladimir oleynik copyright (c) andreas neuper, sep 1998. copyright (c) 2010 kevin cernekee copyright (c) 2006 by jason schoon copyright (c) 2010 timo teras copyright (c) 2000 and written by emanuele caratti copyright (c) 1997, 1998, 1999, 2000 frodo looijaard copyright (c) 1993,, (c) 1991, 1992 linus torvalds. copyright (c) 2002 robert griebl copyright (c) 1999-2005 by erik andersen copyright (c) 2002 matt kraai. copyright (c) 2009 malek degachi

Applied License	OSS	Copyright Notice
		copyright 2005 frank sorenson , copyright 2005 rob landley
		copyright (c) 1993 rick sladkey, copyright (c) 2005-2006 by rob landley, copyright (c) 1999-2004 by erik andersen, copyright (c) 1995, 1996 by bruce perens.
		copyright (c) 2008 nuovation system designs, llc
		copyright (c) 1994,1996 alessandro rubini
		copyright (c) 2010 marek polacek
		copyright 2002 andi kleen, suse labs.
		copyright (c) 2009 vladimir dronnikov, copyright (c) 2004 kay sievers
		copyright (c) 2004 kay sievers
		copyright (c) 2005 w. michael petullo
		copyright (c) andre masella
		copyright (c) 2005 tobias klauser
		copyright 2010 nokia corporation
		copyright 2010 by denys vlasenko
		copyright 2005 by bernhard reutner-fischer
		copyright 2006 by natanael copa
		copyright (c) 2001, 2002 matt kraai
		copyright 2006 glenn mcgrath
		copyright 2006 by erik hovland
		copyright (c) 2000 by gennady feldman, copyright (c) 2000 by karl m. hegbloom, copyright (c) 1999-2004 by erik andersen, copyright (c) 2001 by gennady feldman
		copyright (c) 1989, 1991, 1993, 1994, copyright (c) 2003 vladimir oleynik, copyright (c) 1987, 1989, 1991 free software foundation, inc., written to ./trace and a quit signal, copyright (c) 1997-2005 herbert xu
		copyright (c) 2000,2001 larry doolittle
		copyright (c) 1997-2002 free software foundation, inc.
		copyright (c) 2006 - 2007 kaigai kohei
		(c) 1997 by andi kleen, copyright 2004 matt mackall
		copyright (c) 2006 bernhard reutner-fischer

Applied License	OSS	Copyright Notice
		copyright (c) 2002 hewlett-packard company, copyright (c) 2002 al stone , copyright (c) 2002 randy dunlap , copyright (c) 2002 khalid aziz
		copyright (c) 2002 roman zippel
		copyright (c) 2002-2003 romain lievin
		copyright (c) 2002-2005 sam ravnborg
		copyright 2002 by kai germaschewski
		copyright (c) 2001-2006, gerrit pape
		copyright 2004 tony j. white
		copyright (c) 2010 marek polacek
		copyright (c) 1995, 1996 by bruce perens
		copyright (c) 2012 by sven oliver 'svolli' moll
		copyright (c) 2007 loic grenie
		copyright (c) 2010 nokia corporation.
		copyright (c) 2010 lauri kasanen, copyright (c) 2002-2009 craig small, copyright (c) 1993-2002 werner almesberger
		copyright (c) 2004 nicholas miell
		copyright (c) 2005 manuel novoa iii
		copyright 2008-2009 matt mackall
		copyright 1999 george staikos
		copyright (c) 1992-1998 michael k. johnson, copyright (c) 1994-1996 charles l. blake., copyright (c) 1992 roger binns, copyright (c) 1992 branko lankester, (c) 2002 , (c) eero tamminen
		copyright (c) 2001 by michael habermann
		copyright (c) 2003 paul sheer, copyright (c) 2005 odd arild olsen , copyright (c) 2005 roberto a. foglietta
		copyright (c) 2002 glenn mcgrath, copyright (c) 2002 jeff angielski, the ptr group
		copyright (c) 1999 by randolph chung
		copyright 1994-1996 donald becker, author: donald becker, copyright (c) 2005 by marc leeman
		copyright (c) 2009 maksym kryzhanovskyy

Applied License	OSS	Copyright Notice
		copyright (c) 1999 anthony towns, copyright (c) 2003-2004 erik andersen ,copyright (c) 2002 glenn mcgrath
		copyright 1993 microwalt corporation
		copyright (c) 1998 dave cinege, copyright (c) 1998, 1999 charles p. wright
		copyright (c) 1999,2000,2001 by john beppu, copyright (c) 1999,2000 by lineo, inc. and john beppu
		copyright (c) university of delaware 1992-2009
		copyright 2007 tito ragusa
		copyright (c) 1994-2000 by tomi ollila
		(c) copyright 2000, axis communications ab, lund, sweden
		copyright (c) 1999 uwe ohse, copyright (c) 2000 jean-pierre lefebvr, copyright (c) 2001 magnus damm
		modified for linux ipv6 by pedro roque, (c) 2005 <dzo@simtreas.ru>, copyright (c) 1988, 1989, 1991, 1994, 1995, 1996, 1997, 1998, 1999, 2000
		copyright (c) 2010 bradley m. kuhn
		copyright (c) 2004 by david brownell, copyright (c) 2003 by arthur van hoff
		copyright: 2006, 2007 stefan rompf ., copyright (c) 2011 denys vlasenko.
		copyright (c) 2002 mario strasser ,, copyright (c) 2006 jesse dutton
		copyright 1996, 1997 linux international., contributed by ralf baechle
		copyright 1997, 2000, 2001 larry doolittle
		copyright (c) 1997-1999 richard gooch, copyright (c) 1998-2002 richard gooch, copyright (c) 1998-2000 richard gooch, copyright (c) [2003] by [matteo croce], copyright (c) 2003 by tito ragusa
		copyright (c) 2008, busybox team. -solar 4/26/08, copyright (c) 2000, jan-derk bakker
		copyright (c) 2004 peter willis
		copyright (c) 2008 michele sanges
		copyright (c) 2000 arcom control system ltd
		copyright (c) [2003] by [matteo croce]
		copyright (c) 2008 by <u173034@informatik.uni-oldenburg.de>

Applied License	OSS	Copyright Notice
		copyright (c) 2006 michael opdenacker
		copyright (c) 2010 malek degachi
		copyright 1991-1997 miquel van smoorenburg.
		copyright (c) 2001 hewlett-packard laboratories
		copyright (c) 2001, hewlett-packard company
		copyright (c) 2011 marek be ka
		copyright (c) 2000-2001 jeff tranter
		copyright (c) 2008 darius augulis, copyright (c) 2003 paul mundt
		copyright (c) 1999 by lineo, inc. and john beppu
		copyright (c) 2000 by spoon <spoon@ix.netcom.com>
		copyright (c) 1999 by david i. copyright 1989 - 1991, julianne frances haugh
		copyright 1989 - 1991, julianne frances haugh
		copyright (c) 2006 by rob sullivan
		copyright (c) 2006 gabriel somlo
		copyright (c) 1991-2, rsa data security, inc. created 1991.
		copyright (c) 2003 bastian blank
		copyright (c) 2009 by dan fandrich , et. al.
		copyright (c) 2008 natanael copa
		(c) 2007 by yuichi nakamura ,copyright 1998 by albert cahalan
		copyright 2010 lennart poettering, copyright (c) 2011 davide cavalca
		copyright (c) 2003 russ dill
		copyright (c) 1991, 1992 linus torvalds, copyright (c) 1992, 1993, 1994, 1995
		copyright (c) 1991,92,95,96,97,98,99,2000,01 free software foundation, inc.
		copyright (c) 1996..2008 markus franz xaver johannes oberhumer
		copyright (c) 2002 by dmitry zakharov
		copyright (c) 2000, 2001 sterling huxley
		copyright (c) 1993, 1994 remy card
		copyright (c) 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000,, written by theodore ts'o

Applied License	OSS	Copyright Notice
	e2fsprogs 1.42.8	copyright (c) 1999 red hat software, copyright (c) 2000 theodore ts'o, copyright (c) 2000 andreas dilger, copyright (c) 2000 stephen c. tweedie, copyright (c) 1997 kaz kylheku , copyright 1999-2000 red hat software --- all rights reserved, copyright (c) 2006 garrett kajmowicz, copyright (c) 1993, 1994, 1995, 1996, 1997 theodore ts'o copyright (c) 2000 by daniel jacobowitz copyright (c) 2005 by mike frysinger copyright (c) 1990-1996 free software foundation, inc., copyright 1999 dave cinege copyright (c) 1995, 1996 by bruce perens copyright (c) 2003 yang xiaopeng copyright (c) arne bernin copyright (c) 2010 by grigory batalov copyright (c) 2007 loic grenie copyright (c) 1998 enrique zanardi copyright (c) 1994-1998 andries e. brouwe copyright (c) 2006 by jan kiszka copyright (c) 2006 aurelien jacobs, modified for busybox by glenn mcgrath, written by spencer thomas, joe orost, james woods, jim mckie, steve davies,, written and put in the public domain by mark adler., copyright (c) 1992-1993 jean-loup gailly, copyright (c) 1992-1993 jean-loup gailly., (c) 2002 glenn mcgrath copyright (c) 1996 markus franz xaver johannes oberhumer, copyright (c) 1997 markus franz xaver johannes oberhumer, copyright (c) 1998 markus franz xaver johannes oberhumer, copyright (c) 1999 markus franz xaver johannes oberhumer, copyright (c) 2000 markus franz xaver johannes oberhumer, copyright (c) 2001 markus franz xaver johannes oberhumer, copyright (c) 2002 markus franz xaver johannes oberhumer, copyright (c) 2003 markus franz xaver johannes oberhumer, copyright (c) 2004 markus franz xaver johannes oberhumer, copyright (c) 2005 markus franz xaver johannes oberhumer, copyright (c) 2006 markus franz xaver johannes oberhumer, copyright (c) 2007 markus franz xaver johannes oberhumer, copyright (c) 2008 markus franz xaver johannes oberhumer copyright (c) 1996-2006 julian seward
	eglibc 2.18	Copyright 1987, 1988, 1989 by MIT Student Information Processing Board
	ethtool 3.1	Copyright 1996 by Craig Metz
	init-ifupdown 1.0	copyright (c) 2003 advanced micro devices inc.
	initscripts 1.0	-
	iproute2 3.10.0	copyright (c) 2000 red hat software, inc.
	iptables 1.4.19.1	(c) 2011 volkswagen group research
	libgcrypt 1.5.3	(C) Copyright 2000-2004 netfilter project http://www.netfilter.org/
	libgpg-error 1.12	Copyright (C) 2003 g10 Code GmbH
	logrotate 3.8.1	Copyright (C) 2003 g10 Code GmbH

Applied License	OSS	Copyright Notice
	lvm2 2.02.95	copyright (c) 1989, 1991 free software foundation, inc.
	mingetty 1.08	copyright (c) 1989, 1991 free software foundation, inc.
	mtd-utils 1.5.0	written by james hacker., copyright (c) 19yy name of author, copyright (c) 19yy <name of author>, copyright (c) 1989, 1991 free software foundation, inc.
	ndisc6 1.0.2	Copyright (C) 2004 Christopher Clark
	net-tools 1.60+25	Copyright © 2005-2006 Rémi Denis-Courmon
	netbase 5.1	copyright (c) 1989, 1991 free software foundation, inc.
	procps 3.2.8	-
	setserial 2.17	copyright (c) 1989, 1991 free software foundation, inc.
	smartmontools 5.42	copyright 1995, 1996, 1997, 1998 by theodore ts'o.
	sg3-utils 1.33	copyright (c) 1989, 1991 free software foundation, inc.
	sysfsutils 2.1.0	Copyright (c) 2004-2010 Douglas Gilbert.
	sysvinit 2.88dsf	copyright (c) ibm corp. 2003-2005
	time 1.7	copyright (c) 1991-2004 miquel van smoorenburg.
	udev 182	copyright (c) 1989, 1991 free software foundation, inc.
	usbutils 007	(c) 2003, 2004 phil blundell
	util-linux 2.23.2	copyright (c) 2003-2005 david brownell, copyright (c) 1999-2001, 2003
	wireless-tools 29	Copyright 1996, 2003 Rickard E. Faith
	kernel 3.10	Refer to source archive.
	at 3.1.13	Copyright: 1993, 1994, 1995, 1996, 1997 (c) Thomas Koenig Copyright: 1993 (c) David Parsons Copyright: 2002, 2005 (c) Ryan Murray Copyright (C) 1989, 1990, 1991, 1998, 2000, 2001, 2002, 2003, 2004,2005, 2006, 2007 Free Software Foundation Inc. Copyright (C) 2009, Ansgar Burchardt <ansgar@debian.org>
	pciutils 3.2.0	Copyright (c) 1997-2013 Martin Mares <mj@ucw.cz> Copyright (c) 1999 Jari Kirma <kirma@cs.hut.fi> Copyright (c) 2002 Quentin Garnier <cube@cubidou.net> Copyright (c) 2003 Matthew Wilcox <matthew@wil.cx> Copyright (c) 2003 Samy Al Bahra <samy@kerneled.com> Copyright (C) 1987-1993 Free Software Foundation, Inc. Copyright (c) 2008 Solarflare Communications Copyright (c) 2003 Marco Gerards <metgerards@student.han.nl> Copyright (c) 2006 Samuel Thibault <samuel.thibault@ens-lyon.org> Copyright (c) 2006-2007 Thomas Schwinge <tschwinge@gnu.org> Copyright (c) 2003 Bill Moore <billm@eng.sun.com> Copyright (c) 2004 Alexander Stock <stock.alexander@gmx.de> Copyright (c) 2009 Francois Revol <revol@free.fr>

Applied License	OSS	Copyright Notice
	psmisc 22.20	Copyright (C) 1993-2005 Werner Almesberger Copyright (C) 2002-2012 Craig Small Copyright (C) 2007 Trent Waddington <trent.waddington@gmail.com> Copyright (C) 2011 Werner Fink Copyright (C) 2005,2011 SUSE LINUX Products GmbH, Germany.
GPL Version 3	bash 4.2	copyright (c) 2007 free software foundation, inc.
	coreutils 8.21	2005-2006, 2008-2013 Free Software Foundation, Inc.Copyright (C) 2005-2006, 2008-2013 Free Software Foundation, Inc. Copyright (c) 1996-1999 by Internet Software Consortium.
	cpio 2.11	copyright (c) 2007 free software foundation, inc.
	elfutils 0.155	copyright (c) 2007 free software foundation, inc.
	findutils 4.4.2	copyright (c) 2007 free software foundation, inc.
	gawk 4.0.2	copyright (c) 2007 free software foundation, inc.
	gmp 5.1.1	copyright (c) 2007 free software foundation, inc.
	grep 2.14	copyright (c) 2007 free software foundation, inc.
	gzip 1.6	copyright (c) 2007 free software foundation, inc.
	parted 3.1	copyright (c) 2007 free software foundation, inc.
	readline 6.2	copyright (c) 2007 free software foundation, inc.
	rsyslog 7.4.4	Copyright (C) 2004 Christopher Clark Copyright 2010 Lennart Poettering copyright (c) 2007 free software foundation, inc.
	sed 4.2.2	copyright (c) 2007 free software foundation, inc. Copyright 1995 by Tom Lord
	tar 1.26	copyright (c) 2007 free software foundation, inc.
	binutils 2.23.2	Copyright (C) 1984-2013 Free Software Foundation Inc.
	gnutls 2.12.23	Copyright (C) 1991-2013 Free Software Foundation Inc.
	libgcc	Copyright (C) 1989-2013 Free Software Foundation, Inc.
LGPL Version 2.1	libusb 0.1.12	copyright (c) 1997-2007 jean tourrilhes
	libusb 1.0.18-rc1	Copyright © 2012-2013 Nathan Hjelm <hjelmn@cs.unm.edu> Copyright © 2007-2008 Daniel Drake <dsd@gentoo.org> Copyright © 2001 Johannes Erdfelt <johannes@erdfelt.com>
	OpenSC 0.11.1	Copyright (C) 2001, 2002 Juha Yrjola<juha.yrjola@iki.fi>
	JavaScriptCore	Copyright (C) 2006, 2007, 2008 Apple Inc. All Copyright (C) 2006 Samuel Weinig <sam.weinig@gmail.com>
	WebCore	Copyright (C) 2005, 2006, 2007, 2008, 2009 Apple Inc.

Applied License	OSS	Copyright Notice
	gstreamer-plugin-good 1.5	Copyright (C) 1998-2001 Andy Lo A Foe <andy@alsaplayer.org>
		Copyright (C) 1999 Ralph Loader <suckfish@ihug.co.nz>
		Copyright (C) 1999-2012 the contributors
		Copyright (c) 2001 __CompanyName__. All rights reserved.
		Copyright (c) 2001 ios. All rights reserved.
		copyright (c) 2001 Sam Mertens. This code is subject to the provisions of
		Copyright (C) 2002 Richard Boulton <richard@tartarus.org>
		Copyright (c) 2004-2008 Lennart Poettering
		Copyright (C) 2004-2010 Marcel Holtmann <marcel@holtmann.org>
		Copyright (c) 2010 The WebM project authors. All Rights Reserved.
		Copyright (C) 2012 Collabora Ltd.
		Copyright 2007 Collabora Ltd,
		Copyright 2007 Nokia Corporation
		Copyright 2007 Wim Taymans <wim.taymans@gmail.com>
		Copyright (C) 2005 Sebastien Moutte <sebastien@moutte.net>
		Copyright (C) <1999> Erik Walthinsen <omega@cse.ogi.edu>
		Copyright (C) <1999> Erik Walthinsen <omega@temple-baptist.com>
		Copyright (C) <2001> Richard Boulton <richard@tartarus.org>
		Copyright (C) <2002> Iain Holmes <iain@prettypeople.org>
		Copyright (C) <2002> Richard Boulton <richard@tartarus.org>
		Copyright (C) <2003,2004> David Schleef <ds@schleef.org>
		Copyright (C) <2003> David A. Schleef <ds@schleef.org>
		Copyright (C) <2003> David Schleef <ds@schleef.org>
		Copyright (C) <2003> Guillaume Borios, iOS-Software
		Copyright (C) <2003> iOS-Software
		Copyright (C) <2003> Jean-Christophe Hoelt <jeko@free.fr>
		Copyright (C) <2004> Benjamin Otte <otte@gnome.org>
		Copyright (C) <2004> Jan Schmidt <thaytan@mad.scientist.com>
		Copyright (C) <2004> Wim Taymans <wim.taymans@gmail.com>
		Copyright (C) <2005,2006> Wim Taymans <wim at fluendo dot com>
		Copyright (C) <2005,2006> Wim Taymans <wim.taymans@gmail.com>

Applied License	OSS	Copyright Notice
		Copyright (C) <2005,2006> Wim Taymans <wim@fluendo.com>
		Copyright (C) <2005> Edgard Lima <edgard.lima@indt.org.br>
		Copyright (C) <2005> Luca Ognibene <luogni@tin.it>
		Copyright (C) <2005> Michal Benes <michal.benes@xeris.cz>
		Copyright (C) <2005> Nokia Corporation <kai.vehmanen@nokia.com>
		Copyright (C) <2005> Philippe Khalaf <burger@speedy.org>
		Copyright (C) <2005> Thomas Vander Stichele <thomas at apestaart dot org>
		Copyright (C) <2005> Wim Taymans <wim.taymans@gmail.com>
		Copyright (C) <2005> Wim Taymans <wim@fluendo.com>
		Copyright (C) <2005> Zeeshan Ali <zeenix@gmail.com>
		Copyright (C) <2006,2011> Tim-Philipp Müller <tim centricular net>
		Copyright (C) <2006> Jan Schmidt <thaytan at mad scientist com>
		Copyright (C) <2006> Joni Valtanen <joni.valtanen@movial.fi>
		Copyright (C) <2006> Mark Nauwelaerts <manauw@skynet.be>
		Copyright (C) <2006> Mark Nauwelaerts <mnauw@users.sourceforge.net>
		Copyright (C) <2006> Nokia Corporation (contact <stefan.kost@nokia.com>)
		Copyright (C) <2006> Nokia Corporation, Stefan Kost <stefan.kost@nokia.com>.
		Copyright (C) <2006> Philippe Khalaf <burger@speedy.org>
		Copyright (C) <2006> Philippe Khalaf <burger@speedy.org>
		Copyright (C) <2006> Tim-Philipp Müller <tim centricular net>
		Copyright (C) <2006> Wim Taymans <wim at fluendo dot com>
		Copyright (C) <2006> Wim Taymans <wim.taymans@gmail.com>
		Copyright (C) <2006> Wim Taymans <wim@fluendo.com>
		Copyright (C) <2006> Zaheer Abbas Merali <zaheerabbas at merali dot org>
		Copyright (C) <2007> Collabora Ltd

Applied License	OSS	Copyright Notice
		Copyright (C) <2007> Collabora.
		Copyright (C) <2007> Edward Hervey <edward.hervey@collabora.co.uk>
		Copyright (C) <2007> Jan Schmidt <thaytan@noraisin.net>
		Copyright (C) <2007> Julien Moutte <julien@fluendo.com>
		Copyright (C) <2007> Julien Moutte <julien@moutte.net>
		Copyright (C) <2007> Nokia Corporation
		Copyright (C) <2007> Nokia Corporation (contact <stefan.kost@nokia.com>)
		Copyright (C) <2007> Nokia Corporation.
		Copyright (C) <2007> Stefan Kost <ensonic@users.sf.net>
		Copyright (C) <2007> Thijs Vermeir <thijsvermeir@gmail.com>
		Copyright (C) <2007> Tim-Philipp Müller <tim centricular net>
		Copyright (C) <2007> Wim Taymans <wim.taymans@collabora.co.uk>
		Copyright (C) <2007> Wim Taymans <wim.taymans@gmail.com>
		Copyright (C) <2007-2010> Collabora Ltd
		Copyright (C) <2007-2010> Nokia Corporation.
		Copyright (C) <2008> Dejan Sakelsak <dejan.sakelsak@marand.si>
		Copyright (C) <2008> Edward Hervey <bilboed@bilboed.com>
		Copyright (C) <2008> Mark Nauwelaerts <mnauw@users.sf.net>
		Copyright (C) <2008> Wim Taymans <wim.taymans@gmail.com>
		Copyright (C) <2008> Wim Taymans <wim.taymans@google.com>
		Copyright (C) <2009> Edward Hervey <bilboed@bilboed.com>
		Copyright (C) <2009> Janin Kolenc <janin.kolenc@marand.si>
		Copyright (C) <2009> Jarkko Palviainen <jarkko.palviainen@sesca.com>
		Copyright (C) <2009> Mark Nauwelaerts <mnauw@users.sourceforge.net>
		Copyright (C) <2009> Sebastian Dröge <sebastian.droege@collabora.co.uk>
		Copyright (C) <2009> STEricsson <benjamin.gaignard@stericsson.com>

Applied License	OSS	Copyright Notice
		Copyright (C) <2009> Tim-Philipp Müller <tim centricular net>
		Copyright (C) <2009> Wim Taymans <wim.taymans@gmail.com>
		Copyright (C) <2009-2010> STEricsson <benjamin.gaignard@stericsson.com>
		Copyright (C) <2010> Mark Nauwelaerts <mark.nauwelaerts@collabora.co.uk>
		Copyright (C) <2010> Nokia Corporation
		Copyright (C) <2010> Sebastian Dröge <sebastian.droege@collabora.co.uk>
		Copyright (C) <2010> Stefan Kost <ensonic@users.sf.net>
		Copyright (C) <2010> Thiago Santos <thiago.sousa.santos@collabora.co.uk>
		Copyright (C) <2010> Wim Taymans <wim.taymans@gmail.com>
		Copyright (C) <2010> Zaheer Abbas Merali <zaheerabbas merali org>
		Copyright (C) <2011> Jon Nordby <jononor@gmail.com>
		Copyright (C) <2011> Stefan Kost <ensonic@users.sf.net>
		Copyright (C) <2011> Tim-Philipp Müller <tim centricular net>
		Copyright (C) <2011> Youness Alaoui <youness.alaoui@collabora.co.uk>
		Copyright (C) <2012> Collabora Ltd.
		Copyright (C) <2012> Mathias Hasselmann <mathias@openismus.com>
		Copyright (C) <2012> Ralph Giles <giles@mozilla.com>
		Copyright (C) <2013> Intel Corporation
		Copyright (C) <2013> Sreerenj Balachandran <sreerenj.balachandran@intel.com>
		Copyright (C) <2013> Thibault Saunier <thibault.saunier@collabora.com>
		Copyright (C) <2014> Centricular Ltd
		Copyright (C) <2014> Jan Schmidt <jan@centricular.com>
		Copyright (C) <2014> Stian Selnes <stian@pexip.com>
		Copyright (C) <2015> Luis de Bethencourt <luis@debethencourt.com>
		Copyright (C) <2015> YouView TV Ltd.
		Copyright (C) 1995-1997, 1999 Peter Mattis, Red Hat, Inc.
		Copyright (c) 1997 by Massimino Pascal <Pascal.Massimon@ens.fr>
		Copyright (c) 1998 - 2005 Conifer Software

Applied License	OSS	Copyright Notice
		Copyright (C) 1999 Erik Walthinsen <omega@cse.ogi.edu>
		Copyright (C) 1999,2000 Erik Walthinsen <omega@cse.ogi.edu>
		Copyright (C) 1999-2001 Erik Walthinsen <omega@cse.ogi.edu>
		Copyright (C) 2000 by Abramo Bagnara <abramo@alsa-project.org>
		Copyright (C) 2000 Donald A. Graft
		Copyright (c) 2000 Tom Barry All rights reserved.
		Copyright (C) 2000,2001,2002,2003,2005
		Copyright (C) 2001 David Robinson <David@Robinson.org>
		Copyright (C) 2001 FUKUCHI Kentarou
		Copyright (C) 2001 RidgeRun (http://www.ridgerun.com/)
		Copyright (c) 2001 Tom Barry All rights reserved.
		Copyright (c) 2001 Tom Barry. All rights reserved.
		Copyright (c) 2001, 2002, 2003 Fabrice Bellard.
		Copyright (C) 2001-2002 FUKUCHI Kentaro
		Copyright (C) 2001-2002 FUKUCHI Kentarou
		Copyright (C) 2001-2002 Ronald Bultje <rbultje@ronald.bitfreak.net>
		Copyright (C) 2001-2003, Ximian, Inc.
		Copyright (C) 2001-2006 FUKUCHI Kentaro
		Copyright (C) 2002 Billy Biggs <vektor@dumbterm.net>.
		Copyright (C) 2002 Ronald Bultje <rbultje@ronald.bitfreak.net>
		Copyright (c) 2002 Tom Barry All rights reserved.
		Copyright (C) 2002, Iain Holmes <iain@prettypeople.org>
		Copyright (C) 2002,2003,2005
		Copyright (C) 2003 Arwed v. Merkatz <v.merkatz@gmx.net>
		Copyright (C) 2003 Billy Biggs <vektor@dumbterm.net>.
		Copyright (C) 2003 Christophe Fergeau <teuf@gnome.org>
		Copyright (C) 2003 David A. Schleef <ds@schleef.org>
		Copyright (C) 2003 Ronald Bultje <rbultje@ronald.bitfreak.net>

Applied License	OSS	Copyright Notice
		Copyright (C) 2003-2004 Benjamin Otte <otte@gnome.org>
		Copyright (c) 2004 Arwed v. Merkatz <v.merkatz@gmx.net>
		Copyright (C) 2004 Benjamin Otte <otte@gnome.org>
		Copyright (C) 2004 Billy Biggs <vektor@dumbterm.net>
		Copyright (C) 2004 David A. Schleef <ds@schleef.org>
		Copyright (C) 2004 Dirk Ziegelmeier <dziegel@gmx.de>
		Copyright (C) 2004 Ronald Bultje <rbultje@ronald.bitfreak.net>
		Copyright (C) 2004 Thomas Vander Stichele <thomas@apestaart.org>
		Copyright (C) 2004 Wim Taymans <wim@fluendo.com>
		Copyright (C) 2004 Zaheer Abbas Merali <zaheerabbas at merali dot org>
		Copyright (C) 2004, 2008 Wim Taymans <wim@fluendo.com>
		Copyright (C) 2004,2007 Andy Wingo <wingo at pobox.com>
		Copyright (C) 2004-2005 FUKUCHI Kentaro
		Copyright (C) 2004-6 Zaheer Abbas Merali <zaheerabbas at merali dot org>
		Copyright (C) 2005 Andy Wingo <wingo@pobox.com>
		Copyright (c) 2005 Arwed v. Merkatz <v.merkatz@gmx.net>
		Copyright (C) 2005 Edgard Lima <edgard.lima@indt.org.br>
		Copyright (c) 2005 Edward Hervey <bilboed@bilboed.com>
		Copyright (C) 2005 Jan Schmidt <thaytan@mad.scientist.com>
		Copyright (C) 2005 Martin Eikermann <meiker@upb.de>
		Copyright (C) 2005 Nokia Corporation <kai.vehmanen@nokia.com>
		Copyright (C) 2005 Nokia Corporation.
		Copyright (C) 2005 Wim Taymans <wim@fluendo.com>
		Copyright (C) 2005 Zeeshan Ali <zeenix@gmail.com>
		Copyright (C) 2005,2006 Sun Microsystems, Inc.,
		Copyright (C) 2005,2006 Zaheer Abbas Merali <zaheerabbas at merali dot org>

Applied License	OSS	Copyright Notice
		Copyright (C) 2005,2006,2008,2009 Sun Microsystems, Inc.,
		Copyright (C) 2005,2006,2009 Sun Microsystems, Inc.,
		Copyright (C) 2005,2008, 2009 Sun Microsystems, Inc.,
		Copyright (C) 2005-2006 Zaheer Abbas Merali <zaheerabbas at merali dot org>
		Copyright (C) 2006 Christophe Fergeau <teuf@gnome.org>
		Copyright (C) 2006 Christophe Fergeau <teuf@gnome.org>
		Copyright (C) 2006 David A. Schleef <ds@schleef.org>
		Copyright (C) 2006 David Schleef <ds@schleef.org>
		Copyright (C) 2006 Edgard Lima <edgard dot lima at indt dot org dot br>
		Copyright (C) 2006 Edgard Lima <edgard.lima@indt.org.br>
		Copyright (c) 2006 Edward Hervey <bilboed@gmail.com>
		Copyright (C) 2006 Jan Schmidt <thaytan@mad.scientist.com>
		Copyright (C) 2006 Joni Valtanen <joni.valtanen@movial.fi>
		Copyright (C) 2006 Marcel Moreaux <marcelm@spacelabs.nl>
		Copyright (C) 2006 Mark Nauwelaerts <manauw@skynet.be>
		Copyright (C) 2006 Michael Smith <msmith@fluendo.com>
		Copyright (C) 2006 Mindfruit Bv.
		Copyright (C) 2006 Ravi Kiran K N <ravi.kiran@samsung.com>
		* copyright (c) 2006 Reimar Doeffinger
		Copyright (c) 2006 Reimar Doeffinger
		Copyright (C) 2006 Rene Stadler <mail@renestadler.de>
		Copyright (c) 2006 Sebastian Dröge <slomo@circular-chaos.org>
		Copyright (C) 2006 Sebastian Dröge <slomo@circular-chaos.org>
		Copyright (C) 2006 Sjoerd Simons <sjoerd@luon.net>
		Copyright (C) 2006 Stefan Kost <ensonic@users.sf.net>
		Copyright (C) 2006 Stefan Kost <ensonic@users.sf.net>
		Copyright (C) 2006 Tim-Philipp Müller <tim centricular net>

Applied License	OSS	Copyright Notice
		Copyright (C) 2006 Tim-Philipp Müller <tim centricular net>
		Copyright (C) 2006 Wim Taymans <wim@fluendo.com>
		Copyright (C) 2006 Zaheer Abbas Merali <zaheerabbas at merali dot org>
		Copyright (C) 2006 Zaheer Merali <zaheerabbas at merali dot org>
		Copyright (C) 2006-2007 Jan Schmidt <thaytan@mad.scientist.com>
		Copyright (C) 2006-2007 Tim-Philipp Müller <tim centricular net>
		Copyright (C) 2006-2008 Tim-Philipp Müller <tim centricular net>
		Copyright (C) 2006-2009 Mark Nauwelaerts <mnauw@users.sourceforge.net>
		Copyright (C) 2007 David A. Schleef <ds@schleef.org>
		Copyright (C) 2007 Julien Puydt <jpuydt@free.fr>
		Copyright (C) 2007 Nokia Corporation (contact <stefan.kost@nokia.com>)
		Copyright (C) 2007 Pioneers of the Inevitable <songbird@songbirdnest.com>
		Copyright (C) 2007 Ravi Kiran K N <ravi.kiran@samsung.com>
		Copyright (C) 2007 Rene Stadler <mail@renestadler.de>
		Copyright (C) 2007 Sebastian Dröge <slomo@circular-chaos.org>
		Copyright (C) 2007 Thomas Vander Stichele <thomas at apestaart dot org>
		Copyright (C) 2007 Tim-Philipp Müller <tim centricular net>
		Copyright (C) 2007 Tim-Philipp Müller <tim centricular net>
		Copyright (C) 2007,2008 Axis Communications <dev-gstreamer@axis.com>
		Copyright (C) 2007,2008 Pioneers of the Inevitable <songbird@songbirdnest.com>
		Copyright (C) 2007,2008,2009 Pioneers of the Inevitable <songbird@songbirdnest.com>
		Copyright (C) 2007-2008 Tim-Philipp Müller <tim centricular net>
		Copyright (C) 2007-2008 Wouter Cloetens <wouter@mind.be>
		Copyright (C) 2007-2009 Sebastian Dröge <sebastian.droege@collabora.co.uk>

Applied License	OSS	Copyright Notice
		Copyright (C) 2008 Axis Communications <dev-gstreamer@axis.com>
		Copyright (C) 2008 Axis Communications AB <dev-gstreamer@axis.com>
		Copyright (C) 2008 Collabora Limited
		Copyright (C) 2008 Jan Schmidt <jan.schmidt@sun.com>
		Copyright (C) 2008 Jan Schmidt <jan.schmidt@sun.com>
		Copyright (C) 2008 Jonathan Matthew <jonathan@d14n.org>
		Copyright (C) 2008 Mark Nauwelaerts <mnauw@users.sf.net>
		Copyright (C) 2008 Nokia Corporation
		Copyright (C) 2008 Nokia Corporation and its subsidary(-ies)
		Copyright (C) 2008 Nokia Corporation. (contact <stefan.kost@nokia.com>)
		Copyright (C) 2008 Nokia Corporation. All rights reserved.
		Copyright (C) 2008 Pioneers of the Inevitable <songbird@songbirdnest.com>
		Copyright (C) 2008 Rov Juvano <rovjuvano@users.sourceforge.net>
		Copyright (c) 2008 Sebastian Dröge <sebastian.droege@collabora.co.uk>
		Copyright (C) 2008 Sebastian Dröge <sebastian.droege@collabora.co.uk>
		Copyright (C) 2008 Sebastian Dröge <sebastian.droege@collabora.co.uk>.
		Copyright (C) 2008 Sebastian Dröge <slomo@circular-chaos.org>
		Copyright (C) 2008 Sebastian Dröge <slomo@collabora.co.uk>
		Copyright (C) 2008 Stefan Kost <ensonic@users.sf.net>
		Copyright (C) 2008 Sun Microsystems, Inc.,
		Copyright (C) 2008 Thiago Sousa Santos <thiagoss@embedded.ufcg.edu.br>
		Copyright (C) 2008 Tim-Philipp Müller <tim centricular net>
		Copyright (C) 2008 Tristan Matthews <tristan@sat.qc.ca>
		Copyright (C) 2008 Wim Taymans <wim.taymans@gmail.com>
		Copyright (C) 2008 Wim Taymans <wim@fluendo.com>
		Copyright (C) 2008 Wouter Cloetens <wouter@mind.be>
		Copyright (c) 2008,2009 Sebastian Dröge <sebastian.droege@collabora.co.uk>

Applied License	OSS	Copyright Notice
		Copyright (C) 2008,2009,2010 Entropy Wave Inc
		Copyright (C) 2008,2010 Sebastian Dröge <sebastian.droege@collabora.co.uk>
		Copyright (C) 2008,2010 Sebastian Dröge <slomo@collabora.co.uk>
		Copyright (C) 2008-2010 Sebastian Dröge <slomo@collabora.co.uk>
		Copyright (C) 2008-2010 Thiago Santos <thiagoss@embedded.ufcg.edu.br>
		Copyright (C) 2009 David Schleef <ds@schleef.org>
		Copyright (C) 2009 Alex Ugarte <augarte@vicomtech.org>
		Copyright (C) 2009 Axis Communications <dev-gstreamer@axis.com>
		Copyright (C) 2009 Branko Subasic <branko dot subasic at axis dot com>
		Copyright (C) 2009 David A. Schleef <ds@schleef.org>
		Copyright (C) 2009 Jarkko Palviainen <jarkko.palviainen@sesca.com>
		Copyright (C) 2009 Mark Nauwelaerts <mark.nauwelaerts@collabora.co.uk>
	xml++ 2.6	copyright (C) 2000, 2003, 2012, 2013 by libxml++ developer's team
		copyright (C) 2003 by Stefan Seefeld
		copyright (C) 2000 by Ari Johnson
		Copyright © 2004 Scott James Remnant <scott@netsplit.com>.
		Copyright 2000 Example.com. All rights reserved.
		Copyright (c) 2009, 2011 Openismus GmbH <http://www.openismus.com/>
		Copyright (c) 2009 Daniel Elstner <daniel.kitta@gmail.com>
		Copyright (c) 2003 Harald Böhme
		Copyright (C) 1994 X Consortium

Applied License	OSS	Copyright Notice
	glibmm 2.4	Copyright(C) 2003, 2004, 2005, 2006, 2007, 2009, 2010, 2011, 2012, 2013 The glibmm Development Team
		Copyright(C) 1998-2002, 2002-2009, 2010, 2011, 2012 The gtkmm Development Team
		Copyright © 2004 Scott James Remnant <scott@netsplit.com>.
		Copyright 2001, Karl Einar Nelson, Murray Cumming
		Copyright 1999 Karl Nelson <kenelson@ece.ucdavis.edu>
		Copyright (c) 2010 Jonathon Jongsma
		Copyright (c) 2009, 2010, 2011 Openismus GmbH <http://www.openismus.com/>
		Copyright (c) 2004-2007, 2009 Daniel Elstner <daniel.kitta@gmail.com>
		Copyright (c) 2003 Harald Böhme
		Copyright (C) 2007, 2009, 2010, 2011, 2012 The giomm Development Team
		Copyright (C) 2008, 2009, 2010 Jonathon Jongsma <jonathon@quotidian.org>
		Copyright (C) 2010 Szilárd Pfeiffer <mailbox@pfeifferszilard.hu>
		Copyright (C) 2008 Red Hat, Inc.
	sigc++ 2.3.1	Copyright © 2004 Scott James Remnant <scott@netsplit.com>.
		Copyright 2002, 2003, 2005, 2012 The libsigc++ Development Team
		Copyright 2002 The gtkmm Development Team
		Copyright (c) 2009, 2011 Openismus GmbH <http://www.openismus.com/>
		Copyright (c) 2009 Daniel Elstner <daniel.kitta@gmail.com>
		Copyright (C) 1994 X Consortium
	Qt 5.4.1	The Qt Toolkit is Copyright (C) 2014 Digia Plc and/or its subsidiary(-ies).
	glib 2.36.4	Copyright (C) 1995-1998 Peter Mattis, Spencer Kimball and Josh MacDonald
		Copyright (c) 2011, 2012 Dmitry Matveev
		copyright (c) 1991 free software foundation, inc.
	libestr 0.1.5	copyright (c) 1991, 1999 free software foundation, inc.
	libtasn1 3.3	copyright (c) 2007 free software foundation, inc.

Applied License	OSS	Copyright Notice
	libnl 3.2.22	Copyright (C) 1984, 1989-1990, 1994-2013 Free Software Foundation, Inc. Copyright (c) 2003-2013 Thomas Graf <tgraf@suug.ch> Copyright (C) 2004, 2005 Einar Lueck <elueck@de.ibm.com> Copyright (C) 2005 David S. Miller <davem@davemloft.net> Copyright (c) 2003-2006 Baruch Even <baruch@ev-en.org>, Copyright (c) 2005-2006 Petr Gotthard <petr.gotthard@siemens.com> Copyright (c) 2005-2006 Siemens AG Oesterreich Copyright (c) 2007 Philip Craig <philipc@snapgear.com> Copyright (c) 2007 Secure Computing Corporation Copyright (c) 2007, 2008 Patrick McHardy <kaber@trash.net> Copyright (c) 2009 Wolfgang Grandegger <wg@grandegger.com> Copyright (c) 2010 Karl Hiramoto <karl@hiramoto.org> Copyright (c) 2012 Benedikt Spranger <b.spranger@linutronix.de> Copyright (c) 2012 Cumulus Networks, Inc Copyright (c) 2012 Rich Fought <Rich.Fought@watchguard.com> Copyright (c) 2012 Shriram Rajagopalan <rshriram@cs.ubc.ca>
	kmod	Copyright (C) 2008 Alan Jenkins <alan-jenkins@tuffmail.co.uk>. Copyright (C) 2004-2012 Kay Sievers <kay@vrfy.org> Copyright (C) 2011-2013 ProFUSION embedded systems Copyright (C) 2013 Michal Marek, SUSE Copyright (C) 2013 Tom Gundersen <teg@jklm.no>
CMU libsasl license	Cyrus-SASL 2.1.23	Copyright (c) 1998-2003 Carnegie Mellon University.
HEIMDAL Copyright	Heimdal 1.1	Copyright (c) 1995 - 2007 Kungliga Tekniska H<F6>gskolan (Royal Institute of Technology, Stockholm, Sweden).
OpenLDAP Public Licens	openldap 2.8	Copyright 1998-2015 The OpenLDAP Foundation
JSON License	JSON-java 2010.05.17	Copyright (c) 2002 JSON.org
Licensing Terms for SLF4J	SLF4J	Copyright (c) 2004-2013 QOS.ch All rights
FreeType License	FreeType2 2.3.9	Copyright 1996-2002, 2006 by David Turner, Robert Wilhelm, and Werner Lemberg
	harfbuzz	Copyright (C) 2004,2007 Red Hat, Inc. Copyright (C) 1998-2004 David Turner and Werner Lemberg Copyright (C) 2006 Behdad Esfahbod Copyright (C) 2008 Nokia Corporation and/or its subsidiary(-ies)

Applied License	OSS	Copyright Notice
ISC license	dhcp 4.2	Copyright c 2004-2013 by Internet Systems Consortium, Inc. ("ISC") Copyright c 1995-2003 by Internet Software Consortium
	bind 9.8.1	Copyright © 2004-2013 by Internet Systems Consortium, Inc. ("ISC") Copyright ©1995-2003 by Internet Software Consortium
	dhcp 4.2.5	Copyright c 2004-2013 by Internet Systems Consortium, Inc. ("ISC") Copyright c 1995-2003 by Internet Software Consortium
	cronie 1.4.11	Copyright (c) 2012 Copyright Red Hat Software copyright (c) 1989, 1993, written by ken arnold and, copyright (c) 1988, 1993, 1994, copyright (c) 1997,2000 by internet software consortium, inc., copyright (c) 2004 by internet systems consortium, inc.
	mktemp 1.7	Copyright (c) 2000, 2001, 2008, 2010 Todd C. Miller copyright (c) 2008, damien miller , copyright (c) 1996, david mazieres , copyright (c) 1996-1997, 2000-2001, 2008, 2010
	sudo 1.8.7	Copyright (c) 2010-2013 Todd C. Miller Copyright (c) 1996, 1998, 1999, 2001, 2004, 2005, 2007-2012 Todd C. Miller Copyright (c) 2007-2010 Todd C. Miller
ICU License	ICU 52.1	Copyright (c) 1995-2015 International Business Machines Corporation and others Copyright © 1991-2015 Unicode, Inc. Copyright (C) 2006-2008, Google Inc. Copyrighy (c) 1999 TaBE Project. Copyright (c) 1999 Pai-Hsiang Hsiao.
	ICU 51.2	Copyright (c) 1995-2015 International Business Machines Corporation and others Copyright © 1991-2015 Unicode, Inc. Copyright (C) 2006-2008, Google Inc. Copyrighy (c) 1999 TaBE Project. Copyright (c) 1999 Pai-Hsiang Hsiao.
University of Delaware Permissive Copyright Notice	ntp 5	Copyright (c) University of Delaware 1992-2011
	ntp 4.2.6p5	Copyright (c) University of Delaware 1992-2011
SIL Open Font License ver. 1.1	Liberation Fonts 1.00.1	Digitized data copyright (c) 2010 Google Corporation with Reserved Font Arimo, Tinos and Cousine. Copyright (c) 2012 Red Hat, Inc. with Reserved Font Name Liberation.

Applied License	OSS	Copyright Notice
The Academic Free License v2.1	dbus 1.6.10	Copyright (C) 2007 Red Hat Inc. Copyright (C) 2003 Red Hat, Inc. Copyright (C) 2002, 2003 Red Hat, Inc. Copyright (C) 2002 Red Hat Inc. Copyright (C) 2002, 2003, 2006 Red Hat, Inc. Copyright (C) 2002, 2003, 2004, 2005 Red Hat, Inc. Copyright (C) 2002, 2003, 2004, 2006 Red Hat Inc. Copyright (C) 2003, 2005 Red Hat Inc. Copyright © 2003, 2004 Red Hat, Inc. Copyright (C) 2002, 2003, 2004 Red Hat Inc. Copyright (C) 2002-2006 Red Hat Inc. Copyright (C) 2004, 2005 Red Hat, Inc. Copyright (C) 2003, 2004, 2005 Red Hat, Inc. Copyright (C) 2002, 2003, 2005 Red Hat Inc. Copyright (C) 2005 Red Hat, Inc. Copyright (C) 2006 Red Hat, Inc. Copyright (C) 2002, 2003 CodeFactory AB Copyright (C) 2002 CodeFactory AB Copyright (C) 2003 CodeFactory AB Copyright (C) 2005 Novell, Inc. Copyright (C) 2006 Peter Kümmel <syntheticpp@gmx.net> Copyright (C) 2006 Christian Ehrlicher <ch.ehrlicher@gmx.de> Copyright (c) 1991-1993 The Regents of the University of California. Copyright (c) 1994 Sun Microsystems, Inc. Copyright 2010 Lennart Poettering Copyright (C) 2000 Werner Almesberger Copyright © 2011 Nokia Corporation Copyright (C) 2006-2010 Ralf Habacker <ralf.habacker@freenet.de> Copyright (C) 2007 Ralf Habacker <ralf.habacker@freenet.de> Copyright (C) 2006 Ralf Habacker <ralf.habacker@freenet.de> Copyright (C) 2007, Tanner Lovelace <lovelace@wayfarer.org> Copyright (C) 2008, Colin Walters <walters@verbum.org> Copyright (C) 2008-2009, Benjamin Reed <rangerrick@befunk.com> Copyright (C) 2009, Jonas Bähr <jonas.baehr@web.de> Copyright (C) 2006 Christian Ehrlicher <ch.ehrlicher@gmx.de> Copyright 2004 Eric Poech Copyright 2004 Robert Shearman

Applied License	OSS	Copyright Notice
Indiana University Extreme! Lab Software License	xpp3(Xml Pull Parser 3rd Edition) V1.1.4	Copyright (c) 2002 Extreme! Lab, Indiana University.
bzip2	bzip2 1.0.6	copyright (C) 1996-2010 Julian R Seward.
Sleepycat	db 5.3.21	Copyright (c) 1996, 2012 Oracle and/or its affiliates.
openssl	openssl 1.0.1e	Copyright (C) 1995-1998 Eric Young Copyright (c) 2005 Hewlett-Packard Development Company, L.P.
RSA Data Security,Inc. MD5Message-Digest Algorithm	RFC1321 Sample code	Copyright (C) 1991-2, RSA Data Security, Inc. MD5 Message-Digest Algorithm
BSD Type	aeslib	Copyright (c) 2003, Dr Brian Gladman, Worcester, UK.
	DES 3.22	Copyright (C) 1995 Eric Young (eay@mincom.oz.au)
	libtiff 3.7.1	Copyright (c) 1988-1997 Sam Leffler Copyright (c) 1991-1997 Silicon Graphics, Inc.
	Little cms 1.15	Copyright (C) 1998-2005 Marti Maria
	Webkit	Copyright (C) 2005, 2006, 2007, 2008, 2009 Apple Inc.

Applied License	OSS	Copyright Notice
	NewLib 1.11.0	Copyright (c) 1990 The Regents of the University of California. Copyright (c) 1981, 1983, 1986, 1988, 1989, 1991, 1992, 1993, 1994 The Regents of the University of California. Copyright (c) 1988, 1990, 1993 Regents of the University of California. Copyright (c) 1982, 1986, 1989, 1991, 1993, 1994 The Regents of the University of California. Copyright (c) 1987, 1988, 2000 Regents of the University of California. Copyright 2001 Red Hat, Inc. The author of this software is David M. Gay. Copyright (c) 1991 by AT&T. Copyright 1989, 1990 Advanced Micro Devices, Inc. Copyright (C) 1993 C.W. Sandmann (C) Copyright 1992 Eric Backus Copyright (C) 1993 by Sun Microsystems, Inc. (c) Copyright 1986 HEWLETT-PACKARD COMPANY Copyright (C) 2001 Hans-Peter Nilsson Copyright (C) 1999, 2000, 2001, 2002 Stephane Carrez (stcarrez@nerim.fr) Copyright (c) 2001 Christopher G. Demetriou Copyright 2002 SuperH, Inc. Copyright (c) 1999 Kungliga Tekniska H.skolan (Royal Institute of Technology, Stockholm, Sweden). Copyright (c) 2000, 2001 Alexey Zelkin <phantom@FreeBSD.org> Copyright (C) 1997 by Andrey A. Chernov, Moscow, Russia. Copyright (c) 1997-2002 FreeBSD Project. Copyright (c) 1984,2000 S.L. Moshier Copyright (c)1999 Citrus Project, Copyright (c) 1998 Todd C. Miller <Todd.Miller@courtesan.com> Copyright (C) 1991 DJ Delorie Copyright (C) 1990-1999, 2000, 2001 Free Software Foundation, Inc.This file is part of the GNU C Library.Contributed by Mark Kettenis <kettenis@phys.uva.nl>, 1997. Copyright (C) 1996 Xavier Leroy (Xavier.Leroy@inria.fr) Copyright (c) 1993 Intel Corporation (c) Copyright 1986 HEWLETT-PACKARD COMPANY Copyright (c) 1994, 1997, 2001, 2002 Red Hat Incorporated.
	normalize.css 2.1.1	Copyright (c) Nicolas Gallagher and Jonathan Neal
	flac 1.2.1	Copyright (C) 2001-2009 Josh Coalson Copyright (C) 2011-2014 Xiph.Org Foundation

Applied License	OSS	Copyright Notice
	ogg 1.3.1	Copyright (c) 2002, Xiph.org Foundation
	vorbis 1.3.3	Copyright (c) 2002-2015 Xiph.org Foundation
	libevent 2.0.21	Copyright (c) 2000-2007 Niels Provos <provos@citi.umich.edu> Copyright (c) 2007-2010 Niels Provos and Nick Mathewson Copyright (c) 2000 Dug Song <dugsong@monkey.org> Copyright (c) 1993 The Regents of the University of California. Copyright (c) 1998 Todd C. Miller <Todd.Miller@courtesan.com> Copyright (c) 2003 Michael A. Davis <mike@datanerds.net> Copyright (c) 2007 Sun Microsystems Copyright (c) 2002 Christopher Clark Copyright (c) 2006 Maxim Yegorushkin <maxim.yegorushkin@gmail.com> Copyright (c) 1996, David Mazieres <dm@uun.org> Copyright (c) 2008, Damien Miller <djm@openbsd.org>
	wpa_supplicant 2.2	Copyright (c) 2003-2015, Jouni Malinen <j@w1.fi> and contributors
	wpa_supplicant 2	Copyright (c) 2003-2015, Jouni Malinen <j@w1.fi> and contributors
	sqlite3odbc 0.97	This software is copyrighted by Christian Werner <chw@ch-werner.de>
	iODBC 3.52	Copyright (C) 1995 by Ke Jin <kejin@empress.com> Copyright (C) 1996-2014 by OpenLink Software <iodbc@openlinksw.com>
	Net-SNMP 5.7.2	Copyright 1989, 1991, 1992 by Carnegie Mellon University Copyright 1996, 1998-2000 The Regents of the University of California Copyright (c) 2001-2003, Networks Associates Technology, Inc copyright (c) 2001-2003, Cambridge Broadband Ltd. Copyright (c) 2003 Sun Microsystems, Inc., 4150 Network Circle, Santa Clara, California 95054, U.S.A. Copyright (c) 2003-2012, Sparta, Inc Copyright (c) 2004, Cisco, Inc and Information Network Center of Beijing University of Posts and Telecommunications. Copyright (c) Fabasoft R&D Software GmbH & Co KG, 2003 oss@fabasoft.com Author: Bernhard Penz <bernhard.penz@fabasoft.com> Copyright (c) 2007 Apple Inc. Copyright (c) 2009, ScienceLogic, LLC
	file 5.14	copyright (c) ian f. darwin 1986, 1987, 1989, 1990, 1991, 1992, 1994, 1995.

Applied License	OSS	Copyright Notice
	hdparm 9.43	copyright (c) 2004 thomas fritzsche copyright (c) mark lord 2008, copyright (c) emc corporation 2008
	iputils s20121221	copyright (c) 2002 usagi/wide project. copyright 2001 by robert olsson
	iw 3.6	Copyright 2006-2010 Johannes Berg Copyright 2008 Michael Wu Copyright 2008 Luis Carlos Cobo Copyright 2008 Michael Buesch Copyright 2008, 2009 Luis R. Rodriguez Copyright 2008 Jouni Malinen Copyright 2008 Colin McCabe copyright (c) 2008-2009 luis r. rodriguez, copyright (c) 2007 mike kershaw, copyright (c) 2007 andy lutomirski, copyright (c) 2007, 2008 johannes berg
	libbsd 0.5.2	Copyright (c) 1996, David Mazieres Copyright (c) 2008, Damien Miller copyright 2010 william ahern, copyright 2008, damien miller <djm@openbsd.org>, copyright 1996, david mazieres <dm@uun.org>, copyright 1996 by internet software consortium., copyright 2000-2002, 2004-2005, 2007, 2010, copyright 2004 ted unangst and todd miller, copyright 1998, 2000 todd c. miller <todd.miller@courtesan.com>, copyright 2007 dag-erling co dan sm rgrav, copyright 2002 niels provos <provos@citi.umich.edu>, copyright 1997 christos zoulas., written by: john h. baldwin <jhb@freebsd.org>, copyright 2009 advanced computing technologies llc, copyright 2007 pawel jakub dawidek <pjd@freebsd.org>, copyright 2007 eric anderson <anderson@freebsd.org>, copyright 2005 pawel jakub dawidek <pjd@freebsd.org>, copyright 2002 thomas moestl <tmm@freebsd.org>, copyright 2001 dima dorfman., copyright 1998, m. warner losh <imp@freebsd.org>, contributed to the netbsd foundation, contributed to the netbsd foundation by allen briggs., copyright 1997-2000, 2002, 2008 the netbsd foundation, inc., copyright 1995 peter wemm <peter@freebsd.org>, copyright 2002 networks associates technology, inc., copyright 1996 peter wemm <peter@freebsd.org>., contributed to berkeley by, copyright 2001 mike barcroft <mike@freebsd.org>, copyright 1980, 1982, 1986, 1989-1994, copyright 2006 robert millan, copyright 2005 aurelien jarno, copyright 2005 hector garcia alvarez, copyright 2004-2006, 2008-2013 guillem jover <guillem@hadrons.org>, copyright 2001 christopher g. demetriou, copyright 1997 niels provos <provos@physnet.uni-hamburg.de>
	libcap 2.22	copyright (c) 1997-8 andrew g. morgan copyright (c) 1998 finn arne gangstad copyright (c) 1997 andrew main
	libpam 1.1.6	-

Applied License	OSS	Copyright Notice
	libpcap 1.4.0	copyright (c) 1997 yen yen lim and north dakota state university copyright (c) 2007 fulko hew, sita inc canada, inc copyright (c) 2005 - 2006 cace technologies, davis (california), copyright (c) 2002 - 2005 netgroup, politecnico di torino (italy) copyright (c) 2002-2005 sam leffler, errno consulting, copyright (c) 2001 atsushi onoe copyright (c) 2006 paolo abeni copyright (c) 2009 felix obenhuber copyright (c) 2008 g bor stefanik, copyright (c) 2007 mike kershaw, copyright (c) 2007 andy lutomirski, copyright (c) 2007, 2008 johannes berg, copyright (c) 2000 torsten landschoff copyright (c) 1993 by digital equipment corporation., copyright (c) 1980, 1983, 1988, 1993
	libpcre 8.33	copyright (c) 1997-2012 university of cambridge, written by philip hazel copyright (c) 2007-2012, google inc., written by: zoltan herczeg, copyright (c) 1997-2013 university of cambridge, written by: philip hazel copyright (c) 2005, google inc.
	libtirpc 0.2.3	copyright (c) bull s.a. 2005 all rights reserved.
	lsof 4.87	-
	rpcbind 0.2.0	copyright (c) bull s.a. 2005 all rights reserved.
	sdparm 1.07	copyright (c) 2005-2010 douglas gilbert.

Applied License	OSS	Copyright Notice
	shadow 4.1.4.3	copyright (c) 2001 - 2006, tomasz k oczko, copyright (c) 1996 - 2000, marek micha kiewicz, copyright (c) 1991 - 1993, julianne frances haugh
		copyright (c) 2007 - 2008, nicolas fran ois, copyright (c) 2001 - 2006, tomasz k oczko, copyright (c) 1996 - 2000, marek micha kiewicz, copyright (c) 1990 - 1994, julianne frances haugh
		copyright (c) 2007 - 2009, nicolas fran ois, copyright (c) 2000 - 2006, tomasz k oczko, copyright (c) 1996 - 2000, marek micha kiewicz, copyright (c) 1990 - 1993, julianne frances haugh
		copyright (c) 2004 the freebsd project.
		copyright 1995 by wietse venema.
		copyright (c) 2009 , nicolas fran ois, copyright (c) 2002 - 2006, tomasz k oczko, copyright (c) 1996 - 2000, marek micha kiewicz
		copyright (c) 2008 , nicolas fran ois, copyright (c) 2001 - 2005, tomasz k oczko, copyright (c) 1996 - 2000, marek micha kiewicz, copyright (c) 1989 - 1994, julianne frances haugh
		copyright (c) 1992-2003 free software foundation, inc., copyright (c) 2007 - 2009, nicolas fran ois, copyright (c) 2000 - 2006, tomasz k oczko, copyright (c) 1996 - 2000, marek micha kiewicz, copyright (c) 1989 - 1994, julianne frances haugh
		copyright (c) 2007 - 2008, nicolas fran ois, copyright (c) 2000 - 2006, tomasz k oczko, copyright (c) 2000 , international business machines
		(c) 1994 by salvatore valente
		copyright (c) 1996 marek michalkiewicz
	tcp-wrappers 7.6	copyright 1995 by wietse venema. all rights reserved. some individual
	tcpdump 4.1.1	Copyright (C) Arnaldo Carvalho de Melo 2004
		Copyright (C) Ian McDonald 2005
		Copyright (C) Yoshifumi Nishida 2005
		Copyright (C) 1984, Sun Microsystems, Inc.
		Copyright (C) 2000, Richard Sharpe
		Copyright (C) Andrew Tridgell 1995-1999
	unzip 6.0	Copyright (c) 1990-2007 Info-ZIP.
	xinetd 2.3.15	Copyright (c) 1996 by Internet Software Consortium.
		(c) copyright 1992 by panagiotis tsirigotis
	zip 3.0	Copyright (c) 1990-2005 Info-ZIP.

XMLPaper Specification (XPS): This product may incorporate intellectual property owned by Microsoft Corporation. The terms and conditions upon which Microsoft is licensing such intellectual property may be found at http://go.microsoft.com/fwlink/?LinkId=52369; *DES*: This product includes software developed by Eric Young (eay@mincom.oz.au); *AES*: Copyright (c) 2003, Dr Brian Gladman, Worcester, UK. All rights reserved. This product uses published AES software

provided by Dr Brian Gladman under BSD licensing terms; *ICC Profile (Little cms)*: Copyright (c) 1998-2004 Marti Maria.

Apache License Version 2.0

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is

intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text

file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/ or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred

by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

Apache License Version 1.1

```
/*
 * The Apache Software License, Version 1.1
 *
 *
 * Copyright (c) 1999-2002 The Apache Software Foundation. All rights
 * reserved.
 *
 * Redistribution and use in source and binary forms, with or without
 * modification, are permitted provided that the following conditions
 * are met:
 *
 * 1. Redistributions of source code must retain the above copyright
 *    notice, this list of conditions and the following disclaimer.
 *
 * 2. Redistributions in binary form must reproduce the above copyright
 *    notice, this list of conditions and the following disclaimer in
 *    the documentation and/or other materials provided with the
 *    distribution.
 *
```

```
 * 3. The end-user documentation included with the redistribution,
 *    if any, must include the following acknowledgment:
 *    "This product includes software developed by the
 *    Apache Software Foundation (http://www.apache.org/)."
 *    Alternately, this acknowledgment may appear in the software itself,
 *    if and wherever such third-party acknowledgments normally appear.
 *
 * 4. The names "Crimson" and "Apache Software Foundation" must
 *    not be used to endorse or promote products derived from this
 *    software without prior written permission. For written
 *    permission, please contact apache@apache.org.
 *
 * 5. Products derived from this software may not be called "Apache",
 *    nor may "Apache" appear in their name, without prior written
 *    permission of the Apache Software Foundation.
 *
 * THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESSED OR IMPLIED
 * WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
 * WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
 * PURPOSE ARE DISCLAIMED.  IN NO EVENT SHALL THE APACHE SOFTWARE
 * FOUNDATION OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT,
 * INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
 * DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
 * SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
 * BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
 * LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
* (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF
* THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
* SUCH DAMAGE.
*
=========================================================
*
* This software consists of voluntary contributions made by many
* individuals on behalf of the Apache Software Foundation and was
* originally based on software copyright (c) 1999, Sun Microsystems, Inc.,
* http://www.sun.com.  For more information on the Apache Software
* Foundation, please see <http://www.apache.org/>.
*/
```

MIT license

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

MIT Type license

* Copyright (c) 1994
* Hewlett-Packard Company
*
* Permission to use, copy, modify, distribute and sell this software and its
* documentation for any purpose is hereby granted without fee, provided that the
* above copyright notice appear in all copies and that both that copyright notice
* and this permission notice appear in supporting documentation.
* Hewlett-Packard Company makes no representations about the suitability
* of this software for any purpose. It is provided "as is" without express
* or implied warranty.

MIT/X derivate License

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Mozilla Public License Version 1.0

MOZILLA PUBLIC LICENSE

Version 1.0

---

1. Definitions.

1.1. ``Contributor'' means each entity that creates or contributes to the creation of Modifications.

1.2. ``Contributor Version'' means the combination of the Original Code, prior Modifications used by a Contributor, and the Modifications made by that particular Contributor.

1.3. ``Covered Code'' means the Original Code or Modifications or the combination of the Original Code and Modifications, in each case including portions thereof.

1.4. ``Electronic Distribution Mechanism'' means a mechanism generally accepted in the software development community for the electronic transfer of data.

1.5. ``Executable'' means Covered Code in any form other than Source Code.

1.6. ``Initial Developer'' means the individual or entity identified as the Initial Developer in the Source Code notice required by Exhibit A.

1.7. ``Larger Work'' means a work which combines Covered Code or portions thereof with code not governed by the terms of this License.

1.8. ``License'' means this document.

1.9. ``Modifications'' means any addition to or deletion from the substance or structure of either the Original Code or any previous Modifications. When Covered Code is released as a series of files, a Modification is:

A. Any addition to or deletion from the contents of a file containing Original Code or previous Modifications.

B. Any new file that contains any part of the Original Code or previous Modifications.

1.10. ``Original Code'' means Source Code of computer software code which is described in the Source Code notice required by Exhibit A as Original Code, and which, at the time of its release under this License is not already Covered Code governed by this License.

1.11. ``Source Code'' means the preferred form of the Covered Code for making modifications to it, including all modules it contains, plus any associated interface definition files, scripts used to control compilation and installation of an Executable, or a list of source code differential comparisons against either the Original Code or another well known, available Covered Code of the Contributor's choice. The Source Code can be in a compressed or archival form, provided the appropriate decompression or de-archiving software is widely available for no charge.

1.12. ``You'' means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License or a future version of this License issued under Section 6.1. For legal entities, ``You'' includes any entity which controls, is controlled by, or is under common control with You. For purposes of this definition, ``control'' means (a) the power, direct or indirect, to cause the direction or management of such entity,

whether by contract or otherwise, or (b) ownership of fifty percent (50%) or more of the outstanding shares or beneficial ownership of such entity.

2. Source Code License.

2.1. The Initial Developer Grant.

The Initial Developer hereby grants You a world-wide, royalty-free, non-exclusive license, subject to third party intellectual property claims:

(a) to use, reproduce, modify, display, perform, sublicense and distribute the Original Code (or portions thereof) with or without Modifications, or as part of a Larger Work; and

(b) under patents now or hereafter owned or controlled by Initial Developer, to make, have made, use and sell (``Utilize'') the Original Code (or portions thereof), but solely to the extent that any such patent is reasonably necessary to enable You to Utilize the Original Code (or portions thereof) and not to any greater extent that may be necessary to Utilize further Modifications or combinations.

2.2. Contributor Grant.

Each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license, subject to third party intellectual property claims:

(a) to use, reproduce, modify, display, perform, sublicense and distribute the Modifications created by such Contributor (or portions thereof) either on an unmodified basis, with other Modifications, as Covered Code or as part of a Larger Work; and

(b) under patents now or hereafter owned or controlled by Contributor, to Utilize the Contributor Version (or portions thereof), but solely to the extent that any such patent is reasonably necessary to enable You to Utilize the Contributor Version (or portions thereof), and not to any greater extent that may be necessary to Utilize further Modifications or combinations.

3. Distribution Obligations.

3.1. Application of License.

The Modifications which You create or to which You contribute are governed by the terms of this License, including without limitation Section 2.2. The Source Code version of Covered Code may be distributed only under the terms of this License or a future version of this License released under Section 6.1, and You must include a copy of this License with every copy of the Source Code You distribute. You may not offer or impose any terms on any Source Code version that alters or restricts the applicable version of this License or the recipients' rights hereunder. However, You may include an additional document offering the additional rights described in Section 3.5.

3.2. Availability of Source Code.

Any Modification which You create or to which You contribute must be made available in Source Code form under the terms of this License either on the same media as an Executable version or via an accepted Electronic Distribution Mechanism to anyone to whom you made an Executable version available; and if made available via Electronic Distribution Mechanism, must remain available for at least twelve (12) months after the date it initially became available, or at least six (6) months after a subsequent version of

that particular Modification has been made available to such recipients. You are responsible for ensuring that the Source Code version remains available even if the Electronic Distribution Mechanism is maintained by a third party.

3.3. Description of Modifications.

You must cause all Covered Code to which you contribute to contain a file documenting the changes You made to create that Covered Code and the date of any change. You must include a prominent statement that the Modification is derived, directly or indirectly, from Original Code provided by the Initial Developer and including the name of the Initial Developer in (a) the Source Code, and (b) in any notice in an Executable version or related documentation in which You describe the origin or ownership of the Covered Code.

3.4. Intellectual Property Matters

(a) Third Party Claims.

If You have knowledge that a party claims an intellectual property right in particular functionality or code (or its utilization under this License), you must include a text file with the source code distribution titled ``LEGAL'' which describes the claim and the party making the claim in sufficient detail that a recipient will know whom to contact. If you obtain such knowledge after You make Your Modification available as described in Section 3.2, You shall promptly modify the LEGAL file in all copies You make available thereafter and shall take other steps (such as notifying appropriate mailing lists or newsgroups) reasonably calculated to inform those who received the Covered Code that new knowledge has been obtained.

(b) Contributor APIs.

If Your Modification is an application programming interface and You own or control patents which are reasonably necessary to implement that API, you must also include this information in the LEGAL file.

3.5. Required Notices.

You must duplicate the notice in Exhibit A in each file of the Source Code, and this License in any documentation for the Source Code, where You describe recipients' rights relating to Covered Code. If You created one or more Modification(s), You may add your name as a Contributor to the notice described in Exhibit A. If it is not possible to put such notice in a particular Source Code file due to its structure, then you must include such notice in a location (such as a relevant directory file) where a user would be likely to look for such a notice. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Code. However, You may do so only on Your own behalf, and not on behalf of the Initial Developer or any Contributor. You must make it absolutely clear than any such warranty, support, indemnity or liability obligation is offered by You alone, and You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of warranty, support, indemnity or liability terms You offer.

3.6. Distribution of Executable Versions.

You may distribute Covered Code in Executable form only if the requirements of Section 3.1-3.5 have been met for that Covered Code, and if You include a notice stating that the

Source Code version of the Covered Code is available under the terms of this License, including a description of how and where You have fulfilled the obligations of Section 3.2. The notice must be conspicuously included in any notice in an Executable version, related documentation or collateral in which You describe recipients' rights relating to the Covered Code. You may distribute the Executable version of Covered Code under a license of Your choice, which may contain terms different from this License, provided that You are in compliance with the terms of this License and that the license for the Executable version does not attempt to limit or alter the recipient's rights in the Source Code version from the rights set forth in this License. If You distribute the Executable version under a different license You must make it absolutely clear that any terms which differ from this License are offered by You alone, not by the Initial Developer or any Contributor. You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of any such terms You offer.

3.7. Larger Works.

You may create a Larger Work by combining Covered Code with other code not governed by the terms of this License and distribute the Larger Work as a single product. In such a case, You must make sure the requirements of this License are fulfilled for the Covered Code.

4. Inability to Comply Due to Statute or Regulation.

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Code due to statute or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be included in the LEGAL file described in Section 3.4 and must be included with all distributions of the Source Code. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

5. Application of this License.

This License applies to code to which the Initial Developer has attached the notice in Exhibit A, and to related Covered Code.

6. Versions of the License.

6.1. New Versions.

Netscape Communications Corporation (``Netscape'') may publish revised and/or new versions of the License from time to time. Each version will be given a distinguishing version number.

6.2. Effect of New Versions.

Once Covered Code has been published under a particular version of the License, You may always continue to use it under the terms of that version. You may also choose to use such Covered Code under the terms of any subsequent version of the License published by Netscape. No one other than Netscape has the right to modify the terms applicable to Covered Code created under this License.

6.3. Derivative Works.

If you create or use a modified version of this License (which you may only do in order to

apply it to code which is not already Covered Code governed by this License), you must (a) rename Your license so that the phrases ``Mozilla'', ``MOZILLAPL'', ``MOZPL'', ``Netscape'', ``NPL'' or any confusingly similar phrase do not appear anywhere in your license and (b) otherwise make it clear that your version of the license contains terms which differ from the Mozilla Public License and Netscape Public License. (Filling in the name of the Initial Developer, Original Code or Contributor in the notice described in Exhibit A shall not of themselves be deemed to be modifications of this License.)

7. DISCLAIMER OF WARRANTY.

COVERED CODE IS PROVIDED UNDER THIS LICENSE ON AN ``AS IS'' BASIS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES THAT THE COVERED CODE IS FREE OF DEFECTS, MERCHANTABLE, FIT FOR A PARTICULAR PURPOSE OR NON-INFRINGING. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE COVERED CODE IS WITH YOU. SHOULD ANY COVERED CODE PROVE DEFECTIVE IN ANY RESPECT, YOU (NOT THE INITIAL DEVELOPER OR ANY OTHER CONTRIBUTOR) ASSUME THE COST OF ANY NECESSARY SERVICING, REPAIR OR CORRECTION. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY COVERED CODE IS AUTHORIZED HEREUNDER EXCEPT UNDER THIS DISCLAIMER.

8. TERMINATION.

This License and the rights granted hereunder will terminate automatically if You fail to comply with terms herein and fail to cure such breach within 30 days of becoming aware of the breach. All sublicenses to the Covered Code which are properly granted shall survive any termination of this License. Provisions which, by their nature, must remain in effect beyond the termination of this License shall survive.

9. LIMITATION OF LIABILITY.

UNDER NO CIRCUMSTANCES AND UNDER NO LEGAL THEORY, WHETHER TORT (INCLUDING NEGLIGENCE), CONTRACT, OR OTHERWISE, SHALL THE INITIAL DEVELOPER, ANY OTHER CONTRIBUTOR, OR ANY DISTRIBUTOR OF COVERED CODE, OR ANY SUPPLIER OF ANY OF SUCH PARTIES, BE LIABLE TO YOU OR ANY OTHER PERSON FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES, EVEN IF SUCH PARTY SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. THIS LIMITATION OF LIABILITY SHALL NOT APPLY TO LIABILITY FOR DEATH OR PERSONAL INJURY RESULTING FROM SUCH PARTY'S NEGLIGENCE TO THE EXTENT APPLICABLE LAW PROHIBITS SUCH LIMITATION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THAT EXCLUSION AND LIMITATION MAY NOT APPLY TO YOU.

10. U.S. GOVERNMENT END USERS.

The Covered Code is a ``commercial item,'' as that term is defined in 48 C.F.R. 2.101 (Oct. 1995), consisting of ``commercial computer software'' and ``commercial computer software documentation,'' as such terms are used in 48 C.F.R. 12.212 (Sept. 1995). Consistent with 48 C.F.R. 12.212 and 48 C.F.R. 227.7202-1 through 227.7202-4 (June 1995), all U.S. Government End Users acquire Covered Code with only those rights set forth herein.

11. MISCELLANEOUS.

This License represents the complete agreement concerning subject matter hereof. If any

provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. This License shall be governed by California law provisions (except to the extent applicable law, if any, provides otherwise), excluding its conflict-of-law provisions. With respect to disputes in which at least one party is a citizen of, or an entity chartered or registered to do business in, the United States of America: (a) unless otherwise agreed in writing, all disputes relating to this License (excepting any dispute relating to intellectual property rights) shall be subject to final and binding arbitration, with the losing party paying all costs of arbitration; (b) any arbitration relating to this Agreement shall be held in Santa Clara County, California, under the auspices of JAMS/EndDispute; and (c) any litigation relating to this Agreement shall be subject to the jurisdiction of the Federal Courts of the Northern District of California, with venue lying in Santa Clara County, California, with the losing party responsible for costs, including without limitation, court costs and reasonable attorneys fees and expenses. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not apply to this License.

12. RESPONSIBILITY FOR CLAIMS.

Except in cases where another Contributor has failed to comply with Section 3.4, You are responsible for damages arising, directly or indirectly, out of Your utilization of rights under this License, based on the number of copies of Covered Code you made available, the revenues you received from utilizing such rights, and other relevant factors. You agree to work with affected parties to distribute responsibility on an equitable basis.

EXHIBIT A.

``The contents of this file are subject to the Mozilla Public License Version 1.0 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at http://www.mozilla.org/MPL/

Software distributed under the License is distributed on an "AS IS" basis, WITHOUT WARRANTY OF ANY KIND, either express or implied. See the License for the specific language governing rights and limitations under the License.

The Original Code is _____.

The Initial Developer of the Original Code is _____. Portions created by _____ are Copyright (C) _____ _____. All Rights Reserved.

Contributor(s): _____.''

NETSCAPE PUBLIC LICENSE Version 1.1

The Netscape Public License Version 1.1 ("NPL") consists of the Mozilla Public License Version 1.1 with the following Amendments, including Exhibit A-Netscape Public License. Files identified with "Exhibit A-Netscape Public License" are governed by the Netscape Public License Version 1.1.

Additional Terms applicable to the Netscape Public License.

I. Effect.

These additional terms described in this Netscape Public License -- Amendments shall apply to the Mozilla Communicator client code and to all Covered Code under this License.

II. ''Netscape's Branded Code'' means Covered Code that Netscape distributes and/or permits others to distribute under one or more trademark(s) which are controlled by Netscape but which are not licensed for use under this License.

III. Netscape and logo.

This License does not grant any rights to use the trademarks "Netscape'', the "Netscape N and horizon'' logo or the "Netscape lighthouse" logo, "Netcenter", "Gecko", "Java" or "JavaScript", "Smart Browsing" even if such marks are included in the Original Code or Modifications.

IV. Inability to Comply Due to Contractual Obligation.

Prior to licensing the Original Code under this License, Netscape has licensed third party code for use in Netscape's Branded Code. To the extent that Netscape is limited contractually from making such third party code available under this License, Netscape may choose to reintegrate such code into Covered Code without being required to distribute such code in Source Code form, even if such code would otherwise be considered ''Modifications'' under this License.

V. Use of Modifications and Covered Code by Initial Developer.

V.1. In General.

The obligations of Section 3 apply to Netscape, except to the extent specified in this Amendment, Section V.2 and V.3.

V.2. Other Products.

Netscape may include Covered Code in products other than the Netscape's Branded Code which are released by Netscape during the two (2) years following the release date of the Original Code, without such additional products becoming subject to the terms of this License, and may license such additional products on different terms from those contained in this License.

V.3. Alternative Licensing.

Netscape may license the Source Code of Netscape's Branded Code, including Modifications incorporated therein, without such Netscape Branded Code becoming subject to the terms of this License, and may license such Netscape Branded Code on different terms from those contained in this License.

VI. Litigation.

Notwithstanding the limitations of Section 11 above, the provisions regarding litigation in Section 11(a), (b) and (c) of the License shall apply to all disputes relating to this License.

EXHIBIT A-Netscape Public License.

''The contents of this file are subject to the Netscape Public License Version 1.1 (the "License"); you may not use this file except in compliance with the License. You may

obtain a copy of the License at http://www.mozilla.org/NPL/
Software distributed under the License is distributed on an "AS IS" basis, WITHOUT WARRANTY OF ANY KIND, either express or implied. See the License for the specific language governing rights and limitations under the License.

The Original Code is Mozilla Communicator client code, released March 31, 1998.

The Initial Developer of the Original Code is Netscape Communications Corporation. Portions created by Netscape are Copyright (C) 1998-1999 Netscape Communications Corporation. All Rights Reserved.

Contributor(s): _____.

Alternatively, the contents of this file may be used under the terms of the _____ license (the [___] License), in which case the provisions of [_____] License are applicable instead of those above. If you wish to allow use of your version of this file only under the terms of the [____] License and not to allow others to use your version of this file under the NPL, indicate your decision by deleting the provisions above and replace them with the notice and other provisions required by the [___] License. If you do not delete the provisions above, a recipient may use your version of this file under either the NPL or the [___] License."

GPL Version 2.1

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you

these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your

option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed

under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you

could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER

EXPRESSEDOR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program `Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Library General Public License instead of this License.

GPL Version 3

GNU GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for software and other kinds of works.

The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users. We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors. You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies

of free software (and charge for them if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps: (1) assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees" and recipients may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A Major Component, in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code

needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed; section 10 makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice; keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey,and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified it, and giving a relevant date.

b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to "keep intact all notices".

c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an aggregate if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions

of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire Program shall be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

a) Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or

b) Requiring preservation of specified reasonable legal notices or author attributions in

that material or in the Appropriate Legal Notices displayed by works containing it; or

c) Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or

d) Limiting the use for publicity purposes of names of licensors or authors of the material; or

e) Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or

f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on those licensors and authors.

All other non-permissive additional terms are considered "further restrictions" within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions; the above requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that

copyright holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor

version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is "discriminatory" if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory patent license (a) in connection with copies of the covered work conveyed by you (or copies made from those copies), or (b) primarily for and in connection with specific products or compilations that contain the covered work, unless you entered into that arrangement, or that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting any implied license or other defenses to infringement that may otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot convey a covered work so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning interaction through a network will apply to the combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the GNU General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU

ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17. Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively state the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software: you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation, either version 3 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program. If not, see <http://www.gnu.org/licenses/>.

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short notice like this when it starts in an interactive mode:

<program> Copyright (C) <year> <name of author>
This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, your program's commands might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school, if any, to sign a "copyright disclaimer" for the program, if necessary. For more information on this, and how to apply and follow the GNU GPL, see <http://www.gnu.org/licenses/>.

The GNU General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Lesser General Public License instead of this License. But first, please read <http://www.gnu.org/philosophy/why-not-lgpl.html>.

LGPL Version 2.1

GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts as the successor of the GNU Library Public License, version 2, hence the version number 2.1.]

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to

use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These

disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a work based on the library and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE
TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution

of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then

the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is

normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those

who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and any later version, you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF

MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the copyright line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

CMU libsasl license

/* CMU libsasl
* Tim Martin
* Rob Earhart
* Rob Siemborski
*/
/*
* Copyright (c) 1998-2003 Carnegie Mellon University. All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
*
* 1. Redistributions of source code must retain the above copyright
*   notice, this list of conditions and the following disclaimer.
*
* 2. Redistributions in binary form must reproduce the above copyright
*   notice, this list of conditions and the following disclaimer in
*   the documentation and/or other materials provided with the
*   distribution.
*
* 3. The name "Carnegie Mellon University" must not be used to
*   endorse or promote products derived from this software without
*   prior written permission. For permission or any other legal
*   details, please contact
*   Office of Technology Transfer
*   Carnegie Mellon University
*   5000 Forbes Avenue
*   Pittsburgh, PA 15213-3890
*   (412) 268-4387, fax: (412) 268-7395
*   tech-transfer@andrew.cmu.edu
*
* 4. Redistributions of any form whatsoever must retain the following
*   acknowledgment:
*   "This product includes software developed by Computing Services at Carnegie
*   Mellon University (http://www.cmu.edu/computing/)."

*

* CARNEGIE MELLON UNIVERSITY DISCLAIMS ALL WARRANTIES WITH
* REGARD TO THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF
* MERCHANTABILITY AND FITNESS, IN NO EVENT SHALL CARNEGIE MELLON
* UNIVERSITY BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL
* DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF
* USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT,
* NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN
* CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

*/

HEIMDAL Copyright

copyright (c) 1995 - 2007 Kungliga Tekniska H<F6>gskolan

(Royal Institute of Technology, Stockholm, Sweden).

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. Neither the name of the Institute nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE INSTITUTE AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE INSTITUTE OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

OpenLDAP Public Licens

http://www.openldap.org/software/release/license.html

Public License for 2.4.42

The OpenLDAP Public License
Version 2.8, 17 August 2003

Redistribution and use of this software and associated documentation ("Software"), with or without modification, are permitted provided that the following conditions are met:

1. Redistributions in source form must retain copyright statements and notices,

2. Redistributions in binary form must reproduce applicable copyright statements and notices, this list of conditions, and the following disclaimer in the documentation and/or other materials provided with the distribution, and

3. Redistributions must contain a verbatim copy of this document.

The OpenLDAP Foundation may revise this license from time to time. Each revision is distinguished by a version number. You may use this Software under terms of this license revision or under the terms of any subsequent revision of the license.

THIS SOFTWARE IS PROVIDED BY THE OPENLDAP FOUNDATION AND ITS CONTRIBUTORS ``AS IS'' AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE OPENLDAP FOUNDATION, ITS CONTRIBUTORS, OR THE AUTHOR(S) OR OWNER(S) OF THE SOFTWARE BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The names of the authors and copyright holders must not be used in advertising or otherwise to promote the sale, use or other dealing in this Software without specific, written prior permission. Title to copyright in this Software shall at all times remain with copyright holders.

OpenLDAP is a registered trademark of the OpenLDAP Foundation.

Copyright 1999-2003 The OpenLDAP Foundation, Redwood City, California, USA.All Rights Reserved. Permission to copy and distribute verbatim copies of this document is granted.

JSON License

Copyright (c) 2002 JSON.org

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge,

publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

The Software shall be used for Good, not Evil.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE

Licensing Terms for SLF4J

Copyright (c) 2004-2013 QOS.ch All rights reserved. Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions: The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software. THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

FreeType License

The FreeType Project LICENSE

2006-Jan-27

Copyright 1996-2002, 2006 by David Turner, Robert Wilhelm, and Werner Lemberg

Introduction

==========

The FreeType Project is distributed in several archive packages; some of them may contain, in addition to the FreeType font engine, various tools and contributions which rely on, or relate to, the FreeType Project.

This license applies to all files found in such packages, and which do not fall under

their own explicit license. The license affects thus the FreeType font engine, the test programs, documentation and makefiles, at the very least.

This license was inspired by the BSD, Artistic, and IJG (Independent JPEG Group) licenses, which all encourage inclusion and use of free software in commercial and freeware products alike. As a consequence, its main points are that:

o We don't promise that this software works. However, we will be interested in any kind of bug reports. (`as is' distribution)

o You can use this software for whatever you want, in parts or full form, without having to pay us. (`royalty-free' usage)

o You may not pretend that you wrote this software. If you use it, or only parts of it, in a program, you must acknowledge somewhere in your documentation that you have used the FreeType code. (`credits')

We specifically permit and encourage the inclusion of this software, with or without modifications, in commercial products. We disclaim all warranties covering The FreeType Project and assume no liability related to The FreeType Project.

Finally, many people asked us for a preferred form for a credit/disclaimer to use in compliance with this license. We thus encourage you to use the following text:

"""
Portions of this software are copyright @ <year> The FreeType Project
(www.freetype.org). All rights reserved.
"""

Please replace <year> with the value from the FreeType version you actually use.

Legal Terms
==========

0. Definitions

Throughout this license, the terms `package', `FreeType Project', and `FreeType archive' refer to the set of files originally distributed by the authors (David Turner, Robert Wilhelm, and Werner Lemberg) as the `FreeType Project', be they named as alpha, beta or final release.

`You' refers to the licensee, or person using the project, where `using' is a generic term including compiling the project's source code as well as linking it to form a `program' or `executable'. This program is referred to as `a program using the FreeType engine'.

This license applies to all files distributed in the original FreeType Project, including all source code, binaries and documentation, unless otherwise stated in the file in

its original, unmodified form as distributed in the original archive. If you are unsure whether or not a particular file is covered by this license, you must contact us to verify this.

The FreeType Project is copyright (C) 1996-2000 by David Turner, Robert Wilhelm, and Werner Lemberg. All rights reserved except as specified below.

1. No Warranty

THE FREETYPE PROJECT IS PROVIDED `AS IS' WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT WILL ANY OF THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY DAMAGES CAUSED BY THE USE OR THE INABILITY TO USE, OF THE FREETYPE PROJECT.

2. Redistribution

This license grants a worldwide, royalty-free, perpetual and irrevocable right and license to use, execute, perform, compile, display, copy, create derivative works of, distribute and sublicense the FreeType Project (in both source and object code forms) and derivative works thereof for any purpose; and to authorize others to exercise some or all of the rights granted herein, subject to the following conditions:

o Redistribution of source code must retain this license file (`FTL.TXT') unaltered; any additions, deletions or changes to the original files must be clearly indicated in accompanying documentation. The copyright notices of the unaltered, original files must be preserved in all copies of source files.

o Redistribution in binary form must provide a disclaimer that states that the software is based in part of the work of the FreeType Team, in the distribution documentation. We also encourage you to put an URL to the FreeType web page in your documentation, though this isn't mandatory.

These conditions apply to any software derived from or based on the FreeType Project, not just the unmodified files. If you use our work, you must acknowledge us. However, no fee need be paid to us.

3. Advertising

Neither the FreeType authors and contributors nor you shall use the name of the other for commercial, advertising, or promotional purposes without specific prior written permission.

We suggest, but do not require, that you use one or more of the following phrases to refer to this software in your documentation or advertising materials: `FreeType Project',

`FreeType Engine', `FreeType library', or `FreeType Distribution'.

As you have not signed this license, you are not required to accept it. However, as the FreeType Project is copyrighted material, only this license, or another one contracted with the authors, grants you the right to use, distribute, and modify it. Therefore, by using, distributing, or modifying the FreeType Project, you indicate that you understand and accept all the terms of this license.

4. Contacts

There are two mailing lists related to FreeType:

o freetype@nongnu.org

Discusses general use and applications of FreeType, as well as future and wanted additions to the library and distribution. If you are looking for support, start in this list if you haven't found anything to help you in the documentation.

o freetype-devel@nongnu.org

Discusses bugs, as well as engine internals, design issues, specific licenses, porting, etc.

Our home page can be found at

http://www.freetype.org

--- end of FTL.TXT ---

ISC license

Text of the ISC License:
Copyright c 2004-2013 by Internet Systems Consortium, Inc. (“ISC”)
Copyright c 1995-2003 by Internet Software Consortium

Permission to use, copy, modify, and/or distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED “AS IS” AND ISC DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL ISC BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

ICU License

ICU License - ICU 1.8.1 and later

COPYRIGHT AND PERMISSION NOTICE

Copyright (c) 1995-2015 International Business Machines Corporation and others

All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, provided that the above copyright notice(s) and this permission notice appear in all copies of the Software and that both the above copyright notice(s) and this permission notice appear in supporting documentation.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF THIRD PARTY RIGHTS. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR HOLDERS INCLUDED IN THIS NOTICE BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL INDIRECT OR CONSEQUENTIAL DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Except as contained in this notice, the name of a copyright holder shall not be used in advertising or otherwise to promote the sale, use or other dealings in this Software without prior written authorization of the copyright holder.

All trademarks and registered trademarks mentioned herein are the property of their respective owners.

Third-Party Software Licenses

This section contains third-party software notices and/or additional terms for licensed third-party software components included within ICU libraries.

1. Unicode Data Files and Software

COPYRIGHT AND PERMISSION NOTICE

Copyright © 1991-2015 Unicode, Inc. All rights reserved.
Distributed under the Terms of Use in
http://www.unicode.org/copyright.html.

Permission is hereby granted, free of charge, to any person obtaining a copy of the

Unicode data files and any associated documentation (the "Data Files") or Unicode software and any associated documentation (the "Software") to deal in the Data Files or Software without restriction, including without limitation the rights to use,copy, modify, merge, publish, distribute, and/or sell copies of the Data Files or Software, and to permit persons to whom the Data Filesor Software are furnished to do so, provided that

(a) this copyright and permission notice appear with all copies of the Data Files or Software,

(b) this copyright and permission notice appear in associated documentation, and

(c) there is clear notice in each modified Data File or in the Software as well as in the documentation associated with the Data File(s) or Software that the data or software has been modified.

THE DATA FILES AND SOFTWARE ARE PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF THIRD PARTY RIGHTS.
IN NO EVENT SHALL THE COPYRIGHT HOLDER OR HOLDERS INCLUDED IN THIS NOTICE BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL INDIRECT OR CONSEQUENTIAL DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE,DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THE DATA FILES OR SOFTWARE.

Except as contained in this notice, the name of a copyright holder shall not be used in advertising or otherwise to promote the sale,use or other dealings in these Data Files or Software without prior written authorization of the copyright holder.

2. Chinese/Japanese Word Break Dictionary Data (cjdict.txt)

```
#    The Google Chrome software developed by Google is licensed under the BSD
#  license. Other software included in this distribution is provided under other
#  licenses, as set forth below.
#
# The BSD License
# http://opensource.org/licenses/bsd-license.php
# Copyright (C) 2006-2008, Google Inc.
#
# All rights reserved.
#
# Redistribution and use in source and binary forms, with or without modification,
# are permitted provided that the following conditions are met:
#
# Redistributions of source code must retain the above copyright notice,
# this list of conditions and the following disclaimer.
# Redistributions in binary form must reproduce the above copyright notice,
# this list of conditions and the following disclaimer in the documentation
# and/or other materials provided with the distribution.
# Neither the name of  Google Inc. nor the names of its contributors may be used
```

to endorse or promote products derived from this software without specific
prior written permission.
#
#
THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND
CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES,
INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR
OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE,
EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
#
#
The word list in cjdict.txt are generated by combining three word lists
listed below with further processing for compound word breaking. The
frequency is generated with an iterative training against Google web
corpora.
#
* Libtabe (Chinese)
- https://sourceforge.net/project/?group_id=1519
- Its license terms and conditions are shown below.
#
* IPADIC (Japanese)
- http://chasen.aist-nara.ac.jp/chasen/distribution.html
- Its license terms and conditions are shown below.
#
---------COPYING.libtabe ---- BEGIN--------------------
#
/*
* Copyrighy (c) 1999 TaBE Project.
* Copyright (c) 1999 Pai-Hsiang Hsiao.
* All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
*
* . Redistributions of source code must retain the above copyright
*   notice, this list of conditions and the following disclaimer.
* . Redistributions in binary form must reproduce the above copyright

```
#  *   notice, this list of conditions and the following disclaimer in
#  *   the documentation and/or other materials provided with the distribution.
#  * . Neither the name of the TaBE Project nor the names of its
#  *   contributors may be used to endorse or promote products derived
#  *   from this software without specific prior written permission.
#  *
#  * THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND
#  * CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES,
#  * INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
#  * MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
#  * DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE
#  * LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY,
#  * OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
#  * PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
#  * DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED
#  * AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
#  * LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING
#  * IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
#  * OF THE POSSIBILITY OF SUCH DAMAGE.
#  */
#
# /*
#  * Copyright (c) 1999 Computer Systems and Communication Lab,
#  *                    Institute of Information Science, Academia Sinica.
#  * All rights reserved.
# *
#  * Redistribution and use in source and binary forms, with or without
#  * modification, are permitted provided that the following conditions
#  * are met:
#  *
#  * . Redistributions of source code must retain the above copyright
#  *   notice, this list of conditions and the following disclaimer.
#  * . Redistributions in binary form must reproduce the above copyright
#  *   notice, this list of conditions and the following disclaimer in
#  *   the documentation and/or other materials provided with the distribution.
#  * . Neither the name of the Computer Systems and Communication Lab
#  *   nor the names of its contributors may be used to endorse or
#  *   promote products derived from this software without specific
#  *   prior written permission.
#  *
#  * THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND
#  * CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES,
#  * INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
#  * MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
#  * DISCLAIMED.IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE
#  * LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY,
#  * OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
#  * PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
```

```
#  * DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED
#  * AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
#  * LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
#  * ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF
#  * ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
#  */
#
# Copyright 1996 Chih-Hao Tsai @ Beckman Institute, University of Illinois
# c-tsai4@uiuc.edu  http://casper.beckman.uiuc.edu/~c-tsai4
#
# ---------------COPYING.libtabe-----END----------------------------------
#
#
# ---------------COPYING.ipadic-----BEGIN---------------------------------
#
# Copyright 2000, 2001, 2002, 2003 Nara Institute of Science
# and Technology.  All Rights Reserved.
#
# Use, reproduction, and distribution of this software is permitted.
# Any copy of this software, whether in its original form or modified,
# must include both the above copyright notice and the following
# paragraphs.
#
# Nara Institute of Science and Technology (NAIST),
# the copyright holders, disclaims all warranties with regard to this
# software, including all implied warranties of merchantability and
# fitness, in no event shall NAIST be liable for
# any special, indirect or consequential damages or any damages
# whatsoever resulting from loss of use, data or profits, whether in an
# action of contract, negligence or other tortuous action, arising out
# of or in connection with the use or performance of this software.
#
# A large portion of the dictionary entries
# originate from ICOT Free Software.  The following conditions for ICOT
# Free Software applies to the current dictionary as well.
#
# Each User may also freely distribute the Program, whether in its
# original form or modified, to any third party or parties, PROVIDED
# that the provisions of Section 3 ("NO WARRANTY") will ALWAYS appear
# on, or be attached to, the Program, which is distributed substantially
# in the same form as set out herein and that such intended
# distribution, if actually made, will neither violate or otherwise
# contravene any of the laws and regulations of the countries having
# jurisdiction over the User or the intended distribution itself.
#
# NO WARRANTY
#
```

The program was produced on an experimental basis in the course of the
research and development conducted during the project and is provided
to users as so produced on an experimental basis.Accordingly, the
program is provided without any warranty whatsoever, whether express,
implied, statutory or otherwise. The term "warranty" used herein
includes, but is not limited to, any warranty of the quality,
performance, merchantability and fitness for a particular purpose of
the program and the nonexistence of any infringement or violation of
any right of any third party.
#
Each user of the program will agree and understand, and be deemed to
have agreed and understood, that there is no warranty whatsoever for
the program and, accordingly, the entire risk arising from or
otherwise connected with the program is assumed by the user.
#
Therefore, neither ICOT, the copyright holder, or any other
organization that participated in or was otherwise related to the
development of the program and their respective officials, directors,
officers and other employees shall be held liable for any and all
damages, including, without limitation, general, special, incidental
and consequential damages, arising out of or otherwise in connection
with the use or inability to use the program or any product, material
or result produced or otherwise obtained by using the program,
regardless of whether they have been advised of, or otherwise had
knowledge of, the possibility of such damages at any time during the
project or thereafter.Each user will be deemed to have agreed to the
foregoing by his or her commencement of use of the program. The term
"use" as used herein includes, but is not limited to, the use,
modification, copying and distribution of the program and the
production of secondary products from the program.
#
In the case where the program, whether in its original form or
modified, was distributed or delivered to or received by a user from
any person, organization or entity other than ICOT, unless it makes or
grants independently of ICOT any specific warranty to the user in
writing, such person, organization or entity, will also be exempted
from and not be held liable to the user for any such damages as noted
above as far as the program is concerned.
#
---------------COPYING.ipadic-----END----------------------------------

3. Lao Word Break Dictionary Data (laodict.txt)

Copyright (c) 2013 International Business Machines Corporation
and others. All Rights Reserved.
#
Project: http://code.google.com/p/lao-dictionary/
Dictionary: http://lao-dictionary.googlecode.com/git/Lao-Dictionary.txt
License: http://lao-dictionary.googlecode.com/git/Lao-Dictionary-LICENSE.txt

```
#           (copied below)
#
# This file is derived from the above dictionary, with slight modifications.
# --------------------------------------------------------------------------------
# Copyright (C) 2013 Brian Eugene Wilson, Robert Martin Campbell.
# All rights reserved.
#
# Redistribution and use in source and binary forms, with or without modification,
# are permitted provided that the following conditions are met:
#
#  Redistributions of source code must retain the above copyright notice, this
#  list of conditions and the following disclaimer. Redistributions in binary
#  form must reproduce the above copyright notice, this list of conditions and
#  the following disclaimer in the documentation and/or other materials
#  provided with the distribution.
#
# THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND
# CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES,
# INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
# MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
# DISCLAIMED.IN NO EVENT SHALL THE COPYRIGHT HOLDER OR
# CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
# SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING,
#  BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
# SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
# INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY,
# WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
# NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF
# THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
# --------------------------------------------------------------------------------
```

4. Burmese Word Break Dictionary Data (burmesedict.txt)

```
# Copyright (c) 2014 International Business Machines Corporation
# and others. All Rights Reserved.
#
# This list is part of a project hosted at:
#   github.com/kanyawtech/myanmar-karen-word-lists
#
# --------------------------------------------------------------------------------
# Copyright (c) 2013, LeRoy Benjamin Sharon
# All rights reserved.
#
# Redistribution and use in source and binary forms, with or without modification,
# are permitted provided that the following conditions are met:
#
# Redistributions of source code must retain the above copyright notice, this
```

list of conditions and the following disclaimer.
#
Redistributions in binary form must reproduce the above copyright notice, this
list of conditions and the following disclaimer in the documentation and/or
other materials provided with the distribution.
#
Neither the name Myanmar Karen Word Lists, nor the names of its
contributors may be used to endorse or promote products derived from
this software without specific prior written permission.
#
THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND
CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES,
INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING,
BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY,
WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF
THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
--

5. Time Zone Database

ICU uses the public domain data and code derived from Time Zone Database for its time zone support. The ownership of the TZ database is explained in BCP 175: Procedure for Maintaining the Time Zone Database section 7.

7. Database Ownership

The TZ database itself is not an IETF Contribution or an IETF document. Rather it is a pre-existing and regularly updated work that is in the public domain, and is intended to remain in the public domain. Therefore, BCPs 78 [RFC5378] and 79 [RFC3979] do not apply to the TZ Database or contributions that individuals make to it. Should any claims be made and substantiated against the TZ Database, the organization that is providing the IANA Considerations defined in this RFC, under the memorandum of understanding with the IETF, currently ICANN, may act in accordance with all competent court orders. No ownership claims will be made by ICANN or the IETF Trust on the database or the code. Any person making a contribution to the database or code waives all rights to future claims in that contribution or in the TZ Database.

University of Delaware Permissive Copyright Notice

```
*                                                                     *
* Copyright (c) University of Delaware 1992-2011                     *
*                                                                     *
* Permission to use, copy, modify, and distribute this software and   *
```

* its documentation for any purpose with or without fee is hereby *
* granted, provided that the above copyright notice appears in all *
* copies and that both the copyright notice and this permission *
* notice appear in supporting documentation, and that the name *
* University of Delaware not be used in advertising or publicity *
* pertaining to distribution of the software without specific, *
* written prior permission. The University of Delaware makes no *
* representations about the suitability this software for any *
* purpose. It is provided "as is" without express or implied warranty. *

SIL Open Font License ver. 1.1

Digitized data copyright (c) 2010 Google Corporation
with Reserved Font Arimo, Tinos and Cousine.
Copyright (c) 2012 Red Hat, Inc.
with Reserved Font Name Liberation.

This Font Software is licensed under the SIL Open Font License,Version 1.1.

This license is copied below, and is also available with a FAQ at:http://scripts.sil.org/OFL

SIL OPEN FONT LICENSE Version 1.1 - 26 February 2007

PREAMBLE The goals of the Open Font License (OFL) are to stimulate worldwide development of collaborative font projects, to support the font creation efforts of academic and linguistic communities, and to provide a free and open framework in which fonts may be shared and improved in partnership with others.

The OFL allows the licensed fonts to be used, studied, modified and redistributed freely as long as they are not sold by themselves.
The fonts, including any derivative works, can be bundled, embedded, redistributed and/or sold with any software provided that any reserved names are not used by derivative works. The fonts and derivatives, however, cannot be released under any other type of license. The requirement for fonts to remain under this license does not apply to any document created using the fonts or their derivatives.

DEFINITIONS
Font Software refers to the set of files released by the Copyright Holder(s) under this license and clearly marked as such.
This may include source files, build scripts and documentation.

Reserved Font Name refers to any names specified as such after the copyright statement(s).

Original Version refers to the collection of Font Software components as distributed by the Copyright Holder(s).

Modified Version refers to any derivative made by adding to, deleting, or substituting -- in

part or in whole --
any of the components of the Original Version, by changing formats or by porting the Font Software to a new environment.

Author refers to any designer, engineer, programmer, technical writer or other person who contributed to the Font Software.

PERMISSION & CONDITIONS

Permission is hereby granted, free of charge, to any person obtaining a copy of the Font Software, to use, study, copy, merge, embed, modify, redistribute, and sell modified and unmodified copies of the Font Software, subject to the following conditions:

1) Neither the Font Software nor any of its individual components, in Original or Modified Versions, may be sold by itself.

2) Original or Modified Versions of the Font Software may be bundled, redistributed and/or sold with any software, provided that each copy contains the above copyright notice and this license. These can be included either as stand-alone text files, human-readable headers or in the appropriate machine-readable metadata fields within text or binary files as long as those fields can be easily viewed by the user.

3) No Modified Version of the Font Software may use the Reserved Font Name(s) unless explicit written permission is granted by the corresponding Copyright Holder. This restriction only applies to the primary font name as presented to the users.

4) The name(s) of the Copyright Holder(s) or the Author(s) of the Font Software shall not be used to promote, endorse or advertise any Modified Version, except to acknowledge the contribution(s) of the Copyright Holder(s) and the Author(s) or with their explicit written permission.

5) The Font Software, modified or unmodified, in part or in whole, must be distributed entirely under this license, and must not be distributed under any other license. The requirement for fonts to remain under this license does not apply to any document created using the Font Software.

TERMINATION
This license becomes null and void if any of the above conditions are not met.

DISCLAIMER
THE FONT SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF COPYRIGHT, PATENT, TRADEMARK, OR OTHER RIGHT. IN NO EVENT SHALL THE COPYRIGHT HOLDER BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, INCLUDING ANY GENERAL, SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF THE USE OR INABILITY TO USE THE FONT SOFTWARE OR FROM OTHER

DEALINGS IN THE FONT SOFTWARE.

The Academic Free License v2.1

The Academic Free License
v. 2.1

This Academic Free License (the "License") applies to any original work of authorship (the "Original Work") whose owner (the "Licensor") has placed the following notice immediately following the copyright notice for the Original Work:

Licensed under the Academic Free License version 2.1

1) Grant of Copyright License. Licensor hereby grants You a world-wide, royalty-free, non-exclusive, perpetual, sublicenseable license to do the following:

a) to reproduce the Original Work in copies;

b) to prepare derivative works ("Derivative Works") based upon the Original Work;

c) to distribute copies of the Original Work and Derivative Works to the public;

d) to perform the Original Work publicly; and

e) to display the Original Work publicly.

2) Grant of Patent License. Licensor hereby grants You a world-wide, royalty-free, non-exclusive, perpetual, sublicenseable license, under patent claims owned or controlled by the Licensor that are embodied in the Original Work as furnished by the Licensor, to make, use, sell and offer for sale the Original Work and Derivative Works.

3) Grant of Source Code License. The term "Source Code" means the preferred form of the Original Work for making modifications to it and all available documentation describing how to modify the Original Work. Licensor hereby agrees to provide a machine-readable copy of the Source Code of the Original Work along with each copy of the Original Work that Licensor distributes. Licensor reserves the right to satisfy this obligation by placing a machine-readable copy of the Source Code in an information repository reasonably calculated to permit inexpensive and convenient access by You for as long as Licensor continues to distribute the Original Work, and by publishing the address of that information repository in a notice immediately following the copyright notice that applies to the Original Work.

4) Exclusions From License Grant. Neither the names of Licensor, nor the names of any contributors to the Original Work, nor any of their trademarks or service marks, may be used to endorse or promote products derived from this Original Work without express prior written permission of the Licensor. Nothing in this License shall be deemed to grant any rights to trademarks, copyrights, patents, trade secrets or any other intellectual property of Licensor except as expressly stated herein. No patent license is granted to make, use, sell or offer to sell embodiments of any patent claims other than the licensed

claims defined in Section 2. No right is granted to the trademarks of Licensor even if such marks are included in the Original Work. Nothing in this License shall be interpreted to prohibit Licensor from licensing under different terms from this License any Original Work that Licensor otherwise would have a right to license.

5) This section intentionally omitted.

6) Attribution Rights. You must retain, in the Source Code of any Derivative Works that You create, all copyright, patent or trademark notices from the Source Code of the Original Work, as well as any notices of licensing and any descriptive text identified therein as an Attribution Notice. You must cause the Source Code for any Derivative Works that You create to carry a prominent Attribution Notice reasonably calculated to inform recipients that You have modified the Original Work.

7) Warranty of Provenance and Disclaimer of Warranty. Licensor warrants that the copyright in and to the Original Work and the patent rights granted herein by Licensor are owned by the Licensor or are sublicensed to You under the terms of this License with the permission of the contributor(s) of those copyrights and patent rights. Except as expressly stated in the immediately proceeding sentence, the Original Work is provided under this License on an "AS IS" BASIS and WITHOUT WARRANTY, either express or implied, including, without limitation, the warranties of NON-INFRINGEMENT, MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY OF THE ORIGINAL WORK IS WITH YOU. This DISCLAIMER OF WARRANTY constitutes an essential part of this License. No license to Original Work is granted hereunder except under this disclaimer.

8) Limitation of Liability. Under no circumstances and under no legal theory, whether in tort (including negligence), contract, or otherwise, shall the Licensor be liable to any person for any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or the use of the Original Work including, without limitation, damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses. This limitation of liability shall not apply to liability for death or personal injury resulting from Licensor's negligence to the extent applicable law prohibits such limitation. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so this exclusion and limitation may not apply to You.

9) Acceptance and Termination. If You distribute copies of the Original Work or a Derivative Work, You must make a reasonable effort under the circumstances to obtain the express assent of recipients to the terms of this License. Nothing else but this License (or another written agreement between Licensor and You) grants You permission to create Derivative Works based upon the Original Work or to exercise any of the rights granted in Section 1 herein, and any attempt to do so except under the terms of this License (or another written agreement between Licensor and You) is expressly prohibited by U.S. copyright law, the equivalent laws of other countries, and by international treaty. Therefore, by exercising any of the rights granted to You in Section 1 herein, You indicate Your acceptance of this License and all of its terms and conditions.

10) Termination for Patent Action. This License shall terminate automatically and You may no longer exercise any of the rights granted to You by this License as of the date You

commence an action, including a cross-claim or counterclaim, against Licensor or any licensee alleging that the Original Work infringes a patent. This termination provision shall not apply for an action alleging patent infringement by combinations of the Original Work with other software or hardware.

11) Jurisdiction, Venue and Governing Law. Any action or suit relating to this License may be brought only in the courts of a jurisdiction wherein the Licensor resides or in which Licensor conducts its primary business, and under the laws of that jurisdiction excluding its conflict-of-law provisions. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any use of the Original Work outside the scope of this License or after its termination shall be subject to the requirements and penalties of the U.S. Copyright Act, 17 U.S.C. § 101 et seq., the equivalent laws of other countries, and international treaty. This section shall survive the termination of this License.

12) Attorneys Fees. In any action to enforce the terms of this License or seeking damages relating thereto, the prevailing party shall be entitled to recover its costs and expenses, including, without limitation, reasonable attorneys' fees and costs incurred in connection with such action, including any appeal of such action. This section shall survive the termination of this License.

13) Miscellaneous. This License represents the complete agreement concerning the subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable.

14) Definition of "You" in This License. "You" throughout this License, whether in upper or lower case, means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License. For legal entities, "You" includes any entity that controls, is controlled by, or is under common control with you. For purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

15) Right to Use. You may use the Original Work in all ways not otherwise restricted or conditioned by this License or by law, and Licensor promises not to interfere with or be responsible for such uses by You.

This license is Copyright (C) 2003-2004 Lawrence E. Rosen. All rights reserved. Permission is hereby granted to copy and distribute this license without modification. This license may not be modified without the express written permission of its copyright owner.

--

END OF ACADEMIC FREE LICENSE. The following is intended to describe the essential differences between the Academic Free License (AFL) version 1.0 and other open source licenses:

The Academic Free License is similar to the BSD, MIT, UoI/NCSA and Apache licenses in

many respects but it is intended to solve a few problems with those licenses.

* The AFL is written so as to make it clear what software is being licensed (by the inclusion of a statement following the copyright notice in the software). This way, the license functions better than a template license. The BSD, MIT and UoI/NCSA licenses apply to unidentified software.

* The AFL contains a complete copyright grant to the software. The BSD and Apache licenses are vague and incomplete in that respect.

* The AFL contains a complete patent grant to the software. The BSD, MIT, UoI/NCSA and Apache licenses rely on an implied patent license and contain no explicit patent grant.

* The AFL makes it clear that no trademark rights are granted to the licensor's trademarks. The Apache license contains such a provision, but the BSD, MIT and UoI/NCSA licenses do not.

* The AFL includes the warranty by the licensor that it either owns the copyright or that it is distributing the software under a license. None of the other licenses contain that warranty. All other warranties are disclaimed, as is the case for the other licenses.

* The AFL is itself copyrighted (with the right granted to copy and distribute without modification). This ensures that the owner of the copyright to the license will control changes. The Apache license contains a copyright notice, but the BSD, MIT and UoI/NCSA licenses do not.
--
START OF GNU GENERAL PUBLIC LICENSE
--

Indiana University Extreme! Lab Software License

Indiana University Extreme! Lab Software License

Version 1.1.1

Copyright (c) 2002 Extreme! Lab, Indiana University. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. The end-user documentation included with the redistribution, if any, must include the

following acknowledgment:

"This product includes software developed by the Indiana University Extreme! Lab (http://www.extreme.indiana.edu/)."

Alternately, this acknowledgment may appear in the software itself, if and wherever such third-party acknowledgments normally appear.

4. The names "Indiana Univeristy" and "Indiana Univeristy Extreme! Lab" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact http://www.extreme.indiana.edu/.

5. Products derived from this software may not use "Indiana Univeristy" name nor may "Indiana Univeristy" appear in their name, without prior written permission of the Indiana University.

THIS SOFTWARE IS PROVIDED "AS IS" AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHORS, COPYRIGHT HOLDERS OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

bzip2

This program, "bzip2", the associated library "libbzip2", and all documentation, are copyright (C) 1996-2010 Julian R Seward. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. The origin of this software must not be misrepresented; you must not claim that you wrote the original software. If you use this software in a product, an acknowledgment in the product documentation would be appreciated but is not required.

3. Altered source versions must be plainly marked as such, and must not be misrepresented as being the original software.

4. The name of the author may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Julian Seward, jseward@bzip.org

bzip2/libbzip2 version 1.0.6 of 6 September 2010

Sleepycat

/*

* Copyright (c) 1990, 2012 Oracle and/or its affiliates. All rights reserved.

*

* Redistribution and use in source and binary forms, with or without modification,

* are permitted provided that the following conditions are met:

* 1. Redistributions of source code must retain the above copyright notice,

* this list of conditions and the following disclaimer.

* 2. Redistributions in binary form must reproduce the above copyright notice,

* this list of conditions and the following disclaimer in the documentation

* and/or other materials provided with the distribution.

* 3. Redistributions in any form must be accompanied by information on how to

* obtain complete source code for the DB software and any accompanying

* software that uses the DB software. The source code must either be included

* in the distribution or be available for no more than the cost of distribution

* plus a nominal fee, and must be freely redistributable under reasonable

* conditions. For an executable file, complete source code means the source

* code for all modules it contains. It does not include source code for modules

* or files that typically accompany the major components of the operating system

* on which the executable file runs.

*

* THIS SOFTWARE IS PROVIDED BY ORACLE ``AS IS'' AND ANY EXPRESS

* OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO,

* THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A

* PARTICULAR PURPOSE, OR NON-INFRINGEMENT, ARE DISCLAIMED.

* IN NO EVENT SHALL ORACLE BE LIABLE FOR ANY DIRECT, INDIRECT,

* INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES

* (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE

* GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS;

* OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON

* ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,

* OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN

* ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED

* OF THE POSSIBILITY OF SUCH DAMAGE.

*/

openssl

/* Copyright (C) 1995-1998 Eric Young (eay@cryptsoft.com)
* All rights reserved.
*
* This package is an SSL implementation written by Eric Young (eay@cryptsoft.com).
* The implementation was written so as to conform with Netscapes SSL.
*
* This library is free for commercial and non-commercial use as long as the
* following conditions are aheared to. The following conditions apply to all code
* found in this distribution, be it the RC4, RSA, lhash, DES, etc., code; not just
* the SSL code. The SSL documentation included with this distribution is covered
* by the same copyright terms except that the holder is Tim Hudson (tjh@cryptsoft.
* com).
*
* Copyright remains Eric Young's, and as such any Copyright notices in the code
* are not to be removed.

/* Copyright (c) 2005 Hewlett-Packard Development Company, L.P.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the Software), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE. */

RSA Data Security, Inc. MD5 Message-Digest Algorithm

/* Copyright (C) 1991-2, RSA Data Security, Inc. Created 1991.
* All rights reserved.
*
* License to copy and use this software is granted provided that it is identified
* as the "RSA Data Security, Inc. MD5 Message-Digest Algorithm" in all
* material mentioning or referencing this software or this function.
*
* License is also granted to make and use derivative works provided that such

* works are identified as "derived from the RSA Data Security, Inc.
* MD5 Message-Digest Algorithm" in all material mentioning or referencing
* the derived work.
*
* RSA Data Security, Inc. makes no representations concerning either the
* merchantability of this software or the suitability of this software for any
* particular purpose. It is provided "as is" without express or implied warranty
* of any kind.
*
* These notices must be retained in any copies of any part of this documentation
* and/or software.
*/

BSD Type

/*

Copyright (c) 2003, Dr Brian Gladman, Worcester, UK. All rights reserved.

LICENSE TERMS

The free distribution and use of this software in both source and binary form is allowed (with or without changes) provided that:

1. distributions of this source code include the above copyright notice, this list of conditions and the following disclaimer;

2. distributions in binary form include the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other associated materials;

3. the copyright holder's name is not used to endorse products built using this software without specific written permission.

ALTERNATIVELY, provided that this notice is retained in full, this product may be distributed under the terms of the GNU General Public License (GPL), in which case the provisions of the GPL apply INSTEAD OF those given above.

DISCLAIMER

This software is provided 'as is' with no explicit or implied warranties in respect of its properties, including, but not limited to, correctness and/or fitness for purpose.

/* Copyright (C) 1995 Eric Young (eay@mincom.oz.au)
* All rights reserved.
*
* This file is part of an SSL implementation written

```
* by Eric Young (eay@mincom.oz.au).
* The implementation was written so as to conform with Netscapes SSL
* specification. This library and applications are
* FREE FOR COMMERCIAL AND NON-COMMERCIAL USE
* as long as the following conditions are aheared to.
*
* Copyright remains Eric Young's, and as such any Copyright notices in
* the code are not to be removed. If this code is used in a product,
* Eric Young should be given attribution as the author of the parts used.
* This can be in the form of a textual message at program startup or
* in documentation (online or textual) provided with the package.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the copyright
*    notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
*    notice, this list of conditions and the following disclaimer in the
*    documentation and/or other materials provided with the distribution.
* 3. All advertising materials mentioning features or use of this software
*    must display the following acknowledgement:
*    This product includes software developed by Eric Young (eay@mincom.oz.au)
*
* THIS SOFTWARE IS PROVIDED BY ERIC YOUNG ``AS IS'' AND ANY
* EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED
* TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS
* FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL
* THE AUTHOR OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT,
* INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
* SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS;
* OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
* THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
* OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN
* ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
* OF THE POSSIBILITY OF SUCH DAMAGE.
*
* The licence and distribution terms for any publically available version or
* derivative of this code cannot be changed.  i.e. this code cannot simply be
* copied and put under another distribution licence
* [including the GNU Public Licence.]
*/

/*
* Copyright (c) 1988-1997 Sam Leffler
* Copyright (c) 1991-1997 Silicon Graphics, Inc.
```

*
* Permission to use, copy, modify, distribute, and sell this software and
* its documentation for any purpose is hereby granted without fee, provided
* that (i) the above copyright notices and this permission notice appear in
* all copies of the software and related documentation, and (ii) the names of
* Sam Leffler and Silicon Graphics may not be used in any advertising or
* publicity relating to the software without the specific, prior written
* permission of Sam Leffler and Silicon Graphics.
*
* THE SOFTWARE IS PROVIDED "AS-IS" AND WITHOUT WARRANTY OF
* ANY KIND, EXPRESS, IMPLIED OR OTHERWISE, INCLUDING WITHOUT
* LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR
* A PARTICULAR PURPOSE.
*
* IN NO EVENT SHALL SAM LEFFLER OR SILICON GRAPHICS BE LIABLE FOR
* ANY SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES OF
* ANY KIND, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS
* OF USE, DATA OR PROFITS, WHETHER OR NOT ADVISED OF THE POSS
* IBILITY OF DAMAGE, AND ON ANY THEORY OF LIABILITY, ARISING OUT
* OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS
* SOFTWARE.
*/

// Little cms
// Copyright (C) 1998-2005 Marti Maria
//
// Permission is hereby granted, free of charge, to any person obtaining
// a copy of this software and associated documentation files (the "Software"),
// to deal in the Software without restriction, including without limitation
// the rights to use, copy, modify, merge, publish, distribute, sublicense,
//and/or sell copies of the Software, and to permit persons to whom the Software
// is furnished to do so, subject to the following conditions:
//
// The above copyright notice and this permission notice shall be included in
// all copies or substantial portions of the Software.
//
// THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
// EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES
// OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
// NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT
// HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY,
// WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING
// FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE
// OR OTHER DEALINGS IN THE SOFTWARE.

Copyright (C) 2005, 2006, 2007, 2008, 2009 Apple Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are

permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY APPLE INC. AND ITS CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL APPLE INC. OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The newlib subdirectory is a collection of software from several sources.

Each file may have its own copyright/license that is embedded in the source file.

This list documents those licenses which are more restrictive than a BSD-like license or require the copyright notice to be duplicated in documentation and/or other materials associated with the distribution. Certain licenses documented here only apply to specific targets. Certain clauses only apply if you are building the code as part of your binary.

Note that this list may omit certain licenses that only pertain to the copying/modifying of the individual source code.

If you are distributing the source code, then you do not need to worry about these omitted licenses, so long as you do not modify the copyright information already in place.

(1) University of California, Berkeley

[1a]

Copyright (c) 1990 The Regents of the University of California.

All rights reserved.

Redistribution and use in source and binary forms are permitted provided that the above copyright notice and this paragraph are duplicated in all such forms and that any documentation, and other materials related to such distribution and use acknowledge that the software was developed by the University of California, Berkeley. The name of the University may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED ``AS IS'' AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

[1b]

Copyright (c) 1990 The Regents of the University of California.
All rights reserved.

Redistribution and use in source and binary forms are permitted provided that the above copyright notice and this paragraph are duplicated in all such forms and that any documentation, advertising materials, and other materials related to such distribution and use acknowledge that the software was developed by the University of California, Berkeley. The name of the University may not be used to endorse or promote products derived from this software without specific prior written permission.
THIS SOFTWARE IS PROVIDED ``AS IS'' AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

[1c]

Copyright (c) 1981, 1983, 1986, 1988, 1989, 1991, 1992, 1993, 1994 The Regents of the University of California.
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:
1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. All advertising materials mentioning features or use of this software must display the following acknowledgement:
This product includes software developed by the University of California, Berkeley and its contributors.
4. Neither the name of the University nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

[1d]

Copyright (c) 1988, 1990, 1993 Regents of the University of California.
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. Neither the name of the University nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

[1e]

Copyright (c) 1982, 1986, 1989, 1991, 1993, 1994 The Regents of the University of California.

All rights reserved.

(c) UNIX System Laboratories, Inc.

All or some portions of this file are derived from material licensed to the University of California by American Telephone and Telegraph Co. or Unix System Laboratories, Inc. and are reproduced herein with the permission of UNIX System Laboratories, Inc.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. All advertising materials mentioning features or use of this software must display the following acknowledgement:

This product includes software developed by the University of California, Berkeley and its contributors.

4. Neither the name of the University nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

[1f]

Copyright (c) 1987, 1988, 2000 Regents of the University of California.
All rights reserved.

Redistribution and use in source and binary forms are permitted provided that: (1) source distributions retain this entire copyright notice and comment, and (2) distributions including binaries display the following acknowledgement: ``This product includes software developed by the University of California, Berkeley and its contributors'' in the documentation or other materials provided with the distribution and in all advertising materials mentioning features or use of this software. Neither the name of the University nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.
THIS SOFTWARE IS PROVIDED ``AS IS'' AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Please note that in some of the above alternate licenses, there is a statement regarding that acknowledgement must be made in any advertising materials for products using the code. This restriction no longer applies due to the following license change:

ftp://ftp.cs.berkeley.edu/pub/4bsd/README.Impt.License.Change

In some cases the defunct clause has been removed in modified newlib code and in some cases, the clause has been left as-is.

---

(2) Cygwin (cygwin targets only)

Copyright 2001 Red Hat, Inc.

This software is a copyrighted work licensed under the terms of the Cygwin license. Please consult the file "CYGWIN_LICENSE" for details.

(3) David M. Gay at AT&T

The author of this software is David M. Gay.

Copyright (c) 1991 by AT&T.

Permission to use, copy, modify, and distribute this software for any purpose without fee is hereby granted, provided that this entire notice is included in all copies of any software which is or includes a copy or modification of this software and in all copies of the supporting documentation for such software.

THIS SOFTWARE IS BEING PROVIDED "AS IS", WITHOUT ANY EXPRESS OR IMPLIED WARRANTY. IN PARTICULAR, NEITHER THE AUTHOR NOR AT&T MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND CONCERNING THE MERCHANTABILITY OF THIS SOFTWARE OR ITS FITNESS FOR ANY PARTICULAR PURPOSE.

(4) Advanced Micro Devices

Copyright 1989, 1990 Advanced Micro Devices, Inc.

This software is the property of Advanced Micro Devices, Inc (AMD) which specifically grants the user the right to modify, use and distribute this software provided this notice is not removed or altered. All other rights are reserved by AMD.

AMD MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARD TO THIS SOFTWARE. IN NO EVENT SHALL AMD BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES IN CONNECTION WITH OR ARISING FROM THE FURNISHING, PERFORMANCE, OR USE OF THIS SOFTWARE.

So that all may benefit from your experience, please report any problems or suggestions about this software to the 29K Technical Support Center at 800-29-29-AMD (800-292-9263) in the USA, or 0800-89-1131 in the UK, or 0031-11-1129 in Japan, toll free. The direct dial number is 512-462-4118.

Advanced Micro Devices, Inc.
29K Support Products
Mail Stop 573
5900 E. Ben White Blvd.
Austin, TX 78741
800-292-9263

(5) C.W. Sandmann

Copyright (C) 1993 C.W. Sandmann

This file may be freely distributed as long as the author's name remains.

(6) Eric Backus

(C) Copyright 1992 Eric Backus

This software may be used freely so long as this copyright notice is left intact. There is no warrantee on this software.

(7) Sun Microsystems

Copyright (C) 1993 by Sun Microsystems, Inc. All rights reserved.

Developed at SunPro, a Sun Microsystems, Inc. business.
Permission to use, copy, modify, and distribute this software is freely granted, provided that this notice is preserved.

(8) Hewlett Packard

(c) Copyright 1986 HEWLETT-PACKARD COMPANY

To anyone who acknowledges that this file is provided "AS IS" without any express or implied warranty:
permission to use, copy, modify, and distribute this file for any purpose is hereby granted without fee, provided that the above copyright notice and this notice appears in all copies, and that the name of Hewlett-Packard Company not be used in advertising or publicity pertaining to distribution of the software without specific, written prior permission.
Hewlett-Packard Company makes no representations about the suitability of this software for any purpose.

(9) Hans-Peter Nilsson

Copyright (C) 2001 Hans-Peter Nilsson

Permission to use, copy, modify, and distribute this software is freely granted, provided that the above copyright notice, this notice and the following disclaimer are preserved with no changes.

THIS SOFTWARE IS PROVIDED ``AS IS'' AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

(10) Stephane Carrez (m68hc11-elf/m68hc12-elf targets only)

Copyright (C) 1999, 2000, 2001, 2002 Stephane Carrez (stcarrez@nerim.fr)

The authors hereby grant permission to use, copy, modify, distribute, and license this software and its documentation for any purpose, provided that existing copyright notices are retained in all copies and that this notice is included verbatim in any distributions. No written agreement, license, or royalty fee is required for any of the authorized uses.

Modifications to this software may be copyrighted by their authors and need not follow the licensing terms described here, provided that the new terms are clearly indicated on the first page of each file where they apply.

(11) Christopher G. Demetriou

Copyright (c) 2001 Christopher G. Demetriou

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. The name of the author may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

(12) SuperH, Inc.

Copyright 2002 SuperH, Inc. All rights reserved

This software is the property of SuperH, Inc (SuperH) which specifically grants the user the right to modify, use and distribute this software provided this notice is not removed or altered. All other rights are reserved by SuperH.

SUPERH MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARD TO THIS SOFTWARE. IN NO EVENT SHALL SUPERH BE LIABLE FOR INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES IN CONNECTION WITH OR ARISING

FROM THE FURNISHING, PERFORMANCE, OR USE OF THIS SOFTWARE.

So that all may benefit from your experience, please report any problems or suggestions about this software to the SuperH Support Center via e-mail at softwaresupport@superh.com .

SuperH, Inc.
405 River Oaks Parkway
San Jose
CA 95134
USA

(13) Royal Institute of Technology

Copyright (c) 1999 Kungliga Tekniska högskolan
(Royal Institute of Technology, Stockholm, Sweden).
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. Neither the name of KTH nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY KTH AND ITS CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL KTH OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

(14) Alexey Zelkin

Copyright (c) 2000, 2001 Alexey Zelkin <phantom@FreeBSD.org>
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

(15) Andrey A. Chernov

Copyright (C) 1997 by Andrey A. Chernov, Moscow, Russia.
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

(16) FreeBSD

Copyright (c) 1997-2002 FreeBSD Project.
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:
1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

(17) S. L. Moshier

Author: S. L. Moshier.

Copyright (c) 1984,2000 S.L. Moshier

Permission to use, copy, modify, and distribute this software for any purpose without fee is hereby granted, provided that this entire notice is included in all copies of any software which is or includes a copy or modification of this software and in all copies of the supporting documentation for such software.

THIS SOFTWARE IS BEING PROVIDED "AS IS", WITHOUT ANY EXPRESS OR IMPLIED WARRANTY. IN PARTICULAR, THE AUTHOR MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND CONCERNING THE MERCHANTABILITY OF THIS SOFTWARE OR ITS FITNESS FOR ANY PARTICULAR PURPOSE.

(18) Citrus Project

Copyright (c)1999 Citrus Project,
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:
1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

(19) Todd C. Miller

Copyright (c) 1998 Todd C. Miller <Todd.Miller@courtesan.com>
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:
1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

(20) DJ Delorie (i386)

Copyright (C) 1991 DJ Delorie
All rights reserved.

Redistribution and use in source and binary forms is permitted provided that the above

copyright notice and following paragraph are duplicated in all such forms.

This file is distributed WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.

(21) Free Software Foundation LGPL License (i[3456]86-*-linux* targets only)

Copyright (C) 1990-1999, 2000, 2001 Free Software Foundation, Inc.
This file is part of the GNU C Library.
Contributed by Mark Kettenis <kettenis@phys.uva.nl>, 1997.

The GNU C Library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

The GNU C Library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with the GNU C Library; if not, write to the Free Software Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA.

(22) Xavier Leroy LGPL License (i[3456]86-*-linux* targets only)

Copyright (C) 1996 Xavier Leroy (Xavier.Leroy@inria.fr)

This program is free software; you can redistribute it and/or modify it under the terms of the GNU Library General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Library General Public License for more details.

(23) Intel (i960)

Copyright (c) 1993 Intel Corporation

Intel hereby grants you permission to copy, modify, and distribute this software and its documentation. Intel grants this permission provided that the above copyright notice appears in all copies and that both the copyright notice and this permission notice appear in supporting documentation. In addition, Intel grants this permission provided that you prominently mark as "not part of the original" any modifications made to this software or documentation, and that the name of Intel Corporation not be used in advertising or publicity pertaining to distribution of the software or the documentation without specific, written prior permission.

Intel Corporation provides this AS IS, WITHOUT ANY WARRANTY, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Intel makes no guarantee or representations regarding the use of, or the results of the use of, the software and documentation in terms of correctness, accuracy, reliability, currentness, or otherwise; and you rely on the software, documentation and results solely at your own risk.

IN NO EVENT SHALL INTEL BE LIABLE FOR ANY LOSS OF USE, LOSS OF BUSINESS, LOSS OF PROFITS, INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES OF ANY KIND. IN NO EVENT SHALL INTEL'S TOTAL LIABILITY EXCEED THE SUM PAID TO INTEL FOR THE PRODUCT LICENSED HEREUNDER.

(24) Hewlett-Packard (hppa targets only)

(c) Copyright 1986 HEWLETT-PACKARD COMPANY

To anyone who acknowledges that this file is provided "AS IS" without any express or implied warranty:
permission to use, copy, modify, and distribute this file for any purpose is hereby granted without fee, provided that the above copyright notice and this notice appears in all copies, and that the name of Hewlett-Packard Company not be used in advertising or publicity pertaining to distribution of the software without specific, written prior permission. Hewlett-Packard Company makes no representations about the suitability of this software for any purpose.

(25) Red Hat Incorporated

Unless otherwise stated in each remaining newlib file, the remaining files in the newlib subdirectory default to the following copyright.
It should be noted that Red Hat Incorporated now owns copyrights belonging to Cygnus Solutions and Cygnus Support.

Copyright (c) 1994, 1997, 2001, 2002 Red Hat Incorporated.
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

The name of Red Hat Incorporated may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL RED HAT INCORPORATED BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Copyright (c) Nicolas Gallagher and Jonathan Neal

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Copyright (C) 2000-2009 Josh Coalson
Copyright (C) 2011-2014 Xiph.Org Foundation

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

Redistributions in binary form must reproduce the above copyright contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS

``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE FOUNDATION OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Copyright (c) 2002, Xiph.org Foundation

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

Redistributions in binary form must reproduce the above copyright contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE FOUNDATION OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Copyright (c) 2002-2015 Xiph.org Foundation

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials

provided with the distribution.

Redistributions in binary form must reproduce the above copyright contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE FOUNDATION OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Libevent is available for use under the following license, commonly known as the 3-clause (or "modified") BSD license:

==========

Copyright (c) 2000-2007 Niels Provos <provos@citi.umich.edu>

Copyright (c) 2007-2010 Niels Provos and Nick Mathewson

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. The name of the author may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

==========

Portions of Libevent are based on works by others, also made available by them under the

three-clause BSD license above. The copyright notices are available in the corresponding source files; the license is as above. Here's a list:

log.c:
Copyright (c) 2000 Dug Song <dugsong@monkey.org>
Copyright (c) 1993 The Regents of the University of California.

strlcpy.c:
Copyright (c) 1998 Todd C. Miller <Todd.Miller@courtesan.com>

win32select.c:
Copyright (c) 2003 Michael A. Davis <mike@datanerds.net>

evport.c:
Copyright (c) 2007 Sun Microsystems

ht-internal.h:
Copyright (c) 2002 Christopher Clark

minheap-internal.h:
Copyright (c) 2006 Maxim Yegorushkin <maxim.yegorushkin@gmail.com>

==========

The arc4module is available under the following, sometimes called the OpenBSD license:

Copyright (c) 1996, David Mazieres <dm@uun.org>
Copyright (c) 2008, Damien Miller <djm@openbsd.org>

Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

wpa_supplicant and hostapd

Copyright (c) 2002-2012, Jouni Malinen <j@w1.fi> and contributors All Rights Reserved.

See the README file for the current license terms.

This software was previously distributed under BSD/GPL v2 dual license terms that allowed either of those license alternatives to be selected. As of February 11, 2012, the project has chosen to use only the BSD license option for future distribution. As such, the GPL v2 license option is no longer used. It should be noted that the BSD license option (the one with advertisement clause removed) is compatible with GPL and as such, does not prevent use of this software in projects that use GPL.

Some of the files may still include pointers to GPL version 2 license terms. However, such copyright and license notifications are maintained only for attribution purposes and any distribution of this software after February 11, 2012 is no longer under the GPL v2 option.

This software is copyrighted by Christian Werner <chw@ch-werner.de> and other authors. The following terms apply to all files associated with the software unless explicitly disclaimed in individual files.

The authors hereby grant permission to use, copy, modify, distribute, and license this software and its documentation for any purpose, provided that existing copyright notices are retained in all copies and that this notice is included verbatim in any distributions. No written agreement, license, or royalty fee is required for any of the authorized uses.
Modifications to this software may be copyrighted by their authors and need not follow the licensing terms described here, provided that the new terms are clearly indicated on the first page of each file where they apply.

IN NO EVENT SHALL THE AUTHORS OR DISTRIBUTORS BE LIABLE TO ANY PARTY FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF THIS SOFTWARE, ITS DOCUMENTATION, OR ANY DERIVATIVES THEREOF, EVEN IF THE AUTHORS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

THE AUTHORS AND DISTRIBUTORS SPECIFICALLY DISCLAIM ANY WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT. THIS SOFTWARE IS PROVIDED ON AN "AS IS" BASIS, AND THE AUTHORS AND DISTRIBUTORS HAVE NO OBLIGATION TO PROVIDE MAINTENANCE, SUPPORT, UPDATES, ENHANCEMENTS, OR MODIFICATIONS.

iODBC Driver Manager
Copyright (C) 1995 by Ke Jin <kejin@empress.com>
Copyright (C) 1996-2014 by OpenLink Software <iodbc@openlinksw.com>
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. Neither the name of OpenLink Software nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS AS IS AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL OPENLINK OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Various copyrights apply to this package, listed in various separate parts below. Please make sure that you read all the parts.

---- Part 1: CMU/UCD copyright notice: (BSD like) -----

Copyright 1989, 1991, 1992 by Carnegie Mellon University

Derivative Work - 1996, 1998-2000
Copyright 1996, 1998-2000 The Regents of the University of California

All Rights Reserved

Permission to use, copy, modify and distribute this software and its documentation for any purpose and without fee is hereby granted, provided that the above copyright notice appears in all copies and that both that copyright notice and this permission notice appear in supporting documentation, and that the name of CMU and The Regents of the University of California not be used in advertising or publicity pertaining to distribution of the software without specific written permission.

CMU AND THE REGENTS OF THE UNIVERSITY OF CALIFORNIA DISCLAIM ALL WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL CMU OR THE REGENTS OF THE UNIVERSITY OF CALIFORNIA BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM THE LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

---- Part 2: Networks Associates Technology, Inc copyright notice (BSD) -----

Copyright (c) 2001-2003, Networks Associates Technology, Inc
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* Neither the name of the Networks Associates Technology, Inc nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

---- Part 3: Cambridge Broadband Ltd. copyright notice (BSD) -----

Portions of this code are copyright (c) 2001-2003, Cambridge Broadband Ltd.All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* The name of Cambridge Broadband Ltd. may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDER ``AS IS'' AND ANY EXPRESS

OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

---- Part 4: Sun Microsystems, Inc. copyright notice (BSD) -----

Copyright © 2003 Sun Microsystems, Inc., 4150 Network Circle, Santa Clara, California 95054, U.S.A. All rights reserved.

Use is subject to license terms below.

This distribution may include materials developed by third parties.

Sun, Sun Microsystems, the Sun logo and Solaris are trademarks or registered trademarks of Sun Microsystems, Inc. in the U.S. and other countries.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* Neither the name of the Sun Microsystems, Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

---- Part 5: Sparta, Inc copyright notice (BSD) -----

Copyright (c) 2003-2012, Sparta, Inc
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* Neither the name of Sparta, Inc nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

---- Part 6: Cisco/BUPTNIC copyright notice (BSD) -----

Copyright (c) 2004, Cisco, Inc and Information Network Center of Beijing University of Posts and Telecommunications.
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* Neither the name of Cisco, Inc, Beijing University of Posts and Telecommunications,

nor the names of their contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

---- Part 7: Fabasoft R&D Software GmbH & Co KG copyright notice (BSD) -----

Copyright (c) Fabasoft R&D Software GmbH & Co KG, 2003
oss@fabasoft.com
Author: Bernhard Penz <bernhard.penz@fabasoft.com>

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* The name of Fabasoft R&D Software GmbH & Co KG or any of its subsidiaries, brand or product names may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDER ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

---- Part 8: Apple Inc. copyright notice (BSD) -----

Copyright (c) 2007 Apple Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Neither the name of Apple Inc. ("Apple") nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY APPLE AND ITS CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL APPLE OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

---- Part 9: ScienceLogic, LLC copyright notice (BSD) -----

Copyright (c) 2009, ScienceLogic, LLC
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* Neither the name of ScienceLogic, LLC nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOTLIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A

PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Copyright (c) Ian F. Darwin 1986, 1987, 1989, 1990, 1991, 1992, 1994, 1995.
Software written by Ian F. Darwin and others; maintained 1994- Christos Zoulas.

This software is not subject to any export provision of the United States Department of Commerce, and may be exported to any country or planet.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice immediately at the beginning of the file, without modification, this list of conditions, and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

BSD-Style Open Source License:

You may freely use, modify, and redistribute the hdparm program, as either binary or source, or both.

The only condition is that my name and copyright notice remain in the source code as-is.

Mark Lord (mlord@pobox.com)

Copyright (C) 2002 USAGI/WIDE Project.
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. Neither the name of the project nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE PROJECT AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE PROJECT OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Copyright (c) 2007, 2008 Johannes Berg
Copyright (c) 2007 Andy Lutomirski
Copyright (c) 2007 Mike Kershaw
Copyright (c) 2008-2009 Luis R. Rodriguez

Permission to use, copy, modify, and/or distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

The following 4-clause BSD licenses are only for man pages, specifically for man/arc4random.3, man/tree.3 and man/getprogname.3.

Copyright 1997 Niels Provos <provos@physnet.uni-hamburg.de>
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. All advertising materials mentioning features or use of this software must display the following acknowledgement: This product includes software developed by Niels Provos.

4. The name of the author may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

--

Copyright © 2001 Christopher G. Demetriou
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. All advertising materials mentioning features or use of this software must display the following acknowledgement:

> This product includes software developed for the
> NetBSD Project. See http://www.netbsd.org/ for
> information about NetBSD.

4. The name of the author may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF

LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The rest of the licenses apply to code and/or man pages.

Copyright © 2004-2006, 2008-2013 Guillem Jover <guillem@hadrons.org>

Copyright © 2005 Hector Garcia Alvarez

Copyright © 2005 Aurelien Jarno

Copyright © 2006 Robert Millan

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. The name of the author may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

--

Copyright © 1980, 1982, 1986, 1989-1994

The Regents of the University of California. All rights reserved.

Copyright © 2001 Mike Barcroft <mike@FreeBSD.org>

Some code is derived from software contributed to Berkeley by the American National Standards Committee X3, on Information Processing Systems.

Some code is derived from software contributed to Berkeley by Peter McIlroy.

Some code is derived from software contributed to Berkeley by Ronnie Kon at Mindcraft Inc., Kevin Lew and Elmer Yglesias.

Some code is derived from software contributed to Berkeley by Dave Borman at Cray

Research, Inc.

Some code is derived from software contributed to Berkeley by Paul Vixie.

Some code is derived from software contributed to Berkeley by Chris Torek.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Neither the name of the University nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

--

Copyright © 1996 Peter Wemm <peter@FreeBSD.org>.
All rights reserved.
Copyright © 2002 Networks Associates Technology, Inc.
All rights reserved.

Portions of this software were developed for the FreeBSD Project by ThinkSec AS and NAI Labs, the Security Research Division of Network Associates, Inc. under DARPA/SPAWAR contract N66001-01-C-8035 ("CBOSS"), as part of the DARPA CHATS research program.

Redistribution and use in source and binary forms, with or without modification, is permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. The name of the author may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

--

Copyright © 1995 Peter Wemm <peter@FreeBSD.org>
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, is permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice immediately at the beginning of the file, without modification, this list of conditions, and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. This work was done expressly for inclusion into FreeBSD. Other use is permitted provided this notation is included.
4. Absolutely no warranty of function or purpose is made by the author Peter Wemm.
5. Modifications may be freely made to this file providing the above conditions are met.

--

Copyright © 1997-2000, 2002, 2008 The NetBSD Foundation, Inc.
All rights reserved.

Some code was contributed to The NetBSD Foundation by Allen Briggs.

Some code is derived from software contributed to The NetBSD Foundation by Jason R. Thorpe of the Numerical Aerospace Simulation Facility, NASA Ames Research Center, by Luke Mewburn and by Tomas Svensson.

Some code is derived from software contributed to The NetBSD Foundation by Julio M. Merino Vidal, developed as part of Google's Summer of Code 2005 program.

Redistribution and use in source and binary forms, with or without modification, are

permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE NETBSD FOUNDATION, INC. AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE FOUNDATION OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

--

Copyright © 1998, M. Warner Losh <imp@freebsd.org>
All rights reserved.

Copyright © 2001 Dima Dorfman.
All rights reserved.

Copyright © 2002 Thomas Moestl <tmm@FreeBSD.org>
All rights reserved.

Copyright © 2005 Pawel Jakub Dawidek <pjd@FreeBSD.org>
All rights reserved.

Copyright © 2007 Eric Anderson <anderson@FreeBSD.org>
Copyright © 2007 Pawel Jakub Dawidek <pjd@FreeBSD.org>
All rights reserved.

Copyright © 2007 Dag-Erling Coïdan Smørgrav
All rights reserved.

Copyright © 2009 Advanced Computing Technologies LLC
Written by: John H. Baldwin <jhb@FreeBSD.org>
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of

conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS (INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

--

Copyright © 1997 Christos Zoulas.

All rights reserved.

Copyright © 2002 Niels Provos <provos@citi.umich.edu>

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

--

Copyright © 2007 Dag-Erling Coïdan Smørgrav

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer in this position and unchanged.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

--

Copyright © 1998, 2000 Todd C. Miller <Todd.Miller@courtesan.com>

Copyright © 2004 Ted Unangst

Copyright © 2004 Ted Unangst and Todd Miller

All rights reserved.

Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

--

Copyright © 2000-2002, 2004-2005, 2007, 2010

Todd C. Miller <Todd.Miller@courtesan.com>

Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this

permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Sponsored in part by the Defense Advanced Research Projects Agency (DARPA) and Air Force Research Laboratory, Air Force Materiel Command, USAF, under agreement number F39502-99-1-0512

--

Copyright © 1996 by Internet Software Consortium.

Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND INTERNET SOFTWARE CONSORTIUM DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL INTERNET SOFTWARE CONSORTIUM BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

--

Copyright © 1996, David Mazieres <dm@uun.org>
Copyright © 2008, Damien Miller <djm@openbsd.org>

Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

Modification and redistribution in source and binary forms is permitted provided that due credit is given to the author and the OpenBSD project (for instance by leaving this copyright notice intact).

THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN

ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

This code is derived from section 17.1 of Applied Cryptography, second edition, which describes a stream cipher allegedly compatible with RSA Labs "RC4" cipher (the actual description of which is a trade secret). The same algorithm is used as a stream cipher called "arcfour" in Tatu Ylonen's ssh package.

Here the stream cipher has been modified always to include the time when initializing the state. That makes it impossible to regenerate the same random sequence twice, so this can't be used for encryption, but will generate good random numbers.

RC4 is a registered trademark of RSA Laboratories.

--

Copyright © 2010 William Ahern
Copyright © 2012 Guillem Jover <guillem@hadrons.org>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

--

This code implements the MD5 message-digest algorithm. The algorithm is due to Ron Rivest. This code was written by Colin Plumb in 1993, no copyright is claimed. This code is in the public domain; do with it what you wish.

Equivalent code is available from RSA Data Security, Inc. This code has been tested against that, and is equivalent, except that you don't need to include two pages of legalese with every copy.

To compute the message digest of a chunk of bytes, declare an MD5Context structure, pass it to MD5Init, call MD5Update as needed on buffers full of bytes, and then call

MD5Final, which will fill a supplied 16-byte array with the digest.

--

"THE BEER-WARE LICENSE" (Revision 42):
<phk@login.dkuug.dk> wrote this file. As long as you retain this notice you can do whatever you want with this stuff. If we meet some day, and you think this stuff is worth it, you can buy me a beer in return. Poul-Henning Kamp

Redistribution and use in source and binary forms of libcap, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain any existing copyright notice, and this entire permission notice in its entirety, including the disclaimer of warranties.

2. Redistributions in binary form must reproduce all prior and current copyright notices, this list of conditions, and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. The name of any author may not be used to endorse or promote products derived from this software without their specific prior written permission.

ALTERNATIVELY, this product may be distributed under the terms of the GNU General Public License (v2.0 - see below), in which case the provisions of the GNU GPL are required INSTEAD OF the above restrictions. (This clause is necessary due to a potential conflict between the GNU GPL and the restrictions contained in a BSD-style copyright.)

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR(S) BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Redistribution and use in source and binary forms of Linux-PAM, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain any existing copyright notice, and this entire permission notice in its entirety, including the disclaimer of warranties.

2. Redistributions in binary form must reproduce all prior and current copyright notices, this list of conditions, and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. The name of any author may not be used to endorse or promote products derived from this software without their specific prior written permission.

ALTERNATIVELY, this product may be distributed under the terms of the GNU General Public License, in which case the provisions of the GNU GPL are required INSTEAD OF the above restrictions. (This clause is necessary due to a potential conflict between the GNU GPL and the restrictions contained in a BSD-style copyright.)

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR(S) BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. The names of the authors may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED ``AS IS'' AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

PCRE LICENCE

PCRE is a library of functions to support regular expressions whose syntax and semantics are as close as possible to those of the Perl 5 language.

Release 8 of PCRE is distributed under the terms of the "BSD" licence, as specified below. The documentation for PCRE, supplied in the "doc" directory, is distributed under the same terms as the software itself.

The basic library functions are written in C and are freestanding. Also included in the distribution is a set of C++ wrapper functions, and a just-in-time compiler that can be used to optimize pattern matching. These are both optional features that can be omitted when the library is built.

THE BASIC LIBRARY FUNCTIONS

Written by: Philip Hazel
Email local part: ph10
Email domain: cam.ac.uk

University of Cambridge Computing Service,Cambridge, England.

Copyright (c) 1997-2013 University of Cambridge
All rights reserved.

PCRE JUST-IN-TIME COMPILATION SUPPORT

Written by: Zoltan Herczeg
Email local part: hzmester
Emain domain: freemail.hu

Copyright(c) 2010-2013 Zoltan Herczeg
All rights reserved.

STACK-LESS JUST-IN-TIME COMPILER

Written by: Zoltan Herczeg
Email local part: hzmester
Emain domain: freemail.hu

Copyright(c) 2009-2013 Zoltan Herczeg
All rights reserved.

THE C++ WRAPPER FUNCTIONS

Contributed by: Google Inc.

Copyright (c) 2007-2012, Google Inc.
All rights reserved.

THE "BSD" LICENCE

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* Neither the name of the University of Cambridge nor the name of Google Inc. nor the names of their contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

End

/*
 * Copyright (c) Copyright (c) Bull S.A. 2005 All Rights Reserved.
 * Redistribution and use in source and binary forms, with or without modification, are
 * permitted provided that the following conditions are met:
 * 1. Redistributions of source code must retain the above copyright notice, this list of
 *   conditions and the following disclaimer.
 * 2. Redistributions in binary form must reproduce the above copyright notice, this list
 *   of conditions and the following disclaimer in the documentation and/or other
 *   materials provided with the distribution.
 * 3. The name of the author may not be used to endorse or promote products derived
 *   from this software without specific prior written permission.
 *
 * THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS
 * OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
 * WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
 * PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE
 * FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
 * CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
 * PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
 * DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED
 * AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
 * LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN

```
* ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
* POSSIBILITY OF SUCH DAMAGE.
*/

/*
        * Copyright 2002 Purdue Research Foundation, West Lafayette,
        * Indiana 47907.  All rights reserved.
        *
        * Written by Victor A. Abell
        *
        * This software is not subject to any license of the American
        * Telephone and Telegraph Company or the Regents of the
        * University of California.
        *
        * Permission is granted to anyone to use this software for
        * any purpose on any computer system, and to alter it  and
        * redistribute it freely, subject to the following
        * restrictions:
        *
        * 1. Neither the authors nor Purdue University are responsible
        *     for any consequences of the use of this software.
        *
        * 2. The origin of this software must not be misrepresented,
        *      either by explicit claim or by omission. Credit to the
        *      authors and Purdue University must appear in documentation
        *      and sources.
        *
        * 3. Altered versions must be plainly marked as such, and must not be
        *     not be misrepresented as being the original software.
        *
        * 4. This notice may not be removed or altered.
        */

/*
* Copyright (c) Copyright (c) Bull S.A.  2005  All Rights Reserved.
* Redistribution and use in source and binary forms, with or without modification, are
* permitted provided that the following conditions are met:
* 1. Redistributions of source code must retain the above copyright notice, this list of
*     conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright notice, this list
*     of conditions and the following disclaimer in the documentation and/or other
*     materials provided with the distribution.
* 3. The name of the author may not be used to endorse or promote products derived
*     from this software without specific prior written permission.
*
* THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS
```

* OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
* WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
* PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
* CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
* PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
* DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED
* AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN
* ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF
* THE POSSIBILITY OF SUCH DAMAGE.
*/

Copyright (c) 2005-2010 Douglas Gilbert.
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. The name of the author may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

NOTE:
This license has been obsoleted by the change to the BSD-style copyright. You may continue to use this license if you wish, but you are under no obligation to do so.

(*
This document is freely plagiarised from the 'Artistic Licence', distributed as part of the Perl v4.0 kit by Larry Wall, which is available from most major archive sites. I stole it from CrackLib.

$Id: COPYING 1342 2007-11-10 23:46:11Z nekral-guest $

*)

This documents purpose is to state the conditions under which this Package (See definition below) viz: "Shadow", the Shadow Password Suite which is held by Julianne Frances Haugh, may be copied, such that the copyright holder maintains some semblance of artistic control over the development of the package, while giving the users of the package the right to use and distribute the Package in a more-or-less customary fashion, plus the right to make reasonable modifications.

So there.

****

Definitions:

A "Package" refers to the collection of files distributed by the Copyright Holder, and derivatives of that collection of files created through textual modification, or segments thereof.

Standard Version refers to such a Package if it has not been modified, or has been modified in accordance with the wishes of the Copyright Holder.

Copyright Holder is whoever is named in the copyright or copyrights for the package.

You is you, if you're thinking about copying or distributing this Package.

Reasonable copying fee is whatever you can justify on the basis of media cost, duplication charges, time of people involved, and so on. (You will not be required to justify it to the Copyright Holder, but only to the computing community at large as a market that must bear the fee.)

Freely Available means that no fee is charged for the item itself, though there may be fees involved in handling the item. It also means that recipients of the item may redistribute it under the same conditions they received it.

1. You may make and give away verbatim copies of the source form of the Standard Version of this Package without restriction, provided that you duplicate all of the original copyright notices and associated disclaimers.

2. You may apply bug fixes, portability fixes and other modifications derived from the Public Domain or from the Copyright Holder. A Package modified in such a way shall still be considered the Standard Version.

3. You may otherwise modify your copy of this Package in any way,provided that you insert a prominent notice in each changed file stating how and when AND WHY you changed that file, and provided that you do at least ONE of the following:

a) place your modifications in the Public Domain or otherwise make them Freely

Available, such as by posting said modifications to Usenet or an equivalent medium, or placing the modifications on a major archive site such as uunet.uu.net, or by allowing the Copyright Holder to include your modifications in the Standard Version of the Package.

b) use the modified Package only within your corporation or organization.

c) rename any non-standard executables so the names do not conflict with standard executables, which must also be provided, and provide separate documentation for each non-standard executable that clearly documents how it differs from the Standard Version.

d) make other distribution arrangements with the Copyright Holder.

4. You may distribute the programs of this Package in object code or executable form, provided that you do at least ONE of the following:

a) distribute a Standard Version of the executables and library files, together with instructions (in the manual page or equivalent) on where to get the Standard Version.

b) accompany the distribution with the machine-readable source of the Package with your modifications.

c) accompany any non-standard executables with their corresponding Standard Version executables, giving the non-standard executables non-standard names, and clearly documenting the differences in manual pages (or equivalent), together with instructions on where to get the Standard Version.

d) make other distribution arrangements with the Copyright Holder.

5. You may charge a reasonable copying fee for any distribution of this Package. You may charge any fee you choose for support of this Package. YOU MAY NOT CHARGE A FEE FOR THIS PACKAGE ITSELF. However, you may distribute this Package in aggregate with other (possibly commercial) programs as part of a larger (possibly commercial) software distribution provided that YOU DO NOT ADVERTISE this package as a product of your own.

6. The name of the Copyright Holder may not be used to endorse or promote products derived from this software without specific prior written permission.

7. THIS PACKAGE IS PROVIDED "AS IS" AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTIBILITY AND FITNESS FOR A PARTICULAR PURPOSE.

The End

```
/*****************************************************************************
* Copyright 1995 by Wietse Venema.  All rights reserved. Some individual files
* may be covered by other copyrights.
```

```
*
* This material was originally written and compiled by Wietse Venema at Eindhoven
* University of Technology, The Netherlands, in 1990, 1991, 1992, 1993, 1994
* and 1995.
*
* Redistribution and use in source and binary forms are permitted provided that
* this entire copyright notice is duplicated in all such copies.
*
* This software is provided "as is" and without any expressed or implied warranties,
* including, without limitation, the implied warranties of merchantibility and fitness
* for any particular purpose.
*****************************************************************************/

/*-
 * Copyright (c) 1997, 1998 The NetBSD Foundation, Inc.
 * All rights reserved.
 *
 * This code is derived from software contributed to The NetBSD Foundation by
 * Alan Barrett and Simon J. Gerraty.
 *
 * Redistribution and use in source and binary forms, with or without modification,
 * are permitted provided that the following conditions are met:
 * 1. Redistributions of source code must retain the above copyright notice, this list
 *    of conditions and the following disclaimer.
 * 2. Redistributions in binary form must reproduce the above copyright notice,
 *    this list of conditions and the following disclaimer in the documentation
 *    and/or other materials provided with the distribution.
 * 3. All advertising materials mentioning features or use of this software must
 *    display the following acknowledgement:
 *      This product includes software developed by the NetBSD
 *      Foundation, Inc. and its contributors.
 * 4. Neither the name of The NetBSD Foundation nor the names of its contributors
 *    may be used to endorse or promote products derived from this software without
 *    specific prior written permission.
 *
 * THIS SOFTWARE IS PROVIDED BY THE NETBSD FOUNDATION, INC. AND
 * CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES,
 * INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
 * MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
 * DISCLAIMED.  IN NO EVENT SHALL THE FOUNDATION OR
 * CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
 * SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
 * NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
 * LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
 * HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
 * CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR
 * OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE,
```

* EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
*/

Copyright (c) 1990-2009 Info-ZIP. All rights reserved.

For the purposes of this copyright and license, "Info-ZIP" is defined as the following set of individuals:

Mark Adler, John Bush, Karl Davis, Harald Denker, Jean-Michel Dubois, Jean-loup Gailly, Hunter Goatley, Ed Gordon, Ian Gorman, Chris Herborth, Dirk Haase, Greg Hartwig, Robert Heath, Jonathan Hudson, Paul Kienitz, David Kirschbaum, Johnny Lee, Onno van der Linden, Igor Mandrichenko, Steve P. Miller, Sergio Monesi, Keith Owens, George Petrov, Greg Roelofs, Kai Uwe Rommel, Steve Salisbury, Dave Smith, Steven M. Schweda, Christian Spieler, Cosmin Truta, Antoine Verheijen, Paul von Behren, Rich Wales, Mike White.

This software is provided "as is," without warranty of any kind, express or implied. In no event shall Info-ZIP or its contributors be held liable for any direct, indirect, incidental, special or consequential damages arising out of the use of or inability to use this software.

Permission is granted to anyone to use this software for any purpose, including commercial applications, and to alter it and redistribute it freely, subject to the above disclaimer and the following restrictions:

1. Redistributions of source code (in whole or in part) must retain the above copyright notice, definition, disclaimer, and this list of conditions.

2. Redistributions in binary form (compiled executables and libraries) must reproduce the above copyright notice, definition, disclaimer, and this list of conditions in documentation and/or other materials provided with the distribution. Additional documentation is not needed for executables where a command line license option provides these and a note regarding this option is in the executable's startup banner. The sole exception to this condition is redistribution of a standard UnZipSFX binary (including SFXWiz) as part of a self-extracting archive; that is permitted without inclusion of this license, as long as the normal SFX banner has not been removed from the binary or disabled.

3. Altered versions--including, but not limited to, ports to new operating systems, existing ports with new graphical interfaces, versions with modified or added functionality, and dynamic, shared, or static library versions not from Info-ZIP--must be plainly marked as such and must not be misrepresented as being the original source or, if binaries, compiled from the original source. Such altered versions also must not be misrepresented as being Info-ZIP releases--including, but not limited to, labeling of the altered versions with the names "Info-ZIP" (or any variation thereof, including, but not limited to, different capitalizations), "Pocket UnZip," "WiZ" or "MacZip" without the explicit permission of Info-ZIP. Such altered versions are further prohibited from misrepresentative use of the Zip-Bugs or Info-ZIP e-mail addresses or the Info-ZIP URL(s), such as to imply Info-ZIP will provide support for the altered versions.

4. Info-ZIP retains the right to use the names "Info-ZIP," "Zip," "UnZip," "UnZipSFX," "WiZ," "Pocket UnZip," "Pocket Zip," and "MacZip" for its own source and binary releases.

ORIGINAL LICENSE:
This software is

(c) Copyright 1992 by Panagiotis Tsirigotis

The author (Panagiotis Tsirigotis) grants permission to use, copy, and distribute this software and its documentation for any purpose and without fee, provided that the above copyright notice extant in files in this distribution is not removed from files included in any redistribution and that this copyright notice is also included in any redistribution.

Modifications to this software may be distributed, either by distributing the modified software or by distributing patches to the original software, under the following additional terms:

1. The version number will be modified as follows:
a. The first 3 components of the version number (i.e <number>.<number>.<number>) will remain unchanged.
b. A new component will be appended to the version number to indicate the modification level. The form of this component is up to the author of the modifications.

2. The author of the modifications will include his/her name by appending it along with the new version number to this file and will be responsible for any wrong behavior of the modified software.

The author makes no representations about the suitability of this software for any purpose. It is provided "as is" without any express or implied warranty.

Modifications:
Version: 2.1.8.7-current
Copyright 1998-2001 by Rob Braun

Sensor Addition
Version: 2.1.8.9pre14a
Copyright 2001 by Steve Grubb

This is an exerpt from an email I recieved from the original author, allowing xinetd as maintained by me, to use the higher version numbers:

I appreciate your maintaining the version string guidelines as specified in the copyright. But I did not mean them to last as long as they did.

So, if you want, you may use any 2.N.* (N >= 3) version string for future xinetd versions that you release. Note that I am excluding the 2.2.* line; using that would only create confusion. Naming the next release 2.3.0 would put to rest the confusion about 2.2.1 and 2.1.8.*.

Copyright (c) 1990-2007 Info-ZIP. All rights reserved.

For the purposes of this copyright and license, "Info-ZIP" is defined as the following set of individuals:

Mark Adler, John Bush, Karl Davis, Harald Denker, Jean-Michel Dubois, Jean-loup Gailly, Hunter Goatley, Ed Gordon, Ian Gorman, Chris Herborth, Dirk Haase, Greg Hartwig, Robert Heath, Jonathan Hudson, Paul Kienitz, David Kirschbaum, Johnny Lee, Onno van der Linden, Igor Mandrichenko, Steve P. Miller, Sergio Monesi, Keith Owens, George Petrov, Greg Roelofs, Kai Uwe Rommel, Steve Salisbury, Dave Smith, Steven M. Schweda, Christian Spieler, Cosmin Truta, Antoine Verheijen, Paul von Behren, Rich Wales, Mike White.

This software is provided "as is," without warranty of any kind, express or implied. In no event shall Info-ZIP or its contributors be held liable for any direct, indirect, incidental, special or consequential damages arising out of the use of or inability to use this software.

Permission is granted to anyone to use this software for any purpose, including commercial applications, and to alter it and redistribute it freely, subject to the above disclaimer and the following restrictions:

1. Redistributions of source code (in whole or in part) must retain the above copyright notice, definition, disclaimer, and this list of conditions.

2. Redistributions in binary form (compiled executables and libraries) must reproduce the above copyright notice, definition, disclaimer, and this list of conditions in documentation and/or other materials provided with the distribution. The sole exception to this condition is redistribution of a standard UnZipSFX binary (including SFXWiz) as part of a self-extracting archive; that is permitted without inclusion of this license, as long as the normal SFX banner has not been removed from the binary or disabled.

3. Altered versions--including, but not limited to, ports to new operating systems, existing ports with new graphical interfaces, versions with modified or added functionality, and dynamic, shared, or static library versions not from Info-ZIP--must be plainly marked as such and must not be misrepresented as being the original source or, if binaries, compiled from the original source. Such altered versions also must not be misrepresented as being Info-ZIP releases--including, but not limited to, labeling of the altered versions with the names "Info-ZIP" (or any variation thereof, including, but not limited to, different capitalizations), "Pocket UnZip," "WiZ" or "MacZip" without the explicit permission of Info-ZIP. Such altered versions are further prohibited from misrepresentative use of the Zip-Bugs or Info-ZIP e-mail addresses or the Info-ZIP URL(s), such as to imply Info-ZIP will provide support for the altered versions.

4. Info-ZIP retains the right to use the names "Info-ZIP," "Zip," "UnZip," "UnZipSFX," "WiZ," "Pocket UnZip," "Pocket Zip," and "MacZip" for its own source and binary releases.

As for RSA BSAFE

This printer includes RSA® BSAFE® Cryptographic software from EMC Corporation.

ICC Profile Header

Copyright (c) 1994-1996 SunSoft, Inc.

Rights Reserved

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT. IN NO EVENT SHALL SUNSOFT, INC. OR ITS PARENT COMPANY BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Except as contained in this notice, the name of SunSoft, Inc. shall not be used in advertising or otherwise to promote the sale, use or other dealings in this Software without written authorization from SunSoft Inc.

JPEG Library

Independent JPEG Group's free JPEG software

This package contains C software to implement JPEG image encoding, decoding, and transcoding. JPEG is a standardized compression method for full-color and gray-scale images.

The distributed programs provide conversion between JPEG "JFIF" format and image files in PBMPLUS PPM/PGM, GIF, BMP, and Targa file formats. The core compression and decompression library can easily be reused in other programs, such as image viewers. The package is highly portable C code; we have tested it on many machines ranging from PCs to Crays.

We are releasing this software for both noncommercial and commercial use. Companies are welcome to use it as the basis for JPEG-related products. We do not ask a royalty, although we do ask for an acknowledgement in product literature (see the README file in the distribution for details). We hope to make this software industrial-quality --- although, as with anything that's free, we offer no warranty and accept no liability.

For more information, contact jpeg-info@jpegclub.org.

Contents of this directory

---

jpegsrc.vN.tar.gz contains source code, documentation, and test files for release N in Unix format.

jpegsrN.zip contains source code, documentation, and test files for release N in Windows format.

jpegaltui.vN.tar.gz contains source code for an alternate user interface for cjpeg/djpeg in Unix format.

jpegaltuiN.zip contains source code for an alternate user interface for cjpeg/djpeg in Windows format.

wallace.ps.gz is a PostScript file of Greg Wallace's introductory article about JPEG. This is an update of the article that appeared in the April 1991 Communications of the ACM.

jpeg.documents.gz tells where to obtain the JPEG standard and documents about JPEG-related file formats.

jfif.ps.gz is a PostScript file of the JFIF (JPEG File Interchange Format) format specification.

jfif.txt.gz is a plain text transcription of the JFIF specification; it's missing a figure, so use the PostScript version if you can.

TIFFTechNote2.txt.gz is a draft of the proposed revisions to TIFF 6.0's JPEG support.

pm.errata.gz is the errata list for the first printing of the textbook "JPEG Still Image Data Compression Standard" by Pennebaker and Mitchell.

jdosaobj.zip contains pre-assembled object files for JMEMDOSA.ASM. If you want to compile the IJG code for MS-DOS, but don't have an assembler, these files may be helpful.

Math Library

Copyright (C) 1993 by Sun Microsystems, Inc. All rights reserved.

Developed at SunPro, a Sun Microsystems, Inc. business.

Permission to use, copy, modify, and distribute this software is freely granted, provided that this notice is preserved.

==========

copysignf.c: * Copyright (C) 1993 by Sun Microsystems, Inc. All rights reserved.

math_private.h: * Copyright (C) 1993 by Sun Microsystems, Inc. All rights reserved.

powf.c: * Copyright (C) 1993 by Sun Microsystems, Inc. All rights reserved.

scalbnf.c: * Copyright (C) 1993 by Sun Microsystems, Inc. All rights reserved.

libtiff

Copyright (c) 1988-1997 Sam Leffler

Copyright (c) 1991-1997 Silicon Graphics, Inc.

Permission to use, copy, modify, distribute, and sell this software and its documentation for any purpose is hereby granted without fee, provided that (i) the above copyright notices and this permission notice appear in all copies of the software and related documentation, and (ii) the names of Sam Leffler and Silicon Graphics may not be used in any advertising or publicity relating to the software without the specific, prior written permission of Sam Leffler and Silicon Graphics.

THE SOFTWARE IS PROVIDED "AS-IS" AND WITHOUT WARRANTY OF ANY KIND,

EXPRESS, IMPLIED OR OTHERWISE, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

IN NO EVENT SHALL SAM LEFFLER OR SILICON GRAPHICS BE LIABLE FOR ANY SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES OF ANY KIND, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER OR NOT ADVISED OF THE POSSIBILITY OF DAMAGE, AND ON ANY THEORY OF LIABILITY, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Zlib

zlib.h -- interface of the 'zlib' general purpose compression library version 1.2.8, April 28th, 2013

Copyright (C) 1995-2013 Jean-loup Gailly and Mark Adler

This software is provided 'as-is', without any express or implied warranty. In no event will the authors be held liable for any damages arising from the use of this software.

Permission is granted to anyone to use this software for any purpose, including commercial applications, and to alter it and redistribute it freely, subject to the following restrictions:

1.The origin of this software must not be misrepresented; you must not claim that you wrote the original software. If you use this software in a product, an acknowledgment in the product documentation would be appreciated but is not required.

2.Altered source versions must be plainly marked as such, and must not be misrepresented as being the original software.

3.This notice may not be removed or altered from any source distribution.

Jean-loup GaillyMark Adler

jloup@gzip.orgmadler@alumni.caltech.edu

_____

UNITED STATES GOVERNMENT RESTRICTED RIGHTS

This software and documentation are provided with RESTRICTED RIGHTS. Use, duplication or disclosure by the Government is subject to restrictions as set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013 and in applicable FAR provisions: Dell Inc., One Dell Way, Round Rock, Texas, 78682, USA.