Dell™ S3845cdn
CAC*Star*™ Smart Card Reader
Installation and Configuration Guide

Document protection for CAC/PIV enabled Multifunction Devices

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Introduction

CACStar™ provides a solution to HSPD-12 requirements for CAC/PIV based protection of network data to and from printers or Multifunction Devices (MFDs). You can configure it to require an authenticated CAC/ PIV card to control Copy, Print, Fax, Scan to Folder, Scan to Email, SNMP, or FTP.

Configurable authentication methods include Basic X.509 certificate on the card, PIN validation, expiration, OCSP, root certificate, LDAP, and Kerberos. CACStar will adopt the IP address of the MFD on which it is installed, so there is no host network configuration change necessary.

Configuration is easily done using secure web based access to CACStar by the network administrator. In its simplest form, the admin only needs to configure the IP address of the MFD and the IP address of the local time server. Information about many additional configuration options is described later in this guide.

Prior to starting the CACStar configuration, you must know your network infrastructure. Appendix A has a convenient list of questions and the necessary data that you will need to collect.

If you need help obtaining correct firmware or documentation, contact the Dell ProSupport Help Desk by calling 1-866-516-3115, or by sending email to Imaging_Solutions_Support_CAC@dell.com.

This manual will guide you through installing the hardware, installing the software to convert the Dell S3845cdn to be CACStar enabled, and configuration of the customer desired authentication control options.   Prior to starting the installation, you may wish to use the checklist in Appendix A to help you collect the information you will need.

Initial Setup

If your 3845 came to you with the CACStar option not pre-installed, you should refer to Appendix B to find instructions regarding initial installation. Otherwise, proceed to CACStar Configuration below.

Configuring the CACStar Option via Touchscreen

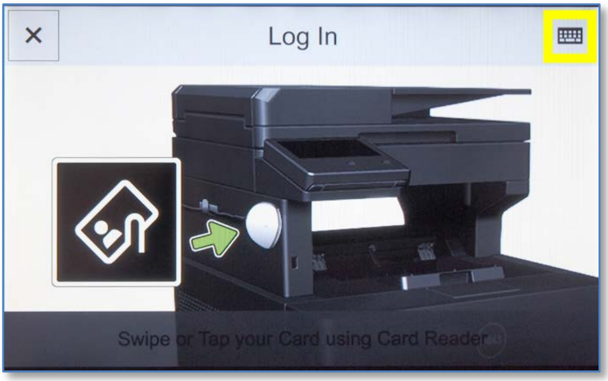
A limited number of configuration settings can be accessed directly from the printer's touchscreen:

- TCP/IP address
- Ethernet connection (speed / duplex)

Access to all settings for the CACStar option are available via the CACStar administration web site.

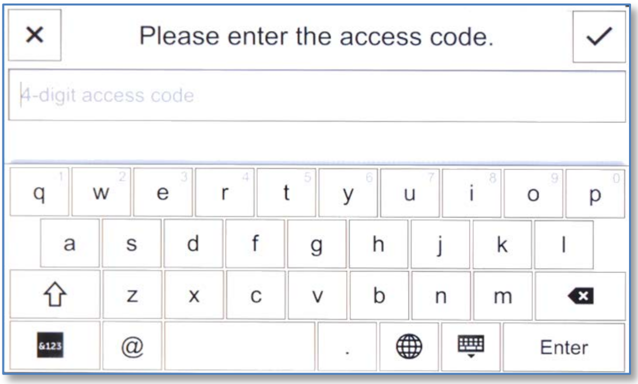
Activating the CACStar Configuration Menu System

To activate the CACStar Configuration Menu System, tap the "Manual Login" icon on the touchscreen. It looks like a small keyboard icon. In the picture below it is highlighted by a yellow box. If the touchscreen does not look like the picture below, then tap the [Log In] button at the top left corner of the touchscreen.



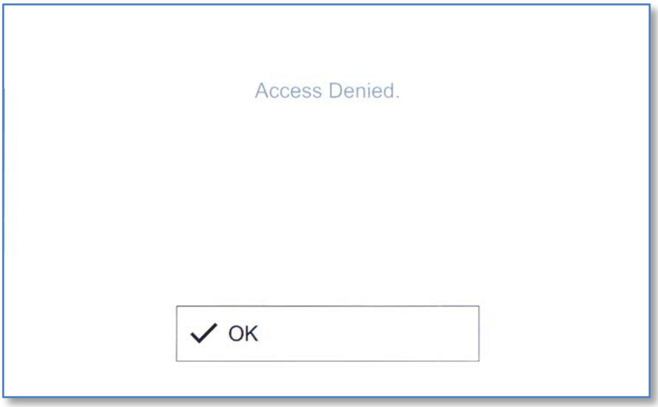
Access Code

If the CACStar "disable front panel configuration" setting has been enabled, then you will be asked to enter an access code before access to the menu system will be granted. This access code is fixed to a value of "3149".



Please enter the access code.

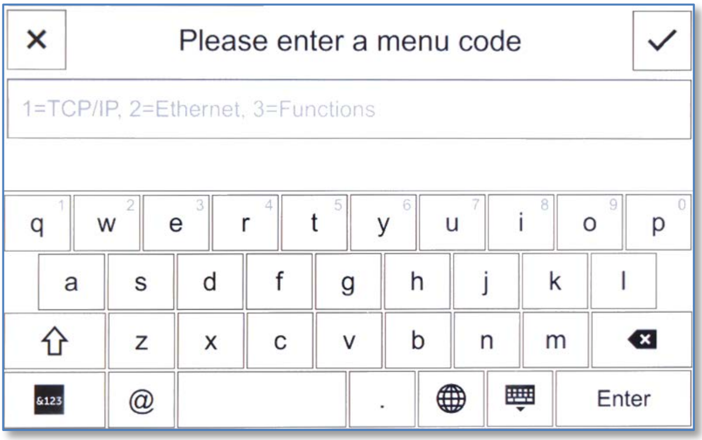
If an incorrect access code is entered, then access to the menu system will be denied.



Access Denied.

The Top-Level Menu

Upon entry into the CACStar menu system, you are asked which configuration area you wish to use.



Please enter a menu code

1=TCP/IP, 2=Ethernet, 3=Functions

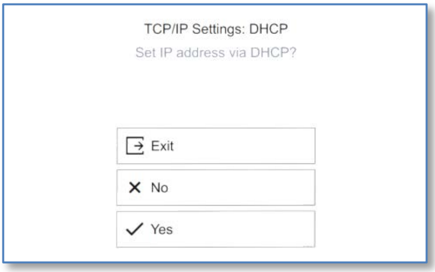
Menu codes that can be entered:

1	CACStar LAN TCP/IP Settings
2	CACStar LAN Ethernet connection settings
3	Additional functions (described below)

LAN TCP/IP settings

When setting TCP/IP settings, you will be walked through the following settings:

- DHCP

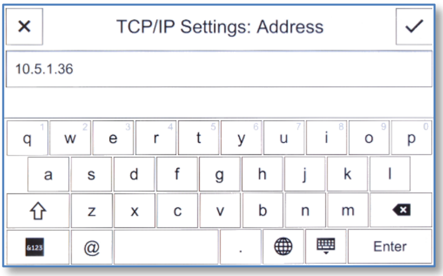


TCP/IP Settings: DHCP

Set IP address via DHCP?

If you answer “No” to using DHCP, then the following settings are presented.

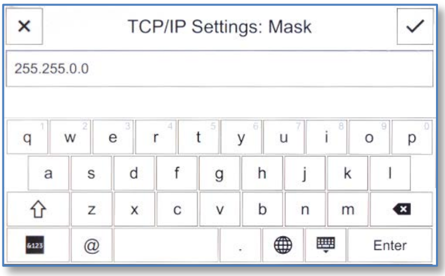
- IP Address



TCP/IP Settings: Address

10.5.1.36

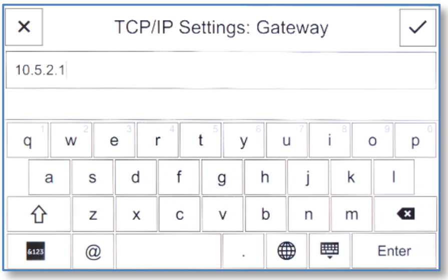
- Subnet Mask



TCP/IP Settings: Mask

255.255.0.0

- Gateway



TCP/IP Settings: Gateway

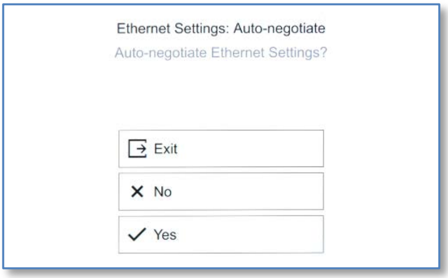
10.5.2.1

No changes will be saved until all applicable settings have been set (i.e. If you choose “Yes” for DHCP, then the configuration is saved, and no other settings are presented. If “No” is selected for DHCP, then all settings must be entered before any are saved. Exiting the menu system by pressing the “X” or “Exit” button at any time will exit the menu system without saving any changes.

Ethernet Connection Settings

When changing Ethernet connection settings, you will be walked through the following settings:

- Auto Negotiation

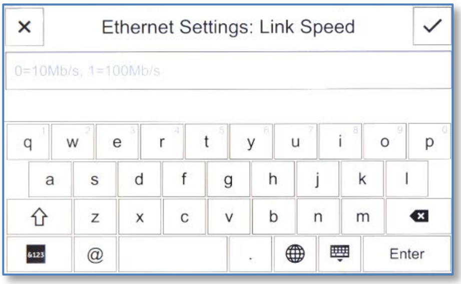


Ethernet Settings: Auto-negotiate

Auto-negotiate Ethernet Settings?

If "No" is chosen for Auto Negotiation, then the following settings will be presented:

- Connection Speed



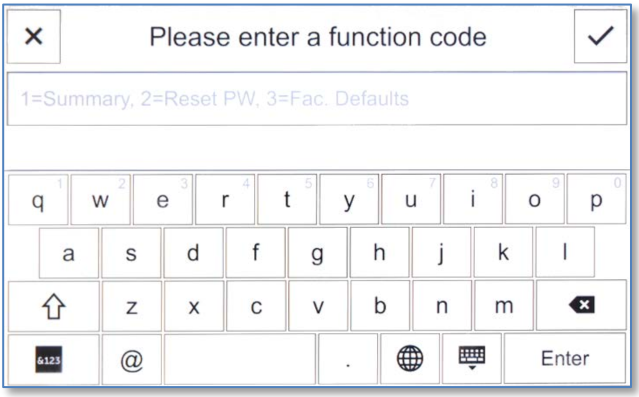
Ethernet Settings: Link Speed

0=10Mb/s, 1=100Mb/s

- Duplex

As with the TCP/IP settings, no changes are made until all applicable settings have been entered. Aborting the menu system by tapping the "X" or "Exit" button at any time will abort the menu system without saving any changes.

Additional Functions in Menu Mode



Please enter a function code

1=Summary, 2=Reset PW, 3=Fac. Defaults

The Functions area of the menu system allows you to:

- Print a CACStar Configuration Summary page
- Reset the Administrator password for the CACStar web site
- Reset CACStar to a Factory Default configuration. When requesting a reset to factory defaults, you will be asked if you are sure you want to do the reset before it is done.

Configuring the CACStar Option via Administration Website

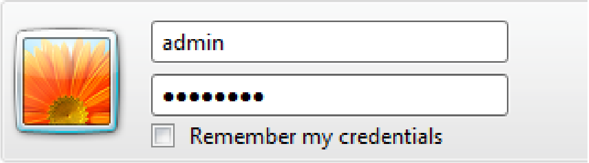
CACStar Admin Login

Login to CAC*Star* as the Administrator by pointing your browser to the CAC*Star* using a secure connection on port 8443 at the IP address you assigned in the steps above.

For example: https://192.168.1.23:8443 or https://10.5.9.11:8443

You are likely to get an Invalid Certificate Warning from the browser. If so, override the warning and continue to the CAC*Star* web site.

The browser will require an ID and password. The default ID is "admin". The default password is "admin".

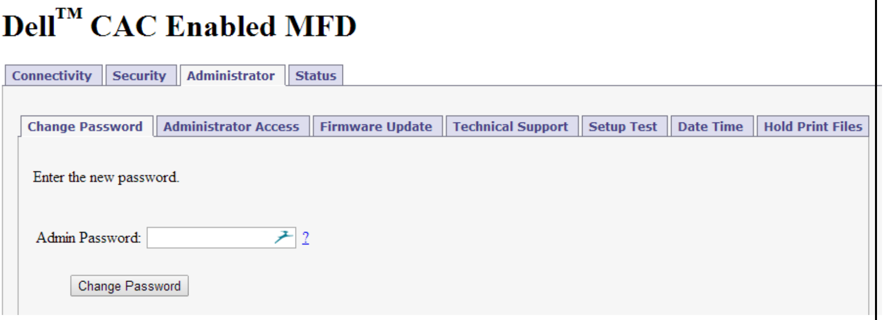


admin

●●●●●●●●●

□ Remember my credentials

After initial login, you can change the password to one of your choice by going to the Administrator tab.



Dell™ CAC Enabled MFD

Enter the new password.

Admin Password: ?

Change Password

Accessing the MFD/Printer Web Site

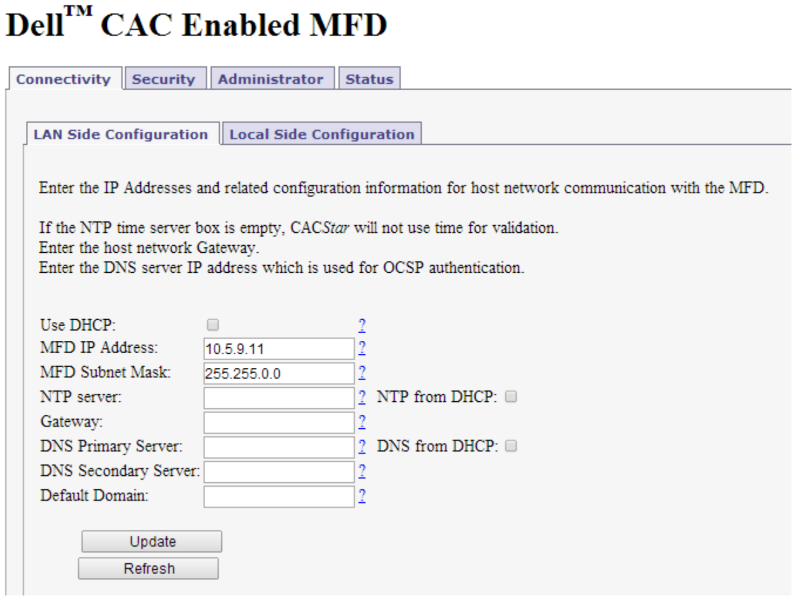
If you wish to access the MFD/printer web site, go to the same URL but do not use port 8443. For example: http://192.168.1.23 or https://192.168.1.23. On the 3845, the default login credentials are the same as CACStar (username “admin”, password “admin”.)

The following sections describe the different areas of the CACStar administration website.

Connectivity

CACStar has a “Local Side” and a “LAN Side”. The Local Side pertains to a local Ethernet connection from the MFD to the CACStar option. It is not accessible from the user’s network. The LAN Side pertains to the Ethernet connection to the host network.

LAN Side Configuration



Dell™ CAC Enabled MFD

Enter the IP Addresses and related configuration information for host network communication with the MFD.

If the NTP time server box is empty, CAC*Star* will not use time for validation.
Enter the host network Gateway.
Enter the DNS server IP address which is used for OCSP authentication.

Use DHCP:	□	?	
MFD IP Address:	10.5.9.11	?	
MFD Subnet Mask:	255.255.0.0	?	
NTP server:		?	NTP from DHCP: □
Gateway:		?	
DNS Primary Server:		?	DNS from DHCP: □
DNS Secondary Server:		?	
Default Domain:		?	

Step 1 – MFD IP Address
This is the IP address that is used for access to these administrator web pages. It is also used for host computer connection to the MFD/printer. This IP address was already set in the initial setup process using the card reader keypad.

If you wish to change this address, it can be done using this screen or from the card reader keypad.

Note: When you press the **Update** button, the CAC*Star* will switch to the new IP address which will cause your browser to be disconnected from the CAC*Star*. To reconnect, redirect your browser to the new IP address you just entered.

Step 2 – NTP Server:
Set this to the Network Time Protocol Server IP address or Server Name. This will allow the CAC*Star* to validate certificates by date.

If DHCP is in use, you may check the "NTP From DHCP" box to force retrieval of the NTP Server address from the DHCP server in which case the address field is not used and may be left blank.

Step 3 – Configure Gateway and DNS Server
Note: A DNS Server is required for OCSP support. It is not necessary to configure a DNS server if you are not using OCSP.

Set this to the DNS IP address to be used by the CAC*Star* for Domain Name resolution.

Example: 10.5.1.2

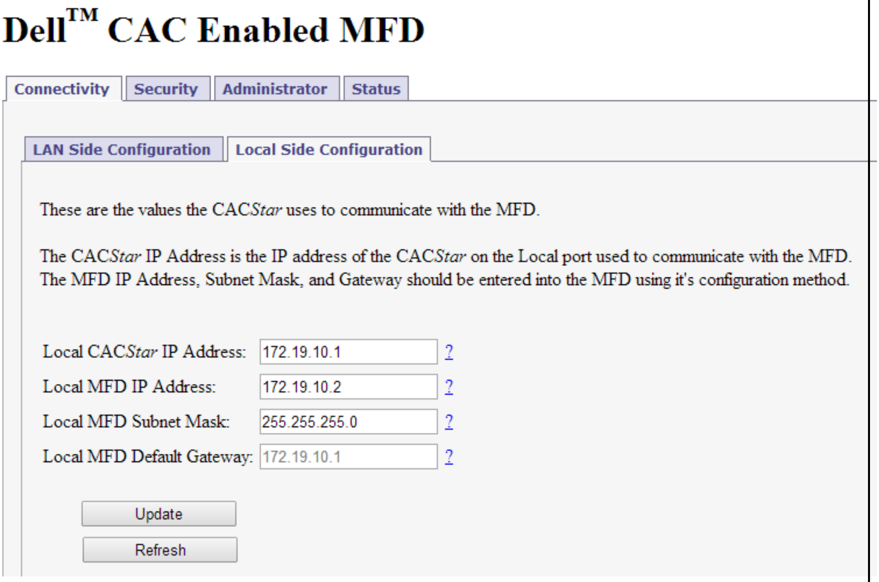
If DHCP is in use, you may check the "DNS From DHCP" box to force retrieval of DNS addresses from the DHCP server - in which case the DNS address fields are not used and may be left blank.

Step 4 – Configure Default Domain

This field is used for DNS Server Name resolution. Set this to the Default Domain name for the LAN.

Step 5 – Press Update

Local Side Configuration



These are the values the CAC*Star* uses to communicate with the MFD.

The CAC*Star* IP Address is the IP address of the CAC*Star* on the Local port used to communicate with the MFD. The MFD IP Address, Subnet Mask, and Gateway should be entered into the MFD using it's configuration method.

Local CAC*Star* IP Address: 172.19.10.1 ?

Local MFD IP Address: 172.19.10.2 ?

Local MFD Subnet Mask: 255.255.255.0 ?

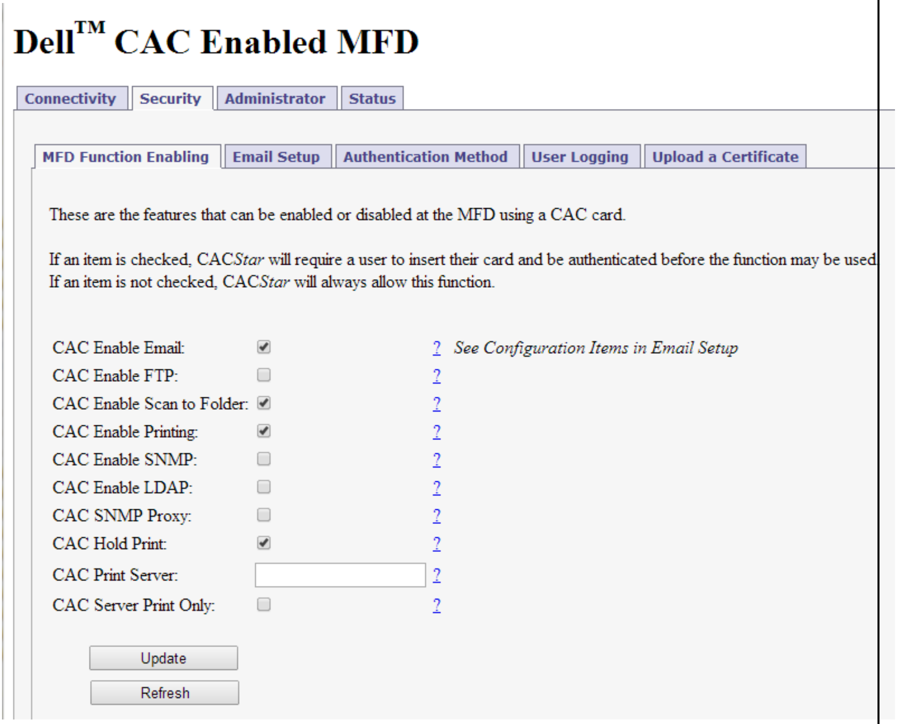
Local MFD Default Gateway: 172.19.10.1 ?

These settings define the IP addresses used for Local communication between the CAC*Star* and the MFD/printer. The defaults are likely to be acceptable. Usually there is no need to enter any IP addresses on this configuration page.

Make sure these values were entered into the MFD using the MFD/printer operator panel.

Security

MFD Function Enabling



These are the features that can be enabled or disabled at the MFD using a CAC card.

If an item is checked, CAC*Star* will require a user to insert their card and be authenticated before the function may be used
If an item is not checked, CAC*Star* will always allow this function.

CAC Enable Email:	☑	? *See Configuration Items in Email Setup*
CAC Enable FTP:	□	?
CAC Enable Scan to Folder:	☑	?
CAC Enable Printing:	☑	?
CAC Enable SNMP:	□	?
CAC Enable LDAP:	□	?
CAC SNMP Proxy:	□	?
CAC Hold Print:	☑	?
CAC Print Server:		?
CAC Server Print Only:	□	?

Check the boxes for Functions that require a validated CAC Card for use.

If a box is un-checked the Function will always be allowed.

For example:
If you want the MFD **Scan-to-Folder** Function to only be available when a validated CAC Card is installed, check the **CAC Enable Scan-To-Folder** box.

If you want the MFD **Scan-to-Folder** Function to be available all the time whether a CAC card is inserted or not, uncheck the **CAC Enable Scan-To-Folder** box.

Click the **Update** button after all entries are made.

Hold Print

If enabled, Print jobs will be held in the CACStar until the user is authenticated at the printer by inserting their CAC card. After authentication, the user’s jobs will be printed.

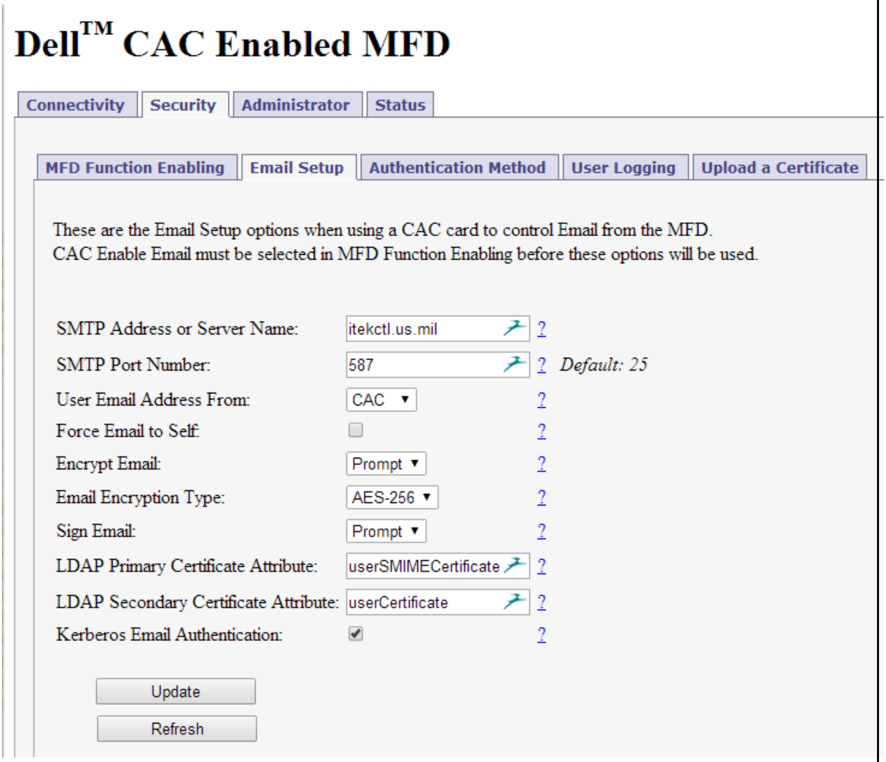
CAC Print Server

Set this to the IP address of the Secure Print server.

Server Print Only

If enabled, print jobs will only be allowed from the configured CAC Print Server. If not, jobs will be allowed from any IP address. For this to operate, “CAC Enable Printing” must be selected in the “Security/MFD Function Enabling” menu.

Email Setup



Dell™ CAC Enabled MFD

These are the Email Setup options when using a CAC card to control Email from the MFD.
CAC Enable Email must be selected in MFD Function Enabling before these options will be used.

SMTP Address or Server Name:	itekctl.us.mil	?	
SMTP Port Number:	587	?	*Default: 25*
User Email Address From:	CAC ▾	?	
Force Email to Self:	□	?	
Encrypt Email:	Prompt ▾	?	
Email Encryption Type:	AES-256 ▾	?	
Sign Email:	Prompt ▾	?	
LDAP Primary Certificate Attribute:	userSMIMECertificate	?	
LDAP Secondary Certificate Attribute:	userCertificate	?	
Kerberos Email Authentication:	☑	?	

If you have elected to control MFD generated email with your CAC cards, you will need to configure the item shown in the screen below.

SMTP Address or Server Name

Set the IP address or Server Name of the SMTP server.

SMTP Port Number

Set the TCP port number for SMTP communications.

User Email Address From

Select the source location for the "From" email address. Emailed scans can be from either the user's own email address on his CAC card, or from the user's email address on the LDAP server.

Force Email to Self

Choose whether you want to force all emailed scans to the user's own email address. If not checked, he can send to any email address.

If this option is not selected, the user can select the recipient from the printer's internal address book or he can use the printer to enter the email address he wants to use.

Encrypt Email

When sending emails of scanned documents, choose to never encrypt, always encrypt,   or Prompt on each message for whether or not to encrypt.

When the MFD is operational and has been configured here to prompt for whether or not to encrypt, the printer's touchscreen will be used for prompting, The user can press the [Yes] or [No] buttons on the touchscreen to answer the prompt. **Note: pressing the [Exit] button during prompting will cause the operation to be aborted, and the user will be logged out.**

Email Encryption Type

Choose the encryption type from either 3DES or AES-256.

Sign Email

When sending emails of scanned documents, choose to never sign, always sign,   or Prompt on each message for whether or not to sign.

LDAP Primary Certificate Attribute

Specify the primary LDAP attribute name which should be used to retrieve a certificate for email encryption.

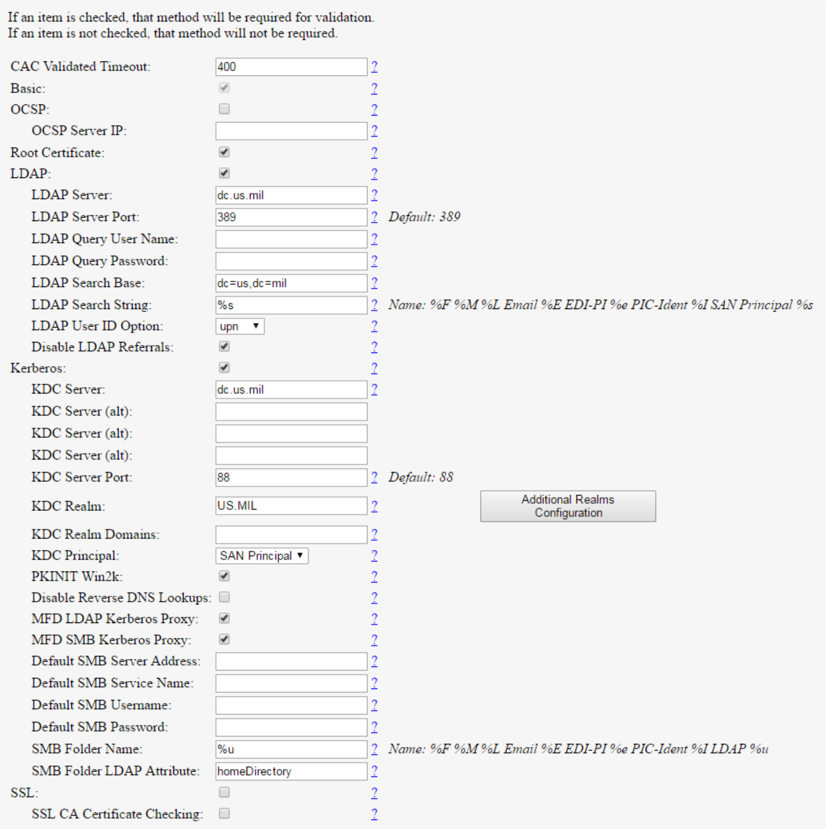
LDAP Secondary Certificate Attribute

Specify the secondary LDAP attribute name which should be used if the primary attribute fails.

Kerberos Email Authentication

Check this box if you want to use Kerberos for Email Login Authentication.
If this box is checked, the "Kerberos" section of "Authentication Method" web page must be completed properly.

Authentication Method



If an item is checked, that method will be required for validation.
If an item is not checked, that method will not be required.

CAC Validated Timeout:	400	?	
Basic:	☑	?	
OCSP:	☐	?	
OCSP Server IP:		?	
Root Certificate:	☑	?	
LDAP:	☑	?	
LDAP Server:	dc.us.mil	?	
LDAP Server Port:	389	?	*Default: 389*
LDAP Query User Name:		?	
LDAP Query Password:		?	
LDAP Search Base:	dc=us,dc=mil	?	
LDAP Search String:	%s	?	*Name: %F %M %L Email %E EDI-PI %e PIC-Ident %I SAN Principal %s*
LDAP User ID Option:	upn ▼	?	
Disable LDAP Referrals:	☑	?	
Kerberos:	☑	?	
KDC Server:	dc.us.mil	?	
KDC Server (alt):			
KDC Server (alt):			
KDC Server (alt):			
KDC Server Port:	88	?	*Default: 88*
KDC Realm:	US.MIL	?	Additional Realms Configuration
KDC Realm Domains:		?	
KDC Principal:	SAN Principal ▼	?	
PKINIT Win2k:	☑	?	
Disable Reverse DNS Lookups:	☐	?	
MFD LDAP Kerberos Proxy:	☑	?	
MFD SMB Kerberos Proxy:	☑	?	
Default SMB Server Address:		?	
Default SMB Service Name:		?	
Default SMB Username:		?	
Default SMB Password:		?	
SMB Folder Name:	%u	?	*Name: %F %M %L Email %E EDI-PI %e PIC-Ident %I LDAP %u*
SMB Folder LDAP Attribute:	homeDirectory	?	
SSL:	☐	?	
SSL CA Certificate Checking:	☐	?	

CAC Validated Timeout

This setting is the number of minutes of inactivity before a CAC Validated session will be terminated.
If this setting is 0, the timeout is disabled.

Basic

This includes PIN validation, card expiration check, and X.509 card certificate validation. If an NTP server is not configured on the **LAN Side Configuration** page, the expiration check is bypassed. The Basic level of authentication is always included and cannot be removed from the configuration. In some installations, this is sufficient authentication and is the only one activated.

OCSP

Check this box to enable OCSP (Online Certificate Status Protocol) verification of CAC Cards. If enabled the OCSP server will be used to validate the current status of the CAC card PKI certificate.

NOTE: If OCSP is enabled, you must have a DNS server configured.

Root Certificate

Check this box to enable Root Certificate verification of CAC Cards. If enabled, the certificate chain, including the Root CA Certificate will be used to validate the CAC card PKI certificate. The card is also checked to be certain the CAC certificate has a valid private key.

NOTE: If **Root Certificate** is enabled, all Issuer Certificates and Root CA Certificate chains for cards in use at this installation must be loaded into the CAC*Star*. If not, Verify Failures will occur.

LDAP

Check this to enable use of the Active Directory server for additional authentication

LDAP Server IP: IP address of the LDAP server.
LDAP Server Port: Port number of the LDAP server. The default is 389.
LDAP Query User Name: User Name for the LDAP service account login.

LDAP Query Password: Password for the LDAP service account login.

LDAP Search Base: Defines the location in the directory where a search will start.

Example: OU=Users, DC=Itek, DC=com

LDAP Search String: The Search String is used by the LDAP server to find users. In conjunction with User ID options below, this field helps create the query to the LDAP server to find users by name. Any data can go in this field, but there are certain keys that will be expanded to create the query.

The keywords are:
%L – expands to become the user’s last name
%F – expands to become the user’s first name
%M – expands to become the user’s middle name
%E – expands to the user’s email address
%e – expands to the user’s EDI-PI
%I – expands to the user’s PIC-Identification
%s - expands to the user's SAN Principal name

LDAP User ID options:
Choices are cn, upn, mail, or name to be used for finding and identifying users.

Disable LDAP Referrals:
If this box is checked, the Referrals sent by LDAP Servers will NOT be followed.

Kerberos

If LDAP is enabled, you may choose to use Kerberos authentication for the LDAP server. If enabled, Kerberos will be used for: validating the cardholder, authentication to the LDAP server if needed, authentication to the SMTP server if so configured, and authentication to the SMB server if so configured. Multiple entries are allowed.

KDC Server IP: IP address of the Kerberos server
KDC Server Port: Port number of the Kerberos server. The default is 88.
KDC Realm: Kerberos Realm
KDC Principal: User Name. This can be either the CN or the EDI-PI, or San Principal.

PKINIT Win2K
The setting affects the "Public Key Cryptography for Initial Authentication" in Kerberos. Check this box if you are using a Windows 2000 KDC Server and/or need to use the older Kerberos PKINIT command/reply set.

Disable Reverse DNS Lookups:
Check this box to disable Reverse DNS Lookups by Kerberos (and LDAP). This is only necessary if there is a problem using Reverse DNS Lookups. If this box is checked, host names must be used for "KDC Server" and "LDAP Server" input fields.

MFD LDAP Kerberos Proxy
If enabled and Kerberos is enabled, LDAP searches from the MFD will be modified to use Kerberos Authentication. The LDAP Server and Port settings must be correct.

MFD SMB Kerberos Proxy
If enabled and Kerberos is enabled, network scan (SMB) operations from the MFD will be modified to use Kerberos authentication.

Default SMB Server Address
The IP address or server name for the default SMB server. This address will be used if the SMB server address cannot be obtained from the printer.

Default SMB Service Name

The Service Name for the default SMB server, e.g. myshare$. This name will be used as the principal for Kerberos authentication if the Service Name cannot be obtained from the printer.

Default SMB Username

The Username for the default SMB server.
This is only needed if "MFD SMB Kerberos Proxy" is NOT checked - AND the "SMB Folder Name" IS configured.

Default SMB Password

The Password for the default SMB server.
This is only needed if "MFD SMB Kerberos Proxy" is NOT checked - AND the "SMB Folder Name" is configured.

SMB Folder Name

If a Folder Name is configured, any folder name that is used by the printer will be replaced with this Folder Name. Keywords can be used in this definition so the folder name is "customized" based on the validated user.

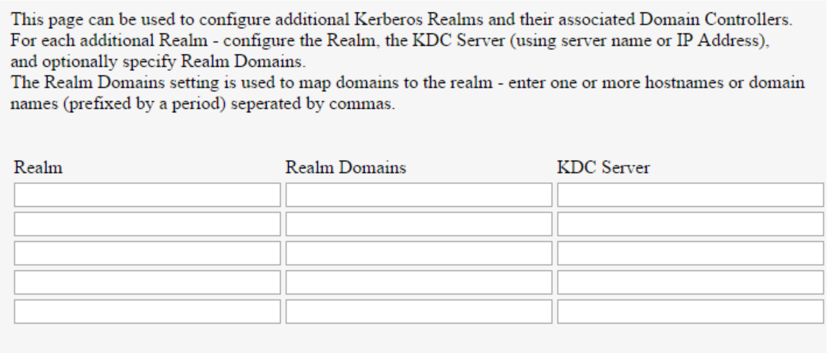
These keywords are:
%L - expands to the user's last name
%F - expands to the user's first name
%M - expands to the user's middle name
%E - expands to the user's Email
%e - expands to the user's EDI-PI
%I - expands to the user's PIC-Identification
%u - expands to LDAP Attribute value

SMB Folder LDAP Attribute

If a Folder Name is configured using %u, the LDAP Attribute defined here will be used
to retrieve the path value for the %u field. Care should be taken when using
"\" characters before or after the %u - based on whether the LDAP Attribute
value includes "\" character(s) at the beginning or end.

Additional Realms

This button provides a separate page to define additional realms.



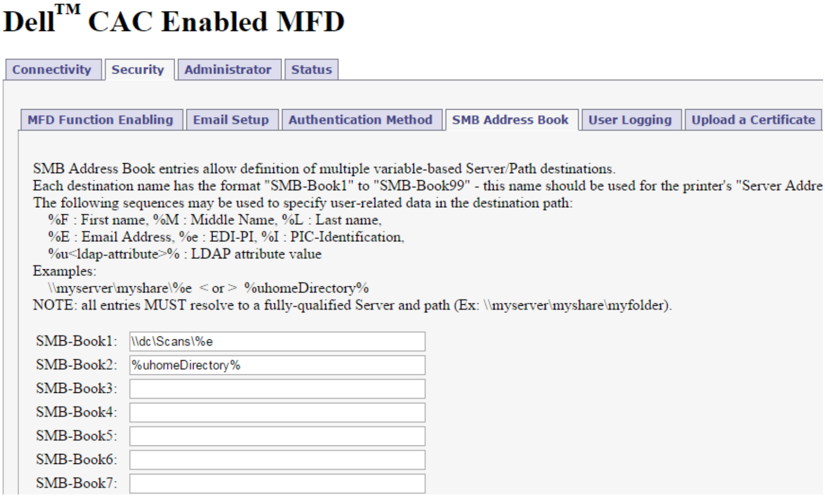
This page can be used to configure additional Kerberos Realms and their associated Domain Controllers. For each additional Realm - configure the Realm, the KDC Server (using server name or IP Address), and optionally specify Realm Domains.
The Realm Domains setting is used to map domains to the realm - enter one or more hostnames or domain names (prefixed by a period) seperated by commas.

Realm	Realm Domains	KDC Server

SSL CA Certificate Checking

If enabled, the host SSL certificate will be verified against the CA certificate. Therefore, the applicable CA certificate must be loaded into the CACStar.

SMB Address Book



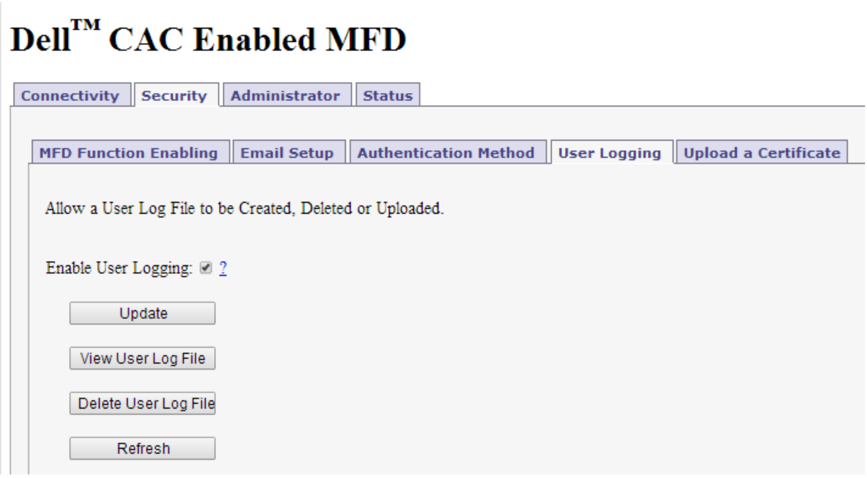
Dell™ CAC Enabled MFD

SMB Address Book entries allow definition of multiple variable-based Server/Path destinations.
Each destination name has the format "SMB-Book1" to "SMB-Book99" - this name should be used for the printer's "Server Addre
The following sequences may be used to specify user-related data in the destination path:
%F : First name, %M : Middle Name, %L : Last name,
%E : Email Address, %e : EDI-PI, %I : PIC-Identification,
%u<ldap-attribute>% : LDAP attribute value
Examples:
\\myserver\myshare\%e < or > %uhomeDirectory%
NOTE: all entries MUST resolve to a fully-qualified Server and path (Ex: \\myserver\myshare\myfolder).

SMB-Book1:	\\dc\Scans\%e
SMB-Book2:	%uhomeDirectory%
SMB-Book3:	
SMB-Book4:	
SMB-Book5:	
SMB-Book6:	
SMB-Book7:	

SMB Address Book entries allow definition of multiple variable-based Server/Path destinations.
Each destination name has the format "SMB-Book1" to "SMB-Book99" - this name should be used for the printer's "Server Address" configuration.
The following sequences may be used to specify user-related data in the destination path:
%F : First name, %M : Middle Name, %L : Last name,
%E : Email Address, %e : EDI-PI, %I : PIC-Identification,
%u<ldap-attribute>% : LDAP attribute value
Examples:
\\myserver\myshare\%e < or > %uhomeDirectory%
NOTE: all entries MUST resolve to a fully-qualified Server and path (Ex: \\myserver\myshare\myfolder).

User Logging

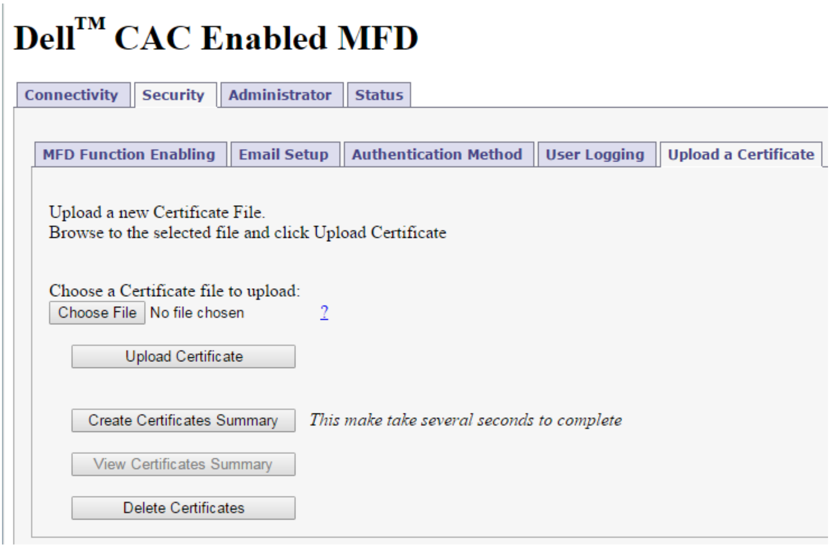


Allow a User Log File to be Created, Deleted or Uploaded.

Enable User Logging: ☑ ?

User Logging provides a means to create, view or delete a user log file to track user activity. If this is enabled, it will log the date, user name, and other information. The log can be downloaded in a csv file format for viewing.

Upload Certificate



Upload a new Certificate File.
Browse to the selected file and click Upload Certificate

Choose a Certificate file to upload:
Choose File No file chosen ?

This make take several seconds to complete

Use this page to load Issuer and Root Certificate Authority Certificates into CAC*Star*.

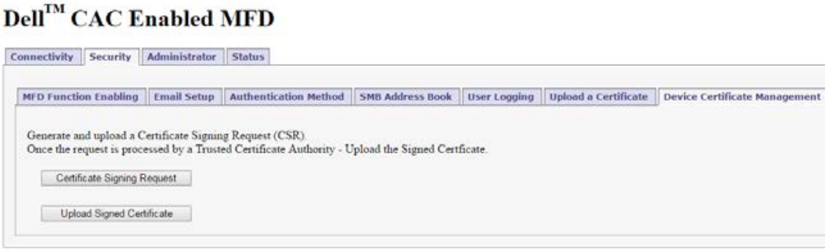
PKCS7, X509, PEM and DER formats are supported.

Use the **Browse** button to select the Certificate file on your PC; then click the **Upload Certificate** button.

If your certificates are in a .txt file format, please send them to us, and we will convert them to a supported format. If desired, we can preload them into new units.

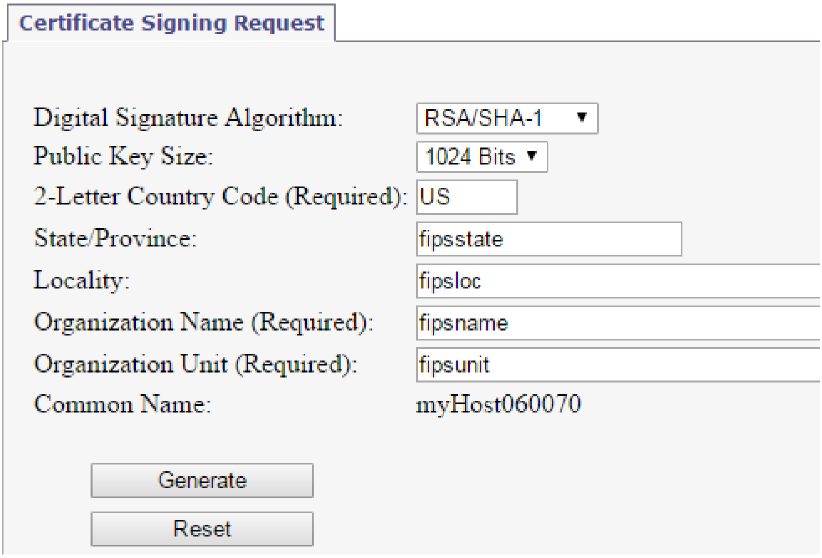
The **Create Certificates Summary** will create a text file listing all certificates stored in the CAC*Star*. This is a text file that can be viewed or downloaded by selecting the **View Certificates Summary** button.

Device Certificate Management



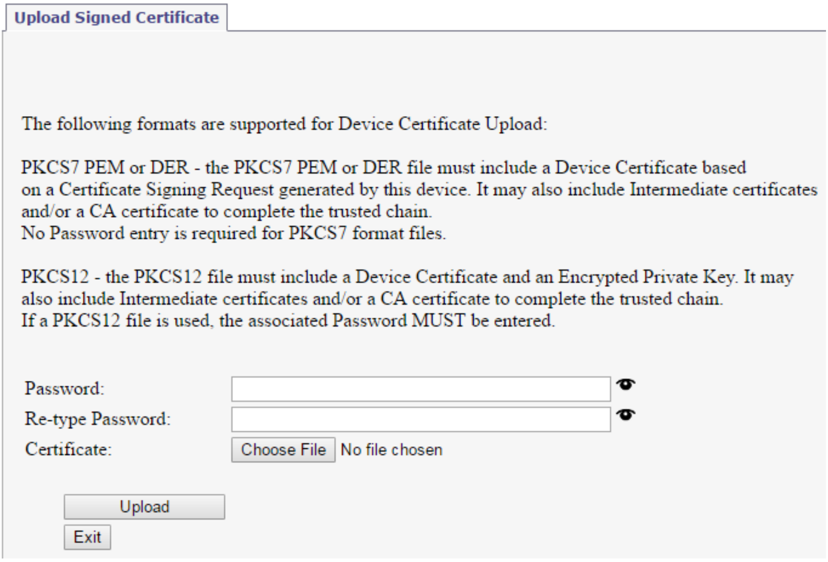
Generate and upload a Certificate Signing Request (CSR).
Once the request is processed by a Trusted Certificate Authority - Upload the Signed Certficate.

Using this function you can generate and upload a Certificate Signing Request. Once the request is processed by a Trusted Certificate Authority, upload the Signed Certificate.



Certificate Signing Request

Digital Signature Algorithm:	RSA/SHA-1 ▼
Public Key Size:	1024 Bits ▼
2-Letter Country Code (Required):	US
State/Province:	fipsstate
Locality:	fipsloc
Organization Name (Required):	fipsname
Organization Unit (Required):	fipsunit
Common Name:	myHost060070



Upload Signed Certificate

The following formats are supported for Device Certificate Upload:

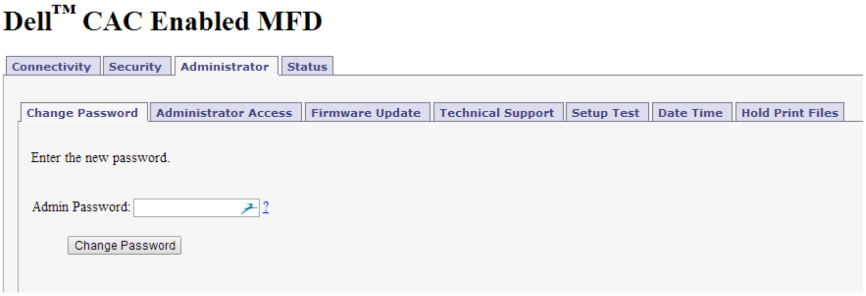
PKCS7 PEM or DER - the PKCS7 PEM or DER file must include a Device Certificate based on a Certificate Signing Request generated by this device. It may also include Intermediate certificates and/or a CA certificate to complete the trusted chain.
No Password entry is required for PKCS7 format files.

PKCS12 - the PKCS12 file must include a Device Certificate and an Encrypted Private Key. It may also include Intermediate certificates and/or a CA certificate to complete the trusted chain.
If a PKCS12 file is used, the associated Password MUST be entered.

Password:	
Re-type Password:	
Certificate:	Choose File No file chosen

Administrator

Change Password

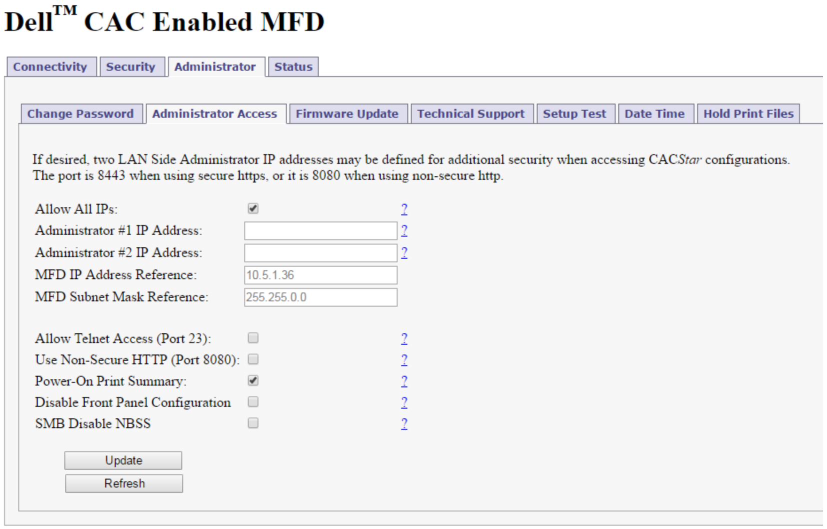


Enter the new password.

Admin Password:

Use this feature to change the password for the administrator. When the Change Password button is clicked, the next internal web page access will require this new password.

Administrator Access



If desired, two LAN Side Administrator IP addresses may be defined for additional security when accessing CAC*Star* configurations.
The port is 8443 when using secure https, or it is 8080 when using non-secure http.

Allow All IPs:	☑
Administrator #1 IP Address:	
Administrator #2 IP Address:	
MFD IP Address Reference:	10.5.1.36
MFD Subnet Mask Reference:	255.255.0.0
Allow Telnet Access (Port 23):	☐
Use Non-Secure HTTP (Port 8080):	☐
Power-On Print Summary:	☑
Disable Front Panel Configuration	☐
SMB Disable NBSS	☐

These settings allow the admin to provide additional security by limiting CAC*Star* admin access to specified IP addresses. If the **Allow**

all IPs box is checked, an admin can access the CAC*Star* configuration items from a PC at any IP address if he knows the ID and password. If it is not checked, the admin must access the CAC*Star* configuration pages from the IP addresses specified for Administrator #1 or #2. These addresses must be on the same subnet as the CAC*Star*.

Allow Telnet

If this is enabled CACStar will allow a Telnet session to occur. The Telnet session will happen over Port 23. Telnet use with CACStar is intended for diagnostics by the developers.

Allow Non-Secure Port 8080

If this is enabled, CACStar will use Port 8080 and HTTP for HTML. Otherwise, Port 8443 and HTTPS will be used for HTML. Changing this setting requires a reboot of CACStar.

Power-on Print Summary

When enabled, CACStar will automatically print a summary page after power-on initialization is complete. This is the default setting.

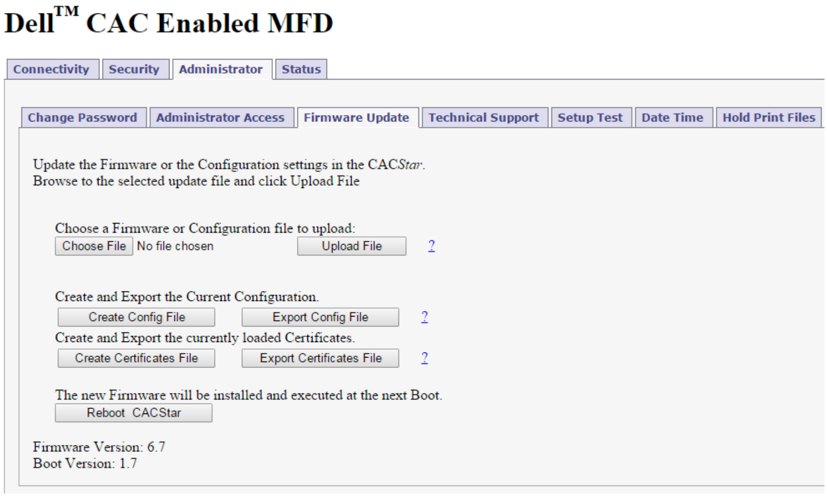
Disable Front Panel Configuration

If this is checked, CACStar will disable the Front Panel keyboard from changing the IP address, subnet mask, and gateway. Viewing of these settings on the front panel LCD will still be allowed.

Disable Front Panel Configuration

If this is checked, CACStar will suppress NBSS traffic from the printer. This setting is only required when SMB/Kerberos Proxy is enabled and the local network does not allow NBSS traffic.

Firmware Update



Update the Firmware or the Configuration settings in the CAC*Star*.
Browse to the selected update file and click Upload File

Choose a Firmware or Configuration file to upload:
No file chosen

Create and Export the Current Configuration.

Create and Export the currently loaded Certificates.

The new Firmware will be installed and executed at the next Boot.

Firmware Version: 6.7
Boot Version: 1.7

Firmware is stored in flash memory and can be updated as necessary for addition of new features. The CACStar.cfg file may also be uploaded. It is a text file that contains the CACStar configuration items.

For more details about how to update the firmware, please see the separate document “Firmware Update Procedure”.

Create and Export Current Configuration

Create Config File will create a configuration file containing all current settings except LAN IP Address, LAN Mask, and LAN Gateway. Thus, the Config file can be used to configure other CAC*Stars*. The passwords are encrypted so they may not be edited. The first line of the file must not be edited. The MAC address and Serial Number are displayed for information purposes only and will not be used as a configuration item.

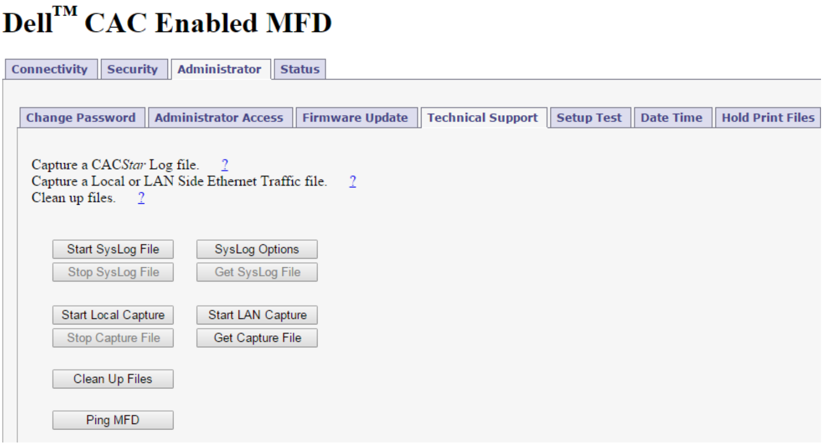
Export Config File will allow this file to be saved outside CAC*Star*. This file should be saved as a text file. It may be edited with a text editor. It may also be uploaded to CAC*Star* at a later date.

Create and Export Current Certificates

Create Certificates File will create a file called CACStarCerts.tar.gz which will contain all currently loaded certificates. Export Certificates File will allow this file to be saved outside CAC*Star*. This file may be loaded to any CAC*Star*.

Technical Support

For help obtaining the correct firmware or documentation, contact Dell's ProSupport Help Desk by calling 1-866-516-3115, or by sending email to Imaging_Solutions_Support_CAC@dell.com



Dell™ CAC Enabled MFD

Capture a CAC*Star* Log file. ?
Capture a Local or LAN Side Ethernet Traffic file. ?
Clean up files. ?

This page is used to obtain Log Files and Capture Files to help diagnose network and configuration concerns. Use of these features is normally in conjunction with technical support from your vendor.

Create SysLog File

A log file can be created for use by CAC*Star* Engineering to help resolve problems that may occur.

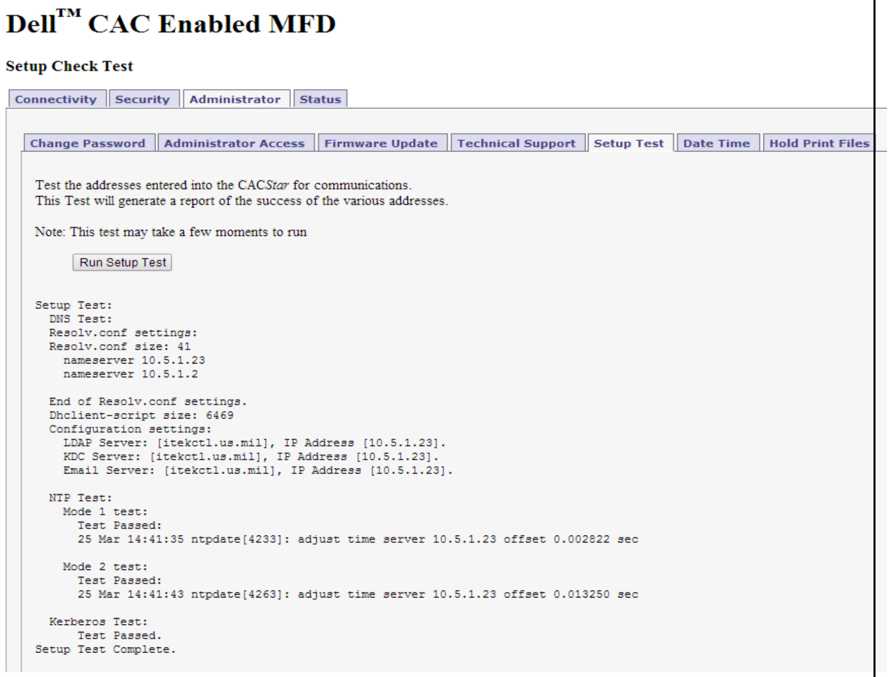
Ethernet Capture

An Ethernet Capture file can be created containing information from either the Local port or the LAN port for use by CAC*Star* Engineering in customer support activities.

Ping MFD

CACStar pings the MFD over its internal local link to verify communication between CACStar and the MFD.

Setup Test



Dell^{TM} CAC Enabled MFD

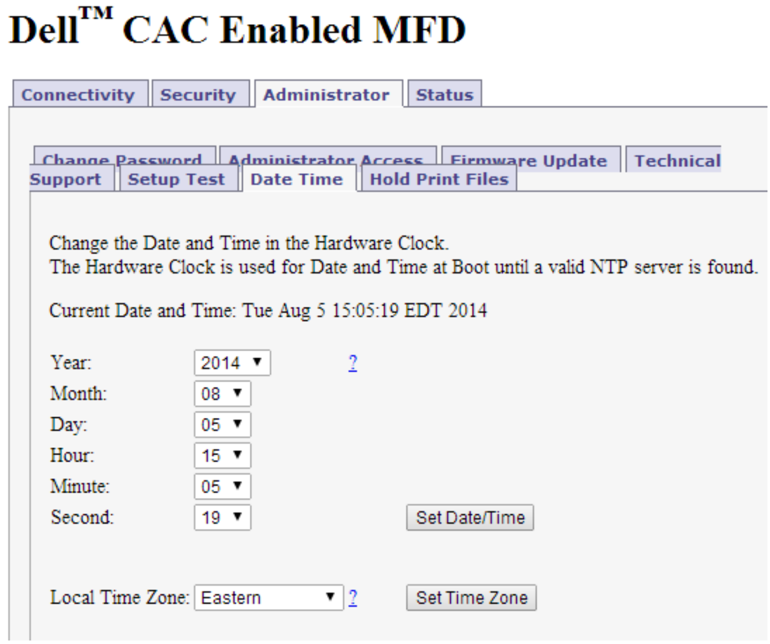
Setup Check Test

Test the addresses entered into the CAC*Star* for communications.
This Test will generate a report of the success of the various addresses.

Note: This test may take a few moments to run

```
Setup Test:
  DNS Test:
  Resolv.conf settings:
  Resolv.conf size: 41
    nameserver 10.5.1.23
    nameserver 10.5.1.2

  End of Resolv.conf settings.
  Dhclient-script size: 6469
  Configuration settings:
    LDAP Server: [itekctl.us.mil], IP Address [10.5.1.23].
    KDC Server: [itekctl.us.mil], IP Address [10.5.1.23].
    Email Server: [itekctl.us.mil], IP Address [10.5.1.23].

  NTP Test:
    Mode 1 test:
      Test Passed:
      25 Mar 14:41:35 ntpdate[4233]: adjust time server 10.5.1.23 offset 0.002822 sec

    Mode 2 test:
      Test Passed:
      25 Mar 14:41:43 ntpdate[4263]: adjust time server 10.5.1.23 offset 0.013250 sec

  Kerberos Test:
      Test Passed.
Setup Test Complete.
```

Date Time



Dell™ CAC Enabled MFD

Change the Date and Time in the Hardware Clock.
The Hardware Clock is used for Date and Time at Boot until a valid NTP server is found.

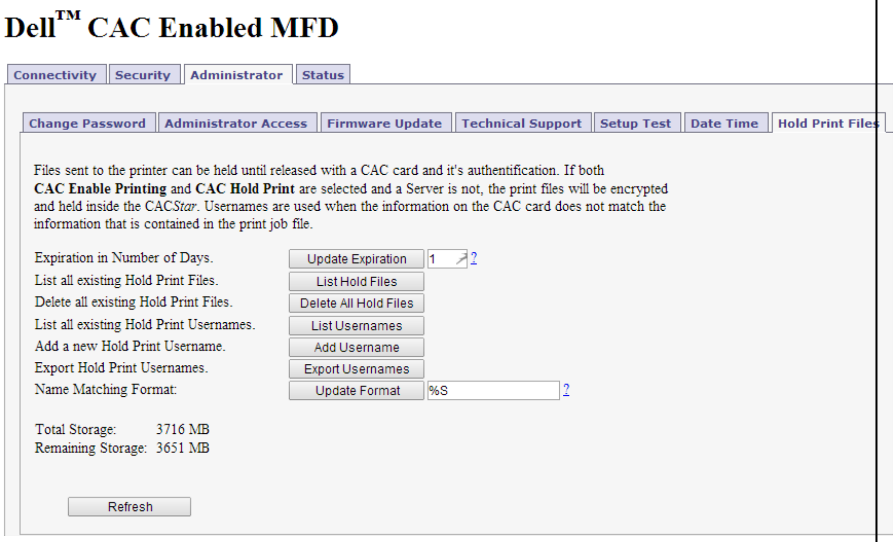
Current Date and Time: Tue Aug 5 15:05:19 EDT 2014

Year: 2014
Month: 08
Day: 05
Hour: 15
Minute: 05
Second: 19

Local Time Zone: Eastern

This is used to set the system date and time in CACStar if necessary. The time zone should be set to your local time zone.

Hold Print Files



Files sent to the printer can be held until released with a CAC card and it's authentification. If both **CAC Enable Printing** and **CAC Hold Print** are selected and a Server is not, the print files will be encrypted and held inside the CAC*Star*. Usernames are used when the information on the CAC card does not match the information that is contained in the print job file.

Expiration in Number of Days. Update Expiration 1 ?

List all existing Hold Print Files. List Hold Files

Delete all existing Hold Print Files. Delete All Hold Files

List all existing Hold Print Usernames. List Usernames

Add a new Hold Print Username. Add Username

Export Hold Print Usernames. Export Usernames

Name Matching Format: Update Format %S ?

Total Storage: 3716 MB
Remaining Storage: 3651 MB

Hold Print Files

Hold Print files will be stored encrypted in CAC*Star* and can be printed with CAC authentication at the printer.

Hold Print files expire after the set number of days. When the expiration date is reached, the file will be deleted without being printed.

Remaining storage and total storage are displayed so the user will know if held print files are reaching the maximum storage capacity. When storage is nearly full, a warning message will be displayed on the CAC reader LCD - MEMORY NEAR FULL.

Hold Print Expiration

This sets the default expiration in number of days for all received Hold Print files. When the expiration date is reached for a Hold Print file, it will be deleted without printing.

Hold File Name Matching Format

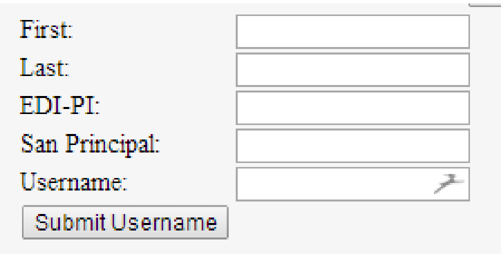
This field defines the format that will be used to associate the username in the Hold Print files with Card-Validated users. Any data can go into this field and keywords will be expanded.

These keywords are:
%F - the user's first name
%f - the first character of the user's first name
%M - the user's middle name
%m - the first character of the user's middle name
%L - the user's last name
%l - the first character of the user's last name
%e - the user's EDI-PI
%I - the user's PIC-Identification
%S - the user's SAM Account Name (from LDAP)

A number may be used between the '%' and the keyword to specify a maximum number of characters.
For example: '%5L' would indicate a maximum of 5 characters of the user's last name.

Add Hold Print Usernames

If jobs must have user names from the host system that cannot be identified using the Name Matching information from the CAC card, a host Username can be entered into CACStar using the “Add a new Hold Print Username” command. The Username can be associated with identifying data from the CAC card as follows:



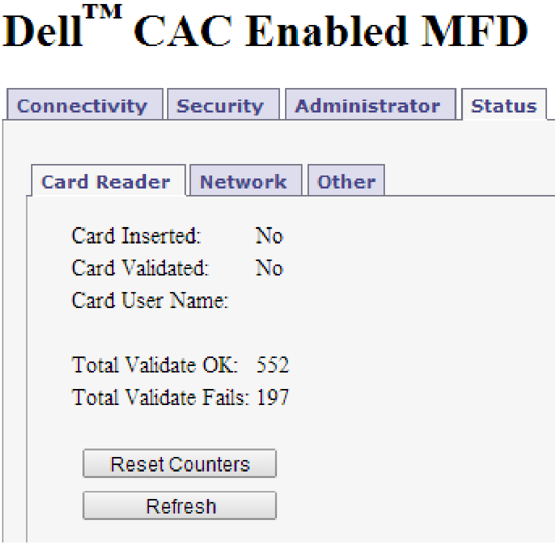
Export Hold Print Usernames

If you want to copy the usernames from one CAC*Star* to another, you can Export the usernames.   You will get a ***.db file which you can then send to another CAC*Star* to load them into the other CAC*Star*.

Status

The Status pages offer three views of information about the current operations of CAC*Star*.   Number of successful card validations, number of unsuccessful card validations, network operations, date/time, and firmware version are all displayed.

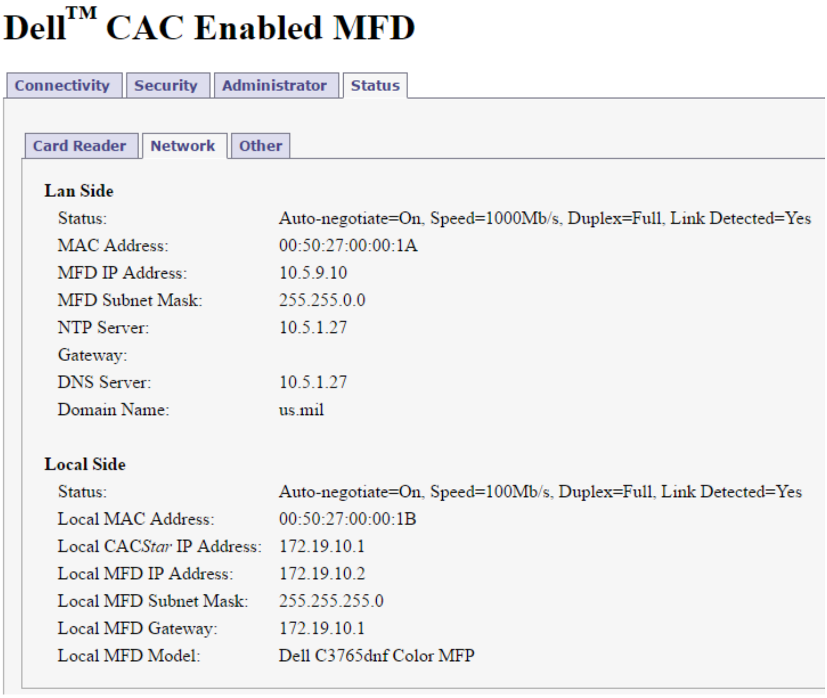
Card Reader



Card Inserted: No
Card Validated: No
Card User Name:

Total Validate OK: 552
Total Validate Fails: 197

Network



Dell™ CAC Enabled MFD

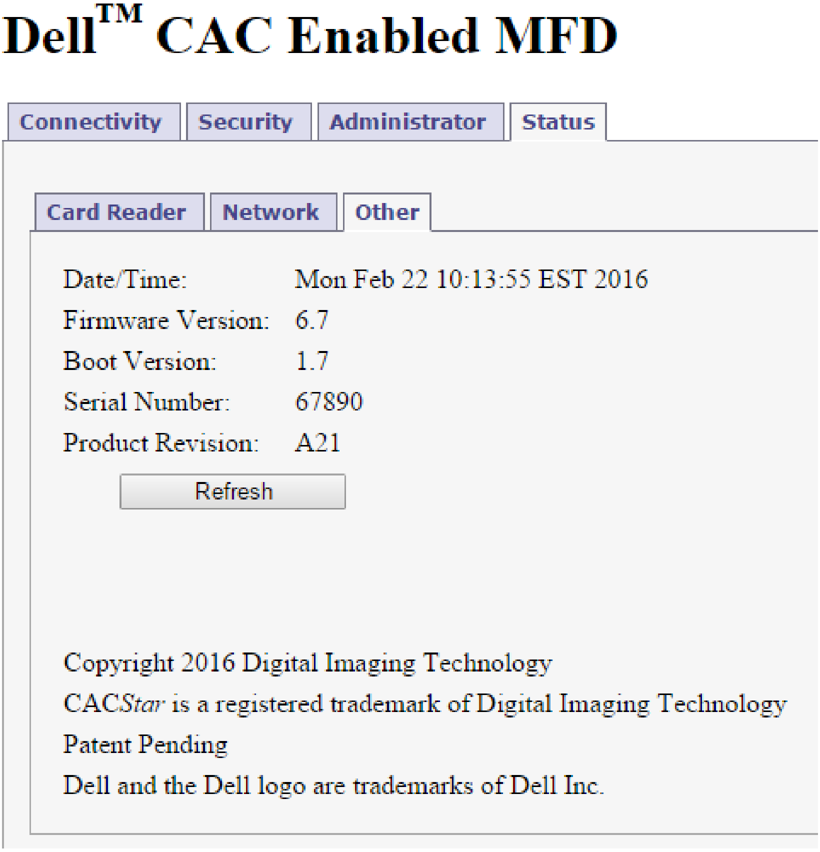
Lan Side

Status:	Auto-negotiate=On, Speed=1000Mb/s, Duplex=Full, Link Detected=Yes
MAC Address:	00:50:27:00:00:1A
MFD IP Address:	10.5.9.10
MFD Subnet Mask:	255.255.0.0
NTP Server:	10.5.1.27
Gateway:	
DNS Server:	10.5.1.27
Domain Name:	us.mil

Local Side

Status:	Auto-negotiate=On, Speed=100Mb/s, Duplex=Full, Link Detected=Yes
Local MAC Address:	00:50:27:00:00:1B
Local CAC*Star* IP Address:	172.19.10.1
Local MFD IP Address:	172.19.10.2
Local MFD Subnet Mask:	255.255.255.0
Local MFD Gateway:	172.19.10.1
Local MFD Model:	Dell C3765dnf Color MFP

Other



Date/Time: Mon Feb 22 10:13:55 EST 2016

Firmware Version: 6.7

Boot Version: 1.7

Serial Number: 67890

Product Revision: A21

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Patent Pending

Dell and the Dell logo are trademarks of Dell Inc.

Appendix A – Setup Information Checklist

This checklist can be used prior to installation to collect the information necessary for installation of the CAC option.

- Should the MFD use DHCP to acquite an IP address?
  If No, specify the following for the MFD:
  IP address
  Subnet mask
  Gateway
- What is the IP address for an available NTP (Network Time Protocol) server?
- What are the IP addresses for the primary and secondary DNS servers?

Functions

- Do you wish to use CAC/PIV control for the Scan-to-Email function?
  - Is Kerberos authentication required for accessing the Email server and sending Email?
- Do you wish to use CAC/PIV control for printing?
  - If Yes, multiple secure printing modes are available.
- Do you wish to use CAC/PIV control for other network protocols such as SMB, SNMP, or LDAP?

Email

If you are using CAC/PIV controlled Scan-to-Email or Kerberos authentication, please complete this section. Otherwise go to the next section for LDAP.

- What is the serrver name or IP address for the SMTP server?
- Do you wish to retrieve the “From” address for all emails from the CAC/PIV card, or from and LDAP lookup of the CAC/PIV user?

- Do you wish to force all emails to go to the CAC/PIV card's email address?
    - If No, selection can be made from the front panel by typing in the address, or using the Network Address Book (LDAP) feature.
- Should emails be encrypted? (Yes, No, or Prompt)
    - If Yes, what encryption should be used? (3DES or AES256)

LDAP

- Do you wish to use the Network Address Book (LDAP) feature to look up email addresses?
    - If Yes, please complete this section. Otherwise go to the Kerberos section.
- What is the server name or IP address for the LDAP server?
- Is Kerberos required for accessing the LDAP server?
    - This is usually Yes.
- What is the proper search base?
    - ex: "dc=somename, dc=gov"

Kerberos

- What is the server name or IP address for the Kerberos server? There could be more than one.
- What is the Realm name? ex: "somename.gov"
- Is SSL required for Kerberos sessions?

Appendix B – CACStar Option Installation Procedure

If the CACStar option is not already installed on your printer, the following procedure will ensure proper installation of your CACStar option.

Step 1: Determine IP Address of the printer.

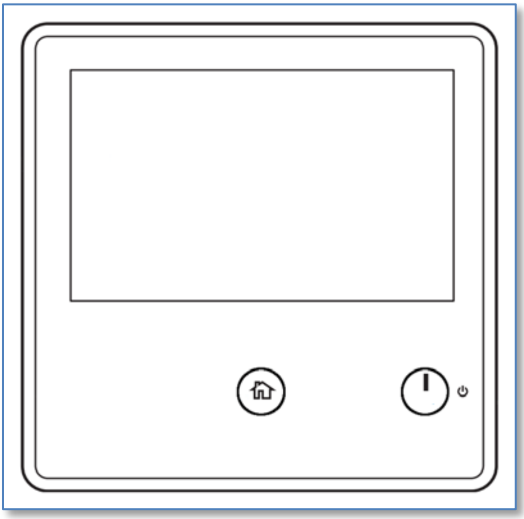
First, ask your Network Administrator if your network uses a DHCP server to assign the IP address for your device.

- **If DHCP is used**, then physically mount the CACStar option and connect it to the printer, as described in the Hardware Installation instructions below. Then connect the device to the network, place paper in the paper tray, and turn on the printer. After initialization is complete, a network summary page will be printed, showing you the assigned IP address.
- **If a static IP address is used**, then *do not* mount the CACStar option yet; in this case the initial setup procedure is done with the printer directly connected to the network without the CACStar option. Set the printer's IP address to the static IP address that your Network Administrator has assigned to your device (refer to the S3845cdn User's Guide.)

Make a note of the IP address used by your device, you will use this information in a later step.

Step 2: Disable Sleep Mode

It is necessary to disable printer sleep mode for operation with CAC control. To do this, follow the following procedure (refer to the diagram of the operator panel below):



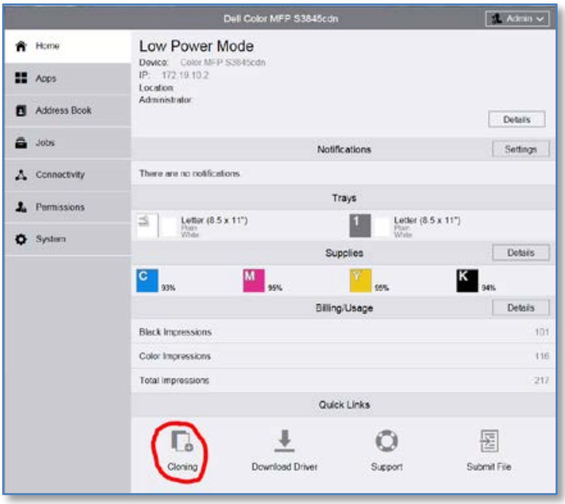
1. Turn the printer on. If the printer is already turned on but is in Power Save mode (the touchscreen will be dark), wake up the printer by pressing the power button ⏻ in the lower-right corner of the operator panel.
2. Hold down the Home button ⌂ for 5 seconds, then release it. You will be prompted for a passcode.
3. Enter “2456” and then tap the OK button. You will then see the Home screen with the word “Service” shown in the top left corner of the touchscreen.
4. Tap the “Diagnostics” tile.
5. Tap “DC131 NVM Read/Write”.
6. Enter “700131” on the touchscreen (the “Chain-Link” section of the touchscreen will show “700-131”). Then tap the “Change” button.

7. Enter a value of zero (0), and tap the “OK” button in the top right corner of the touchscreen.
8. Tap the “X” button in the top left corner of the touchscreen.
9. Tap the “Exit” button in the top left corner of the touchscreen.
10. Tap the “Keep Error Log History” button on the touchscreen.
11. Tap the “Restart Now” button on the touchscreen.

Install the Installation Cloning File

To install the cloning file, use the management web site for the printer:

1. Open a web browser to the URL for the printer’s web site (http://<ip-address>/)
2. Log in as the “admin” user (default password is “admin”)
3. Select the “Cloning” icon at the bottom of the page



Dell Color MFP S3845cdn

Low Power Mode

Device: Color MFP S3845cdn
IP: 172.19.10.2
Location
Administrator

Notifications

There are no notifications

Trays

Letter (8.5 x 11") Plain White

1 Letter (8.5 x 11") Plain White

Supplies

C 93%
M 95%
Y 55%
K 94%

Billing/Usage

Black Impressions	101
Color Impressions	116
Total impressions	217

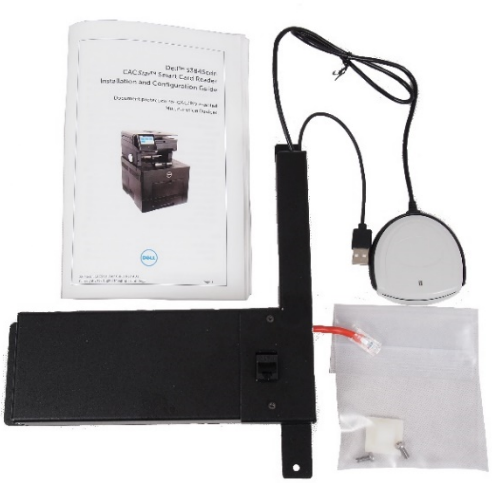
4. Click the [Select] button and select the cloning file for CACStar installation (CACStar_S3845cdn_Install.zip)

5. Click the [Install] button.

   Note: If the “FIPS 140-2” setting is turned on, this step will fail with an error message indicating that the clone file installation cannot be done with FIPS 140-2 enabled. In this case, turn off the FIPS 140-2 setting (in the [System]->[Security] section of the printer management web site) before installing the clone file.
6. After the cloning file is installed, the printer will restart automatically.
7. After the printer reboots, bring up the printer web site again, and make sure that DHCP is enabled, and the “Release IP on reboot” setting is also enabled.
8. If the CACStar hardware has not been installed yet, then turn the printer off, and install the CACStar hardware as described below.

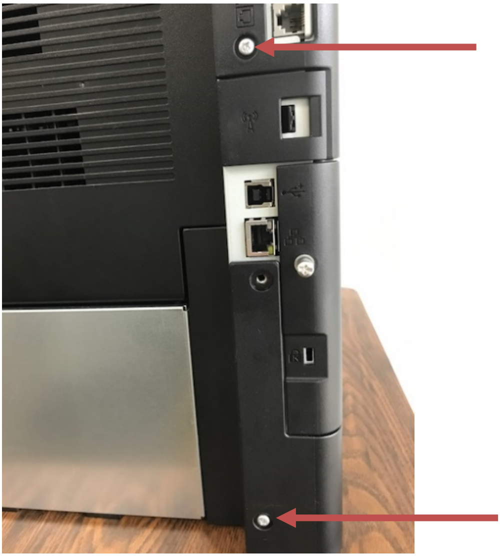
Hardware Installation of CACStar

The kit arrives assembled as shown in the photo below. The contents of the box includes the CAC*Star* option, User's Guide, and a bag containing 2 M4 x 10mm screws required for securing the CAC*Star* option to the back of the printer as shown below. You will need a Phillips #1 screwdriver.

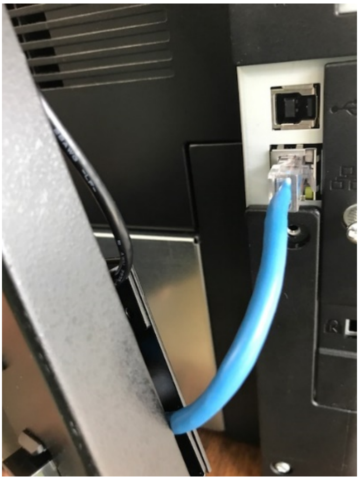


Turn off power to the MFD.

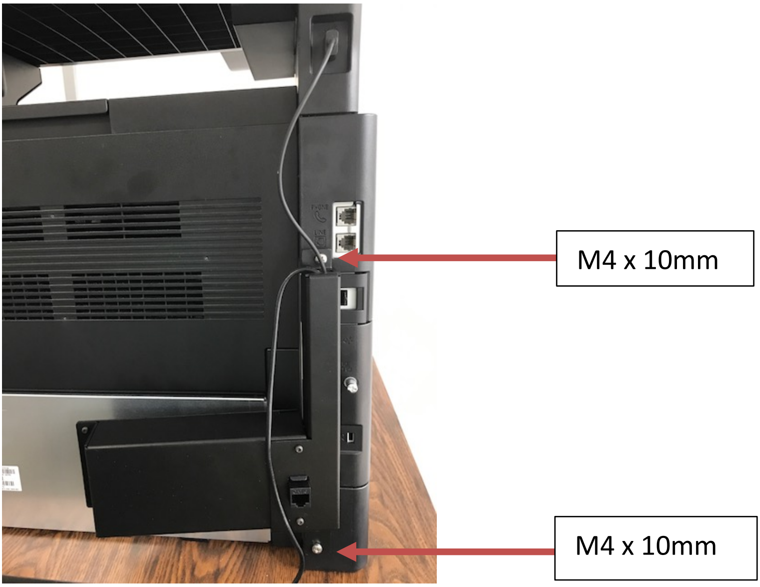
At the rear of the S3845, remove and discard the two mounting screws indicated by arrows in the following picture:



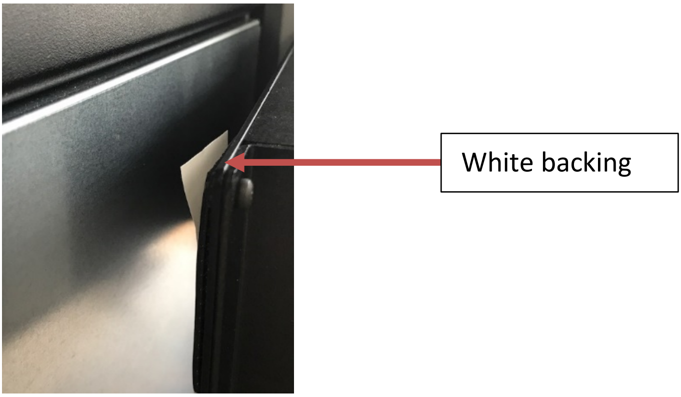
Connect the CAC*Star* Ethernet cable to the C3845 Ethernet port as shown below:



Use the M4 x 10mm screws to attach the back assembly to the back of the MFD. These two screws use the two holes from which screws were removed earlier. Leave these screws loose until after the next step.



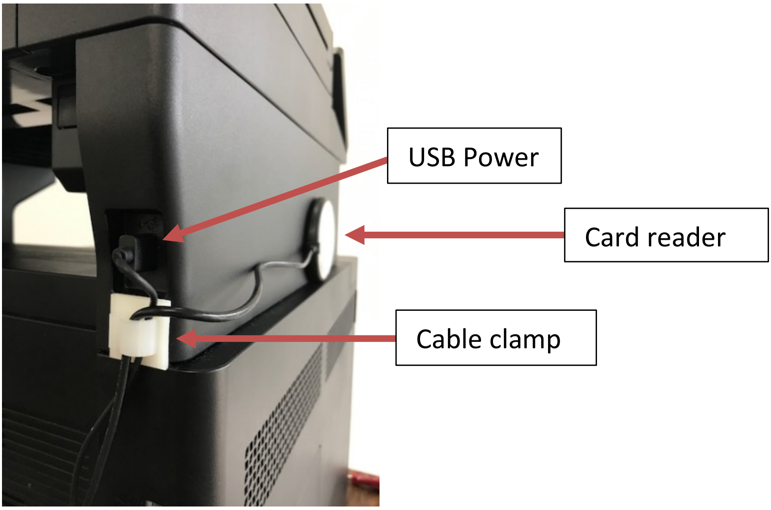
Remove the white backing from the Dual Lock tape on the back of the CACStar enclosure. Then press the CACStar enclosure against the stainless steel back of the printer.



Tighten the two M4 x 10mm screws.

Plug the CACStar USB power cord into the MFD USB port just above CACStar. This USB cable is for power only. It has no data connection.

Install the white cable clamp as shown. Peel the adhesive protection tape from the back of the card reader. Install the card reader on the side of the MFD as shown.



Turn on the S3845.