

# vFoglight<sup>™</sup> Pro 5.2.4

### Installation and Setup Guide

Installing on Windows with an External Oracle Database





#### © 2008 Quest Software, Inc. ALL RIGHTS RESERVED.

This guide contains proprietary information protected by copyright. The software described in this guide is furnished under a software license or nondisclosure agreement. This software may be used or copied only in accordance with the terms of the applicable agreement. No part of this guide may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording for any purpose other than the purchaser's personal use without the written permission of Quest Software, Inc.

If you have any questions regarding your potential use of this material, contact: Quest Software World Headquarters LEGAL Dept 5 Polaris Way Aliso Viejo, CA 92656 www.quest.com email: legal@quest.com

Refer to our Web site for regional and international office information.

#### Trademarks

Quest, Quest Software, the Quest Software logo, Aelita, Akonix, Akonix L7 Enterprise, Akonix L7 Enforcer, AppAssure, Benchmark Factory, Big Brother, DataFactory, DeployDirector, ERDisk, Foglight, Funnel Web, I/Watch, Imceda, InLook, IntelliProfile, InTrust, Invertus, IT Dad, I/Watch, JClass, Jint, JProbe, LeccoTech, LiteSpeed, LiveReorg, MessageStats, NBSpool, NetBase, Npulse, NetPro, PassGo, PerformaSure, Quest Central, SharePlex, Sitraka, SmartAlarm, Spotlight, SQL LiteSpeed, SQL Navigator, SQL Watch, SQLab, Stat, StealthCollect, Tag and Follow, Toad, T.O.A.D., Toad World, vANALYZER, vAUTOMATOR, vCONTROL, vCONVERTER, vEssentials, vFOGLIGHT, vOPTIMIZER, vRanger Pro, vReplicator, Vintela, Virtual DBA, VizionCore, Xaffire, and XRT are trademarks and registered trademarks of Quest Software, Inc in the United States of America and other countries. Other trademarks and registered trademarks used in this guide are property of their respective owners.

#### Disclaimer

The information in this document is provided in connection with Quest products. No license, express or implied, by estoppel or otherwise, to any intellectual property right is granted by this document or in connection with the sale of Quest products. EXCEPT AS SET FORTH IN QUEST'S TERMS AND CONDITIONS AS SPECIFIED IN THE LICENSE AGREEMENT FOR THIS PRODUCT, QUEST ASSUMES NO LIABILITY WHATSOEVER AND DISCLAIMS ANY EXPRESS, IMPLIED OR STATUTORY WARRANTY RELATING TO ITS PRODUCTS INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT. IN NO EVENT SHALL QUEST BE LIABLE FOR ANY DIRECT, INDIRECT, CONSEQUENTIAL, PUNITIVE, SPECIAL OR INCIDENTAL DAMAGES (INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF PROFITS, BUSINESS INTERRUPTION OR LOSS OF INFORMATION) ARISING OUT OF THE USE OR INABILITY TO USE THIS DOCUMENT, EVEN IF QUEST HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. Quest makes no representations or warranties with respect to the accuracy or completeness of the contents of this document and reserves the right to make changes to specifications and product descriptions at any time without notice. Quest does not make any commitment to update the information contained in this document.

#### License Credits and Third Party Information

To view license credit information, click the License Credits link on the Welcome to vFoglight online help page.

#### Installation and Setup Guide March 2009 Version 5.2.4 - Professional Edition

## **Table of Contents**

9 
10 10 11
10 11
11
11
12
25
27
29
31
31
31
33
55
55

#### Foglight Installation and Setup Guide

Manual Database Configuration	
Installation Modes	
Upgrading the vFoglight Management Server	60
Installed Directories	60
vFoglight Settings	
Editing the foglight.config File	
Setting Memory Parameters for the Server	
Adding Command Line Options	
Changing External Database Credentials	64
Setting Up vFoglight Server Federation	
Configuring vFoglight to Access the Server Only Through the HTTPS Port	
Setting Up an Encrypted Database Connection	67
Setting Up an Encrypted LDAP Connection with SSL	
Uninstalling vFoglight	69
Running the vFoglight Management Server	71
Before You Begin	
Starting and Stopping the vFoglight Management Server	72
Starting the vFoglight Management Server as a Windows Service	
Stopping the Server	
Starting and Stopping the Server in High Availability Mode	74
Remote Monitor	
Enabling Email Notification	
Logging in to vFoglight	
Next Steps	
Running the vFoglight Management Server FAQ	77
Installing and Upgrading Cartridges	
Accessing the Cartridge Inventory Page	
Installing Cartridges	
Upgrading Cartridges	
Next Steps	
Installing and Running the vFoglight Agent Manager (FgIAM)	
Installing the vFoglight Agent Manager	
Deploying the vFoglight Agent Manager Cartridge	

### Table of Contents

Downloading the vFoglight Agent Manager Installer	85
Installing the vFoglight Agent Manager	86
Upgrading the vFoglight Agent Manager	96
Configuring the vFoglight Agent Manager	96
Configuring the vFoglight Agent Manager	96
Installing the vFoglight Agent Manager as a Windows Service	
Running the vFoglight Agent Manager	
Next Steps	
Uninstalling the vFoglight Agent Manager	
vFoglight Agent Manager Platform Support Matrix	
Installing Agents	101
vFoglight Agents	102
Agent Installers	102
Remote Agent Installation	103
Index	105

Foglight Installation and Setup Guide

## Introduction to this Guide

This chapter provides information about what is contained in the *vFoglight Installation and Setup Guide*. It also provides information about the vFoglight documentation suite and Vizioncore.

This chapter contains the following sections:

About vFoglight	8
About this Guide	
vFoglight Documentation Suite	
Text Conventions	
About Vizioncore Inc	

### About vFoglight

8

vFoglight helps IT organizations understand the virtual infrastructure by managing the relationships and interaction between all the components in the environment, including data centers, data stores, clusters, resource pools, hosts and virtual machines. With vFoglight, administrators can quickly determine the root-cause of an incident or problem, track virtual machine (VM) movements and understand their impact, and identify contention for resources between virtual machines.

### About this Guide

This guide walks you through a vFoglight installation. Before you begin, ensure that your system and development environments are set up correctly. For more information, refer to the *vFoglight System Requirements and Platform Support Guide*.

This guide is organized as follows:

**Chapter 1, Before Installing vFoglight** — This chapter introduces vFoglight and outlines the steps you must take in order to assure a successful installation.

**Chapter 2, Installing vFoglight** — This chapter guides you through the installation process. It also provides information on the vFoglight directory structure, and how to adjust certain vFoglight settings to best suit your environment.

**Chapter 3, Running the vFoglight Management Server** — This chapter outlines how to start and stop the vFoglight Management Server, how to initialize the database, how to migrate data from an existing database, and how to log into vFoglight.

**Chapter 4, Installing Cartridges** — This chapter describes the process for installinga nd updgrading vFoglight cartridges.

**Chapter 5, Installing the vFoglight Agent Manager** —This chapter outlines how to install, upgrade and configured the vFoglight Agent Manager.

**Chapter 6, Installing Agents** — This chapter guides you through installing Agents that may be required by installed cartridges.

### vFoglight Documentation Suite

The vFoglight documentation suite is made up of the core documentation set, plus the documentation set for each vFoglight cartridge that you deploy. Documentation is provided in a combination of online help, PDF and HTML.

• Online Help: You can open the online help by selecting the Help tab from vFoglight's action panel.

General	Design Help
🕶 Adminis	stration
More	
🕶 Help Se	arch
1	💭 Find 🗙 Clea
9	
▼ Help Co	ontents
E 🕥	Welcome to Foglight 5.2.4
~ ~	
-	User Guide
	User Guide Administration and Configuration Guide
	Administration and Configuration Guide
	Administration and Configuration Guide Command-Line Reference Guide

- PDF: The Getting Started Guide, What's New Guide, System Requirements and Platform Support Guide, Installation and Setup Guide set, Administration and Configuration Guide, vFoglight User Guide, Command-Line Reference Guide, Web Component Guide, and Web Component Tutorial, are provided as PDF files. The PDF guides are included in the zip file downloaded from Vizioncore. Adobe® Reader® is required.
- HTML: Release Notes are provided in HTML.

### **Core Documentation Set**

The core documentation set consists of the following files:

- Release Notes (HTML)
- Getting Started Guide (PDF)
- What's New Guide (PDF)
- System Requirements and Platform Support Guide (PDF)

- Installation and Setup Guide set (all in PDF format):
  - Installation and Setup Guide—Installing on Windows with an Embedded MySQL Database
  - Installation and Setup Guide—Installing on Windows with an External MySQL Database
  - Installation and Setup Guide—Installing on Windows with an External Oracle Database
- Administration and Configuration Guide (PDF and online help)
- *vFoglight User Guide* (PDF and online help)
- Advanced Configuration Guide set
  - Command-Line Reference Guide (PDF and online help)
  - Web Component Guide (PDF and online help)
  - Web Component Tutorial (PDF and online help)
  - Web Component Reference (online help)

### **Cartridge Documentation Sets**

When you deploy a cartridge, the documentation set for the cartridge is installed. The online help for the cartridge is integrated automatically with the core vFoglight help. When you open the help, the name of the cartridge is displayed in a top level entry within the table of contents.

Some cartridges include additional PDF guides, which may be one or more of the following: a *Getting Started Guide*, an *Installation Guide*, a *User Guide*, and a *Reference Guide*.

### Feedback on the Documentation

We are interested in receiving feedback from you about our documentation. For example, did you notice any errors in the documentation? Were any features undocumented? Do you have any suggestions on how we can improve the documentation? All comments are welcome. Please submit your feedback to the following email address:

#### info@vizioncore.com

Please do not submit Technical Support related issues to this email address.

### **Text Conventions**

The following table summarizes how	v text styles are used	in this guide:
------------------------------------	------------------------	----------------

Convention	Description
Code	<ul> <li>Monospace text represents code, code objects, and command-line input. This includes:</li> <li>Java language source code and examples of file contents</li> <li>Classes, objects, methods, properties, constants, and events</li> <li>HTML documents, tags, and attributes</li> </ul>
Variables	Monospace-plus-italic text represents variable code or command-line objects that are replaced by an actual value or parameter.
Interface	Bold text is used for interface options that you select (such as menu items) as well as keyboard commands.
Files, components, and documents	<ul><li>Italic text is used to highlight the following items:</li><li>Pathnames, file names, and programs</li><li>The names of other documents referenced in this guide</li></ul>

### About Vizioncore Inc.

Vizioncore was formed in July 2002 as a consulting and software-development company with the mission to create easy-to-use software solutions that performed reliable and repeatable automation of datacenter functions specifically for the Citrix platform. A main corporate goal was to enable business partners to offer solutions that targeted real-world IT issues and provided the best possible installation and automation for their clients' systems.

Vizioncore's solutions have proved successful in organizations from small to mid-sized businesses to large enterprises, in a wide variety of vertical industries, including Financial Services, Government, Healthcare, Manufacturing, and High Tech. Vizioncore, Inc. can be found in offices around the globe and at www.vizioncore.com.

### **Contacting Dell**

Note: If you do not have an active Internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell product catalog.

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical support, or customer service issues:

- 1 Visit http://support.dell.com.
- 2 Verify your country or region in the Choose A Country/Region drop-down menu at the bottom of the page.
- **3** Click Contact Us on the left side of the page.Note: Toll-free numbers are for use within the country for which they are listed.
- 4 Select the appropriate service or support link based on your need.
- 5 Choose the method of contacting Dell that is convenient for you.

Country (City)	Service Type	Area Codes,
International Access		Local Numbers, and
Code		Toll-Free Numbers
Country Code		Web and E-Mail Addresses
City Code		
Anguilla	Web Address	<u>www.Dell.com/ai</u>
5	E-Mail Address	<u>la-techsupport@dell.com</u>
	Technical Support., Customer Service, Sales	toll-free: 800-335-0031
Antigua and Barbuda	Web Address	<u>www.Dell.com.ag</u>
	E-Mail Address	<u>la-techsupport@dell.com</u>
	Technical Support., Customer Service, Sales	1-800-805-5924
Aomen	Technical Support	
	$\text{Dell}^{\text{TM}}$ Dimension <sup>TM</sup> , Dell Inspirion <sup>TM</sup> , Dell	0800-105
	Optiplex <sup>TM</sup> , Dell Lattitude <sup>TM</sup> , and Dell	0800 105
	Precision <sup>TM</sup> Servers and Storage	0800-105
Argentina (Buenos Aires)		<u>www.dell.com.ar</u>
International Access	E-Mail Address for Desktop/ Portable Computers	<u>la-techsupport@dell.com</u>
Code: 00	E-Mail Address for Servers and EMC <sup>®</sup> Storage	la_enterprise@dell.com
Country Code: 54	Products	toll-free: 0-800-444-0730
City Code: 11	Customer Service	
City Coue. 11	Technical Support	toll-free: 0-800-444-0733
	Technical Support Services	toll-free: 0-800-444-0724
	Sales	0-800-444-3355
Aruba	Web Address	www.Dell.com/aw
	E-Mail Address	la-techsupport@dell.com
	Technical Support., Customer Service, Sales	toll-free: 800-1578
Australia (Sydney)	Web Address	support.ap.dell.com
International Access	Contact Dell Web Address	support.ap.dell.com/contactus
Code: 0011	Technical Support., Customer Service, Sales	13DELL-133355
Country Code: 61		
City Code: 2		

Austria (Vienna)	Web Address	Support.euro.dell.com
International Access	E-Mail Address	<u>Tech support central europe@dell.com</u>
Code: 900	Home/Small Business Sales	0820 240 530 00
	Home/Small Business Fax	0820 240 530 49
Country Code: 43	Home/Small Business Customer Service	0820 240 530 14
City Code: 1	Home/Small Business Support	0820 240 530 17
	Preferred Accounts/Corporate Customer	0820 240 530 16
	Service Preferred Accounts/Corporate Customer	0820 240 530 17
	Switchboard	0820 240 530 17
Bahamas	Web Address	<u>www.dell.com/bs</u>
Danamas	E-Mail Address	la-techsupport@dell.com
	Technical Support., Customer Service, Sales	toll-free: 1-866-874-3038
Barbados	Web Address	www.dell.com/bb
Darbauus	E-Mail Address	la-techsupport@dell.com
	Technical Support., Customer Service, Sales	1-800-534-3142
Belgium (Brussels)	Web Address	Support.euro.dell.com
Deigium (Drusseis)	General Support	02 481 92 88
	General Support Fax	02 481 92 95
	Customer Service	02 481 92 95
	Corporate Sales	02 481 91 00
	Fax	02 481 91 99
	Switchboard	02 481 91 00
Bolivia	Web Address	www.dell.com/bo
	E-Mail Address	<u>la_techsupport@dell.com</u>
· · · · · ·	Technical Support., Customer Service, Sales	toll-free: 800-10-0238
Brazil	Web Address	www.dell.com/br
International Access	E-Mail Address	BR_TechSupport@dell.com
Code: 00	Customer Service and Tech Support	0800 970 3355
Country Code: 55	Technical Support Fax	51 2104 5470
City Code: 51	Customer Service Fax	51 2104 5480
	Sales	0800 722 3498
British Virgin Islands	Technical Support, Customer Service, Sales	toll-free: 1-866-278-6820
Brunei	Technical Support (Penang, Malaysia)	604 633 4966
Country Code: 673	Customer Service (Penang, Malaysia)	604 633 4888
-	Transaction Sales (Penang, Malaysia)	604 633 4955
Canada (North York,	Online Order Status Web Address	www.dell.ca/ostatus
Ontario)	AutoTech (automated Hardware and Warranty	
International Access	Support)	support.ca.dell.com
Code: 011	Customer Service	toll-free:1-800-247-9362
Coue. 011	Home/Home Office	toll-free:1-800-847-4096
	Small Business	toll-free:1-800-906-3355
	Medium/Large Business, Government, Education	toll-free:1-800-387-5757
	Hardware Warranty Phone Support	
		toll-free:1-800-847-4096
	Computers for Home/Home Office	toll-free:1-800-387-5757
	Computers for Small/Medium/Large Business	
	Government	1-877-335-5767
	Printers, Projectors, Televisions, Handheld,	1-077-355-5707
	Digital	tall frage 1 800 000 2255
	Jukebox, and Wireless Sales	toll-free:1-800-999-3355
	Home and Home Office Sales	toll-free:1-800-387-5752
	Small Business	toll-free:1-800-387-5755
	Medium/Large Business, Government	1 866 440 3355
	Spare Parts and Extended Service	
Cayman Islands	E-Mail Address	la-techsupport@dell.com
-	Technical Support, Customer Service, Sales	1-877-262-5415

Chile (Santiago)	Web Address	www.dell.com/cl
	E-Mail Address	la-techsupport@dell.com
Country Code: 56 City Code: 2	Sales and Customer Support	toll-free: 1230-020-4823
China (Xiamen)	Technical Support Web Address	support.dell.com.cn
	Technical Support E-Mail Address	support.dell.com.cn/email
Country Code: 86	Customer Service E-Mail Address	customer cn@dell.com
City Code: 592	Technical Support Fax	592 818 14350
	Technical Support – Dimension and Inspiron	toll-free: 800 858 2969
	Technical Support – OptiPlex, Lattitude and Dell	toll-free: 800 858 0950
	Precision	
	Technical Support – Servers and Storage	toll-free: 800 858 0960
	Technical Support – Projectors, PDAs, Switches,	toll-free: 800 858 2920
	Routers, etc	
	Technical Support – Printers	toll-free: 800 858 2311
	Customer Service	toll-free: 800 858 2060
	Customer Service Fax	592 818 1308
	Home and Small Business	toll-free: 800 858 2222
	Preferred Accounts Division	toll-free: 800 858 2557
	Large Corporate Accounts GCP	toll-free: 800 858 2055
	Large Corporate Accounts Key Accounts	toll-free: 800 858 2628
	Large Corporate Accounts North	toll-free: 800 858 2999
	Large Corporate Accounts North Government and	toll-free: 800 858 2955
	Education	
	Large Corporate Accounts East	toll-free: 800 858 2020
	Large Corporate Accounts East Government and	toll-free: 800 858 2669
	Education	
	Large Corporate Accounts Queue Team	toll-free: 800 858 2572
	Large Corporate Accounts South	toll-free: 800 858 2355
	Large Corporate Accounts West	toll-free: 800 858 2811
	Large Corporate Accounts Spare Parts	toll-free: 800 858 2621
Columbia	Web Address	www.dell.com/co
	E-Mail Address	la-techsupport@dell.com
Casta Disa	Technical Support, Customer Service, Sales Web Address	01-800-915-4755 www.dell.com/cr
Costa Rica	E-Mail Address	la-techsupport@dell.com
	Technical Support, Customer Service, Sales	0800-012-0231
Czech Republic (Prague)		support.euro.dell.com
	E-Mail Address	czech dell@dell.com
International Access	Technical Support	22537 2727
Code: 00	Customer Service	22537 2707
Country Code: 420	Fax	22537 2714
	Technical Fax	22537 2728
	Switchboard	22537 2711
Denmark (Copenhagen)	Web Address	Support.euro.dell.com
International Access	Technical Support	7023 0182
Code: 00	Customer Service – Relational	7023 0184
Country Code: 45	Home/Small Business Customer Service	3287 5505
Country Code. 45	Switchboard – Relational	3287 1200
	Switchboard Fax – Relational	3287 1201
	Switchboard – Home/Small Business	3287 5000
	Switchboard Fax – Home/Small Business	3287 5001
Dominica	Web Address	www.dell.com/dm
	E-Mail Address	<u>la-techsupport@dell.com</u>
	Technical Support, Customer Service, Sales	toll-free: 1-866-278-6821

Dominican Republic	Web Address	www.dell.com/do
Dominican Republic	E-Mail Address	la-techsupport@dell.com
	Technical Support, Customer Service, Sales	1-800-156-1588
Ecuador	Web Address	www.dell.com/ec
	E-Mail Address	<u>la-techsupport@dell.com</u>
	Technical Support, Customer Service, Sales	**
	(Calling from Quito)	toll-free: 999-119-877-655-3355
	Technical Support, Customer Service, Sales	
	(Calling from Guayaquil)	toll-free: 1800-999-119-877-655-3355
El Salvador	Web Address	<u>www.dell.com/sv</u>
	E-Mail Address	<u>la-techsupport@dell.com</u>
	Technical Support, Customer Service, Sales	800-6132
Finland (Helsinki)	Web Address	support@euro.dell.com
International Access	E-Mail Address	<u>fi_support@dell.com</u>
Code: 990	Technical Support	0207 533 555
Country Code: 358	Customer Service	0207 533 538
City Code: 9	Switchboard	0207 533 533
City Code. )	Sales under 500 employees	0207 533 540
	Fax	0207 533 530
	Sales over 500 employees	0207 533 533
	Fax	0207 533 530
France (Paris)	Web Address	Support.euro.dell.com
(Montpellier)	Home and Small Business	
International Access	Technical Support	0825 387 270
Code: 00	Customer Service	0825 832 833
Country Code: 33	Switchboard	0825 004 700
City Codes: (1) (4)	Switchboard (calls from outside of France)	04 99 75 40 00
• • • • •	Sales	0825 004 700
	Fax	0825 004 701
	Fax (calls from outside of France)	04 99 75 40 01
	Corporate	
	•	0825 004 719
	Technical Support	0825 338 339
	Customer Service	55 94 71 00
	Switchboard	01 55 94 71 00
· · · · · ·	Sales	
Germany (Frankfurt)	Web Address	support.euro.dell.com
International Access	E-mail Address	tech support central europe@dell.com
Code: 00	Technical Support	069 9792-7200
Country Code: 49	Home/Small Business Customer Service	0180-5-224400
2	Global Segment Customer Service	069 9792-7320
City Code: 69	Preferred Accounts Customer Service	069 9792-7320
	Large Accounts Customer Service	069 9792-7320
	Public Accounts Customer Service	069 9792-7320
	Switchboard	069 9792-7000
Greece	Web Address	Support.euro.dell.com
International Access	Technical Support	00800-44 14 95 18
Code: 00	Gold Service Technical Support	00800-44 14 00 83
Country Code: 49	Switchboard	2108129810
550mm y 560c. 47	Gold Service Switchboard	2108129811
	Sales	2108129800
	Fax	2108129812
Grenada	Web Address	www.dell.com/gd
	E-Mail Address	<u>la-techsuppo@dell.com</u>
	Technical Support, Customer Service, Sales	toll-free: 1-866-540-3355

Guatemala	Web Address	www.dell.com/gt
Oudternata	E-Mail Address	la-techsupport@dell.com
	Technical Support, Customer Service, Sales	1-800-999-0136
Guyana	E-Mail Address	la-techsupport@dell.com
-	Technical Support, Customer Service, Sales	
		toll-free: 1-877-270-4609
Hong Kong	Web Address	support.ap.dell.com
International Access	Technical Support E-mail Address	support.dell.com.cn/email
Code: 001	Technical Support - Dimension and Inspiron	00852-2969 3188
Country Code: 852	Technical Support - OptiPlex, Latitude, and Dell	00852-2969 3191
•	Precision	
	Technical Support - Servers and Storage	00852-2969 3196
	Technical Support - Projectors, PDAs, Switches,	00852-3416 0906
	Routers, etc.	
	Customer Service	00852-3416 0910
	Large Corporate Accounts	00852-3416 0907
	Global Customer Programs	00852-3416 0908
	Medium Business Division	00852-3416 0912
	Home and Small Business Division	00852-2969 3105
India	Dell Support Website	support.ap.dell.com
	Portable and Desktop Support	
	Desktop Support E-mail Address	india_support_desktop@dell.com
	Portable Support E-mail Address	india support notebook@dell.com
	Phone Numbers	080-25068032 or 080-25068034 or
	Thome Trainbers	your city STD code $+$ 60003355 or
		toll-free: 1-800-425-8045
	Server Support	
	E-mail Address	india_support_Server@dell.com
	Phone Numbers	080-25068032 or 080-25068034 or
		your city STD code + 60003355 or
		toll-free: 1-800-425-8045
	Gold Support Only	- 1.11
	E-mail Address	eec_ap@dell.com
	Phone Numbers	080-25068033 or your city STD code +
		60003355 or
		toll-free: 1-800-425-9045
	Customer Service	
	Home and Small Business	India care HSB@dell.com
	Home and Sman Dusiness	
		$toll_{free} \cdot 1800 A254051$
		toll-free : 1800-4254051
	Large Corporate Accounts	toll-free : 1800-4254051 India care REL@dell.com
	Large Corporate Accounts	
	Large Corporate Accounts Sales	India_care_REL@dell.com
		India_care_REL@dell.com

Ireland (Cherrywood)	Web Address	Support.euro.dell.com
International Access		
Code: 00	Technical Support	
Country Code: 353	E-mail Address	<u>dell direct support@dell.com</u>
City Code: 1	Business computers	1850 543 543
	Home computers	1850 543 543
	At Home Support	1850 200 889
	Sales	
	Home	1850 333 200
	Small Business	1850 664 656
	Medium Business	1850 200 646
	Large Business	1850 200 646
	E-mail Address	Dell IRL Outlet@dell.com
	Customer Service	
	Home and Small Business	204 4014
	Business (greater than 200 employees)	1850 200 982
	General	
	Fax/Sales fax	204 0103
	Switchboard	204 4444
	U.K. Customer Service (dealing with U.K.only)	0870 906 0010
	Corporate Customer Service (dial within U.K.	0870 907 4499
	only)	
	U.K. Sales (dial within U.K. only)	0870 907 4000
Italy (Milan)	Web Address	Support.euro.dell.com
International Access	Home and Small Business	
Code: 00	Technical Support	02 577 826 90
Country Code: 39	Customer Service	02 696 821 14
City Code: 02	Fax	02 696 821 13
City Code: 02	Switchboard	02 696 821 12
	Corporate	
	Technical Support	02 577 826 90
	Customer Service	02 577 825 55
	Fax	02 575 035 30
	Switchboard	02 577 821
Jamaica	E-mail Address	la-techsupport@dell.com
	Technical Support, Customer Service, Sales	1-800-440-920
	(dial from within Jamaica only)	

International Access Code: 001Technical Support - Dimension and Inspirontoll-free: 0120-198-36Contry Code: 81 City Code: 44Technical Support - Dell Precision, OptiPlex, andtoll-free: 0120-198-433City Code: 44Technical Support - Dell Precision, OptiPlex, and Latitudetoll-free: 0120-198-438Precision, OptiPlex, and Latitudetoll-free: 0120-198-498PowerEdge?M, Dell PowerConnect?M, and DellPowerEdge?M, Dell PowerConnect?M, and DellPowerEdge?M, Dell PowerConnect?M, and DellPowerEdge?M, Dell PowerConnect.and PowerAppRoutersTechnical Support outside of Japan - PowerApp, RoutersRoutersTechnical Support outside of Japan - Porjectors, PowerEdge.PowerConnect, and PowerVaultRoutersTechnical Support outside of Japan - Porjectors, PowerStef?M, Dell ContextoreOd4-556-340924-Hour Automated Order Status ServiceOd4-556-4450Preferred Accounts Division - up to 400 employeesOd4-556-4450Preferred Accounts Division Sales - over 400Od4-556-5463Individual UserGlobal Segment JapanOd4-556-3463Individual User Conline SalesOd4-556-3463Individual User Real Site SalesOd4-556-3463Individual User Real Site SalesOd4-556-3463Individual User Real Site SalesOd4-556-2003Individu	Japan (Kawasaki)	Web Address	support.jp.dell.com
International Access         Technical Support outside of Japan - Dimension         81-44-520-1435           Code: 001         and Inspiron         toll-free: 0120-198-433           City Code: 44         Technical Support outside of Japan - Dell         81-44-556-3894           Precision, OptiPlex, and Latitude         toll-free: 0120-198-433           Precision, OptiPlex, and Latitude         toll-free: 0120-198-438           PowerEdget <sup>M</sup> , Dell         toll-free: 0120-198-498           PowerEdget <sup>M</sup> , Dell DewerConnect <sup>TM</sup> , and Dell         PowerEdget <sup>M</sup> , Dell           PowerEdget <sup>M</sup> , Dell DewerConnect <sup>TM</sup> , and Dell         PowerEdget <sup>M</sup> , Dell           PowerEdget <sup>M</sup> , Dell DewerConnect, and PowerVault         Technical Support outside of Japan - Projectors,           Rational Support outside of Japan - Projectors,         81-44-556-4162           PowerEdge, PowerConnect, and PowerVault         Technical Support outside of Japan - Projectors,           Rations Service         044-556-4340           Querers         Eastox Service           Public Sales - government agencies, educational         044-556-4340           Business Sales Division - up to 400 employces         044-556-4340           Public Sales - government agencies, educational         044-556-4340           Individual User         044-556-4363           employees         Public Sales - goverment agencies, ed	•		
Coulty Code: 81 City Code: 84 City Code: 82 City Code: 92 City			
Control Code: 44       Technical Support - Dell Precision, OptiPlex, and       toll-free: 0120-198-433         City Code: 44       Technical Support - Dell Precision, OptiPlex, and       81-44-556-3894         Precision, OptiPlex, and Latitude       toll-free: 0120-198-498         PowerEdge™, Dell PowerConnect™, and Dell       roll-free: 0120-198-498         PowerEdge™, Dell PowerConnect™, and Dell       PowerEdge.powerConnect™, and Dell         PowerEdge.powerConnect, and PowerVault       Technical Support - Projectors, PDAs, Printers, toll-free: 0120-981-690         Routers       Technical Support outside of Japan - Projectors, BPAs, Printers, Routers       81-44-556-3468         PAxbox Service       044-556-3406       924-Hour Automated Order Status Service       044-556-3409         Qui-Hour Automated Order Status Service       044-556-3403       94-556-3409         Qui-Sales Division - up to 400 employees       044-556-3403       94-556-3403         Public Sales - government agencies, educational       044-556-3403       94-556-3403         Individual User Colline Sales       044-556-3403       94-556-3403         Morea (Seoul)       Web Address       Support, addlet, 556-3403         Code: 001       rechnical Support, Castomer Service       toll-free: 080-200-3800         International Access       rechnical Support, Castomer Service       toll-free: 080-200-3800			
City Colle: 44       Latitude       81-44-556-3894         Precision, OptPlex, and Latitude       Technical Support - Dell PowerAppTM, Dell       toll-free: 0120-198-498         PowerEdge TM, Dell PowerConnectTM, and Dell       PowerVaultTM,       81-44-556-4162         PowerEdge TM, Dell PowerConnect TM, and Dell       PowerEdge: PowerConnect, and PowerAppTM,       81-44-556-4162         PowerEdge, PowerConnect, and PowerApt       81-44-556-4162         Public Sales Sport       044-556-456         Public Sales Sport       044-556-456         Public Sales Sport       044-556-4240         Business Sales Division - up to 400 employces       044-556-4303         Public Sales - government agencies, educational       044-556-5963         Individual User Online Sales       044-556-2033         Individual User Conline Sales       044-556-4309         Korea (Seoul)       Web Address       Support, addell.com         International Access       Cehnical Support, Customer Service       toll-free: 080-200-3800         Codit So       Sales       toll-free: 080-200-3800         City Code: 82       Sales			toll-free: 0120-198-433
Precision. OptiPlex, and Latitude Technical Support - Dell PowerApp <sup>TM</sup> , Dell Technical Support outside of Japan - PowerApp, ReverFault <sup>TM</sup> , Technical Support outside of Japan - PowerApp, RowerEdge <sup>TM</sup> , Dell PowerConacet <sup>TM</sup> , and Dell PowerEdge, PowerConacet, and PowerVault Technical Support - Projectors, PDAs, Printers, Technical Support outside of Japan - Projectors, PowerEdge, PowerConacet, and PowerVault Technical Support outside of Japan - Projectors, RatXos Service O44-556-3468 PDAs, Printers, Routers FaxNox Service O44-556-3400 24-Hour Automated Order Status Service O44-556-4240 Business Sales Division - up to 400 employees O44-556-4240 Business Sales Division Sales - over 400 O44-556-4363 employees Public Sales - government agencies, educational institutions, and medical institutions Global Segment Japan O44-556-637 Individual User Online Sales O44-556-6380 Individual User Real Site Sales O44-556-4300 Korea (Seaul) International Access Code: 001 Customer Service Adverses Code: 001 International Access City Code: 82 City Code: 82 Code: 001 Latin America Customer Technical Support, Customer Service Code: 001 Latin America Customer Technical Support (Austin, Texas, U.S.A.) Sales (Austin,	City Code: 44		
Technical Support - Dell PowerApp <sup>1A</sup> , Delltoll-free: 0120-198-498PowerEdge <sup>TM</sup> , Dell PowerConnect <sup>TM</sup> , and DellPowerEdge, PowerConnect, and DellPowerEdge, PowerConnect, and PowerVaultTechnical Support - Projectors, PDAs, Printers,Technical Support outside of Japan - PowerVaultTechnical Support - Projectors, PDAs, Printers,Technical Support outside of Japan - Projectors,81-44-556-3468PDAs, Printers, RoutersFaxbox ServiceFaxbox Service044-556-3401Customer Service044-556-3403Business Sales Division - up to 400 employees044-556-3403employees044-556-3433employees044-556-3433employees044-556-3469Public Sales - government agencies, educational044-556-3469Individual User Online Sales044-556-203Individual User Real Site Sales044-556-203Individual User Real Site Sales044-556-4300Korea (Seoul)Web AddressSupport.ag.dell.comInternational AccessCustomer Servicetoll-free: 080-200-3800Code: 001Customer Technical Support - Dimension, PDA, Electronics, toll-free: 080-200-36002194-6000Latin AmericaCustomer Technical Support (Austin, Texas, U.S.A.)512 728-3679Sales Fax (Austin, Texas, U.S.A.)512 728-3783Kaustin, Texas, U.S.A.)512 728-3783Sales (Austin, Texas, U.S.A.)512 728-3783Customer Service (Austin, Texas, U.S.A.)512 728-3783Customer Service (Austin, Texas, U.S.A.)512 728-3783Customer Service (Austin, Texas, U.S.		Technical Support outside of Japan - Dell	81-44-556-3894
PowerEdge™, Dell PowerConnect™, and Dell         PowerXault™,         Technical Support outside of Japan - PowerApp,         Retenical Support outside of Japan - Projectors,         Faxbox Service         Other Service         Other Service         Public Sales - government agencies, educational         Institutions, and medical institutions         Global Segment Japan         Oddates         Oddates         Odividual User         Individual User         Individual User         Individual User         Individual User         Technical Support - Dimension, PDA, Electronics,         Costomer Service         Sales         Costomer Service         International Access         Technical Support - Dimension, PDA, Electronics,         Costomer Service (Austin, Texas, U.S.A.)         Sales         Customer Service (Austin, Texas, U.S.A.)         Sales (Austin, Texas, U.S.A.)         Sales (Austin, Texas, U.S.A.)         Sales (Austin, Texas, U.S.A.)         SalesAva (Austin, Texas, U.S.A.) <td></td> <td>Precision, OptiPlex, and Latitude</td> <td></td>		Precision, OptiPlex, and Latitude	
Power Vaul Support outside of Japan - Power App, Technical Support outside of Japan - Power VaultTechnical Support - Projectors, PDAs, Printers, Technical Support outside of Japan - Projectors, PDAs, Printers, Routerstoll-free: 0120-981-690 RoutersTechnical Support outside of Japan - Projectors, Faxbox Service044-556-3408 044-556-3401 044-556-3401Customer Service044-556-3400 044-556-3401Dusiness Sales Division - up to 400 employees044-556-3431 044-556-3431 044-556-3433 employeesPublic Sales - government agencies, educational institutions, and medical institutions044-556-563 044-556-6373Global Segment Japan044-556-5633 1ndividual User Online Sales044-556-3433 044-556-1657 1ndividual User Real Site SalesNete Read Site Sales044-556-3433 044-556-3453 employees044-556-5433 044-556-3433 employeesKorea (Seoul)Web Address044-556-4503 044-556-4503 1ndividual User Real Site Sales044-556-4503 044-556-4503 1ndividual User Online SalesCode: 001Technical Support, Customer Service Technical Support - Dimension, PDA, Electronics, and Accessories City Code: 2Sales011-free: 080-200-3600 212 728-3493 2194-6202 25 vitchboardLustomer Technical Support (Austin, Texas, U.S.A.)512 728-3493 512 72		Technical Support - Dell PowerApp <sup>™</sup> , Dell	toll-free: 0120-198-498
Technical Support outside of Japan - PowerApp, PowerEdge, PowerConnect, and PowerYault81-44-556-4162 PowerEdge, PowerConnect, and PowerYaultTechnical Support - Projectors, PDAs, Printers, Routerstoll-free: 0120-981-690 RoutersTechnical Support outside of Japan - Projectors, Technical Support outside of Japan - Projectors, PDAs, Printers, Routers81-44-556-3468 PDAs, Printers, RoutersFaxbox Service044-556-3400 24-Hour Automated Order Status Service044-556-3400 044-556-4240 Business Sales Division - up to 400 employeesPublic Sales - government agencies, educational institutions, and medical institutions044-556-3469 044-556-4649Global Segment Japan044-556-6469 044-556-6469Individual User Individual User Real Site Sales044-556-4649 044-556-4649Korea (Seouf)Web AddressSupport.ap.dell.com 20-3800International Access Code: 201 add AccessoriesTechnical Support, Customer Service Technical Support - Dimension, PDA, Electronics, alestoll-free: 080-200-3600 2194-6002 2194-6000Customer Technical Support (Austin, Texas, U.S.A.)512 728-4031 2194-6202 28405Latin AmericaCustomer Technical Support (Austin, Texas, U.S.A.)512 728-3613 212 728-3613 212 728-3631 212 728-3631 212 728-3631 212 728-3632LuemborgWeb Address512 728-3632 32000 7512 728-3732LuemborgSupport 3420808075 30408075512 728-4600 or 512 728-3783 32002 713 15 96 Corporate SalesCoustomer Service432 (0)2 481 91 19 432 (0)2 481 91 19 432 (0)2 481 91 19 432 (0)2 481 91 19 432 (0)2 481 91 19 <td></td> <td>PowerEdge<sup>TM</sup>, Dell PowerConnect<sup>TM</sup>, and Dell</td> <td></td>		PowerEdge <sup>TM</sup> , Dell PowerConnect <sup>TM</sup> , and Dell	
PowerEdge, PowerConnect, and PowerVaultTechnical Support - Projectors, PDAs, Printers, Technical Support outside of Japan - Projectors, Technical Support outside of Japan - Projectors, Faxbox Service81-44-556-3468 (044-556-3490) (044-556-3490) (044-556-3490) (044-556-3490) (044-556-3490) (044-556-3490) (044-556-3490) (044-556-3490) (044-556-3490) (044-556-3490) (044-556-3433) employees044-556-3490 (044-556-3490) (044-556-3433) employeesPublic Sales - government agencies, educational institutions, and medical institutions Global Segment Japan044-556-3469 (044-556-3469) (044-556-3469) Individual User Online SalesKorea (Seoul)Web Address044-556-3469 (044-556-4649) SwitchboardKorea (Seoul)Web AddressSupport.ap.dell.com (044-556-340)International Access Code: 001 and AccessoriesTechnical Support, Customer Service (041-free: 080-200-3800) (044-556-4649) Switchboard101-free: 080-200-3800) (01-free: 080-200-3800) (02+600)Latin AmericaCustomer Technical Support (Austin, Texas, U.S.A.) Sales (Austin, Texas, U.S.A.)512 728-3619 (12 728-3619) (12 728-3619) Fax (Technical Support and Customer Service) (12 728-3619) (20 4ustin, Texas, U.S.A.)512 728-3619 (12 728-3772) (20 80075) (20 80075)LuxemborgWeb Address Support.ap.(2.A.) Sales Fax (Austin, Texas, U.S.A.)		PowerVault <sup>TM</sup> ,	
Technical Support - Projectors, PDAs, Printers, Routerstoll-free: 0120-981-690 RoutersTechnical Support outside of Japan - Projectors, Faxbox Service81-44-556-3468 PDAs, Printers, RoutersFaxbox Service044-556-3490 24-Hour Automated Order Status Service044-556-3490 044-556-4240 Business Sales Division - up to 400 employeesCustomer Service044-556-3450 044-556-3433 employees044-556-3453 044-556-3433 employeesPublic Sales - government agencies, educational institutions, and medical institutions044-556-3469 044-556-3469Global Segment Japan044-556-3469 1ndividual User044-556-203 1ndividual User Coll 044-556-4649Korea (Seoul)Web AddressSupport, Customer Service technical Support, Customer Service technical Support, Customer Service technical Support, Outsomer Service technical Support - Dimension, PDA, Electronics, and Accessoriestoll-free: 080-200-3800 technical Support, Customer Service toll-free: 080-200-3800Code: 001 Code: 22 SalesSales toll-free: 080-200-3800 technical Support - Dimension, PDA, Electronics, toll-free: 080-200-3800Latin AmericaCustomer Technical Support (Austin, Texas, U.S.A.)512 728-3619 Fax (Technical Support and Customer Service) Sales (Austin, Texas, U.S.A.)LuxemborgWeb Address Support agall Business Sales (Austin, Texas, U.S.A.)512 728-3772 Sales08075 Sales08075LuxemborgWeb Address Support Sales Austin, Texas, U.S.A.)512 728-3409 Support Sales08075International Access Code: 00 Code: 00Gustomer Service Support512 728-3772 Sal		Technical Support outside of Japan - PowerApp,	81-44-556-4162
RoutersRoutersTechnical Support outside of Japan - Projectors,81-44-556-3468PDAs, Printers, Routers644-556-3490Pathor Automated Order Status Service044-556-3801Customer Service044-556-4240Business Sales Division - up to 400 employees044-556-4333employees044-556-3433employees044-556-3453Hublic Sales - government agencies, educational044-556-3469institutions, and medical institutions044-556-3469Global Segment Japan044-556-3469Individual User044-556-203Individual User Online Sales044-556-203Individual User Real Site Sales044-556-4649Switchboard044-556-4649Korea (Seoul)Web AddressSales101-free: 080-200-3800Code: 001Technical Support, Customer Servicetoll-free: 080-200-3800Courty Code: 82Salestoll-free: 080-200-3600City Code: 2Salestoll-free: 080-200-3600Fax2194-6202Switchboard2194-6202Suitomer Service (Austin, Texas, U.S.A.)512 728-3619Fax (Technical Support and Customer Service)512 728-3619Fax (Technical Support and Customer Service)512 728-3619Sales (Austin, Texas, U.S.A.)512 728-3619Sales (Austin, Texas, U.S.A.)512 728-3772Sales (Austin, Texas, U.S.A.)512 728-3619Sales (Austin, Texas, U.S.A.)512 728-3772Sales (Austin, Texas, U.S.A.)512 728-4600 or 512 728-3772Support342088075		PowerEdge, PowerConnect, and PowerVault	
Image: constraint of the second sec		Technical Support - Projectors, PDAs, Printers,	toll-free: 0120-981-690
PDAs, Printers, RoutersFaxbox Service044-556-340Faxbox Service044-556-380Customer Service044-556-4240Business Sales Division - up to 400 employees044-556-423Preferred Accounts Division Sales - over 400044-556-3433employees9Public Sales - government agencies, educational044-556-3469Individual User044-556-3469Individual User044-556-203Individual User Real Site Sales044-556-203Individual User Real Site Sales044-556-203Individual User Real Site Sales044-556-4649Switchboard044-556-404Korea (Seoul)Web AddressSupport.ap.dell.comTechnical Support, Customer Servicetoll-free: 080-200-3801Code: 001Customer Technical Support (Austin, Texas, USA.)toll-free: 080-200-3801Country Code: 2Salestoll-free: 080-200-3600FaxCustomer Technical Support (Austin, Texas, USA.)512 728-4600 or 512 728-3619Fax (Cachical Support and Customer Service)512 728-4307Sales (Austin, Texas, U.S.A.)512 728-4300 rSales (Austin, Texas, U.S.A.)512 728-4377Sales (Austin, Texas, U.S.A.)512 728-4600 or 512 728-3772LuxemborgWeb AddressSupport 4320808075International AccessSupport 4320808075542 778 81Country Code: 352Corporate Sales26 25 77 81Country Code: 352Corporate Sales26 25 77 81Country Code: 352Corporate Sales26 25 77 81<		Routers	
Faxbox Service044-556-349024-Hour Automated Order Status Service044-556-3430Customer Service044-556-4240Business Sales Division - up to 400 employees044-556-1465Preferred Accounts Division Sales - over 400044-556-3433employees9Public Sales - government agencies, educational044-556-363institutions, and medical institutions044-556-36963Global Segment Japan044-556-36963Individual User Online Sales044-556-203Individual User Real Site Sales044-556-203Individual User Real Site Sales044-556-203Individual User Real Site Sales044-556-4649Switchboard044-556-409Korea (Seoul)Web AddressInternational AccessSupport. Customer ServiceCode: 001rechnical Support - Dimension, PDA, Electronics, and AccessoriesCity Code: 2SalesFax2194-6000Latin AmericaCustomer Technical Support (Austin, Texas, U.S.A.)512 728-3619Fax (Technical Support and Customer Service)512 728-3619Fax (Technical Support and Customer Service)512 728-3619Fax (Technical Support and Customer Service)512 728-3619Fax (Customer Service (Austin, Texas, U.S.A.)512 728-3600 or 512 728-3717Sales (Austin, Texas, U.S.A.)512 728-4600 or 512 728-3717LuxemborgWeb AddressSupportInternational AccessSupportSupport3420808075Home/Small Business Sales+32 (0) 2 713 15 96Code:		Technical Support outside of Japan - Projectors,	81-44-556-3468
24-Hour Automated Order Status Service044-556-3801Customer Service044-556-440Business Sales Division - up to 400 employees044-556-440Preferred Accounts Division Sales - over 400044-556-3433employeesPublic Sales - government agencies, educational044-556-3469folbal Segment Japan044-556-3469Individual User014-556-3403Individual User Online Sales044-556-203Individual User Real Site Sales044-556-4300Veb Address044-556-4300Korea (Seoul)Web AddressInternational AccessSupport, Customer ServiceCode: 001Technical Support, Customer Servicetoll-free: 080-200-3800Code: 01Technical Support, Customer Servicetoll-free: 080-200-3800Code: 2Salestoll-free: 080-200-3801Sales2194-6202SwitchboardLatin AmericaCustomer Technical Support (Austin, Texas, U.S.A.)512 728-4093Sales (Austin, Texas, U.S.A.)512 728-3619Fax (Technical Support and Customer Service)512 728-3619Kaustin, Texas, U.S.A.)512 728-4000 or 512 728-3732LuxemborgWeb AddressSupportInternational AccessSupport3420808075Home/Small Business Sales+32 (0)2 713 15 96Code: 00Coustomer Service26 25 77 82Country Code: 352Coustomer Service+32 (0)2 713 15 96Code: 00Customer Service+32 (0)2 713 15 96Code: 00Coustomer Service+32 (0)2 713 15 96Country		PDAs, Printers, Routers	
Customer Service044-556-4240Business Sales Division - up to 400 employees044-556-1465Preferred Accounts Division Sales - over 400044-556-3439employees9ublic Sales - government agencies, educational044-556-3469Individual User044-556-1657Individual User Online Sales044-556-1657Individual User Real Site Sales044-556-4649Switchboard044-556-4649Web AddressSupport.ap.dell.comCode: 001Technical Support, Customer Servicetoll-free: 080-200-3800Code: 01Technical Support - Dimension, PDA, Electronics, and Accessoriestoll-free: 080-200-3800Code: 2Fax2194-6202Salestoll-free: 080-200-3800Customer Technical Support (Austin, Texas, U.S.A.)512 728-4600 or 512 728-4693LuxemborgVeb AddressSupport.austomer Service)LuxemborgSales (Austin, Texas, U.S.A.)512 728-4600 or 512 728-3813 (Austin, Texas, U.S.A.)International Access Code: 00SupportSupport.austomer Service)LuxemborgSupportSales (Austin, Texas, U.S.A.)International Access Code: 00SupportSales (Austin, Texas, U.S.A.)Sales (Austin, Texas, U.S.A.)512 728-4600 or 512 728-3737LuxemborgSupport3420808075Horner/Small Business Sales+32 (0)2 713 15 96Coutry Code: 352Corporate Sales26 25 77 81Coutry Code: 352Customer Service+32 (0)2 481 91 19FaxCustomer Service26 25 77 81Cou		Faxbox Service	044-556-3490
Business Sales Division - up to 400 employees044-556-1465Preferred Accounts Division Sales - over 400044-556-3433employeesPublic Sales - government agencies, educational044-556-3963institutions, and medical institutions044-556-36963Global Segment Japan044-556-3669Individual User044-556-2003Individual User Collie Sales044-556-4649Switchboard044-556-4649Switchboard044-556-4649Switchboard044-556-4649Code: 001Technical Support, Customer Servicetoll-free: 080-200-3800Technical Support - Dimension, PDA, Electronics, and Accessoriescoll-free: 080-200-3600City Code: 22Salestoll-free: 080-200-3600FaxCustomer Technical Support (Austin, Texas, U.S.A.)512 728-3619Latin AmericaCustomer Service (Austin, Texas, U.S.A.)512 728-3619Fax (Technical Support and Customer Service)512 728-3833(Austin, Texas, U.S.A.)512 728-4600 or 512 728-3772Sales Fax (Austin, Texas, U.S.A.)512 728-4600 or 512 728-3772LuxemborgWeb AdfressSupport-euro.dell.comInternational AccessSupport3420808075Horm/Small Business Sales+32 (0)2 713 15 96Country Code: 352Customer Service432 002 713 15 96Country Code: 352Customer Service+32 (0)2 718 15 91FaxCustomer Service432 002 713 15 96Country Code: 352Customer Service+32 (0)2 718 15 91FaxCustomer Service+32 (0)2		24-Hour Automated Order Status Service	044-556-3801
Preferred Accounts Division Sales - over 400044-556-3433employeesPublic Sales - government agencies, educational044-556-5963institutions, and medical institutions044-556-3469Global Segment Japan044-556-1657Individual User044-556-1657Individual User Real Site Sales044-556-4649switchboard044-556-4649Switchboard044-556-4649Korea (Seoul)Web AddressInternational AccessTechnical Support, Customer Servicetoll-free: 080-200-3800Code: 001country Code: 82Salestoll-free: 080-200-3800Country Code: 2Salestoll-free: 080-200-3801Salescustomer Technical Support, Customer Servicetoll-free: 080-200-3600Latin AmericaCustomer Technical Support (Austin, Texas, U.S.A.)512 728-4093U.S.A.)Customer Technical Support (Austin, Texas, U.S.A.)512 728-4093LuxemborgWeb AddressSupport.ap.dell.com SalesFax (Austin, Texas, U.S.A.)512 728-4600 or 512 728-3772LuxemborgWeb AddressSupport.ap.dell.com Support512 728-4600 or 512 728-3772LuxemborgWeb AddressSupport.ap.dell.com Support3420808075Home/Small Business Sales+32 (0)2 713 15 96Country Code: 352Corparte Sales26 25 77 81Customer Service+32 (0)2 748 19 19Fax26 25 77 82		Customer Service	044-556-4240
employeesPublic Sales - government agencies, educational044-556-5963institutions, and medical institutions044-556-3693Global Segment Japan044-556-3693Individual User044-556-1657Individual User Online Sales044-556-4649Switchboard044-556-4649Web AddressSupport, ap.dell.comInternational AccessTechnical Support, Customer Servicetoll-free: 080-200-3800Code: 001and Accessories2194-6020Country Code: 82Salestoll-free: 080-200-3600City Code: 2Fax2194-6020Switchboard2194-6020Latin AmericaCustomer Technical Support (Austin, Texas, U.S.A.)512 728-4093U.S.A.)Sulz 728-4093U.S.A.)Customer Service (Austin, Texas, U.S.A.)512 728-4397Sales (Austin, Texas, U.S.A.)512 728-4397Sales (Austin, Texas, U.S.A.)512 728-4600 or 512 728-3772LuxemborgWeb AdfressSupport, addressCode: 00SupportSupportCountry Code: 352Corprate Sales432 (0)2 713 15 96Code: 00Corprate Sales26 25 77 81Country Code: 352Customer Service432 (0)2 718 15 96Code: 00Fax26 25 77 82Country Code: 352Customer Service432 (0)2 718 15 96Country Code: 352Conprate Sales26 25 77 82Country Code: 352Customer Service432 (0)2 718 15 96Country Code: 352Customer Service432 (0)2 718 15 96Country C		Business Sales Division - up to 400 employees	044-556-1465
Public Sales - government agencies, educational044-556-5963institutions, and medical institutions044-556-3469Global Segment Japan044-556-3469Individual User044-556-1657Individual User Online Sales044-556-2203Individual User Real Site Sales044-556-4649Switchboard044-556-4649Switchboard044-556-4649Switchboard044-556-4649Code: 001Technical Support, Customer Servicetoll-free: 080-200-3800Code: 001and AccessoriesCountry Code: 82Salestoll-free: 080-200-3800City Code: 2Fax2194-6202Switchboard2194-6000Latin AmericaCustomer Technical Support (Austin, Texas, U.S.A.)512 728-4093LuxemborgWeb AddressSupport.ag. 212 728-372LuxemborgWeb AddressSupport.ag. 212 728-3772International Access Code: 00Support512 728-4097Country Code: 322Customer Service (Austin, Texas, U.S.A.)512 728-301Sales (Austin, Texas, U.S.A.)512 728-302Support.euro.dell.com512 728-4097Sales (Austin, Texas, U.S.A.)512 728-4090Support.euro.dell.com3420808075Home/Small Business Sales+32 (0)2 713 15 96Country Code: 325Corporate Sales26 25 77 81Customer Service+32 (0)2 481 91 19FaxCountry Code: 325Corporate Sales26 25 77 82Country Code: 326Customer Service+32 (0)2 481 91 19FaxCustome		Preferred Accounts Division Sales - over 400	044-556-3433
institutions, and medical institutions Global Segment Japan 044-556-3469 Individual User Online Sales 044-556-203 Individual User Colline Sales 044-556-4209 Switchboard 044-556-4209 Switchboard 044-556-4300 Korea (Seoul) Web Address Support.ap.dell.com International Access Code: 001 Technical Support - Dimension, PDA, Electronics, toll-free: 080-200-3801 and Accessories Sales toll-free: 080-200-3800 Fax 2194-6202 Switchboard 2194-6000 Latin America Customer Technical Support (Austin, Texas, U.S.A.) Customer Service (Austin, Texas, U.S.A.) Sales (Austin, Texas, U.S.A.) Sales (Austin, Texas, U.S.A.) International Access Code: 00 Latin America Support Web Address 512 728-4397 Sales (Austin, Texas, U.S.A.) Sales (Austin, Texas, U.S.A.) Sales (Austin, Texas, U.S.A.) International Access Code: 00 International Access Code: 00 Country Code: 322 Luxemborg Web Address Sales +32 (0)2 713 15 96 Country Code: 324 Customer Service (Austin, Texas, U.S.A.) 512 728-4600 or 512 728-3772 Luxemborg Web Address Sales +32 (0)2 713 15 96 Country Code: 325 Code: 00 Corporate Sales Sales +32 (0)2 713 15 96 Corporate Sales Sales +32 (0)2 713 15 97 Customer Service (Austin Fexas, U.S.A.) Support.euro.dell.com Suport.euro.dell.com Support.euro.dell.com S		employees	
Global Segment Japan044-556-3469Individual User044-556-1657Individual User Online Sales044-556-2203Individual User Real Site Sales044-556-4649Switchboard044-556-46409Korea (Seoul)Web AddressSupport.ap.dell.comTechnical Support, Customer ServiceCode: 001Technical Support - Dimension, PDA, Electronics, and AccessoriesCountry Code: 82SalesCity Code: 2SalesFax2194-6202Switchboard2192-28-2819FaxSwitchboardSu		Public Sales - government agencies, educational	044-556-5963
Individual User044-556-1657Individual User Online Sales044-556-2203Individual User Real Site Sales044-556-4203Korea (Seoul)Web Address044-556-4300International AccessTechnical Support, Customer Servicetoll-free: 080-200-3800Country Code: 82Technical Support - Dimension, PDA, Electronics, and Accessoriestoll-free: 080-200-3800City Code: 2Fax2194-6202Switchboard2194-6000Latin AmericaCustomer Technical Support (Austin, Texas, U.S.A.)512 728-3619FaxCustomer Service (Austin, Texas, U.S.A.)512 728-3619Fax (Technical Support and Customer Service)512 728-3833(Austin, Texas, U.S.A.)512 728-4600 or 512 728-3772LuxemborgWeb AddressSupportInternational AccessSupportCode: 00Support3420808075Home/Small Business Sales+32 (0)2 713 15 96Country Code: 352Corporate Sales26 25 77 81Customer Service+32 (0)2 481 91 19FaxCountry Code: 352Corporate Sales26 25 77 82		institutions, and medical institutions	
Individual User Online Sales044-556-2203Individual User Real Site Sales044-556-4649Switchboard044-556-4300Korea (Seoul)Web AddressInternational AccessTechnical Support, Customer ServiceCode: 001Technical Support - Dimension, PDA, Electronics, Technical Support - Dimension, PDA, Electronics, toll-free: 080-200-3800Country Code: 82SalesCity Code: 2SalesSalestoll-free: 080-200-3600Fax2194-6202Switchboard2194-6000Latin AmericaCustomer Technical Support (Austin, Texas, U.S.A.)Customer Service (Austin, Texas, U.S.A.)512 728-3619Fax (Technical Support and Customer Service)512 728-3883(Austin, Texas, U.S.A.)512 728-4600 or 512 728-3772LuxemborgWeb AddressInternational AccessSupportCode: 00Web AddressCountry Code: 32SupportInternational AccessSupportCode: 00Home/Small Business SalesCountry Code: 32Corporate SalesCountry Code: 32Corporate SalesLuxemborgSupportInternational AccessSupportCode: 00Home/Small Business SalesCountry Code: 32Corporate Sales<		Global Segment Japan	044-556-3469
Individual User Real Site Sales044-556-4649Switchboard044-556-4300Korea (Seoul)Web AddressInternational Access Code: 001Technical Support, Customer ServiceCountry Code: 82 City Code: 2Technical Support - Dimension, PDA, Electronics, and AccessoriesCity Code: 2SalesCity Code: 2SalesFax2194-6202Switchboard2194-6000Latin AmericaCustomer Technical Support (Austin, Texas, U.S.A.)Customer Service (Austin, Texas, U.S.A.)512 728-3619Fax (Technical Support and Customer Service)512 728-3619Veb AddressSupport.euro.dell.comSales (Austin, Texas, U.S.A.)512 728-4600 or 512 728-3797Sales Fax (Austin, Texas, U.S.A.)512 728-4600 or 512 728-3797Sales Code: 00Corporate Sales+32 (0)2 713 15 96Code: 00Corporate Sales26 25 77 81Customer Service+32 (0)2 481 91 19Fax26 25 77 82		Individual User	044-556-1657
Switchboard044-556-4300Korea (Seoul)Web AddressSupport.ap.dell.comInternational Access Code: 001Technical Support, Customer Servicetoll-free: 080-200-3800Country Code: 82 City Code: 2Salestoll-free: 080-200-3600Country Code: 2Salestoll-free: 080-200-3600Eatin AmericaCustomer Technical Support (Austin, Texas, U.S.A.)2194-6000Latin AmericaCustomer Technical Support and Customer Service) Fax (Technical Support and Customer Service)512 728-3619Fax (Technical Support and Customer Service) Sales (Austin, Texas, U.S.A.)512 728-4397Sales (Austin, Texas, U.S.A.)512 728-4397Sales (Austin, Texas, U.S.A.)512 728-4397Sales Fax (Austin, Texas, U.S.A.)512 728-4397Sales Fax (Austin, Texas, U.S.A.)512 728-4300Support342080875Home/Small Business Sales+32 (0)2 713 15 96Country Code: 352Corporate Sales26 25 77 81Customer Service+32 (0)2 481 91 19Fax26 25 77 82		Individual User Online Sales	044-556-2203
Korea (Seoul)Web AddressSupport.ap.dell.comInternational Access Code: 001Technical Support, Customer Servicetoll-free: 080-200-3800Country Code: 82and Accessoriestoll-free: 080-200-3801City Code: 2Salestoll-free: 080-200-3600Fax2194-6202Switchboard2194-6000Latin AmericaCustomer Technical Support (Austin, Texas, U.S.A.)512 728-4093U.S.A.)Customer Service (Austin, Texas, U.S.A.)512 728-3619Fax (Technical Support and Customer Service)512 728-4397Sales Fax (Austin, Texas, U.S.A.)512 728-4600 or 512 728-3872LuxemborgWeb AddressSupport.eur.odell.comInternational Access Code: 00Support342080075Home/Small Business Sales+32 (0)2 713 15 96Country Code: 352Corporate Sales26 25 77 82Fax26 25 77 82		Individual User Real Site Sales	
International Access Code: 001Technical Support, Customer Service Technical Support - Dimension, PDA, Electronics, and Accessoriestoll-free: 080-200-3800Country Code: 82 City Code: 2Sales Faxtoll-free: 080-200-3801Latin AmericaCustomer Technical Support (Austin, Texas, U.S.A.)2194-6202 2194-6000Latin AmericaCustomer Technical Support (Austin, Texas, U.S.A.)512 728-3619 512 728-3619 512 728-3883 (Austin, Texas, U.S.A.)LuxemborgWeb Address512 728-4093 Support SalesFax (Austin, Texas, U.S.A.)International Access Code: 00Support512 728-4397 Support Support Support Home/Small Business SalesCountry Code: 352Corporate Sales Country Code: 35226 25 77 81 Customer Service HaxCountry Code: 352Corporate Sales Corporate Sales26 25 77 82Country Code: 352Fax26 25 77 82			
International Access Code: 001Technical Support - Dimension, PDA, Electronics, and Accessoriestoll-free: 080-200-3801Country Code: 82 City Code: 2Sales Fax Salestoll-free: 080-200-3600Latin AmericaCustomer Technical Support (Austin, Texas, U.S.A.)2194-6000Latin AmericaCustomer Technical Support (Austin, Texas, U.S.A.)512 728-4093Latin AmericaCustomer Service (Austin, Texas, U.S.A.)512 728-3619Fax (Technical Support and Customer Service)512 728-3619Fax (Technical Support and Customer Service)512 728-3833(Austin, Texas, U.S.A.)512 728-4600 or 512 728-3772Sales (Austin, Texas, U.S.A.)512 728-4600 or 512 728-3772Sales Fax (Austin, Texas, U.S.A.)512 728-4600 or 512 728-3772LuxemborgWeb AddressSupportInternational Access Code: 00Support3420808075Home/Small Business Sales+32 (0) 2 713 15 96Country Code: 352Corporate Sales26 25 77 81Fax26 25 77 82	Korea (Seoul)		•• •
Code: 001and AccessoriesCountry Code: 2Salestoll-free: 080-200-3600Fax2194-6202Switchboard2194-6000Latin AmericaCustomer Technical Support (Austin, Texas, U.S.A.)512 728-4093U.S.A.)Customer Service (Austin, Texas, U.S.A.)512 728-3619Fax (Technical Support and Customer Service)512 728-3883(Austin, Texas, U.S.A.)512 728-3883(Austin, Texas, U.S.A.)512 728-4397Sales (Austin, Texas, U.S.A.)512 728-4397Sales Fax (Austin, Texas, U.S.A.)512 728-4600 or 512 728-3772LuxemborgWeb AddressSupport.euro.dell.comInternational Access Code: 00Support3420808075Home/Small Business Sales+32 (0)2 713 15 96Country Code: 352Corporate Sales26 25 77 81Fax26 25 77 82	International Access		
Country Code: 82 City Code: 2Sales Faxtoll-free: 080-200-3600 2194-6202 2194-6000Latin AmericaCustomer Technical Support (Austin, Texas, U.S.A.)512 728-4093 512 728-4093 U.S.A.)Latin AmericaCustomer Service (Austin, Texas, U.S.A.)512 728-3619 512 728-3883 (Austin, Texas, U.S.A.)Fax (Technical Support and Customer Service) Sales (Austin, Texas, U.S.A.)512 728-3883 512 728-3883 (Austin, Texas, U.S.A.)LuxemborgWeb AddressInternational Access Code: 00SupportCountry Code: 352Corporate Sales Customer Service432 (0)2 713 15 96 Customer ServiceCountry Code: 352Corporate Sales Customer Service26 25 77 81 432 (0)2 481 91 19 Fax	Code: 001		toll-free: 080-200-3801
City Code: 2Fax2194-6202Switchboard2194-6000Latin AmericaCustomer Technical Support (Austin, Texas, U.S.A.)512 728-4093Customer Service (Austin, Texas, U.S.A.)512 728-3619Fax (Technical Support and Customer Service)512 728-3883(Austin, Texas, U.S.A.)512 728-4397Sales (Austin, Texas, U.S.A.)512 728-4600 or 512 728-4397Sales (Austin, Texas, U.S.A.)512 728-4600 or 512 728-3772LuxemborgWeb AddressSupport.euro.dell.comInternational AccessSupport3420808075Code: 00Corporate Sales26 25 77 81Country Code: 352Fax26 25 77 82	Country Code: 82		
Switchboard2194-6000Latin AmericaCustomer Technical Support (Austin, Texas, U.S.A.)512 728-4093Customer Service (Austin, Texas, U.S.A.)512 728-3619Fax (Technical Support and Customer Service)512 728-3883(Austin, Texas, U.S.A.)512 728-4397Sales (Austin, Texas, U.S.A.)512 728-4397Sales Fax (Austin, Texas, U.S.A.)512 728-4600 or 512 728-3772LuxemborgWeb AddressSupport.euro.dell.comInternational Access Code: 00Support3420808075Country Code: 352Corporate Sales26 25 77 81Fax26 25 77 82	City Code: 2		
Latin AmericaCustomer Technical Support (Austin, Texas, U.S.A.)512 728-4093Customer Service (Austin, Texas, U.S.A.)512 728-3619Fax (Technical Support and Customer Service)512 728-3833(Austin, Texas, U.S.A.)512 728-4397Sales (Austin, Texas, U.S.A.)512 728-4600 or 512 728-3772Sales Fax (Austin, Texas, U.S.A.)512 728-4600 or 512 728-3772LuxemborgWeb AddressInternational AccessSupportCode: 00Corporate SalesCountry Code: 352Corporate SalesCustomer Service+32 (0)2 713 15 96Fax26 25 77 82			
U.S.A.)SubsectionCustomer Service (Austin, Texas, U.S.A.)512 728-3619Fax (Technical Support and Customer Service)512 728-3833(Austin, Texas, U.S.A.)512 728-4397Sales (Austin, Texas, U.S.A.)512 728-4600 or 512 728-3772Sales Fax (Austin, Texas, U.S.A.)512 728-4600 or 512 728-3772LuxemborgWeb AddressInternational AccessSupportCode: 00Corporate SalesCountry Code: 352Corporate SalesCustomer Service+32 (0)2 713 15 96Fax26 25 77 82	Latin Amorico		
Customer Service (Austin, Texas, U.S.A.)512 728-3619Fax (Technical Support and Customer Service)512 728-3883(Austin, Texas, U.S.A.)512 728-4397Sales (Austin, Texas, U.S.A.)512 728-4397SalesFax (Austin, Texas, U.S.A.)512 728-4600 or 512 728-3772LuxemborgWeb AddressInternational AccessSupportCode: 00Corporate SalesCountry Code: 352Corporate SalesCustomer Service+32 (0)2 713 15 96Corporate Sales26 25 77 81Fax26 25 77 82	Laun America		512 720-+075
Fax (Technical Support and Customer Service)512 728-3883(Austin, Texas, U.S.A.)Sales (Austin, Texas, U.S.A.)Sales (Austin, Texas, U.S.A.)512 728-4397Sales Fax (Austin, Texas, U.S.A.)512 728-4600 or 512 728-3772LuxemborgWeb AddressInternational Access Code: 00SupportCountry Code: 352Corporate SalesCountry Code: 352Corporate SalesFax26 25 77 82			512 728-3619
(Austin, Texas, U.S.A.) Sales (Austin, Texas, U.S.A.)512 728-4397 512 728-4600 or 512 728-3772LuxemborgWeb AddressSupport.euro.dell.comInternational Access Code: 00Support3420808075 Home/Small Business Sales+32 (0)2 713 15 96 26 25 77 81Country Code: 352Corporate Sales Fax26 25 77 82			
Sales (Austin, Texas, U.S.A.)512 728-4397SalesFax (Austin, Texas, U.S.A.)512 728-4600 or 512 728-3772LuxemborgWeb AddressSupport.euro.dell.comInternational AccessSupport3420808075Code: 00Support3420808075Country Code: 352Corporate Sales26 25 77 81Customer Service+32 (0)2 481 91 19Fax26 25 77 82			512 120 5005
SalesFax (Austin, Texas, U.S.A.)512 728-4600 or 512 728-3772LuxemborgWeb AddressSupport.euro.dell.comInternational AccessSupport3420808075Code: 00Home/Small Business Sales+32 (0)2 713 15 96Country Code: 352Corporate Sales26 25 77 81Fax26 25 77 82			512 728-4397
LuxemborgWeb AddressSupport.euro.dell.comInternational AccessSupport3420808075Code: 00Home/Small Business Sales+32 (0)2 713 15 96Country Code: 352Corporate Sales26 25 77 81Fax26 25 77 8226 25 77 82			
International Access         Support         3420808075           Code: 00         Home/Small Business Sales         +32 (0)2 713 15 96           Country Code: 352         Corporate Sales         26 25 77 81           Fax         26 25 77 82	Luxembora		
International Access       Home/Small Business Sales       +32 (0)2 713 15 96         Code: 00       Corporate Sales       26 25 77 81         Country Code: 352       Customer Service       +32 (0)2 481 91 19         Fax       26 25 77 82	-	Support	3420808075
Code: 00         Corporate Sales         26 25 77 81           Country Code: 352         Customer Service         +32 (0)2 481 91 19           Fax         26 25 77 82			+32 (0)2 713 15 96
Country Code: 552     Customer Service     +32 (0)2 481 91 19       Fax     26 25 77 82			26 25 77 81
Fax 26 25 77 82	Country Code: 552	•	+32 (0)2 481 91 19
			26 25 77 82
	Масао	Technical Support	toll-free: 0800 105
	Country Code: 83		34 160 910
Transaction Sales (Xiamen, China) 29 693 115		Transaction Sales (Xiamen, China)	29 693 115

Malaysia (Penang)	Web Address	Support.ap.dell.com
International Access	Technical Support - Dell Precision, OptiPlex, and	
Code: 00	Latitude	
	Technical Support - Dimension, Inspiron, and	toll-free: 1800 881 306
Country Code: 60	Electronics and Accessories	
City Code: 4	Technical Support - PowerApp, PowerEdge,	toll-free: 1800 881 386
	PowerConnect, and PowerVault	
	Customer Service	toll-free: 1800 881 306 (option 6)
	Transaction Sales	toll-free: 1800 888 202
	Corporate Sales	toll-free: 1800 888 213
Mexico	Web Address	www.dell.com/mx
International Access	E-mail Address	<u>la-techsupport@dell.com</u>
	Customer Technical Support	001-877-384-8979 or 001-877-269-3383
Code: 00	Sales	50-81-8800 or 01-800-888-3355
Country Code: 52	Customer Service	001-877-384-8979 or 001-877-269-3383
	Main	50-81-8800 or 01-800-888-3355
Montserrat	E-mail Address	la-techsupport@dell.com
	Technical Support, Customer Service, Sales	· · · · · · · · · · · · · · · · · · ·
		Toll-free: 1-866-278-6822
Netherlands	E-mail Address	la-techsupport@dell.com
Antilles	Web Address	support.euro.dell.com
Netherlands	Technical Support	020 674 45 00
(Amsterdam)	Technical Support Fax	020 674 47 66
International Access	Home/Small Business Customer Service	020 674 42 00
Code: 00	Relational Customer Service	020 674 43 25
	Home/Small Business Sales	020 674 55 00
Country Code: 31	Relational Sales	020 674 50 00
City Code: 20	Home/Small Business Sales Fax	020 674 47 75
	Relational Sales Fax	020 674 47 50
	Switchboard	020 674 50 00
	Switchboard Fax	020 674 47 50
New Zealand	Web Address	Support.ap.dell.com
International Access	E-mail Address	Support.ap.dell.com/contactus
Code: 00	Technical Support, Customer Service, Sales	0800 441 567
Country Code: 64	Web Address	www.dell.com/ni
Nicaragua	E-mail Address	la-techsupport@dell.com
	Technical Support, Customer Service, Sales	001-800-220-1377
Norway (Lysaker)	Web Address	Support.euro.dell.com
5.5	Technical Support	671 16882
International Access	Relational Customer Service	671 17575
Code: 00	Home/Small Business Customer Service	231 62298
Country Code: 47	Switchboard	671 16800
	Fax Switchboard	671 16865
Panama	Web Address	www.dell.com/pa
r anama	E-mail Address	la-techsupport@dell.com
	Technical Support, Customer Service, Sales	011-800-507-1264
Peru	Web Address	www.dell.com/pe
	E-mail Address	la-techsupport@dell.com
	Technical Support, Customer Service, Sales	0800-50-669

Poland (Warsaw)	Web Address	support.euro.dell.com
	E-mail Address	pl_support_tech@dell.com
International Access	Customer Service Phone	57 95 700
Code: 011	Customer Service	57 95 999
Country Code: 48	Sales	57 95 999
City Code: 22	Customer Service Fax	57 95 806
	Reception Desk Fax	57 95 998
	Switchboard	57 95 999
Portugal	Web Address	Support.euro.dell.com
International Access	Technical Support	707200149
	Customer Service	800 300 413
Code: 00	Sales	800-300-410 or 800-300 -411 or
Country Code: 351		800-300-412 or 21-422-07-10
	Fax	21-424-01-12
Puerto Rico	Web Address	www.dell.com/pr
	E-mail Address	la-techsupport@dell.com
	Technical Support, Customer Service, Sales	1-877-537-3355
St. Kitts and Nevis	Web Address	www.dell.com/kn
	E-mail Address	<u>la-techsupport@dell.com</u>
	Technical Support, Customer Service, Sales	toll-free: 1-866-540-3355
St. Lucia	Web Address	www.dell.com/lc
	E-mail Address	<u>la-techsupport@dell.com</u>
	Technical Support, Customer Service, Sales	toll-free: 1-866-464-4352
St. Vincent and the	Web Address	www.dell.com/vc
Grenadines	E-mail Address	<u>la-techsupport@dell.com</u>
	Technical Support, Customer Service, Sales	toll-free: 1-866-464-4353
Singapore	NOTE: The phone numbers in this section should	
International Access	be called from within Singapore or Malaysia only.	
Code: 005		
Country Code: 65	Web Address	support.ap.dell.com
5	Technical Support - Dimension, Inspiron, and	toll-free: 1 800 394 7430
	Electronics and Accessories	
	Technical Support - OptiPlex, Latitude,	toll-free: 1 800 394 7488
	and Dell Precision	
	Technical Support - PowerApp, PowerEdge,	toll-free: 1 800 394 7478
	PowerConnect, and PowerVault	
	Customer Service	toll-free: 1 800 394 7430 (option 6)
	Transaction Sales	toll-free: 1 800 394 7412
	Corporate Sales	toll-free: 1 800 394 7419
Slovakia (Prague)	Web Address	support.euro.dell.com
International Access	E-mail Address	<u>czech_dell@dell.com</u>
Code: 00	Technical Support	02 5441 5727
Country Code: 421	Customer Service	420 22537 2707
country coue. 121	Fax	02 5441 8328
	Tech Fax	02 5441 8328
	Switchboard (Sales)	02 5441 8328
		02 5441 7585
South Africa	Web Address	support.euro.dell.com
(Johannesburg)	E-mail Address	<u>dell_za_suppor@dell.com</u>
International Access	Gold Queue	011 709 7713
Code: 09/091	Technical Support	011 709 7710
Country Code: 27	Customer Service	011 709 7707
City Code: 11	Sales	011 709 7700
City Couc. 11		

Spain (Madrid)	Web Address	Support.euro.com
• • •	Home and Small Business	
International Access	Technical Support	902 100 130
Code: 00	Customer Service	902 118 540
Country Code: 34	Sales	902 118 541
City Code: 91	Switchboard	902 118 541
	Fax	902 118 539
	Corporate	,
	Technical Support	902 100 130
	Customer Service	902 115 236
	Switchboard	91 722 92 00
	Fax	91 722 95 83
Sweden (Upplands	Web Address	support.euro.dell.com
Vasby)	Technical Support	08 590 05 199
•	Relational Customer Service	08 590 05 642
International Access	Home/Small Business Customer Service	08 587 70 527
Code: 00	Employee Purchase Program (EPP) Support	020 140 14 44
Country Code: 46	Technical Support Fax	08 590 05 594
City Code: 8	**	
Switzerland (Geneva)	Web Address	Support.euro.dell.com
International Access	E-mail Address	Tech support central Europe@dell.com
Code: 00		0844 811 411
Country Code: 41	Technical Support – Home and Small Business	
City Code: 22	Technical Support – Corporate	0844 822 844
	Customer Service – Home and Small Business	0848 802 202 0848 821 721
	Customer Service – Corporate	022 799 01 90
	Fax	
Teluce	Switchboard Web Address	022 799 01 01 support.ap.dell.com
Taiwan	E-mail Address	support.dell.com.cn/email
International Access	Technical Support - OptiPlex, Latitude, Inspiron,	toll-free: 0080 186 1011
Code: 002	Dimension, and Electronics and Accessories	1011-1122. 0080 180 1011
Country Code: 886	· · · · · · · · · · · · · · · · · · ·	tall frage 0080 160 1256
	Technical Support - Servers and Storage Customer Service	toll-free: 0080 160 1256
	Transaction Sales	toll-free: 0080 160 1250 (option 5)
		toll-free: 0080 165 1228 toll-free: 0080 165 1227
Thailand	Corporate Sales Web Address	Support.ap.dell.com
mananu	Technical Support (OptiPlex, Latitude, and Dell	toll-free: 1800 0060 07
International Access	Precision)	
Code: 001	Technical Support (PowerApp, PowerEdge,	toll-free: 1800 0600 09
Country Code: 66	PowerConnect, and PowerVault)	1011-1122. 1800 0000 07
	Customer Service	toll-free: 1800 006 007 (option 7)
	Corporate Sales	toll-free: 1800 006 007 (option 7)
	Transaction Sales	toll-free: 1800 006 009
Trinidad/Tobago	Web Address	www.dell.com/tt
minuau/iobayo	E-mail Address	la-techsupport@dell.com
	Technical Support, Customer Service, Sales	toll-free: 1-888-799-5908
Turks and Caicos Islands	s Web Address	www.dell.com/tc
	E-mail Address	la-techsupport@dell.com
	Technical Support, Customer Service, Sales	toll-free: 1-877-441-4735
	11 /	

U.K.(Bracknell)	Web Address	upport.euro.dell.com
International Access	E-mail Address	dell_direct_support@dell.com
Code: 00	Customer Service Website	support.euro.dell.com/uk/en/ECare/
Country Code: 44		form/home.asp
City Code: 1344	Sales	
City Coue. 1544	Home and Small Business Sales	0870 907 4000
	Corporate/Public Sector Sales	01344 860 456
	Customer Service	
	Home and Small Business	0870 906 0010
	Corporate	01344 373 185
	Preferred Accounts (500-5000 employees)	0870 906 0010
	Global Accounts	01344 373 186
	Central Government	01344 373 196
	Local Government & Education	01344 373 199
	Health	01344 373 194
	Technical Support	
	Corporate/Preferred Accounts/PCA (1000+	0870 908 0500
	employees)	
	Other Dell Products	0870 353 0800
	General	
	Home and Small Business Fax	0870 907 4006
Uruguay	Web Address	<u>www.dell.com/uy</u>
	E-mail Address	<u>la-techsupport@dell.com</u>
	Technical Support, Customer Service, Sales	toll-free: 000-413-598-2521
U.S.A. (Austin, Texas)	Automated Order-Status Service	toll-free: 1-800-433-9014
International Access	AutoTech (portable and desktop computers)	toll-free: 1-800-247-9362
Code: 011	Hardware and Warranty Support (Dell TV,	toll-free: 1-877-459-7298
Country Code: 1	Printers, and Projectors ) for Relationship	
5	customers	
	Consumer (Home and Home Office) Support for	toll-free: 1-800-624-9896
	Dell products	
	Customer Service	toll-free: 1-800-624-9897
	Employee Purchase Program (EPP) Customers	toll-free: 1-800-695-8133
	Financial Services Web Address	www.dellfinancialservices.com
	Financial Services (lease/loans)	toll-free: 1-877-577-3355
	Financial Services (Dell Preferred Accounts	toll-free: 1-800-283-2210
	[DPA])	
	Business	
	Customer Service	toll-free: 1-800-624-9897
	Employee Purchase Program (EPP)	toll-free: 1-800-695-8133
	Customer s Support for printers, projectors, PDAs, and MP3 players	toll-free: 1-877-459-7298
	Public (government, education, and healthcare)	
	Customer Service and Support	toll-free: 1-800-456-3355
	Employee Purchase Program (EPP) Customers	toll-free: 1-800-695-8133
	Dell Sales	toll-free: 1-800-289-3355 or
		toll-free: 1-800-879-3355
	Dell Outlet Store (Dell refurbished computers)	toll-free: 1-888-798-7561
	Software and Peripherals Sales	toll-free: 1-800-671-3355
	Spare Parts Sales	toll-free: 1-800-357-3355
	Extended Service and Warranty Sales	toll-free: 1-800-247-4618
	Fax	toll-free: 1-800-727-8320
	Dell Services for the Deaf, Hard-of-Hearing, or	toll-free: 1-877-DELLTTY
	Speech-Impaired	(1-877-335-5889)
	~r	(1 011 000 000)

U.S. Virgin Islands	Web Address	www.dell.com/vi
	E-mail Address	<u>la-techsupport@dell.com</u>
	Technical Support, Customer Service, Sales	toll-free: 1-877-702-4360
Venezuela	Web Address	www.dell.com/ve
	E-mail Address	la-techsupport@dell.com
	Technical Support, Customer Service, Sales	0800-100-4752

## **Before Installing vFoglight**

This chapter provides you with setup information and provides an initial overview of installing vFoglight or upgrading your vFoglight installation.

This chapter contains the following sections:

What Is vFoglight?	26
Planning Your Installation or Upgrade	27
Hardware Requirements and Guidelines	31

### What Is vFoglight?

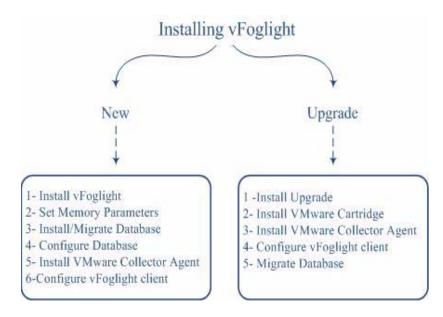
vFoglight is a powerful system and application performance management solution that detects problems and alerts information technology managers. vFoglight has the ability to dynamically create unique data schemas based on any data from any source. Rather than store data based on how it is collected by the agents, vFoglight organizes data based on your perception of the data. Using vFoglight, application and information technology managers can understand user service levels and notify stakeholders when those service levels are violated.

vFoglight helps you to:

- Focus on system and application availability and performance.
- Observe system capacity and application efficiency.
- Gauge user response time from multiple geographic locations.
- Identify and bridge gaps between business and information technology staff.
- Highlight historical information for planning and reporting.

### Planning Your Installation or Upgrade

Before you install or upgrade vFoglight, you need to review the components that you are going to install or upgrade. Ensure that you have the necessary information, such as port numbers and server names, and the locations where you are going to install the components.



The following list summarizes the main steps involved in installing (or upgrading) and configuring vFoglight:

**Step 1:** Install the vFoglight Management Server (or upgrade your installation to version 5.2.4) and configure the Management Server. The Management Server is the data collection and processing server.

**Step 2:** Install the database (or upgrade it, if you are upgrading your Management Server installation to version 5.2.4) and configure it. You can choose to use an embedded database or an external database. The instructions in this guide are for external database installations only.

**Step 3:** Install and configure cartridges. Cartridges extend the functionality of vFoglight, and are installed on the machine hosting the vFoglight Management Server. A cartridge contains one or more cartridge components, such as agents for deployment,

communication capabilities, modifications to the way that data is transformed or handled, rules, reports, and views.

**Step 4:** Install and configure Agents. Agents are deployed on machines in your monitored environment and send data to the vFoglight Management Server. There are several types of agents. One or more instances of each type of agent managed by the Administration Module can be deployed per host. For example, there is an agent that collects metrics from the operating system of the host machine. There are also agents that are embedded into systems or the software that they monitor. The Java<sup>TM</sup> EE Agent, which collects service request traces, runs embedded in Java<sup>TM</sup> EE application servers.

Caution You must install and configure the vFoglight Agent Manager before you can deploy agents (excluding Java<sup>™</sup> EE Agents) that are installed on a monitored host.

### **High Availability Mode**

Before you install vFoglight, you need to determine if you are going to set up and run the vFoglight Management Server in High Availability (HA) mode or as a standalone server. High Availability mode enables you to install multiple servers where one server is the primary server and the others are standby servers. If the primary server stops responding, then the responsibility is taken over by one of the standby servers.

Configuring multiple servers using the high availability mode offers the following benefits:

• Automatic restart: The restart process (FoglightHA Daemon) runs on the same host as the vFoglight Management Server it is monitoring and monitors the state of the server. If the server stops responding or has a fatal error, then the restart process stops and restarts the server automatically. The process can also send out email notifications about various conditions of the server.

**Note** The default value for the restart process is five minutes (300 seconds). Computers with a slower processing speed take longer to reboot. The default time can be modified by editing the startup.grace variable in the <vfoglight\_home>/config/foglight.config file.

• **Standby Server:** To reduce outage times, a standby server instance is created (for a particular vFoglight Management Server), and forms a partition. One server becomes the primary server and communicates with the agents, receives and processes data, and processes rules. All other servers are standby servers. If a

primary server stops responding, one of the standby servers resumes service and becomes the primary server.

**Note** In both High Availability Mode and Single Server Mode, the database must be running for vFoglight to operate. You may have to implement a combined database-backup and High Availability solution to achieve true failover of all components.

Note A server running in HA mode can only use an external database.

### **Using External Databases**

An external instance of the Oracle database can be used if your DBA has installed one. Please see the *vFoglight System Requirements and Platform Support Guide* for information about the external databases supported for vFoglight 5.2.4.

A setup with an external database has the advantage of using existing infrastructure. For setup, a remote administrator user/password is required that has access rights to create users and tables in the user/temp tablespace. Remote administrator access must be granted.

**Note** Oracle databases must be configured to support unicode characters. For example, you can use UTF-8 or UTF-16 to support unicode.

### Licensing

This section provides information about licensing for vFoglight.

#### Providing a License File During Installation

You can install a license file during the installation process. See "Step 11: Add vFoglight License File" on page 47 in Installing a New Version of the vFoglight Management Server.

#### Managing a License After Installation

You can also manage licenses after installing vFoglight. There are three ways of providing a license file to the Management Server after installation.

#### Manual Process

• Move an existing license file into the <vfoglight\_home>\license folder.

#### Using the vFoglight Administration Module

• Upload a license file using the vFoglight Administration Module. See the *Administration and Configuration Guide* for instructions.

#### Using the Command Line

- 1 Start the vFoglight Management Server.
- **2** Ensure that JAVA\_HOME is set.
- **3** If you have not already done so, extract the file *fglcmd.zip* in <vfoglight\_home>\*tools*.
- 4 Upload a license by navigating to <vfoglight\_home>\tools and entering the following commands:

```
fglcmd -usr <username> -pwd <password> -cmd license:import -f
<license-file>
fglcmd -usr <username> -pwd <password> -cmd license:list
fglcmd -usr <username> -pwd <password> -cmd license:remove -
serial <serial>
```

**Note** The commands listed above assume that you are using a default port=8080 and a localhost. If you are not running with these default values, use the following options to indicate server and port:

-prt <xx> -srv <servername>

### Hardware Requirements and Guidelines

The hardware requirements to run vFoglight can vary widely, based on a number of factors, including:

- The number and type of agents that are being used
- The persistence and data-rollup policies
- Agent configuration settings

You should not consider doing a production implementation without conducting a proper scoping and sizing exercise with a qualified Vizioncore representative. You can arrange for a sizing analysis by contacting your Vizioncore Sales Representative.

### Installation Recommendations

Running a vFoglight server requires:

- The vFoglight Management Server
- The vFoglight database repository

While these components can be installed on a single tier or on multiple tiers, it is critical to realize that the management server and database repository will require separately dedicated resources to support them. In order to help facilitate sizing, the resources required to support each component are addressed separately. They can either be summed to support a single-tier installation, or treated independently as the requirements for each server in a two-tier installation.

### Hardware Requirements

For the latest single- and multi-tier hardware requirements, consult the *vFoglight System Requirements and Platform Support Guide*.

Foglight Installation and Setup Guide

32

## Installing vFoglight

The vFoglight 5.2.4 installer allows you either to install a new instance of the vFoglight Management Server or to upgrade an existing installation of a vFoglight 5.x Management Server. This guide provides the procedures for a new installation of version 5.2.4 of the Management Server. For upgrade procedures, please refer to the *vFoglight 5.2.4 Upgrade Field Guide*.

This chapter contains the following sections:

Preparing to Install	
Installing a New Version of the vFoglight Management Server	
Upgrading the vFoglight Management Server	60
Installed Directories	60
vFoglight Settings	62
Uninstalling vFoglight	

**Note** The vFoglight Management Server should be installed on a dedicated machine.

### Preparing to Install

You need the following to install vFoglight:

• A computer to host the vFoglight Management Server. The Management Server should run on a dedicated computer because it must process and store large volumes of data.

**Note** Ensure that a hostname resolution and reverse lookup are confirmed prior to installing the vFoglight Management Server.

- Administrator or root access to all machines requiring a vFoglight agent.
- An administrator password for vFoglight. The user name *foglight* and the default password for this account can initially be used to log in to the consoles and use command-line options with administrator privileges. Vizioncore recommends that you change the default password for this account.

# Installing a New Version of the vFoglight Management Server

Once all system requirements are in place you are ready to install the vFoglight Management Server. The installer prompts you to input data, and provides you with progress feedback during the installation process.

The vFoglight installation process consists of the same basic steps for all platforms. For specific platform customizations, see "Installed Directories" on page 60.

### Installing the vFoglight Management Server

Start the installation process by initiating the executable included on the vFoglight install media. Each installation screen includes a **Previous** button, allowing you to go back and adjust the information you have entered.

#### Step 1: Introduction

The Introduction screen provides an overview of the mechanics of the installation interface. Click **Next** after reading the contents of this screen.

Introduction	InstallAnywhere will guide you through the installation of vFoglight
License Agreement	
Choose Install Folder	It is strongly recommended that you quit all programs before continuing with this installation.
Choose Shortout Location	contineing with this misteriation.
Important Note	Click the 'Next' button to proceed to the next screen. If you want to
Pre-installation Summary	change something on a previous screen, click the 'Previous' button.
Installing	You may cancel this installation at any time by clicking the 'Cancel'
Administrator Password	button.
Server Settings	
Database Settings	[Build: 5245-2000-2000cw]
Part Settings	
Add License File	
Install Complete	

#### Step 2: License Agreement

1 Read the License Agreement statement, and accept or decline the terms of the license agreement.



2 If you selected I accept the terms of the License Agreement, click Next.

### Step 3: Select Installation

**Note** This screen allows you to choose an installation type. The Standard Install option is only available if you are using an embedded database.

1 Choose the Custom Install option.

Introduction	Please select a vFoglight installation.
License Agreement	riease select a trogright installation.
hopse install Folder	Standard Install will only prompt you if additional information is
habse Shortcut Location	required.
nportant Note	Custom Install will prompt you for all information.
re-Installation Summary	
stalling.	
ministrator Password	O Standard Install
arver Settings	Custom Install
atabase Setlinos	
art Settings	
dd License File	
etall Complete	
Install Complete	
Anywhere by Macrovision	
Cancel	<u>Previous</u>

2 Click Next.

## Step 4: Choose Install Folder

1 Choose the location where you want to install vFoglight. You can accept the default location *C:\Program Files\Vizioncore\vFoglight* or click the **Browse** button to navigate to another location.

Introduction License Agreement	Where would you like to install the product?	
Choose Install Folder	C:\Program Files(vizioncore)vFaglight	
Chapse Shortout Location	Restore Default Folder	Browse
Important Note		
Pre-Installation Summary		
installing		
Administrator Password		
Server Settings		
Database Settings		
Part Settings		
Add License File		
Install Complete		

2 Click Next.

# Step 5: Pre-Installation Summary

- 1 Review the installation information.
- 2 If you are satisfied with the parameters of your installation, click Install.

To make changes to the installation parameters click Previous.



# Step 6: Installing vFoglight 5.2.4

vFoglight installs files into the specified directory.



### Step 7: vFoglight Administrator Password

- 1 In the **vFoglight Administrator Password** field accept the default password (*foglight*) or enter an alternate one.
- 2 In the **Retype Administrator Password** field, accept the default (*foglight*) or, if you have provided an alternate password in step 1, retype the password for verification.
- 3 To run vFoglight in secure mode (HTTPS) only, check the Secure Server box.
- 4 Click Next.

	vFoglig	ght Administrator Password
Introduction     License Agreement     Choose Install Folder	Please enter the password for account 'foglight' (default: 'fog	
Choose Shortcut Location	vFoglight Administrator Password:	******
Pre-Installation Summary Installing	Retype Administrator Password:	******
<ul> <li>Administrator Password</li> <li>Server Settings</li> <li>Database Settings</li> <li>Port Settings</li> <li>Add License File</li> <li>Install Complete</li> </ul>	Secure Server (HTTPS Only	0
InstallAnywhere by Macrovision -		Previous Next

### Step 8: vFoglight Mode

- 1 Choose the server startup mode. The options are **Standalone** or **HA** (**High Availability**). Servers running in High Availability mode can only use an external database.
- 2 If you chose HA (High Availability):
  - **a** In the **HA Partition** field, enter the partition name. All servers set up in **HA** (**High Availability**) mode that you want to act as either primary or secondary servers for failover have to be configured with the same partition name.
    - **Caution** All servers that you want to include in the cluster for high availability must use the same partition name. Servers with different partition names will not participate in the high availability setup.

	Foglight Mod	le
<ul> <li>Introduction</li> <li>License Agreement</li> <li>Choose Install Folder</li> <li>Choose Shortcut Location</li> <li>Pre-Installation Summary</li> <li>Installing</li> <li>Administrator Password</li> <li>Server Settings</li> <li>Database Settings</li> <li>Port Settings</li> <li>Add License File</li> <li>Install Complete</li> </ul>	Foglight Mode: © Standalone © HA (High Availability) HA Partbion: FMS_HA	
InstallAnywhere by Macrovision	Previous	]

#### 3 Click Next.

**Note** A server running in HA mode can only use an external database.

# Step 9: vFoglight Database Configuration

1 In the vFoglight Database Account **User ID** field accept the default user ID (*foglight*) or enter an alternate one. This is the name for the vFoglight user that you are creating. The vFoglight Management Server uses this account to store data in the database.

Note The User ID is used for the database name.

- 2 In the vFoglight Database Account **Password** field accept the default password (*foglight*) or enter an alternate one.
- **3** In the vFoglight Database Account **Retype Password** field, accept the default *(foglight)* or, if you have provided an alternate password in step 2, retype the password for verification.
- 4 From the **vFoglight Database** drop-down list, choose **External**. See External Database below for instructions.
  - **Note** The **vFoglight Database** drop-down list is disabled if you selected HA as the server startup mode in Step 8: vFoglight Mode.

#### **External Database**

- 1 From the **DB Type** drop-down list, choose **Oracle**.
- 2 In the **DB Host** field, enter the database hostname or IP address (*localhost* is the default name).
- 3 In the **DB Port** field, enter the database port number or accept the default (1521). This is the TCP/IP port on which the database communicates with the vFoglight Management Server. The external database needs to be configured to communicate on this port.

- 🚾 vFoglight 5.2.4.5 \_ 🗆 🗙 vFoglight Database Configuration Introduction vFoglight Database Account: User ID: foglight License Agreement Choose Install Folder \*\*\*\*\*\*\* Password: Choose Shortcut Location \*\*\*\*\*\*\* Retype Password: Important Note vFoglight Database: External ٣ Pre-Installation Summary Installing... DB Type: Oracle Administrator Password DB Port: 1521 DB Host: localhost Server Settings foglight DB SID: Database Settings Now Advanced... Setup D8: C Later (manually) Port Settings Database Administrator Account: Add License File User ID: Install Complete Password: InstallAnywhere by Macrovision Cancel Next
- 4 In the **DB SID** field, enter the service ID for the database.

- 5 Select one of the following **Setup DB** options:
  - Now
  - Later (manually).
  - **Note** If you select the option Later (manually), you need to manually configure the database after the installation is complete and prior to starting the Management Server. See "Manual Database Configuration" on page 56 for information.
- 6 On the Setup server administration password screen:
  - Type the server administrator password (default is vFoglight).
  - Retype the password for verification.

Note This is only used to set up the database initially.

- 7 Click Next.
- 8 On the In the Database Set Up Option screen:
- 9 Click Next.
- 10 On the External Database Administrator Login screen:

- 11 If you selected **Now** in step 5, enter the Database Administrator Account User ID and **Password**.
  - Caution The Database Administrator Account User ID cannot be the same as the vFoglight Database Account User ID.
- 12 Optionally, you can also click the **Advanced** button to configure Oracle Tablespace information at this time. The values you enter in this dialog are referenced in the *storage-config.xml* file.

🛓 Oracle Tablespace	Configuration		×		
Configuration Tablespaces					
Data: USERS Index: USERS Lob: USERS					
Observation Tablespaces					
Data	Index	Lob			
Add	Edit Delete	Done			
A00	Delete	Done			

- **Note** Check with your database administrator to correctly assign tablespace names.
- Note It is recommended that you create a Foglight label for Data, Index, and Objects.
- 13 Click Next.
  - **Note** If a database schema already exists, the vFoglight Database Found screen appears. This screen allows you to keep your existing data, create a new database, or select a different database.

## Step 10: vFoglight Ports Configuration

1 Configure the server ports. The **vFoglight Ports Configuration** screen displays default ports which you can assign.

If you want to revert to the default values, click **Defaults**.

- 2 Click Next.
  - Note If there are any port assignment conflicts, an error message dialog box appears. You can either click **Review Ports** if you want to return to the vFoglight Ports Configuration screen to configure the conflicting port(s), or choose **Ignore and Continue** to continue with the installation without resolving the port conflicts. Choose one of these options to continue.

🖳 vFoglight 5.2.4.5			
		vFoglight Po	orts Configuration
<ul> <li>Introduction</li> <li>License Agreement</li> <li>Choose Install Folder</li> <li>Choose Shortcut Location</li> <li>Important Note</li> <li>Pre-Installation Summary</li> <li>Installing</li> <li>Administrator Password</li> <li>Server Settings</li> <li>Database Settings</li> <li>Port Settings</li> <li>Add License File</li> <li>Install Complete</li> </ul>	Please enter the v Cluster Multi-cast Port: HTTP Port: HTTPS Port: JNDI RMI Port: JNDI JNP Port: JRMP Invoker Port: Corba ORB Port: Corba ORB SSL Port: HA JNDI RMI Port: Defe	Foglight port assignme 45566 8080 8443 1098 1099 4444 3528 3529 1101 aults	nts.
InstallAnywhere by Macrovision -		Droview	n   Next
Cancel		Previou	is <u>N</u> ext

# Step 11: Add vFoglight License File

1 Specify the path to the vFoglight license file in the **License File** field, or browse to a license file by clicking **Browse License**.

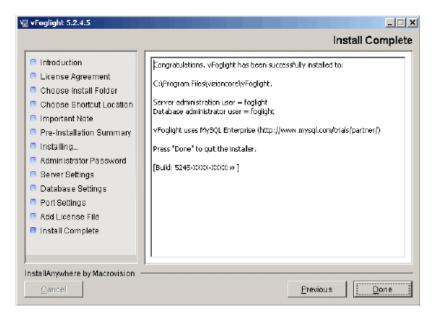
Alternatively, you can provide a license file to the vFoglight Management Server after the installation is complete. To do so, leave the **License File** field blank and proceed to step 2.

2 Click Next.

٩	vFoglight 5.2.4.5		
		Add vFoglight License	File
	<ul> <li>Introduction</li> <li>License Agreement</li> <li>Choose Install Folder</li> <li>Choose Shortcut Location</li> <li>Important Note</li> <li>Pre-Installation Summary</li> <li>Installing</li> <li>Administrator Password</li> <li>Server Settings</li> <li>Database Settings</li> <li>Port Settings</li> <li>Add License File</li> <li>Install Complete</li> </ul>	Please enter or choose a vFoglight license file. License File: Browse License	
	Installitinus koro ku Massailai an		
	InstallAnywhere by Macrovision - Cancel	Previous Next	

# Step 12: Install Complete

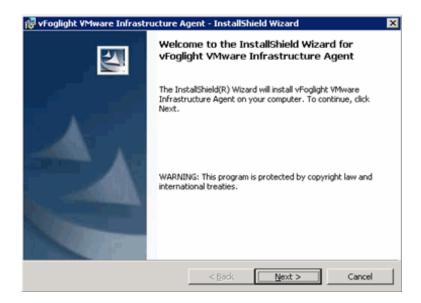
Click **Done** to complete the installation process.



The Standard Installation prodedure now takes you through the installation of the vCharter Pro VMware Infrastructure Agent components.

## Step 13: InstallShield Wizard Welcome Screen

The Welcome screen for the VMware Infrastructure Agent InstallShield Wizard explains the purpose of the InstallShield Wizard. Click **Next** after reading the contents of this screen.



# Step 14: License Agreement

1 Read through the VMware Infrastructure Agent License Agreement statement, and accept or decline the terms.

🖁 vFoglight VMware Infrastructure #	Agent - InstallShie	ld Wizard	×
License Agreement Please read the following license agree	ement carefully.		
Vizioncore, Inc., Inc. Software License Agreemen	nt		*
This Software License Agreement (the ' an Illinois corporation with its principal pl Grove IL ("Vizioncore") and the Licens SOFTWARE PRODUCT, the Licensee agre <b>1. Definitions.</b> The following below:	lace of business loca see". By installing, c	ted at 975 Weiland opying, or otherw he terms of this EU	Ave, Buffalo rise using the LA
I accept the terms in the license agree     I go not accept the terms in the license			Print
nstafShield	< <u>B</u> ack	<u>N</u> ext >	Cancel

2 If you selected I accept the terms in the License Agreement, click Next.

## Step 15: Destination Folder

1 Choose the location where you want to install the VMware Infrastructure Agent components. You can accept the default location C:\Program Files\Vizioncore\vFoglight\Vmware Agent\ or click on the Change button to navigate to another location.

👘 vFogligh	t VMware Infrastructure a	Agent - InstallS	hield Wizard	×
	<b>on Folder</b> It to install to this folder, or d	ick Change to inst	all to a different fold	er.
	Install vFoglight VMware Inf C:\Program Files\Vizioncorel			Change
InstaliShield -		< Back	Next >	Cancel

2 Click Next.

52

# Step 16: VMware Infrastructure Agent Install Screen

The Agent Install screen is displayed. Click Install.

👹 vFoglight VMware Infrastructure Ag	gent - InstallShield Wizard	×
Ready to Install the Program The wizard is ready to begin installation.		
Click Install to begin the installation.		
If you want to review or change any of exit the wizard.	your installation settings, click Back.	Click Cancel to
InstaliShield	< Back Instal	Cancel

## Step 17: VirtualCenter Authentication

- 1 On the VirtualCenter Authentication Information screen, enter the VirtualCenter Server name or IP Address.
- 2 Enter VirtualCenter Server Username and Password credentials that will provide you with access to the VMware Virtual Infrastructure Client.

🗞 Fo	glightAgent::Configuration		×
Er qu us	ter the authentication informat	Authentication Information ion for your VirtualCenter server. Fully ex. myvcserver.mydomain.int), your ght), and the password for the specified	8
	/irtualCenter Information		
	VirtualCenter Server DNS or IP		
	Username		
	Password		
		Save	Close

- 3 Click Save to have your entries validated.
- 4 On the Credentials Entered are Valid! dialog, click OK.

#### Step 18: vFoglight Server Destination

- 1 On the vFoglight Server Destination Information screen, enter the agent name as you want it to be displayed in vFoglight.
- 2 Enter the vFoglight Server name or IP address. This is the name or IP of the vFoglight Management Server.
- 3 Enter the port number of the port that the vFoglight Server uses for HTTP traffic. The default is 8080.
- 4 If this port requires SSL, check the SSL check box.
- **5** Enter a Sample Interval time in seconds. If you enter a lower interval, you could encounter performance problems while gaining little or nothing in terms of the quality of your data. If you enter an interval that is too high, you may not receive data often enough for it to be of much value.

Configure		×
	This is the Foglight Server destination information. Please enter the server you would like the data sent to and how often you would like it sent.	
- Foglight Configura	ation	
Agent Name	VirtualCenter Agent	
Foglight Serve	r	
Port	8080 🗖 SSL	
Sample Interva	al 120 seconds	
	Save	

6 Click **Save** to have your entries validated.

## Step 19: InstallShield Wizard Completed

Click Finished to complete the VMware Infrastructure Agent components installation.

🚏 vFoglight VMware Infrastructure Agent - InstallShield Wizard		
E.	InstallShield Wizard Completed	
	The InstallShield Wizard has successfully installed vFoglight VMware Infrastructure Agent. Click Finish to exit the wizard.	
	< Back <b>Finish</b> Cancel	

The vFoglight Agent Manager, Guest Process Investigation components, and required services will be installed automatically. The services will start after the installation is complete.

If you did not install a license in "Step 11: Add vFoglight License File" on page 47, follow the instructions in "Managing a License After Installation" on page 29 to provide a license file to the vFoglight Management Server after installation.

# **Next Steps**

To set up an encrypted database connection, refer to "Setting Up an Encrypted Database Connection" on page 67.

Start the vFoglight Management Server by following the instructions in "Starting and Stopping the vFoglight Management Server" on page 72.

To log into vFoglight, refer to "Logging in to vFoglight" on page 76.

# **External Oracle Database Access for Remote Users**

By default, Oracle supports remote administration access.

# Manual Database Configuration

If you chose the option **Setup DB Later (manually)** while installing the vFoglight Management Server, you must manually configure the database (by running scripts located in the *<foglight\_home>\scripts\sql* directory) prior to starting the Management Server.

1 Run SQL\*Plus by entering the following from the command line:

sqlplus <username>/<password>

The SQL prompt appears.

- 2 Run the *.sql* scripts by entering the following commands in the order shown below:
- SQL>@<foglight\_home>\scripts\sql\oracle\_drop\_db.sql

If you are using an Oracle database, this script must be run under an account with root privileges (for example, *sys*) since you require system access to execute it.

• SQL>@<foglight\_home>\scripts\sql\oracle\_create\_db.sql

This script must be run under an account with root privileges (for example, *sys*) since you require system access to execute it.

• SQL>@<foglight\_home>\scripts\sql\oracle\_create\_schema.sql

This script must be run as the vFoglight Database Account User ID that you set in step 1 of "Step 9: vFoglight Database Configuration" on page 43. The default vFoglight Database Account User ID is *foglight*.

• SQL>@<foglight\_home>\scripts\sql\oracle\_populate\_db.sql

This script must be run as the vFoglight Database Account User ID that you set in step 1 of "Step 9: vFoglight Database Configuration" on page 43. The default vFoglight Database Account User ID is *foglight*.

# Installation Modes

Although the installer follows the same general steps on all platforms (license agreement, shortcut creation), additional steps may be required for some platforms.

The default mode for the installer is the graphical user interface mode.

#### Silent Mode

In silent mode, a properties file is used to feed in the properties. The file consists of a list of key-value pairs, which are described in the table below. To execute the silent mode:

#### Windows

vFoglight-5\_2\_4-install\_windows-ia32.exe -i silent

Use the properties file in silent mode to execute a specific property. Type -f fms\_silent\_install.properties. The installer loads the properties file specified.

**Note** The installer uses the properties automatically when the filename and installer prefix are the same. For example, *vFoglight-5\_2\_2-install\_windows-ia32.exe* picks up *vFoglight-5\_2\_4-install\_windows-ia32.properties* automatically.

Property	Description	Default
INSTALLER_UI	The property is set to SILENT for silent mode. This is the default setting and is mandatory.	SILENT
USER_INSTALL_DIR	The vFoglight installation directory. If you want to upgrade an existing installation, specify the path to the existing installation directory here (and ensure that FMS_UPGRADE is set to 1).	C:\Program Files\Vizioncore\vFoglight\

Foglight Installation and Setup Guide 58

Property	Description	Default
USER_SHORTCUTS	Sets the shortcut location.	C:\Documents and Settings\All Users\Start Menu\Programs\Vizioncore\v Foglight 5.2.4
FMS_LICENSE_AGREEMENT	License agreement acknowledgment.	yes
FMS_LICENSE_FILE	Allows you to add a license file by specifying the path to the license.	None (the license file you specify is validated).
FMS_SERVICE	For enabling vFoglight as a Windows service.	false
FMS_UPGRADE	Only required to update an existing installation, in which case it must be set to 1.	1
FMS_ADMIN_PASSWORD	Administrator password for vFoglight.	foglight
FMS_DB	Allows you to specify the database type (embedded or external). Must be external if FMS_HA_MODE=1	embedded
FMS_DB_USER	Default database user.	foglight
FMS_DB_USER_PASSWORD	Default database password.	foglight

Property	Description	Default
FMS_DB_SETUPNOW	<ul> <li>1 = Set up database</li> <li>as part of installation.</li> <li>0 = Set up database</li> <li>after installation is</li> <li>complete.</li> </ul>	1
FMS_DB_PORT	User-defined port for database.	13306
FMS_HA_MODE	0 = Standalone mode 1 = HA mode	0
FMS_HA_PARTITION	Partition name. Only required if FMS_HA_MODE=1	FMS_HA
FMS_JNDI_JNP_PORT	Bootstrap JNP service.	1099
FMS_JNDI_RMI_PORT	Port of RMI naming service.	1098
FMS_HTTP_PORT	HTTP/1.1 Connector.	8080
FMS_HTTPS_PORT	HTTP/1.1 Connector.	8443
FMS_AJP13_PORT	AJP 1.3 Connector.	8009
FMS_HA_JNDI_RMI_PORT	Port of RMI naming service in HA mode.	1101
FMS_HA_JNDI_JNP_PORT	Bootstrap JNP service in HA mode.	1100
FMS_HA_JRMP_INVOKER_PORT	RMI/JRMP invoker in HA mode.	4447
FMS_HA_POOLED_INVOKER	Pooled invoker port in HA mode.	4446

Property	Description	Default
FMS_HA_JNDI_UDPGROUP_PORT		1102
FMS_CLUSTER_MCAST_PORT	Cluster Multicast post.	45566

# Upgrading the vFoglight Management Server

Please consult the *vFoglight 5.2.4 Upgrade Field Guide* for detailed upgrade instructions.

# **Installed Directories**

The following table describes the directories that are installed under your target installation folder. They may vary, depending on the product features that you select and the components installed for your platform.

Directory	Contents
bin	vFoglight executables for running the server and utilities.
client	Files used by client programs (such as the command line client) for remote access to vFoglight.
config	Configuration files and subdirectories. The files in the <i>config</i> directory contain settings that are most likely to require editing. Files at the next level are less likely to need changing. Files at the lowest level contain settings that are unlikely to need changing except in special circumstances.
docs	HTML and PDF versions of the product documentation.
dtd	Descriptors for configuration files that can be imported into vFoglight (for example, by installing a cartridge).

Directory	Contents
jre	Version of the JRE (1.5.0_11-b03) used by vFoglight.
lib	The vFoglight JARs.
logs	Default location of the log files generated by vFoglight when it runs. Generated at runtime.
mysql	The current embedded database version is 5.0.51a. If the embedded database is selected during installation, then the database is created, populated, and used for vFoglight runtime. To startup the embedded database individually without running vFoglight, use these parameters [run shutdown]Db.[bat sh] in <install-dir>\bin</install-dir>
perl	Libraries needed to interpret the PERL scripts, version 5.8.8.
scripts	Supported and unsupported utility scripts to extend the scripting engine. <i>scripts\sql</i> contains SQL scripts to drop, create-schema or create/populate the database.
server	JARs and data files used by a particular vFoglight server variant (such as default).
tools	Various utilities such as the <i>foglight-federation-support.sar</i> file.

### Additional directories created after the vFoglight Management Server is started:

Directory	Contents
cartridge	Installed cartridge files in their original form.
support	Where support bundled archive information is stored.
tmp\cartridge.exploded	Unzipped contents of installed cartridges. Unizpped at runtime.

# vFoglight Settings

vFoglight can be run with the default settings. However, you can edit these settings if you need to change runtime parameters such as settings for running the vFoglight Management Server in HA mode or ports used by the Management Server. To do so, you can edit the file <*vfoglight\_home*>\*config\foglight.config*, which contains central settings.

# Editing the foglight.config File

The *foglight.config* file contains parameters for port settings, virtual memory, command line options, and server federation. You can edit the file using a text editor. Values within quotation marks can be edited.

# Setting Memory Parameters for the Server

If you are running vFoglight Management Server by running *fms.exe*, you can configure the JVM's minimum and maximum parameters for the server in the <*vfoglight\_home>\config\foglight.config* file.

If you are starting vFoglight using the run. [bat|sh] command, the JVM heap memory parameters set in the *<vfoglight\_home>\config\foglight.config* file do not take effect. Use -x options to pass the memory parameters straight to the VM.

If your installation supports a large number (100s) of agents, you can assign Java heap memory sizes using the minimum (-Xms) and maximum (-Xmx) options. For example, assigning 2 GB of memory can be set in the *foglight.config* file as follows:

```
foglight.vm.option0 = "-Xms2048M";
foglight.vm.option1 = "-Xmx2048M";
```

Ensure that you uncomment these lines in the file.

You can set up to 100 VM options.

Note The -Xms and -Xmx options are different for 32-bit and 64-bit JVMs.

Note On a 32-bit JVM, the -Xms and -Xmx values do not necessarily have to be the same size. However, the -Xmx value should not exceed certain limits as determined by the System Administrator.

### **Process Heap Use**

If the VM generates errors relating to a failure to allocate native resources or to exhaustion of process address space, you must increase the native process heap size. Errors appear as a Java VM internal error message or a detail message associated with an out-of-memory error. Messages with the relevant errors indicate that the problem is process heap exhaustion.

You cannot directly set the size of the process heap. The process heap uses memory within the 32-bit address space not used by the garbage-collected heap. To increase the size of the process heap, decrease the maximum Java heap size using the -Xmx option in the *foglight.config* file

### **Default Stack Size**

The default stack size can be adjusted with the -Xss option.

# Adding Command Line Options

The *foglight.config* file allows you to add up to ten additional command line options for fms.exe.

Each command line argument corresponds to a space-delimited argument passed to the vFoglight process.

For example, the following lines in the *foglight.config* file:

```
foglight.cmdline.option0 = "-b";
foglight.cmdline.option1 = "hostname";
```

correspond to this direct argument on the command line:

```
fms.exe -b hostname
```

Note that some arguments may be assembled as single non-separated text. For example, using the long name for the parameter in the example above results in a single foglight.cmdline.option entry:

```
foglight.cmdline.option0 = "--host=hostname";
```

which corresponds to the following command line argument:

```
fms.exe --host=hostname
```

# **Changing External Database Credentials**

Use the following method to reconfigure vFoglight to start up with a new database password. The password can be updated in the *foglight.config* file.

To encrypt your database password using the keyman command:

1 Enter the following from the command line:

```
> bin\keyman -d [FGLHOME\config] encpwd "<new password>" foglight.defaultkey
```

The encrypted password appears.

- 2 Open the *foglight.config* file.
- **3** Replace the existing database password with the new encrypted database password on the following line:

foglight.database.password = "q4056753111e8a24c9a722048fc6df1f0"

4 Restart the vFoglight Management Server.

# Setting Up vFoglight Server Federation

Federation is useful for customers who monitor large scale environments that are naturally partitioned into logical units. Each of these partitions is normally served by one vFoglight Management Server instance and its distributed clients/agents. These Management Server instances together can act as a single logical Management Server by making each instance a Federated Management Server with one central Federation Management Server.

For more detailed background information on vFoglight Federation, please refer to the *vFoglight Federation Field Guide*.

To create a Federated environment, you must make changes to both the foglight.config and the federation.config files after installation.

Caution A Federated server must always be started with the federation parameter set to true.

To set up a Federated environment:

- 1 Identify the vFoglight Management Server you wish to define as the Federated manager or master server.
- 2 Copy the ...\vFoglight\tools\foglight-federation-support.sar file into the ...\vFoglight\server\default\deploy-foglight directory.

**3** Edit the following line in the *foglight.config* file by changing the variable from false to true:

```
# foglight.federation is a boolean parameter that indicates
whether the
# server should start in the "federation" mode. The default value
is false.
#
foglight.federation = true;
```

- 4 Start your master server.
- **5** Open the ...\*vFoglight*\*config*\*federation.config* file.
- 6 Add the port number of each vFoglight Management Server in the federation to the *federation.config* file. The following example is provided in the *federation.config* file:

```
# *** JndiURLs ***
# This list contains JNDI provider URLs for federated servers.
# Example:
# JndiURLs = (
# "jnp://example.com:1100",
# );
# The default value is JndiURLs = ();
#
JndiURLs = (
);
```

7 Edit the topology auto refresh period. The default provided is 1800 seconds (30 minutes):

```
# *** TopologyRefreshPeriod ***
# This property specifies the period in seconds for major topology
refresh #operations. A major topology refresh involves re-
fetching all relevant #topology objects from all federated
servers and merging them into the local #topology model.
# The default value is 1800, that is 30 minutes.
TopologyRefreshPeriod = 1800;
```

attributes are merged for topology #objects that are returned by

8 Edit the list of topology queries:

```
# *** TopologyQueries ***
# This list contains topology queries that identify topology
objects to be #merged into the federated topology model. These
queries are executed on remote servers within the federation. All
```

Foglight Installation and Setup Guide

```
the queries, plus identity attributes are #fetched (recursively)
for topology objects referenced from query results.
# The default value is
# TopologyQueries = (
# "!TopologyObject",
# );
TopologyQueries = (
   "!TopologyObject",
);
```

# Configuring vFoglight to Access the Server Only Through the HTTPS Port

If you do not choose to install vFoglight in Secure Server mode, you can manually configure the vFoglight Management Server to restrict the server to use only the https port by editing the *<foglight\_home>\config\foglight.config* file. Set the following parameter:

foglight.console.httpsonly = "true";

You must reboot the Management Server after setting the parameter.

**Note** You must have a signed, valid certificate if you want to use the https-only configuration. Vizioncore recommends that you obtain a valid certificate from a third party as outlined in the following procedure.

### Importing a Network Security Certificate

Once you have set the vFoglight Management Server to use only https, you must generate a key pair (security certificate) into the vFoglight keystore. This allows the server to communicate through the https protocol. You need to delete the existing certificate shipped with vFoglight before generating a new key pair. Use the keytool utility shipped with vFoglight to create, import, and export certificates. This utility can be found in:

• \$FMS\_HOME\jre\bin\keytool

There are two keystores used by vFoglight:

- The built-in Tomcat keystore located at: \$FMS\_HOME\server\default\conf\tomcat.keystore (default password: nitrogen)
- The vFoglight Management Server keystore located at: \$FMS\_HOME\jre\lib\security\cacerts (default password: changeit)

To import a certificate:

1 Change directories to the following path:

```
$FMS_HOME\server\default\conf\
```

**2** Delete the existing tomcat key from the tomcat.keystore directory using the following command:

```
$FMS_HOME\jre\bin\keytool -keystore
FMS_HOME\server\default\conf\tomcat.keystore -storepass nitrogen -delete
-alias tomcat
```

3 Create a new key under the tomcat alias using the following command:

```
$FMS_HOME\jre\bin\keytool -keystore
FMS_HOME\server\default\conf\tomcat.keystore -storepass nitrogen -genkey
-alias tomcat
```

4 Generate a Certificate Signing Request (CSR) using the following command:

```
$FMS_HOME\jre\bin\keytool -keystore
FMS_HOME\server\default\conf\tomcat.keystore -storepass nitrogen -certreq
-alias tomcat -file <your_request_file.csr>
```

This file must be signed by Certification Authority (CA).

5 Once you have the certificate signed, import it back to the tomcat.keystore using the following command:

```
$FMS_HOME\jre\bin\keytool -keystore
FMS_HOME\server\default\conf\tomcat.keystore -storepass nitrogen -import
-trustcacerts -alias tomcat -file <your_converted_cerificate>
```

You are prompted to enter the keystore password.

6 Type nitrogen.

# Setting Up an Encrypted Database Connection

The following procedure outlines how to set up a secure external Oracle database connection.

Note This procedure must be performed after installation but before you have started the vFoglight Management Server.

To set up an encrypted Oracle database connection:

- 1 Enable encryption in your Oracle database. Check with your database administrator for details.
- 2 Uncomment and set the foglight.database.secureconn attribute in the *foglight.config* file to true, as shown below.

```
#
```

 $\ensuremath{\sharp}$  For Oracle, this option can be enabled once the database server is properly configured.

# However, for MySQL, DO NOT enable this option until the database server's CA certificate is properly imported into \$fms\_dir\jre\lib\security\cacerts. foglight.database.secureconn = "true";

**3** Start the vFoglight Management Server.

# Setting Up an Encrypted LDAP Connection with SSL

Follow the directions below if you need to encrypt communication between the vFoglight Management Server and the LDAP server.

To encrypt communication between vFoglight Management Server and LDAP:

- 1 Acquire the LDAP server certificate in .pem format from the administrator.
- 2 Import the certificate into the vFoglight Management Server keystore (\$FMS\_HOME\jre\lib\security\cacerts (default password: changeit)) with the following command:

\$FMS\_HOME\jre\bin\keytool -import -file <path\_to\_cert\_file> -alias
ldapsvrcert -keystore <path\_to\_cacerts>

- 3 Go to Administration > Users & Security > Configure Directory Services.
- 4 Click Edit.
- 5 Enter the LDAP server URL in the following format:

ldaps://ldap\_server\_host\_name:636

**Note** The port number for LDAP over SSL is usually 636. Confirm the exact port number with your LDAP server administrator.

69

# Uninstalling vFoglight

You can uninstall vFoglight using the uninstaller utility for your platform. The uninstaller can be found in *<vfoglight\_home>\UninstallerData*.

Foglight Installation and Setup Guide

70

# Running the vFoglight Management Server

#### This chapter contains the following sections:

Before You Begin	72
Starting and Stopping the vFoglight Management Server	72
Logging in to vFoglight	76
Running the vFoglight Management Server FAQ	77

# **Before You Begin**

The instructions in this chapter assume that you have already installed vFoglight. If you have not, see "Installing vFoglight" on page 33 for installation instructions.

# Starting and Stopping the vFoglight Management Server

The following sections describe how to start and stop the vFoglight Management Server.

To start the Management Server from the command line:

• Execute the following command:

<vfoglight\_home>\bin\fms.exe

To start the Management Server on Windows:

Depending on where you installed the startup icon, choose Start > Programs > Vizioncore > vFoglight 5.2.4 > Start Management Server or double-click the Start vFoglight icon on the desktop.

When the server has successfully started, the following message appears in the command window:

vFoglight Management Server startup completed.

# Starting the vFoglight Management Server as a Windows Service

After the installation is completed, you can install the vFoglight Management Server as a Windows service either from the **Start** menu or the command line.

**Note** The procedures below assume that you have installed the program shortcuts in the default location.

# Using the Start Menu Options

To install or remove the Management Server service from the Start menu:

• Choose Start > Programs > Vizioncore > vFoglight 5.2.4 > Windows Service > Install Service for vFoglight (or Remove Service for vFoglight).

To start or stop the Management Server service from the Start menu:

• Choose Start > Programs > Vizioncore > vFoglight 5.2.4 > Windows Service > Start Service for vFoglight (or Stop Service for vFoglight).

#### Using the Command Line

From the command line, type the following to install the vFoglight Management Server as a Windows service:

fms.exe -i

Additional Commands:

Command	Represents	Description
-S	start	Start the vFoglight Management Server (this is assumed if no command is specified)
-q	stop	Stop the vFoglight Management Server
-b	start-service	Start the vFoglight Management Server Windows service
-r	remove- service	Stop and remove the vFoglight Management Server Windows service
-n	name	Provide a unique name for this instance of the vFoglight Management Server service
-j	jvm-argument	Set an option to be passed directly to the Java <sup>™</sup> VM (can be used to set more than one VM option)
-V	version	Display the version number for this program and exit
-h	help	Show this information and exit

# Stopping the Server

To stop the vFoglight Management Server:

Do one of the following:

- Type **Ctrl-C** in the command window from which the Management Server started.
- On the command line, type: fms.exe -q
- Depending on where you installed the startup icon, choose Start > Programs > Vizioncore > vFoglight 5.2.4 > Stop vFoglight or double-click the Stop vFoglight icon on the desktop.

When the server has stopped successfully, the **Start vFoglight** command window closes.

# Starting and Stopping the Server in High Availability Mode

Configuring your server in High Availability (HA) mode allows you to run multiple servers in a JBoss partition offering HA.

**Note** To run the HA server, you must use an external database. The database has to be running before you start vFoglight HA server.

To start the High Availability Server:

Do one of the following:

- Choose Start > Programs > Vizioncore > vFoglight 5.2.4 > High Availability > Start vFoglight In HA Mode.
- Enter the following from the command line: fmsha.exe

When the server has started successfully, the following message appears in the command window:

High Availability Server startup completed.

To stop the High Availability Server:

Do one of the following:

- Choose Start > Programs > Vizioncore > vFoglight 5.2.4 > High Availability> Stop vFoglight In HA Server.
- Enter **Ctrl-C** from the command window in which the vFoglight HA server started.

• Open a second command window and enter the following command: fmsha.exe -q

When the server has stopped successfully, the command window closes.

# **Remote Monitor**

The Remote Monitor is a Java program that regularly communicates with a set of High Availability Servers. If there is no reply after it attempts to contact the server, then it logs the event and can optionally send out e-mail notifications to an administrator.

The Remote Monitor takes a list of hostnames or hostname/port pairs as parameters. When invoked without parameters, Remote Monitor takes the list of hostnames or hostname/port pairs from the file <*vfoglight\_home*>\*config*\*remote\_monitor.config* under the entry server.urls.

Each parameter in the entry server.urls points to a specific HA server. If a port is not specified as part of this entry, the default port 51231 is used. The default port can be configured in <vfoglight\_home>\config\remote\_monitor.config, under the entry health.monitor.port. This entry should match the health.monitor.port entry in the file <vfoglight\_home>\config\restart\_monitor.config on your servers.

**Note** To use the Remote Monitor, JRE 1.5 must be installed on the machine hosting the Remote Monitor and the JAVA\_HOME environment variable must be set to point to the installation directory.

To install the Remote Monitor:

• Copy the <*vfoglight\_home*>\*tools*\*remote\_monitor.zip* file to your target machine and unzip the contents to a directory.

To start the Remote Monitor:

Note The vFoglight Management Server must be running before you can start the Remote Monitor.

Do one of the following:

- Enter the command
   <vfoglight\_home>\bin\remotemonitor <hostname<:port>>
- Choose Start > Programs > Vizioncore > vFoglight 5.2.4 > High Availability > Start Remote Monitor.

To stop the Remote Monitor:

Do one of the following:

- Enter Ctrl-C from the command window where the Remote Monitor started.
- Choose Start > Programs > Vizioncore > vFoglight 5.2.4 > High Availability > Stop Remote Monitor.

# **Enabling Email Notification**

Servers running in HA mode can send out email notifications in various situations, such as when servers stop responding or on failure to restart a server. The files <*vfoglight\_home>\config\restart\_monitor.config* and <*vfoglight\_home>\config\remote\_monitor.config* control how email notification functions, such as email protocols, email server information, and the message and recipients for each situation. Emails can be sent out from the HA server or from the Remote Monitor. See the comments in these files for more information about email notification.

# Logging in to vFoglight

Note The vFoglight Management Server must be running before you can log in to vFoglight.

To log in to vFoglight:

- 1 Depending on where you installed the program icons, choose Start > Programs > Vizioncore> vFoglight 5.2.4 > vFoglightConsole.
- 2 Enter a valid username and password and click Login.

To log in to vFoglight using a web browser:

• Open a web browser and type the following:

http://<hostname>:<port>/console/admin/main.action

where <hostname> is the name of the machine where the vFoglight Management Server is installed and <port> is the http port specified during installation (the default is 8080).

# **Next Steps**

To install cartridges, refer to the chapter "Installing and Upgrading Cartridges".

# Running the vFoglight Management Server FAQ

# When I try to start the vFoglight Management Server using Remote Desktop, an error appears. How can I resolve this error?

There are two options to resolve this problem.

- Use VMWARE Console to start the server.
- Change the JVM options by reducing the memory requirements of the vFoglight Management Server so you can start it using Remote Desktop. To do so, use one of the following methods:
  - On the command line, enter the following:

fms.exe -j -XX:MaxPermSize=96m

• Edit the *foglight.config* file found in *<vfoglight\_home>\config* and modify the following parameter:

foglight.vm.option0 = "-XX:MaxPermSize=96m";

After you have used one of these methods, restart the server.

# If I close the vFoglight Management Server by clicking the X button on the command window, an error appears when I start up the server again. How do I restart the server?

It is recommended that you do not use this method to stop the vFoglight Management Server. However, if you do use this method, follow the workaround listed below.

- 1 If you are using a managed database, stop the database manually before restarting the vFoglight Management Server.
- 2 Remove the stale *.pid* file that is located in the *\state* directory. The logs or the console output inform you which *.pid* file to remove when you restart the server.

Foglight Installation and Setup Guide

78

# 4

# Installing and Upgrading Cartridges

Using the vFoglight Administration Module, you can install cartridges on the machine hosting the vFoglight Management Server, enable and manage cartridges, and download agent installers.

The following topics are covered in this chapter:

Accessing the Cartridge Inventory Page	80
Installing Cartridges	80
Upgrading Cartridges	81

# Accessing the Cartridge Inventory Page

The *Cartridge Inventory* page of the vFoglight Administration Module contains controls for installing, enabling, disabling, and uninstalling cartridges, as well as for viewing information about the installed cartridges.

To access the Cartridge Inventory page:

• In the navigation panel, select Administration > Cartridges > Cartridge Inventory.

The Cartridge Inventory page appears.

# Installing Cartridges

Installation is the first step in adding a cartridge to the vFoglight Management Server. A cartridge file has the extension *.car*. Installing the *.car* file causes the Management Server to be aware of all cartridges in the *.car* file.

**Note** You can install a *.car* file that is in a local directory on the machine hosting the Management Server or upload a *.car* file from your local machine to the Management Server through the Administration Module.

A cartridge must also be enabled before it is added to the vFoglight Management Server. You can cause a cartridge to be enabled upon installation, or you can enable it after installation. See the *vFoglight Administration and Configuration Guide* for instructions on enabling and disabling cartridges after installation.

To install a cartridge:

- 1 Navigate to the Cartridge Inventory page.
- 2 In the *Install Cartridge* area, type the path to the *.car* file for the cartridge you want to install.
  - Type the path in **File on Local Machine** field if you want to upload a *.car* file from your local machine to the Management Server.
  - Type the path in the **File on Server** field if you want to install a *.car* file that is in a local directory on the machine hosting the Management Server.

Alternatively, you can click **Browse** to navigate to a *.car* file on your local machine using a file chooser. Click **OK** in the file chooser when you have selected the *.car* file you want to install.

- 3 The check box Enable on install is selected by default.
  - If you would like the cartridge to be enabled when it is installed, leave this check box selected.
  - If you would like to enable the cartridge after installation, deselect this check box.
- 4 Click Install Cartridge.

If the installation is successful, the message "Cartridge has been installed successfully" appears in the *Install Cartridge* area and the cartridge is listed in the *Cartridge Inventory*.

If **Enable on install** was not selected (see step 3), a caution symbol ( $\triangle$ ) appears in the row for that cartridge in the table in the *Cartridge Inventory*.

For more information about cartridge installation and configuration see the *vFoglight Administration and Configuration Guide*.

# **Upgrading Cartridges**

For complete cartridge upgrade instructions, refer to the *vFoglight 5.2.4 Upgrade Field Guide*.

# **Next Steps**

To install the vFoglight Agent Manager, refer to the chapter "Installing and Running the vFoglight Agent Manager (FglAM)".

**Note** The vFoglight Agent Manager is automatically installed during the vFoglight installation. These instructions are for reference only. vFoglight Installation and Setup Guide

82

5

# Installing and Running the vFoglight Agent Manager (FgIAM)

#### This chapter contains the following sections:

Installing the vFoglight Agent Manager	84
Upgrading the vFoglight Agent Manager	
Configuring the vFoglight Agent Manager	96
Running the vFoglight Agent Manager	
Next Steps	99
Uninstalling the vFoglight Agent Manager	99
vFoglight Agent Manager Platform Support Matrix	

**Note** The vFoglight Agent Manager (FgIAM) is installed automatically during the vFoglight installation. These instructions are for reference only.

# Installing the vFoglight Agent Manager

The vFoglight Agent Manager manages agents installed on monitored hosts, providing a centralized communications link between the vFoglight Management Server and the agents. The vFoglight Agent Manager also provides a number of support services such as installation, upgrade, and the ability to configure agents.

**Note** Throughout this chapter, the convention [*option1*|*option2*] is used in file names at points where you must type, select, or otherwise specify one of multiple options.

# Deploying the vFoglight Agent Manager Cartridge

vFoglight Agent Manager installer is delivered in the cartridge *FglAM-windows-ia32-5\_2\_4.car*. This cartridge is available in Cartridge folder of the vFoglight installation directory.

The following procedure outlines how to deploy the *FglAM-windows-ia32-5\_2\_4.car* file on your vFoglight Management Server.

To deploy the vFoglight Agent Manager cartridge:

- 1 Log in to vFoglight.
- 2 Navigate to the Cartridge Inventory dashboard (**Dashboards** > **Administration** > **Cartridges** > **Cartridge Inventory**).
- 3 Click the **Browse** button beside the **File on Local Server** field. The *Choose File* window appears.
- 4 Navigate to your *FglAM-windows-ia32-5\_2\_4.car* file, and click on the **Open** button. The **File on Local Server** field is now populated with the path to the vFoglight Agent Manager installer.*car* file.
- 5 Ensure that the **Enable on Install** box is checked.
- 6 Click the **Install Cartridge** button.

Once you have deployed the applicable cartridge for the vFoglight Agent Manager, you can then download the installer for your platform and install the vFoglight Agent Manager. See "Downloading the vFoglight Agent Manager Installer" on page 85 and "Installing the vFoglight Agent Manager" on page 86.

# Downloading the vFoglight Agent Manager Installer

The sections below outline how to download the installer for the vFoglight Agent Manager once you have deployed the *FglAM-windows-ia32-5\_2\_4.car* file as described in "Deploying the vFoglight Agent Manager Cartridge" on page 84.

### Using the Components for Download Dashboard

After deploying the *FglAM-windows-ia32-5\_2\_4.car* file, you can download the appropriate platform-specific installer from the Components for Download dashboard.

To download the installer for the vFoglight Agent Manager:

- 1 Log in to vFoglight.
- 2 Navigate to the Components for Download dashboard (Dashboards > Administration > Cartridges > Components for Download).
- 3 Click the vFoglight Agent Manager installer for your platform. Consult the "vFoglight Agent Manager Platform Support Matrix" on page 100 for the appropriate installer name for your platform.
- 4 **Optional:** save the installer.
- **5** Run the installer. See "Installing the vFoglight Agent Manager" on page 86 for details.

## Using the vFoglight Agent Manager Installer Servlet

In situations where unauthenticated or headless access to the installers is required, you can download the appropriate platform-specific vFoglight Agent Manager installer from a servlet (after deploying the *FglAM-windows-ia32-5\_2\_4.car* file).

To access the vFoglight Agent Manager installer servlet using a browser:

1 Open a web browser and navigate to the following page:

[http|https]://<hostname>:<port>/catalyst-glue-service/installers/

where <hostname> is the name of the machine where the vFoglight Management Server is installed and <port> is the HTTP port specified during installation (the default is 8080).

If the vFoglight Management Server has been configured to use HTTPS, then you can specify https as the protocol.

**Note** No login is required to access this page.

- 2 Click the appropriate vFoglight Agent Manager installer for Windows. Please consult the "vFoglight Agent Manager Platform Support Matrix" on page 100 for the installer name for your platform.
- **3 Optional:** save the installer.
- 4 Run the installer. See "Installing the vFoglight Agent Manager" on page 86.

To access the vFoglight Agent Manager installer servlet using a file-retrieval tool:

1 Use a file-retrieval tool to obtain the appropriate vFoglight Agent Manager installer for Windows by specifying a path formatted as

```
[http|https]://<hostname>:<port>/catalyst-glue-service/installers/fglam-
windows-[ia32|x64].exe
```

where <hostname> is the name of the machine where the vFoglight Management Server is installed and <port> is the HTTP port specified during installation (the default port is 8080). Consult the "vFoglight Agent Manager Platform Support Matrix" on page 100 for the appropriate installer name for your platform.

If the vFoglight Management Server has been configured to use HTTPS, then you can specify https as the protocol.

For example, if you were to retrieve the file *fglam-windows-ia32.exe* from a machine called *server1* (that uses the default port 8080) using Wget, you would issue the command:

```
wget http://server1:8080/catalyst-glue-service/installers/fglam-windows-
ia32.exe
```

**2** Run the installer. See "Installing the vFoglight Agent Manager" on page 86 for instructions.

# Installing the vFoglight Agent Manager

After downloading the installer to the machine on which you want to install the vFoglight Agent Manager (as described in "Downloading the vFoglight Agent Manager Installer" on page 85), you can run the installer from the command line, use the silent (non-interactive) installer, or use the installer GUI.

The installer includes steps that allow you, for example, to install the vFoglight Agent Manager as a service and to configure multiple ways of connecting the vFoglight Agent Manager to the vFoglight Management Server.

# Using the vFoglight Agent Manager Installation and Configuration GUI

The following procedure outlines how to run the installer GUI for the vFoglight Agent Manager.

To install the vFoglight Agent Manager using the installer GUI:

1 Run the installer executable on the target machine. This program prompts you for information, and informs you of the progress of your installation.

A console window appears while the installer is loading and installer files are being extracted to a temporary location on your machine.

2 The FglAM Installation and Configuration program window appears. Review the information on the Introduction screen and click **Next**.

The License Agreement screen appears.

3 Accept the terms of the license agreement and click Next.

Note You need to accept the license agreement before you can install the product.

The Installation Directory screen appears.

4 Choose the directory where you want to install the vFoglight Agent Manager and click **Next**.

The Configure vFoglight Server URLs screen appears:

Introduction	Configure Foglight Server URLs
License Agreement	Configure the URLs that the Foglight Agent Manager will use to
Installation Directory	communicate with the Foglight Server. For failover purposes, you can configure multiple URLs.
Configure FMS URLs	
Install as a Windows Service	
Summary	
	Add         Delete         Edit         Find HA Peers         Test
Cancel	Previous Next

5 From the Configure vFoglight Server URLs screen—and the Edit vFoglight Server URL dialog that is accessible from this screen—you can configure multiple ways of connecting the vFoglight Agent Manager to the vFoglight Management Server.

For example, you can specify a single URL or configure multiple Management Server URLs for failover purposes.

- **Note** You can also configure Management Server URLs at a later time using the vFoglight Agent Manager configuration interface. See "Configuring the vFoglight Agent Manager" on page 96 for information about launching this interface post-installation.
- 6 Click Add to launch the Edit vFoglight Server URL dialog:

Foglight Server Host:	localhost	Port: 8080
Connect using HTTPS		
Allow self-signed certificat	es	
Allow a certificate with an u	inexpected common name	
Certificate Common Name:		
Connect using a proxy		
Proxy URL:		
Username:		
Password:		
NTLM Domain:		
Bind to a local address		
Local Address:		
	Ca	ncel OK

**a** Specify the URL used by the vFoglight Agent Manager to connect to the vFoglight Management Server (the Management Server hostname and port).

In addition, you can configure the following vFoglight Agent Manager connection options in this dialog: **Connect using HTTPS**, **Connect using a proxy**, and **Bind to a local address**. See "Configuring vFoglight Management Server URLs from the Installer GUI" on page 89 for information about these options.

- **b** Once you have specified the desired connection options, click **OK**.
- 7 Repeat step 6 and its sub-steps for each Management Server URL you want to add.

The URLs you add are listed on the Configure vFoglight Server URLs screen.

A URL for which the connection has not been tested appears with an orange exclamation-point icon  $(\mathbf{Q})$  next to it.

- 8 You can test each vFoglight Agent Manager-vFoglight Management Server connection by selecting the Management Server URL and clicking Test. A URL that failed the connectivity test appears with a red x icon (s) next to it.
- 9 Once you have specified one vFoglight Management Server to which the vFoglight Agent Manager connects, you can search for other Management Servers that have been configured to be part of the same HA (High Availability) partition by selecting the Management Server URL and clicking Find HA Peers.
- 10 When you have finished adding Management Server URLs, click Next.
  - **Note** If you did not configure any Management Server URLs, if there are URLs listed that have not been tested, or if there are URLs listed that failed the connectivity test, a Warning dialog appears asking you to confirm whether or not you would like to continue.

The Install Windows Service screen appears.

11 Leave the check box selected (the default setting) if you want to install the vFoglight Agent Manager as a Windows service and have it start automatically when Windows starts.

Deselect the check box if you do not want to install the vFoglight Agent Manager as a Windows service.

12 Click Next.

The Summary screen appears.

13 Click Finish to complete the installation.

The vFoglight Agent Manager installer copies files to the machine. The vFoglight Agent Manager Installer dialog and the console window close automatically when the installation is complete.

Note Install the vFoglight Agent Manager on each host that you would like to monitor.

#### Configuring vFoglight Management Server URLs from the Installer GUI

As described in step 6 of "Using the vFoglight Agent Manager Installation and Configuration GUI" on page 87, you can configure the vFoglight Agent Manager connection parameters described below in the Edit vFoglight Server URL dialog available from the installer GUI.

#### Connect using HTTPS

If the vFoglight Management Server has been configured to use HTTPS, then HTTPS can be used by the vFoglight Agent Manager to connect to the Management Server.

Selecting the **Connect using HTTPS** check box causes the following additional options to become available:

- Allow self-signed certificates: Selecting this check box causes self-signed certificates to be accepted from the Management Server.
- Allow a certificate with an unexpected common name: Selecting this check box causes a certificate with a common name (host name) different than the one reported by the Management Server to be accepted. You specify the name in the field Certificate Common Name:.

#### Connect using a proxy

You can specify whether the vFoglight Agent Manager should connect to the Management Server using a proxy.

Selecting the **Connect using a proxy** check box causes the following additional fields to become available:

- **Proxy URL:** Specify the URL of the proxy used to connect to the Management Server in this field.
- Username: Specify the username provided to the proxy in this field.
- **Password:** Specify the password provided to the proxy in this field.
- NTLM Domain: Specify the domain provided to the proxy in this field.

#### Bind to a local address

You can specify a local network address on the vFoglight Agent Manager machine from which connections to the Management Server are made.

• Local Address: Specify the IP address of a NIC (network interface card) on the machine hosting the vFoglight Agent Manager that is used to establish outbound connections to the Management Server.

## Installing the vFoglight Agent Manager from the Command Line

The following procedure outlines how to run the command-line installer for the vFoglight Agent Manager.

The command-line installer prompts you for information and informs you of the progress of your installation.

To install the vFoglight Agent Manager from the command line:

- 1 Launch a command window on the target machine and navigate to the directory to which you downloaded the installer.
- 2 Run the installer executable by specifying the following:

fglam-windows-[ia32|x64].exe --headless

Messages appear in the command window while the installer starts and installer files are being extracted to a temporary location on your machine.

The Introduction step appears in the command window when the installer has finished loading.

**3** Review the information in the Introduction and press Enter to move to the next step.

The first part of the License Agreement step appears.

- 4 Press Enter to cause subsequent portions of the license agreement to appear.
- 5 At the prompt, type Y and press Enter to accept the terms of the license agreement.

Note You need to accept the license agreement before you can install the product.

The Installation Directory step appears.

- 6 At the Install directory prompt, type the path to the directory where you want to install the vFoglight Agent Manager and press Enter or simply press Enter to accept the default installation directory.
  - Note If the specified directory does not exist, the installer prompts you regarding whether or not you would like it to be created. To create a directory, press Enter. To return to the Install directory prompt, type N and then press Enter.

The Configure vFMS URLs step appears.

7 The Configure vFMS URLs step and its sub-steps allow you to configure multiple ways of connecting the vFoglight Agent Manager to the vFoglight Management Server.

For example, you can specify a single URL or configure multiple Management Server URLs for failover purposes.

- **Note** You can also configure Management Server URLs at a later time using the vFoglight Agent Manager configuration interface. See "Configuring the vFoglight Agent Manager" on page 96 for information about launching this interface post-installation.
- 8 Type 4 and press Enter to select the Add a new URL option.

A new step (named  $\tt Enter$  the URL data to add) appears. In addition, the URL prompt appears.

The step Enter the URL data to add provides information about the parameters available for adding a new URL. See also "Configuring vFoglight Management Server URLs from the Command Line" on page 93 for information about these parameters.

**a** At the URL prompt, type the URL parameters as a comma-separated list of name-value pairs starting with the required url parameter. For example:

url=http://localhost:8080,address=127.0.0.1,proxy=http://proxy.server

**b** Once you have typed the desired parameters, press Enter.

A message appears when the URL is added. You then return to the Configure vFMS URLs menu and prompt.

- **9** Repeat step 8 and its sub-steps for each Management Server URL you want to add.
- 10 To list the URLs you have added, type 1 and press Enter.

A numbered list of configured Management Server URLs appears.

A URL for which the connection has not been tested appears with an exclamation point (!) next to it.

You then return to the Configure vFMS URLs menu and prompt.

- 11 Once you have specified one vFoglight Management Server, you can test the vFoglight Agent Manager-vFoglight Management Server connection(s):
  - a Type 2 and press Enter.

The installer tests the connection(s). A message appears informing you of the test progress.

When the test is complete, you return to the Configure vFMS URLs menu and prompt.

**b** To see whether the URL(s) passed the connectivity test, type 1 and press Enter. A URL that failed the connectivity test appears with an x next to it.

You then return to the Configure vFMS URLs menu and prompt.

- 12 Once you have specified one vFoglight Management Server to which the vFoglight Agent Manager connects, you can search for other Management Servers that have been configured to be part of the same HA (High Availability) partition:
  - a Type 3 and press Enter.

The installer searches for HA peers and tests the connection(s). A message appears informing you of the search and test progress.

When the search and test are complete, you return to the Configure vFMS URLs menu and prompt.

**b** To see whether HA peers where found and added to the list, type 1 and press Enter. A URL that failed the connectivity test appears with an x next to it.

You then return to the Configure vFMS URLs menu and prompt.

- **13** When you have finished adding Management Server URLs, type 0 and press Enter.
  - **Note** If you did not configure any Management Server URLs, if there are URLs listed that have not been tested, or if there are URLs listed that failed the connectivity test, a message appears asking you to confirm whether or not you would like to continue.

The Install as a Windows Service step appears.

14 If you want to install the vFoglight Agent Manager as a Windows service (the default setting) and have it start automatically when Windows starts, simply press Enter.

If you do not want to install the vFoglight Agent Manager as a Windows service, type N and press Enter.

The Summary step appears.

**15** Press Enter to exit the installer and complete the installation.

The vFoglight Agent Manager installer calculates the installation size and copies files to the machine.

Note Install the vFoglight Agent Manager on each host that you would like to monitor.

#### Configuring vFoglight Management Server URLs from the Command Line

As described in step 8 of "Installing the vFoglight Agent Manager from the Command Line" on page 90 and step 3 of "Using the Silent vFoglight Agent Manager Installer" on page 95, you can configure the vFoglight Agent Manager connection parameters described below as part of the command-line installation processes.

The required and optional parameters for specifying a vFoglight Management Server URL are described below. Parameters must be specified as a list of comma-separated name-value pairs, starting with the required url parameter. For example:

```
url=http://localhost:8080,address=127.0.0.1,proxy=http://proxy.server
```

```
Important When specifying these parameters as part of the silent installation process, you must
specify the option --fms prior to the list of comma-separated name-value pairs. For
example:
        --fms url=http://localhost:8080,address=127.0.0.1
```

• url: This parameter is required. Type the URL used by the vFoglight Agent Manager to connect to the vFoglight Management Server using the format

```
url=[http|https]://<hostname>:<port>
```

where <hostname> is the name of the machine where the vFoglight Management Server is installed and <port> is the HTTP port specified during installation (the default port is 8080).

If the vFoglight Management Server has been configured to use HTTPS, then you can specify https as the protocol used by the vFoglight Agent Manager to connect to the Management Server.

- proxy: This parameter is optional. Type the URL of the proxy used to connect to the Management Server as the proxy value.
- proxyUser: This parameter is optional. Type the username provided to the proxy as the proxyUser value.
- proxyPass: This parameter is optional. Type the password provided to the proxy as the proxyPass value.
- proxyNtlmDomain: This parameter is optional. Type the NTLM domain provided to the proxy as the as the proxyNtlm value.
- address: This parameter is optional. Type the IP address of a NIC (network interface card) on the machine hosting the vFoglight Agent Manager that is used to establish outbound connections to the Management Server as the address value.
- sslAllowSelfSigned: This parameter is optional.
  - Type true as the sslAllowSelfSigned value to allow self-signed certificates to be accepted.
  - Type false as the sslAllowSelfSigned value if you do not want self-signed certificates to be accepted.

• certCommonName: This parameter is optional. Including this parameter causes a certificate with a common name (host name) different than the one reported by the Management Server to be accepted. Type the common name contained in the Management Server's certificate as the certCommonName value.

#### Using the Silent vFoglight Agent Manager Installer

You can use the silent installer in situations where you want to install the vFoglight Agent Manager non-interactively—for example, to install the vFoglight Agent Manager from the command line onto a remote, headless machine.

To install the vFoglight Agent Manager using the silent installer:

- 1 If you are installing onto a remote machine, log in to the target machine (for example, using SSH).
- 2 Launch a command window on the target machine and navigate to the directory to which you downloaded the installer.
- **3** Run the installer executable with the --silent option. All desired installation parameters must be included in the command with the --silent option, using the format

fglam-windows-[ia32|x64].exe --silent --fms <url\_and\_other\_parameters> -installdir <install\_dirirectory\_path>

where <url\_and\_other\_parameters> is a comma-separated list of parameters for configuring the connection to a vFoglight Management Server and <install\_dirirectory\_path> is the full path to the directory where you want to install the vFoglight Agent Manager. See "Configuring vFoglight Management Server URLs from the Command Line" on page 93 for a description of the required url parameter and the other optional parameters for the --fms option.

You can provide the --fms option multiple times to configure the connection to more than one Management Server at once.

Note The --installdir option is required, but the --fms option is not.

Messages appear in the command window while the installer starts. Installer files are extracted to the location you specified in the --installdir parameter and the installer runs.

# Upgrading the vFoglight Agent Manager

Consult the vFoglight 5.2.4 Upgrade Field Guide for detailed upgrade instructions.

# Configuring the vFoglight Agent Manager

This section contains information about configuring the vFoglight Agent Manager after installation.

# Configuring the vFoglight Agent Manager

You can change many of the settings available in the vFoglight Agent Manager installer at a later time using the vFoglight Agent Manager configuration interface.

Note All of the command-line options that you can specify when starting the vFoglight Agent Manager installer also work with the --configure option that is used to launch the vFoglight Agent Manager configuration interface.

To launch the vFoglight Agent Manager configuration GUI:

1 Run the vFoglight Agent Manager from the command line with the --configure option:

<fglam\_home>\bin\fglam.exe --configure

The FglAM Installation and Configuration program windowappears.

2 Review the information on the Introduction screen and click Next.

The Update Client ID screen appears.

- **3** The second screen—Update Client ID—allows you to reset the unique identifier assigned to this vFoglight Agent Manager if you have discovered that this vFoglight Agent Manager is using the same identifier as another vFoglight Agent Manager:
  - If you would like to reset the unique identifier assigned to this vFoglight Agent Manager instance: select the **Yes, reset this client's ID** check box.
  - If you do not want to reset the unique identifier assigned to this vFoglight Agent Manager instance: leave the **Yes, reset this client's ID** check box deselected (the default setting).

4 Click Next.

The Configure vFoglight Server URLs screen appears.

- 5 Using the Next and Previous buttons, navigate through the remaining screens and set the desired options. The Configure vFoglight Server URLs and Install Windows Service screens are the same as in the vFoglight Agent Manager installer GUI. See "Using the vFoglight Agent Manager Installation and Configuration GUI" on page 87 for instructions.
- 6 When you are finished configuring the vFoglight Agent Manager, navigate to the Summary screen and click **Finish**.

To launch the vFoglight Agent Manager configuration command-line interface:

- 1 Launch a command window on the vFoglight Agent Manager machine and navigate to the *<fglam\_home>\bin* directory.
- **2** Run the vFoglight Agent Manager from the command line with the following options:

fglam.exe --headless --configure

A message appears in the command shell while the configuration interface starts.

The Introduction step appears when the configuration interface has finished loading.

- **3** Review the information in the Introduction and press Enter to move to the next step.
- 4 The second step—Update Client ID—allows you to reset the unique identifier assigned to this vFoglight Agent Manager if you have discovered that this vFoglight Agent Manager is using the same identifier as another vFoglight Agent Manager:
  - If you would like to reset the unique identifier assigned to this vFoglight Agent Manager instance: type Y at the prompt and press Enter.
  - If you do not want to reset the unique identifier assigned to this vFoglight Agent Manager instance: press Enter (N is the default option).

The Configure vFMS URLs screen appears.

5 The subsequent steps—Configure vFMS URLs and Install as a Windows Service—are the same as in the vFoglight Agent Manager command-line installer. See "Installing the vFoglight Agent Manager from the Command Line" on page 90 for instructions.

Navigate through the remaining steps and set the desired options.

**6** When you have finished configuring the vFoglight Agent Manager, press Enter at the Summary step.

# Installing the vFoglight Agent Manager as a Windows Service

If you did not install the vFoglight Agent Manager as a Windows service using the installer, you can do so from the command line after installing the vFoglight Agent Manager.

To install the vFoglight Agent Manager Windows service:

- 1 Launch a command window on the vFoglight Agent Manager machine and navigate to the *<fglam\_home>\bin* directory.
- 2 Run the vFoglight Agent Manager from the command line with the --installservice option:

fglam.exe --install-service

**3** To start or stop the vFoglight Agent Manager service manually, follow the instructions in "To run the vFoglight Agent Manager as a Windows service:" on page 98.

To remove the vFoglight Agent Manager Windows service:

- 1 Launch a command window on the vFoglight Agent Manager machine and navigate to the *<fglam\_home>\bin* directory.
- 2 Run the vFoglight Agent Manager from the command line with the --removeservice option:

fglam.exe --remove-service

# Running the vFoglight Agent Manager

To start the vFoglight Agent Manager:

• Navigate to the \bin directory of your vFoglight Agent Manager installation and run the *fglam.exe* executable.

To run the vFoglight Agent Manager as a Windows service:

1 If you have not already done so, follow the instructions in "To install the vFoglight Agent Manager Windows service:" on page 98.

- 2 Launch a command window on the vFoglight Agent Manager machine and navigate to the *<fglam\_home>\bin* directory.
- 3 Run the vFoglight Agent Manager from the command line with the desired option:
  - To start the vFoglight Agent Manager service: Run fglam.exe with the -start-service option:

fglam.exe --start-service

• To stop the vFoglight Agent Manager service: Run fglam.exe with the -stop option:

fglam.exe --stop

# Next Steps

To install vFoglight Agents, refer to the chapter "Installing Agents".

# Uninstalling the vFoglight Agent Manager

To uninstall version 5.2.4 of the vFoglight Agent Manager, delete the installation directory (referred to as *<fglam home>* in this chapter).

# vFoglight Agent Manager Platform Support Matrix

The following table outlines the vFoglight Agent Manager installer appropriate for your platform.

Operating System	Version	Architecture	FgIAM Installer
Microsoft Windows	2000	ia32	fglam-
	ХР		windows-ia32
	2003 Server		
	2003 Server ia64	ia64	fglam- windows-ia32 (emulated)
	XP x64	x86_64	fglam- windows- x86_64

6

# **Installing Agents**

#### This chapter contains the following sections:

vFoglight Agents	102
Agent Installers	102
Remote Agent Installation	

# vFoglight Agents

A cartridge may include one or more executable vFoglight agent installers. These agent installers included in a cartridge are listed on the *Components for Download* page of the *Cartridges* area in the vFoglight Administration Module (select Administration > Cartridges > Components for Download from the navigation panel on the left side of the vFoglight interface). Agents must be installed on all of the machines you want to monitor. For agents that are installed on the monitored host you need to install and configure the vFoglight Agent Manager.

Note		Foglight 4-converted agents create two processes of themselves when activated by the Foglight Agent Manager
Cautio	'n	If there is a difference between the time on the machine hosting the vFoglight Management Server and the machine on which an agent is running, then the Management Server discards all of the observed values for that agent.
	Tł	ne following are examples of problems that may arise as a result of time differences:
	•	If the Daylight Savings Time patch has not been applied on the agent machine, but the time was moved ahead manually, the vFoglight Management Server discards the data sent to it by the agent.
	•	If the Daylight Savings Time patch is applied after the agent is installed, the vFoglight Management Server discards the data sent to it by the agent.

# **Agent Installers**

Agents that depend on the vFoglight Agent Manager are installed using the remote installation procedure. See "Remote Agent Installation" on page 103 and the *Administration and Configuration Guide*.

Some cartridges include one or more executable agent installers. The agent installers that are available for download are listed on the *Components for Download* page of the *Cartridges* area. You can use the controls on this page to download agent installers from the vFoglight Management Server to a remote machine.

#### To download an agent installer:

1 Select Administration > Cartridges > Components for Download from the navigation panel on the left side of the vFoglight interface. The Components for Download page appears.

- 2 Click the name of the installer that you want to download.
- **3** Follow the on-screen instructions for each step of the installation process and specify the appropriate installation options.
- **Note** For agents that are installed individually, you have to run the agent installer executable and setup the agent on each machine you want to monitor with that type of agent.

The vFoglight Agent Manager defines agents with their Agent Package name. When displayed in the Create Agent dialog, the agent names are prepended with the cartridge name.

Depending on the type of agent that you installed, you may need to edit its properties to configure it for the part of your environment that you want to monitor. For information about agent properties, see the *Administration and Configuration Guide* and the *User Guide* for the cartridge with which the agent was included.

# **Remote Agent Installation**

You can install vFoglight agents on any remote host on which vFoglight Agent Manager has been installed. See the chapter "Installing and Running the vFoglight Agent Manager (FglAM)" for instructions on installing vFoglight Agent Manager.

For more information about remote agent installation, see the *Administration and Configuration Guide*.

104 vFoglight Installation and Setup Guide

# Index

#### Α

about vFoglight 8 administration administrator default account 34 default user name and password 34 Agents 28 embedded 28 installing 102

## В

bin directory 60

# С

cartridge directory 61 cartridges installing 80 client directory 60 Components for Download dashboard 85 config directory 60 configuring vFoglight Agent Manager 96 contacting Vizioncore 11

## D

database external MySQL database access for remote users 55 deploying vFoglight Agent Manager cartridge 84 directories installed directories 60 documentation cartridge 10 core 9 feedback 10 suite 9 documentation directory 60 downloading vFoglight Agent Manager installer 85 dtd directory 60

### Η

High Availablility Server 74 how to access the Cartridge Manager 80 install a cartridge 80 106

#### Foglight Installation and Setup Guide

#### I

installation modes 56 recommendations 31 requirements 34 installed directories 60 bin 60 cartridge 61 client 60 config 60 docs 60 dtd 60 ire 61 lib 61 logs 61 mysql 61 scripts 61 server 61 support 61 installers downloading the vFoglight Agent Manager installer 85 installing vFoglight Agent Manager 83, 84, 86 installing cartridges 80

#### J

JAR files directory 61 JRE directory 61

#### L

lib directory 61 licensing 29 log files directory 61 logging in to the Administration Console 76

#### М

Management Server 27 mysql files directory 61

#### Ρ

password, administrator 34 perl files directory 61 platform support vFoglight Agent Manager 100 properties file 57

#### R

recommendations for installing vFoglight 31 remote agent installation 103 remote monitor installing 75 starting 75 running vFoglight Agent Manager 83 running vFoglight 71

#### S

scripts directory 61 server starting 72 stopping 73 server directory 61 silent installation mode 57 starting the server 72 stopping the server 73 support directory 61

#### Т

text conventions 11

#### U

uninstalling vFoglight 69 vFoglight Agent Manager 99 upgrading vFoglight Agent Manager 96 user account administrator 34 using Components for Download dashboard 85 vFoglight Agent Manager installer servlet 85

#### ۷

vFoglight uninstalling 69 vFoglight Agent Manager configuring 96 deploying the cartridge 84 downloading the installer 85 installer 86 installing 83, 84 installing Windows service 98 platform support 100 removing Windows service 98 running 83, 98 uninstalling 99 upgrading 96 vFoglight Agent Manager installer servlet 85

#### W

#### Windows

service, from the command line 73 service, installing vFoglight as a 72