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<td>Installing the AIX Informix Schema</td>
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</tbody>
</table>
Preface

This document describes how to install Facility Commander and its components. It also includes instructions to connect hardware and other peripheral devices.

There is also information describing how to contact technical support if you have questions or concerns.

This document is intended for system administrators, business partners, or installer technicians responsible for system installation and integration.

Installer technicians should be familiar with personal computers, client and server relationships, databases, Web browsers, and graphical user interface (GUI) navigation. They should also have a working knowledge of:

- Picture Perfect application
- Database operations

Everyone should read the chapters, such as the Introduction, database, and any other components needed for system installation and integration.

Related Documentation

The following documents contain detailed information about specific software and operating systems:

- Facility Commander Administration Guide
  This document describes Facility Commander and its components. It describes the Facility Commander interface and contains step-by-step procedures to use the application.

- Picture Perfect 4.5 Installation Manual
  This document describes how to install and configure the Picture Perfect application.

- Picture Perfect 4.5 User Manual
  This document describes how to configure and manage the Picture Perfect application. It describes the Picture Perfect interface and contains step-by-step procedures to use the application.

More documentation is available about these products. Also, refer to other vendor’s or manufacturer’s documentation as well.
Conventions used in this document

The following conventions are used in this document:

<table>
<thead>
<tr>
<th><strong>Bold</strong></th>
<th>Menu items and buttons.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Italic</strong></td>
<td>Emphasis of an instruction or point; special terms.</td>
</tr>
<tr>
<td></td>
<td>File names, path names, windows, panes, tabs, fields, variables, and other GUI elements.</td>
</tr>
<tr>
<td></td>
<td>Titles of books and various documents.</td>
</tr>
<tr>
<td><strong>Blue italic</strong></td>
<td>Hyperlinks to cross-references, related topics, and URL addresses.</td>
</tr>
<tr>
<td><strong>Monospace</strong></td>
<td>Text that displays on the computer screen.</td>
</tr>
<tr>
<td></td>
<td>Programming or coding sequences.</td>
</tr>
</tbody>
</table>

Safety terms and symbols

These terms may appear in this manual:

⚠️ **CAUTION:** Cautions identify conditions or practices that may result in damage to the equipment or other property.

⚠️ **WARNING:** Warnings identify conditions or practices that could result in equipment damage or serious personal injury.

⚠️ When disposing of this product, please separate it from other waste and deliver it to the appropriate recycling center in your country, in accordance with Waste Electrical and Electronic Equipment (WEEE) directive 2002/96/EC and amendment 2003/108/EC and their respective national equivalents. For more information, visit www.recyclethis.com.
Chapter 1  Introduction

This chapter provides an overview of your Facility Commander 2.2.2, including minimum hardware/software requirements and steps you need to perform before you begin installing, configuring, and using your Facility Commander 2.2.2.

In this chapter:

- Product overview ............................................ 2
- Video management ........................................... 3
- Software inventory .......................................... 5
- System requirements ........................................ 6
- Checklist ...................................................... 10
- Connecting hardware devices ............................ 11
Product overview

Facility Commander is a security integration platform that provides integrated digital video, analog video switchers, intercom, and intrusion with access control. It interfaces with Picture Perfect, which continues to perform all access control, alarm, and reporting tasks.

The main features of Facility Commander include a comprehensive alarm management system with direct access to graphical maps and video clips from the Alarm Monitor, and a high-level command and control interface to Digital Video Recorders (DVRs) and their connected cameras.

Configuring Facility Commander is accomplished using a Web browser, such as Internet Explorer. Operators select which facilities, doors, inputs, and outputs they want to control from Facility Commander and import these records from the access control system.

The alarm events associated with these devices can be configured to perform any number of actions in Facility Commander. For example, if a door has a video camera monitoring it, whenever a Door Forced alarm occurs, the system can be configured to send an e-mail notice to the Security Supervisor, and also tag the video clip so it can be reviewed later.

Monitoring the system is accomplished using the Facility Commander Launcher, which provides the capability to monitor alarms and control video cameras. All alarms generated by Picture Perfect are sent to the access control system’s Alarm Monitor, and also to the Facility Commander Alarm Monitor. From the Facility Commander Alarm Monitor, security personnel can perform all of the operations that they can do on Picture Perfect.

The Facility Commander Command and Control client features include:

- Create or import site maps for graphical representation of device and alarm locations
- Associate symbols and icons with devices, such as doors, intercoms, intrusion devices, and cameras
- Display a graphical map showing the location of an alarm and the alarm state
- Control devices from graphical maps, such as locking or unlocking a door
- Acknowledge alarms from either the graphical map or from the alarm monitor
- View recorded video clips associated with alarm events
- View live video from fixed or PTZ cameras
- Control a PTZ camera on-screen by using the mouse to pan, tilt, and zoom
- Search for video clips stored on a DVR by event, event type, camera, or DVR
Video management

The key feature of Facility Commander is integrated digital video. There are two architectural configurations available, depending on the organization’s size and geographic locations.

If the site is relatively small or in one central location, then the Media Server can be installed on the Facility Commander Application Server (Linux and Windows only) to manage the video services.

In large environments with several geographically distributed sites, it may be undesirable to transmit video clips across the network. In this case, adding a Remote Media Server to the system improves the video transmission process.

Centralized video management

Using a single server configuration, this example describes the events that occur when an operator wants to view video. The Media Server, installed on the Facility Commander Application Server shown in Figure 1, has two DVRs with four cameras and two client workstations.

The illustration includes the following process:

- The client workstation sends a message to the Facility Commander Application Server requesting a connection to camera three.
- The Facility Commander Application Server performs a lookup in the database to identify which DVR the camera is connected to, and which system controls and manages the components. In this example, there is only one Facility Commander Application Server in the network.
- The Facility Commander sends a message to the Media Server (installed on the Facility Commander Application Server) to expect a connection from the client system. The client system opens a TCP/IP connection socket to the Media Server with the server configuration to receive the video stream.
- The Media Server sends compressed video from the associated DVR to the client workstations. Using the Video Viewer application, the operator is able to view the video stream from camera three.
Distributed video management

Using a Facility Commander server with a Remote Media Server, this example describes the events when an operator from a remote location wants to view video. In this example, the Media Server transmits the video from the camera device to the client application.

*Figure 2* shows two sites that can be located anywhere — in the same city or different cities. Both sites have two DVRs, four cameras, and two client workstations.

This illustration describes the events when an operator using the Video Viewer on the client system requests video from camera three. This camera device is located at site two, which is managed by the Media Server as shown in *Figure 2*.

- The client system sends a message to Facility Commander server requesting a connection to camera three.
- The Facility Commander server performs a lookup in the database to identify which DVR the camera is connected to, and which system controls and manages the components.
- The Facility Commander sends a message to the remote Media Server to expect a connection from the client system. The client system opens a TCP/IP connection socket to the Media Server with the server configuration to receive the video stream.
- The remote Media Server sends compressed video from the associated DVR to the client workstations. Using the Video Viewer application, the operator is able to view the video stream from camera three.

The Media Server guarantees that local video does not have to be processed by a Facility Commander server located remotely, but by the Remote Media Server that is closer to the client workstations.
Software inventory

All Facility Commander software and documentation are available on CD and DVD discs. The GE Security CD/DVD label information includes the Facility Commander version number and date.

Depending on the operating system and database, there may be additional CD/DVDs from other vendors, such as Microsoft.

Before you start installing any software, verify you have all the required CD/DVDs. Refer to Table 1 for a list of CD/DVDs supplied by GE Security.

Picture Perfect Users: If you are integrating Picture Perfect with a Facility Commander system, you will also need the Picture Perfect External Interface (EIF) package.

Table 1. List of CD/DVDs shipped with Facility Commander

<table>
<thead>
<tr>
<th>Facility Commander</th>
<th>Linux</th>
<th>AIX</th>
<th>Windows</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Database</td>
<td>Informix</td>
<td>Informix</td>
<td>SQL Server 2008</td>
</tr>
<tr>
<td>Facility Commander Installation DVD</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Documentation CD</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Video Drivers CD</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Refer to the following sections for the list of minimum system requirements:

- Facility Commander Server on page 6
- Remote Media Server on page 8
- Client workstations and Web browser on page 8
System requirements

The size and number of disks that the server requires depends on several factors, such as the database software, size of the Facility Commander database, and RAID requirements, if applicable.

For Facility Commander 2.2.2 co-resident with Picture Perfect 4.5.1 configurations, contact GE Security Sales Engineering for hardware specifications.

Due to the demanding nature of streaming video over IP, managing multiple video streams from the newly introduced support for SymSuite and VisioWave devices requires increased CPU processing power, memory, and network bandwidth. System-wide video performance is equally affected by the resolution, frame rate, and quality settings of individual video streams and should be adjusted accordingly as supported by the SymSuite and VisioWave devices.

FC servers and/or client workstations used for hosting video devices or viewing multiple video streams should meet the following minimum requirements

- RAM: 4 GB or higher
- NIC: 1 Gb
- Video: Graphics card hardware support for DirectX 9 with Pixel Shader 3

Facility Commander Server

Install the Facility Commander software and its database on the server system.

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Windows Server 2008 (32 bit)</th>
<th>Red Hat Linux 5.3 (32 bit)</th>
<th>AIX 6.1 (64 bit)</th>
</tr>
</thead>
</table>
| Minimum server hardware requirements | Dell PowerEdge 2900 or 2950 with:  
  - Intel Xeon Quad Core E5310 CPU (four CPU Cores)  
  - 4 GB of Memory (RAM)  
  - Two 73 GB 15K RPM SAS or SCSI Disk Drives (RAID optional)  
  - 100 Mb Network Interface Card (NIC)  
  - DVD-ROM Optical Drive  
  - Graphical monitor, keyboard, and mouse  
  - DAT72 Tape drive (optional)  
  - Video card | Dell PowerEdge 2900 or 2950 with:  
  - Intel Xeon Quad Core E5310 CPU (four CPU Cores)  
  - 4 GB of Memory (RAM)  
  - Two 73 GB 15K RPM SAS or SCSI Disk Drives (RAID optional)  
  - 100 Mb Network Interface Card (NIC)  
  - DVD-ROM Optical Drive  
  - Graphical monitor, keyboard, and mouse  
  - DAT72 Tape drive (optional)  
  - Video card | IBM P5 Series Model 520 Server with:  
  - Dual Core CPU (two CPU Cores)  
  - 4 GB of Memory (RAM)  
  - Four 73 GB 15K RPM SAS or SCSI Disk Drives (RAID optional)  
  - 100 Mb Network Interface Card (NIC)  
  - DVD-ROM Optical Drive  
  - Graphical monitor, keyboard, and mouse  
  - DAT72 Tape drive (optional)  
  - Video card |
Table 2.  Facility Commander Application Server (with or without Media Server)

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Windows Server 2008 (32 bit)</th>
<th>Red Hat Linux 5.3 (32 bit)</th>
<th>AIX 6.1 (64 bit)</th>
</tr>
</thead>
</table>
| Recommended server hardware requirements | Dell PowerEdge 510, 610, or 710 (tower or rack) with:  
• Two Intel Xeon Quad Core E5504 CPUs (eight CPU Cores)  
• 4 GB of Memory (RAM)  
• Four 146 GB 15K RPM SAS Disk Drives with RAID10 or RAID1  
• 1 Gb Network Interface Card (NIC)  
• Redundant power supplies  
• DVD-ROM Optical Drive  
• Graphical monitor, keyboard, and mouse  
• DAT72 Tape drive with external SCSI controller (optional)  
• Video card | Dell PowerEdge 510, 610, or 710 (tower or rack) with:  
• Two Intel Xeon Quad Core E5504 CPUs (eight CPU Cores)  
• 4 GB of Memory (RAM)  
• Four 146 GB 15K RPM SAS Disk Drives with RAID10 or RAID1  
• 1 Gb Network Interface Card (NIC)  
• Redundant power supplies  
• DVD-ROM Optical Drive  
• Graphical monitor, keyboard, and mouse  
• DAT72 Tape drive with external SCSI controller (optional)  
• Video card | IBM P6 Series Model 520 4.2 GHz Server with:  
• Quad Core CPU (four CPU Cores)  
• 8 GB of Memory (RAM)  
• Four 146 GB 15K RPM SAS Disk Drives with RAID10 or RAID1  
• 1 Gb Network Interface Card (NIC)  
• DVD-ROM Optical Drive  
• Graphical monitor, keyboard, and mouse  
• DAT72 Tape drive with external SCSI controller (optional)  
• Video card |
| Databases Supported | SQL Server 2008 | Informix 11.5 UC3 or newer | Informix 11.5 UC3 or newer |
| Additional Information for Linux users | Visit the Web site [http://www.redhat.com/hardware](http://www.redhat.com/hardware) to get a complete list of computers and hardware supported by Red Hat. GE Security strongly recommends using the computers it supplies, which have undergone significant reliability testing. If you decide to use non-GE Security supplied computers and require technical support, service is chargeable at normal GE Support rates. Additionally, compatibility with future product releases cannot be guaranteed. |  |  |
| Additional Information for AIX users | Refer to the IBM release notes for AIX 6.1 hardware compatibility and if you have any questions please contact your IBM representative. |  |  |
Remote Media Server

The Remote Media Server is an optional component when there are several geographically distributed sites and it may be undesirable to transmit video clips across the network. Refer to:

- *Centralized video management* on page 3
- *Distributed video management* on page 4

The media server software is installed on a separate, dedicated computer. The media server connects to remote DVRs and processes the requests for video tagging and video playback. The Facility Commander server would normally process the requests in a smaller environment.

The media server runs the media software; does not have a user interface; and does not contain a database. In addition, some digital video software interfaces are Windows DLL-dependent. In those cases, a Windows-based Media Server is required to play video.

### Table 3. Remote Media Server Requirements

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum/Recommended Hardware requirements</td>
<td>Single Xeon E3110, 3.0 GHz, 6 MB Cache (Recommend Dell PowerEdge T100 or R200 Server)</td>
<td>160 GB 7.2K RPM hard drive</td>
<td>4 GB RAM</td>
<td>DVD/CD-ROM drive</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Client workstations and Web browser

The following section lists the minimum system requirements for the client workstations and Web browser.

### Table 4. Client Workstations and Web Browser

<table>
<thead>
<tr>
<th>Web Browser or Client Workstation</th>
<th>Windows XP professional SP3 (32 bit), Windows Vista SP2 (32 bit), or Windows 7 (32 bit)</th>
<th>Internet Explorer 6.0 with Service Pack 1 or later</th>
<th>Internet Explorer 7.0</th>
<th>Firefox 3.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Web Browser</td>
<td>Internet Explorer 6.0 with Service Pack 1 or later</td>
<td>Internet Explorer 7.0</td>
<td>Firefox 3.0</td>
<td></td>
</tr>
</tbody>
</table>
Table 4. **Client Workstations and Web Browser**

<table>
<thead>
<tr>
<th>Web Browser or Client Workstation</th>
<th>Minimum hardware requirements</th>
<th>Recommended hardware requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Core 2 Duo E8400, 2.93 GHz, 6MB Cache (Recommend Dell OptiPlex 760 Minitower Workstation)</td>
<td>• Single Xeon E5506, 2.13 GHz, 4MB Cache (Recommend Dell Precision T3500 Workstation)</td>
</tr>
<tr>
<td></td>
<td>• 80 GB 3 Gb/second hard drive</td>
<td>• 160 GB 7.2K RPM hard drive</td>
</tr>
<tr>
<td></td>
<td>• 2 GB RAM</td>
<td>• 3 GB RAM</td>
</tr>
<tr>
<td></td>
<td>• DVD/CD-ROM drive</td>
<td>• DVD/CD-ROM drive</td>
</tr>
<tr>
<td></td>
<td>• 1 Gb NIC</td>
<td>• 1 Gb NIC</td>
</tr>
<tr>
<td></td>
<td>• 56K modem</td>
<td>• 56K modem</td>
</tr>
<tr>
<td></td>
<td>• Mouse</td>
<td>• Mouse</td>
</tr>
<tr>
<td></td>
<td>• Graphical monitor</td>
<td>• Graphical monitor</td>
</tr>
<tr>
<td></td>
<td>• Video: Graphics card hardware support for DirectX 9 with Pixel Shader 3</td>
<td>• Video: Graphics card hardware support for DirectX 9 with Pixel Shader 3</td>
</tr>
<tr>
<td></td>
<td>• Adobe Acrobat reader</td>
<td>• Adobe Acrobat reader</td>
</tr>
</tbody>
</table>
Checklist

A Facility Commander system consists of a server, client workstations, and optional Media servers for distributed video.

In addition, consider the following items:

- When integrating Facility Commander with Picture Perfect, Facility Commander can be installed on a standalone server or can be installed co-resident on the Picture Perfect server (Linux only).
- For Facility Commander standalone server applications to work with Picture Perfect, you must install the Picture Perfect External Interface (EIF) package on the Picture Perfect server.

Review the checklist carefully to determine the tasks you need to complete to successfully install Facility Commander.

Some of the steps are optional and can be installed later, such as the Remote Media Server. Required (REQ) fields are indicated by a check mark.

<table>
<thead>
<tr>
<th>Step</th>
<th>REQ</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td></td>
<td>Select Operating System</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Install Linux using the product vendor CD/DVD. Refer to Installing Linux on page 39.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Install AIX using the product vendor CD/DVD. Refer to Installing AIX on page 49.</td>
</tr>
<tr>
<td>✓</td>
<td></td>
<td>Select Database - Facility Commander installed on a standalone application server</td>
</tr>
<tr>
<td></td>
<td>✓</td>
<td>- Install the SQL database using the product vendor CD/DVD. Refer to SQL Server 2008 (Windows) on page 55.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Install the Informix database, using the Facility Commander Installation DVD. Refer to Linux Informix Database on page 65 or AIX Informix Database on page 72.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Install the Informix Schema, using the Facility Commander Installation DVD. Refer to Installing the Linux Informix Schema on page 69 or Installing the AIX Informix Schema on page 81.</td>
</tr>
<tr>
<td>✓</td>
<td></td>
<td>Install Facility Commander and Components</td>
</tr>
<tr>
<td></td>
<td>✓</td>
<td>- Install Facility Commander server software using the Facility Commander DVD. Refer to Installing Facility Commander applications on page 85.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Install Facility Commander license. Refer to License Manager on page 93.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Install the Remote Media Server software. Refer to Installing remote Media Servers on page 97.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Install Facility Commander client software on all workstations. Refer to Installing Client Workstations on page 101.</td>
</tr>
</tbody>
</table>
Connecting hardware devices

Any hardware devices, such as client systems, digital video devices, modems and cables, do not have to be connected before installing Facility Commander software.

Before connecting hardware devices, refer to the following sections:

- Connecting server systems on page 11
- Connecting intercom hardware on page 12
- Serial cable assembly on page 14
- Connecting analog CCTV switchers on page 15

Connecting server systems

To connect the server hardware, follow these steps:

1. Connect the monitor, keyboard, and mouse to the appropriate ports on the back of the server.
   - If you are using a graphics card, connect the monitor to the video port. Use the following display settings:
     - Resolution: 1024 x 768
     - Colors: True color (32-bit)

2. Connect client workstations. Consult your site network administrator before connecting any devices to an existing network.

3. Reserve serial port COM2 on the back of the server for an external support modem, if an internal modem is not present.
Connecting intercom hardware

Facility Commander communicates with other systems such as an intercom exchange over the network (LAN/WAN). Therefore, the intercom exchange must be connected to the network. Because it is a serial device, there are two additional items needed for network connectivity:

- a Lantronix UDS100 converter box, which converts RS-232 to Ethernet
- a serial cable to connect the intercom exchange to the Lantronix converter box

A static IP address must be defined for the intercom exchange and it is set in the Lantronix box. Configure an IP address on the Lantronix box by using the Lantronix-supplied software.

To configure Facility Commander to communicate with the Intercom system, use the HTML Configuration pages (for instructions, refer to the *Facility Commander Administration Guide*).

To connect and configure Alphacom Intercom hardware, follow these steps:

1. Connect the 25-pin end of the serial cable to the RS-232 port on the Lantronix unit.
   - This non-standard cable is available from GE Security (part number: 320575001). Refer to *Figure 4, Serial Cable Assembly* for cable pinouts.

2. Connect the 9-pin end of the serial cable to the data port (default is port 1, not service port 0) on the AlphaCom system.

3. Connect the Lantronix unit to the network using a standard Ethernet cable.

4. Follow the instructions supplied with the Lantronix unit for installing the DeviceInstaller software. A fixed IP address must be assigned to the Lantronix unit.

5. Continue following the instructions to search for active units and add them to the manage list.

6. Select the unit from the list and click the Manage icon.

7. Click the Web Configuration icon to display the configuration screen in the Web browser.
   - If the screen does not display after one minute, you may need a different version of the Java runtime installed. Download the file: J2SE v 1.6.0_10 JRE from the Sun Microsystems Web site: www.java.sun.com
   - Install the software and set JRE as the default setting for the browser. Try the Web Configuration again.
8. Click **Port Properties**. Enter the information described in **Table 6**.

**Table 6. Port Properties Settings**

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serial Port Settings</td>
<td></td>
</tr>
<tr>
<td>Serial Protocol</td>
<td>RS-232</td>
</tr>
<tr>
<td>Speed</td>
<td>9600</td>
</tr>
<tr>
<td>Character Size</td>
<td>7</td>
</tr>
<tr>
<td>Parity</td>
<td>Even</td>
</tr>
<tr>
<td>Stop Bit</td>
<td>1</td>
</tr>
<tr>
<td>Flow Control</td>
<td>None</td>
</tr>
<tr>
<td>Packing Algorithm</td>
<td></td>
</tr>
<tr>
<td>Packing Algorithm</td>
<td>Enable</td>
</tr>
<tr>
<td>Idle Time</td>
<td>Transmit12ms</td>
</tr>
<tr>
<td>Trailing Characters</td>
<td>None</td>
</tr>
<tr>
<td>Send Immediate After Sendchars</td>
<td>Enable</td>
</tr>
<tr>
<td>Sendchar Define 2-Byte Sequence</td>
<td>Disable</td>
</tr>
<tr>
<td>Send Character 01</td>
<td>0d</td>
</tr>
<tr>
<td>Send Character 02</td>
<td>00</td>
</tr>
</tbody>
</table>
Serial cable assembly

The wiring diagram shown in Figure 4, Serial Cable Assembly shows the 25-pin and 9-pin end of the non-standard cable. This non-standard cable is available from GE Security (part number: 320575001).

When all hardware connections and configuration are complete, refer to the Checklist on page 10 to determine how to proceed with software installation.

Connecting intrusion hardware

Facility Commander can communicate with other devices, such as intrusion panels, over a network (LAN/WAN). To communicate, your intrusion panel must have a supported network adapter card.

When all hardware connections and configuration are complete refer to Checklist on page 10 to determine how to proceed with software installation.
Connecting analog CCTV switchers

Facility Commander can communicate with other devices, such as analog CCTV switchers, shown in Figure 5, over a network (LAN/WAN).

The analog CCTV switcher must be connected to the network and because it is a serial device, two additional items are needed for network connectivity:

- a Lantronix UDS100 converter box, which converts RS-232 to Ethernet
- a serial cable to connect the intercom exchange to the Lantronix converter box

A static IP address must be defined for the analog CCTV switcher and it is set in the Lantronix box. Configure an IP address on the Lantronix box by using the Lantronix-supplied software.

The Lantronix device is configured using Lantronix-supplied software. To configure Facility Commander to communicate with the switcher, use the HTML Configuration pages (for instructions, refer to the Facility Commander Administration Guide).

To connect and configure the Kalatel KTD-348 and KTD-440 Analog CCTV Switchers, follow these steps:

1. Attach the 25-pin end of the serial cable to the Lantronix box. The other end of the cable is hard-wired into the switcher. See Figure 6 and Figure 7 for cable pinouts.
   
   Call GE Security Customer Support for specific wiring instructions, which are model-dependent.

2. Connect the Lantronix unit to the network using a standard Ethernet cable.

3. Follow the instructions supplied with the Lantronix unit for installing the DeviceInstaller software. A fixed IP address must be assigned to the Lantronix unit.

4. Continue following the instructions to search for active units and add them to the manage list.
5. Select the unit from the list and click the **Manage** icon.

6. Click the **Web Configuration** icon to display the configuration screen in the Web browser.
   - If the screen does not display after one minute, you may need a different version of the Java runtime installed. Download **J2SE v 1.6.0_10 JRE** from Sun at: www.java.sun.com
     Install the software and set JRE as the default setting for the browser. Try the Web Configuration again.

7. Click **Port Properties**. Enter the information listed in *Table 7*.

---

**Figure 6.** KTD-348 cable pinouts

![KTD-348 Cable Pinouts](image1.png)

**Figure 7.** KTD-440 cable pinouts

![KTD-440 Cable Pinouts](image2.png)
When all hardware connections and configuration are complete refer to the Checklist on page 10 to determine how to proceed with software installation.

<table>
<thead>
<tr>
<th>Field</th>
<th>Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serial Port Settings</td>
<td></td>
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</tr>
<tr>
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<td>9600</td>
</tr>
<tr>
<td>Character Size</td>
<td>8</td>
</tr>
<tr>
<td>Parity</td>
<td>Even</td>
</tr>
<tr>
<td>Stop Bit</td>
<td>1</td>
</tr>
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<td>Enable</td>
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<td>Sendchar Define 2-Byte Sequence</td>
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</tr>
<tr>
<td>Send Character 01</td>
<td>7e</td>
</tr>
<tr>
<td>Send Character 02</td>
<td>7e</td>
</tr>
</tbody>
</table>
Chapter 2  Upgrading Facility Commander

This chapter covers the information needed to upgrade existing Facility Commander systems to the latest version.

In this chapter:

- Changing to a co-resident installation (Linux) .......................... 20
- Changing from version 2.2.0 to 2.2.2 (Co-resident, Linux) ........ 20
- Upgrading from version 2.2.0 to 2.2.2 (Linux and AIX) ......... 20
- Upgrading from version 2.1 to 2.2.2 (Linux and AIX) ............ 21
  - Migration background information ........................................ 21
  - Database migration ....................................................... 22
- Upgrading from version 2.2.1 to 2.2.2 (Windows) ................. 26
- Upgrading from version 2.1 to 2.2.2 (Windows) .................... 26
  - Back up the Facility Commander 2.1 database .................... 26
  - Restore the Facility Commander 2.1 database .................... 27
  - Run the database schema script ....................................... 28
- Graphical maps .............................................................. 29
- Upgrading remote media servers ........................................ 31
- Upgrading client workstations ........................................... 31
- Assigning the media server to video devices after upgrading .... 31
Changing to a co-resident installation (Linux)

If you plan to upgrade an existing Facility Commander version 2.1 or 2.2.0 to a co-resident Facility Commander 2.2.2 with Picture Perfect 4.5.1 installation, the following procedures must be performed:

- Install the Picture Perfect 4.5.1 system. Refer to the Picture Perfect 4.5.1 Release Notes and the Picture Perfect 4.5 Installation Manual.
- Run the Facility Commander database schema to create the required tables on the Picture Perfect 4.5.1 server. Refer to Installing the Linux Informix Schema on page 69.
- **Facility Commander 2.2.0 to 2.2.2 co-resident:** Refer to Changing from version 2.2.0 to 2.2.2 (Co-resident, Linux).
- **Facility Commander 2.1 to 2.2.2 co-resident:** Perform the migration procedures on your existing Facility Commander 2.1 in accordance with Upgrading from version 2.1 to 2.2.2 (Linux and AIX) on page 21.
- Install Facility Commander 2.2.2 on the Picture Perfect 4.5.1 server. Refer to Installing Facility Commander 2.2.2 Server on page 86.

Changing from version 2.2.0 to 2.2.2 (Co-resident, Linux)

When upgrading from Facility Commander v2.2.0 to v2.2.2 on a co-resident with Picture Perfect 4.5.1 system the following procedures must be performed:

- Backup the database and Graphical Maps on the FC 2.2.0 server using the new BackupUtility (copied from the FC 2.2.2 co-resident server)
- Copy, and then restore the database and Graphical Map files on the new FC 2.2.2 co-resident server

To upgrade from version 2.2.0 to 2.2.2 (co-resident, Linux):

1. Log on the new FC 2.2.2 co-resident server as root.
2. Copy the file `/usr/BackupUtility/BackupUtility`.
3. Log on the existing FC 2.2.0 server as root, and then replace the existing `/usr/BackupUtility/BackupUtility` file with the one copied from the FC 2.2.2 server.
4. Back up the database and Graphical Map files on the FC 2.2.0 server using the new backup utility. Refer to the Facility Commander 2.2.2 Administration Guide for details.
5. Log on to the FC 2.2.2 co-resident server, and then copy and restore the backup files. Refer to the Facility Commander 2.2.2 Administration Guide for details.

Upgrading from version 2.2.0 to 2.2.2 (Linux and AIX)

When upgrading from Facility Commander v2.2.0 to v2.2.2, the following procedures must be performed:

- Stop the Facility Commander service on the application server
- Install Facility Commander 2.2.2 application. You do not need to reinstall your database.

To upgrade from version 2.2.0 to 2.2.2 (Linux and AIX):

1. Shut down all client and media server applications to ensure that any work in progress is saved.
2. Stop the Facility Commander service on the application server.
   For Linux servers, type the following command:
   
   ```bash
   service facilityCommander stop
   ```
   [Enter]

   For AIX servers, type the following command:
   
   ```bash
   sh /var/FacilityCommanderServer/server/bin/FCShutdown.sh
   ```
   [Enter]

3. Install the Facility Commander 2.2.2 application. Refer to Chapter 7 Installing Facility Commander applications.

---

**Upgrading from version 2.1 to 2.2.2 (Linux and AIX)**

When upgrading to the latest version of Facility Commander, the host server and Linux media server(s) will be new installations. The windows standalone media servers, clients, and workstations can either be new installations or upgrades depending on the operating system.

Facility Commander 2.2.2 uses Linux 5.3 or AIX 6.1 with Informix 11.5 database. Therefore, the Informix database needs to be reinstalled, and then the data in the database repository needs to be migrated from the old database to the new one. The following provides general information and the steps required to accomplish the data migration.

**Migration background information**

**Deployment**

There are four modules (shell scripts) used in the data migration process listed in Table 8 on page 22. These scripts are grouped for two purposes, each with their own deployment shell scripts:

- FC_22_Migration_Source_Deployment.sh
- FC_22_Migration_Target_Deployment.sh

All scripts are located on the Facility Commander 2.2.2 Installation DVD in the dbmigration folder (directory). Each deployment script must be executed from the dbmigration folder. The deployment scripts will perform the following operations:

- Create the /bud/FC_DataExport destination directory tree on the server if it does not already exist
- Create and populate the log of the script's execution
- Remove any existing migration script files
- Copy the appropriate shell scripts and supporting files into the destination directory

**General**

There are four modules (shell scripts) used in the data migration process. Refer to Table 8.

Each script is executed from the command line in a terminal window.

Type: `sh <script name>.sh`
Each script will generate a log file as a result of its execution. The log file name is `<script_name>.log`

Table 8. Migration scripts

<table>
<thead>
<tr>
<th>Name</th>
<th>Shell script</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table Rows Count</td>
<td>FC_Count_Table_Rows.sh</td>
</tr>
<tr>
<td>Table Data Extract</td>
<td>FC_Extract_Table_Data.sh</td>
</tr>
<tr>
<td>Table Data Loader</td>
<td>FC_Populat_Table_Data.sh</td>
</tr>
<tr>
<td>Table Rows Truncate</td>
<td>FC_Truncat_Table_Rows.sh</td>
</tr>
</tbody>
</table>

**Operation of shell scripts**

The shell scripts operate in the following manner:

**Table Data Extract**

The Table Data Extract shell script extracts the data rows in each table found the Informix database to a flat data (.dat) file. The script generates the `FC_Extract_Tables_List.ctl` control file. This control file is created based on the contents of the database being accessed by the script and is subsequently used by the Table Data Loader script.

**Table Data Loader**

The Table Data Loader script populates the data from each flat file created by the Table Data Extract script into the corresponding table in the Informix database. This script uses the control file created by the Table Data Extract script to ensure all extracted data is reloaded.

**Table Rows Truncate**

The Table Rows Truncate script deletes all rows in each table found the Informix database. This script is used to remove loaded data if the Table Data Loader script fails to deliver a full load.

**Table Rows Counter**

The Table Rows Counter script counts the number of rows in each table found the Informix database. This script is used to verify the table data extract and loader scripts.

**Database migration**

Note: Perform the database migration prior to installing Facility Commander 2.2.2 server installation.

There are two steps required to successfully migrate your database information from FC 2.1 to FC 2.2.2.

- Extract the table data from the FC 2.1 database
- Load the extracted table data into the new FC 2.2.2 database

**Extract table data from the FC 2.1 database**

To extract the table data from the old Informix database:

1. Login to the FC 2.1 host (source) server with the root user account.
2. Mount the FC 2.2.2 Installation DVD.
3. Change directories from the command line in a terminal window. Type one of the following commands, depending on how the DVD was mounted:
   
   cd /media/dvd/dbmigration

4. Run (execute) the Migration Source Deployment shell script from the command line in the same terminal window by typing the following command:
   
   sh FC_22_Migration_Source_Deployment.sh

5. Change directories from the command line by typing the following command:
   
   cd /bud/FC_DataExport

6. Run (execute) the Table Data Extract shell script from the command line in the same terminal window by typing the following command:
   
   sh FC_Extract_Table_Data.sh

   As the script runs it displays its progress providing table names and row counts of data extracted. When the script is complete, it displays the total number of tables processed.

7. After completing the table data population, check the log file for errors.

   The FC_Count_Table_Rows.sh shell script can be run to derive the contents of the source Informix database and ensure all data was extracted. There is a minimum of 67 tables that should be processed during the data extraction. Refer to, Table Rows Count script on page 25.

**Load the extracted table data into the new FC 2.2.2 database**

The contents of the directory (/bud/FC_DataExport), especially the flat data (.dat) files and the FC_Extract_Tables_List.ctl file must to be copied to the same directory on the FC 2.2.2 host (target) server.

If the target server is a new machine, the files can be transferred directly using a Linux/Unix utility such as ftp. If the FC Host server is being upgraded, these files will need to be temporarily stored on some form of removable media such as a memory stick or USB drive. The removable media will be used to transfer the files back onto the upgraded server. The Linux and AIX upgrades are destructive upgrades, erasing all files on the server.

**To load the extracted table data into the new FC 2.2.2 database:**

1. Login to the FC 2.2.2 host (target) server with the root user account.
2. Mount the FC 2.2.2 Installation DVD.
3. Change directories from the command line in a terminal window. Type the following command, depending on how the DVD was mounted:
   
   cd /media/dvd/dbmigration

4. Run (execute) the Migration Source Deployment shell script from the command line in the same terminal window by typing the following command:
   
   sh FC_22_Migration_Target_Deployment.sh

5. Change directories from the command line by typing the following command:
   
   cd /bud/FC_DataExport

6. Copy the saved flat data (.dat) files and the FC_Extract_Tables_List.ctl file to this directory.
7. If you have installed the Facility Commander Server, shut down the service.  
   
   For Linux standalone servers, type the following command:
   
   ```
   service facilityCommander stop
   ```
   
   For Linux co-resident servers, type the following commands:
   
   ```
   cd /var/www/apache-tomcat/bin
   stopFC.sh
   ```
   
   For AIX servers, type the following command:
   
   ```
   sh /var/FacilityCommanderServer/server/bin/FCShutdown.sh
   ```
   
   When the service has successfully shut down, [ OK ] will appear in the terminal window. If it fails to 
   shut down (because it is already shut down), [FAILED] will appear in the terminal window.

8. Run (execute) the Table Data Loader shell script from the command line in the same terminal window 
   by typing the following command:
   
   ```
   sh FC_Populat_Table_Data.sh
   ```
   
   As the script runs it displays its progress providing table names and row counts of data loaded. When 
   the script is complete, it displays the total number of tables processed.

9. After completing the table data load, check the log file for errors.

    The FC_Count_Table_Rows.sh shell script can be run to derive the contents of the source 
    Informix database and ensure all data was extracted. There is a minimum of 67 tables that should be 
    processed during the data load. Refer to, Table Rows Count script on page 25.

**Table Data Populate log file errors**

In the event that the data is not completely loaded (populated) and/or there are errors recorded in the 
FC_Populat_Table_Data.log file, the loaded data can be removed using the Rows Truncation shell 
script.

For example, if the Facility Commander Server was licensed and run at any time before the Table Data Loader 
is run, the server will probably have loaded some data (inserted rows) in to various tables in the Informix 
database. The log file will show error messages with "Unique constraint … violated. 100: ISAM error: 
duplicate value for a record with unique key." The Table Data Loader script will need to be rerun.

**To run the Table Rows Truncate script:**

1. Login to the FC 2.2.2 host (target) server with the root user account.

2. Run the shell script by typing the following commands:

   ```
   sh FC_Truncat_Table_Rows.sh
   ```

   As the script runs it will display its progress providing table names and row counts of rows deleted, 
   and when complete, a total number of tables processed.

   **Note:** This script must be run multiple times until the number of tables truncated is zero. The 
   FC_Count_Table_Rows.sh shell script can be run after each time the Table Rows Truncate script is run to 
   determine that all of the tables have zero or no rows.

3. After completing the Rows Truncation, check the log file for errors.
The FC_Count_Table_Rows.sh shell script can be run to derive the contents of the source Informix database and ensure all data was extracted. There is a minimum of 67 tables that should be processed during the data load. Refer to, Table Rows Count script on page 25.

Table Rows Count script

To verify Data Extraction, Population or Truncation, run the Table Rows Count shell script to confirm the results of each step above.

To run the Table Rows Count script:

1. Login to the FC 2.2.2 host (target) server with the root user account.
2. Run the shell script by typing the following command:
   ```
   sh FC_Count_Table_Rows.sh
   ```
   As the script runs it will display it's progress providing table names and row counts of rows data deleted, and when complete, a total number of tables processed.
3. Reboot the server.
Upgrading from version 2.2.1 to 2.2.2 (Windows)

When upgrading from Facility Commander v2.2.1 to v2.2.2, the following procedures must be performed:

- Stop the Facility Commander service on the application server
- Install Facility Commander 2.2.2 application. You do not need to reinstall your database.

To upgrade from version 2.2.1 to 2.2.2 (Windows):

1. Shut down all client and media server applications to ensure that any work in progress is saved.
2. Stop the Facility Commander service on the application server.
   - Click Start, Control Panel, Administrative Tools, then Services.
   - Right-click FacilityCommanderServer, and then click Stop.
3. Install the Facility Commander 2.2.2 application. Refer to Chapter 7 Installing Facility Commander applications.

Upgrading from version 2.1 to 2.2.2 (Windows)

When upgrading to the latest version of Facility Commander, the host server will be a new installation. The windows standalone media servers, clients, and workstations can either be new installations or upgrades.

Facility Commander 2.2.2 uses a SQL Server 2008 database. Therefore, the SQL Server database needs to be installed, and then the data in the database repository needs to be migrated from the old database to the new one. The following provides general information and the steps required to accomplish the data migration.

- Backup your existing database from your Facility Commander 2.1 server onto removable media
- Restore your database on the new Facility Commander 2.2.2 server (with Windows Server 2008 and SQL Server 2008 installed)
- Run the FCCApplyDBScripts.exe file to update your database schema
- Install the Facility Commander 2.2.2 application

Back up the Facility Commander 2.1 database

MSDE

To back up the Facility Commander 2.1 MSDE database using MSDE Admin:

1. Click Start, Programs, and MSDE Admin to open the WWW.MSDE.BIZ-MSDE Admin window.
2. Expand the navigation tree to display the Visitor Central instance backup window on your computer.
3. Select the database as isis database.
4. Verify that Database - Complete is selected as the Action and Disk is selected as the Target.
5. Select Path\File Name and enter a file name for your backup. Browse to the location where the backup is to be stored.
6. Select Overwrite as the Backup Set.
7. Click Perform Backup. A message displays asking you to confirm the backup process. Click Yes.

8. When the backup is complete, a Backup Completed window displays. Click OK to accept the License Agreement and exit this window.

SQL 2000

To back up the Facility Commander 2.1 SQL 2000 database using SQL Server 2000 Enterprise Manager:

1. Select Start, Programs, Microsoft SQL Server, and then Enterprise Manager. The SQL Server Enterprise Manager page opens.

2. Using the navigation tree, select the SQL Server database (isis) to be backed up.

3. From the Tools menu, select Backup database. The SQL Server Backup opens. Use the Database drop-down list to select “isis,” if it does not automatically display.

4. Enter a name for this backup in the Name field.

5. Enter a description in the Description field.


7. Select drive as the backup destination, and then click Add. The Select Backup Destination page opens.

8. Double-click the file name displayed in the Backup to: list box. The database name displays in the Edit Backup Destination file name window.

9. Edit the file path name as appropriate for the folder that you have created to receive the database. Do not change the database name. Click OK.

10. Select the Overwrite existing media option.

11. Select the Options tab.

12. Select Verify backup upon completion. Click OK.


14. When the ‘Backup operation has been completed successfully’ page displays, click OK.

Restore the Facility Commander 2.1 database

To restore the Facility Commander 2.1 database using SQL Server 2008 Management Studio:

1. Click Start, Programs, Microsoft SQL Server 2008, and then SQL Server Management Studio. The Connect to Server page opens.

2. In the Connect to Server page, enter the following information, and then click Connect.
   - **Server type:** Select Database Engine from the drop down
   - **Server Name:** Select the name of this computer from the drop down list or type in the name
   - **Authentication:** Select SQL Server Authentication from the drop down list
   - **Log in name:** Type sa
   - **Password:** Type the sa password

3. In the Object Explorer pane, right-click on the Databases folder, and then click Restore Database.
4. The Restore Database page opens. Under Destination for restore, To database field, select or enter isis.

5. Under Source for restore, click the From device radio button, and then click .... to open the Specify Backup page.

6. In the Specify Backup page, click Add, and then browse to the backup file. Click Ok.

   **Note:** If the backup file is on another computer in your network, create a folder on your computer hard drive, and then move the file to your Facility Commander 2.2.2 server into the newly created folder.

7. Click OK to close the Specify Backup page.

8. Select the backup file you just added by checking the Restore check box.

9. In the Select a page navigation pane, select Options.

10. In the Restore options section, select Overwrite the existing database.

11. Click OK. The Progress windowpane shows the progress of the restoration.

12. Upon completion, you should receive a message stating that the restore was successful. Click OK.

**Run the database schema script**

To run the FCCApplyDBScripts.exe file to update your database schema:

1. Insert the Facility Commander 2.2.2 Installation DVD into your Facility Commander 2.2.2 Server.

2. When the AutoPlay page opens, click Open folder to view files using Windows Explorer.

3. Double-click the dbmigration folder, and then double-click the sqlServer folder to open its contents.

4. Double-click the FCCApplyDBScripts.exe file to run the database schema script.

5. The Apply Database Scripts page opens. Enter the following information, and then click OK.

   **Database User:** Enter sa
   **Database Password:** Enter the sa password (default SecurityMaster08)
   **Database Instance:** Enter the server name

6. Once the database schema script is complete, click OK.

7. Reboot the server.

Continue to Installing Facility Commander 2.2.2 Server on page 86.
Graphical maps

The default location of the graphical maps in Facility Commander 2.1 has changed in Facility Commander 2.2.2.

**Linux/AIX**

When you upgrade from FC 2.1 to 2.2.2 you need to either copy your map files to the new location in the FC 2.2.2 server, or change the entry in the properties file. The location has changed from:

/var/FacilityCommanderServer/maps/

to

Standalone
/var/FacilityCommanderServer/server/webapps/Merlin/WEB-INF/maps/

Co-resident
/var/www/apache-tomcat/webapps/Merlin/WEB-INF/maps/

**To copy the map files to the new location on the FC 2.2.2 server:**

1. Log on to the FC 2.1 server using the root user account.

2. Insert a removable media, such as a flash drive, into the USB port on the FC 2.1 server. The media should auto mount. To determine the removable media mount point, type the following command in a terminal window before and after inserting the media:

   ls -l /media

   The removable media directory may be called disk, NO_NAME, U3 System, or some other name.

   **Note:** If more than one directory and/or icon appears, then one directory/icon is for data content/files and the other is for the removable media control software, such as U3 System used by the SanDisk Cruzer USB drive. If the data directory is called disk, the mount point is: /media/disk.

3. Change directories to where the maps are stored on the FC 2.1 server by typing the following command:

   cd /var/FacilityCommanderServer

4. Copy the map directory and its contents to the removable media by typing the following command:

   cp -r maps /media/disk

5. Unmount, and then eject the removable media from the FC 2.1 server by either:
   - For each new icon that appeared on the screen when the removable media was inserted into the USB port, right-click on the icon, and then select unmount or eject in the pop up window.
   - or
   - Type in the following commands in the terminal window:

     umount /media/disk
     umount /media/U3\ System

6. Remove the removable media from the Facility Commander 2.1 server.
7. Log on to the Facility Commander 2.2.2 server using the root user account.
8. Insert the removable media with the map files into the Facility Commander 2.2.2 server.
   The media should auto mount.
9. Type the following command:
   
   \[ cd \ /var/FacilityCommanderServer/server/webapps/Merlin/WEB-INF \]

10. Copy the map files from the removable media to the FC 2.2.2 server by typing the following command:
   
   \[ cp -r /media/disk/maps . \]

11. Unmount, and then eject the removable media from the FC 2.2.2 server.

To change the entry in the properties file on the Facility Commander 2.2.2 server:

1. Log in as root.
2. Open a terminal window, and then type the following command:

   Standalone
   
   \[ cd \ /var/FacilityCommanderServer/server/webapps/Merlin/WEB-INF/\]
   classes/resources

   Co-resident
   
   \[ cd \ /var/www/apache-tomcat/webapps/Merlin/WEB-INF/classes/resources \]

3. In the resources directory, type `ls` to list the files.
4. Edit the **ServerDataPath** by typing:

   edit mapgui.properties

5. The mapgui.properties page opens. Change the **ServerDataPath** entry from:

   Standalone
   
   ServerDataPath=/var/FacilityCommanderServer/server/webapps/Merlin/
   WEB-INF/maps/

   to

   Co-resident
   
   ServerDataPath=/var/www/apache-tomcat/maps/

6. Click OK to save changes.
Windows

When you upgrade from FC 2.1 to 2.2.2 you need to copy your map files to the new location in the FC 2.2.2 server. The location has changed from:

\Program Files\FacilityCommanderServer\maps

to

\Program Files\FacilityCommanderServer\server\webapps\Merlin\WEB-INF\maps

To copy your Facility Commander 2.1 maps to the Facility Commander 2.2.2 Server:

1. Browse to \Program Files\FacilityCommanderServer\maps on your Facility Commander 2.1 Server, and then copy the map files to a removable media, such as a flash drive.

2. Insert the removable media with your map files into your Facility Commander 2.2.2 Server, and then copy the map files into the \Program Files\FacilityCommanderServer\server\webapps\Merlin\WEB-INF\maps folder.

   Note: The maps folder is created on the Facility Commander 2.2.2 once the first map is created and saved. If a maps folder does not exist, create one to copy your Facility Commander 2.1 map files into.

Upgrading remote media servers

Linux remote media servers running Facility Commander 2.1 cannot be upgraded to Facility Commander 2.2.2 because of the new Linux 5.3 operating system. Refer to Installing remote Media Servers on page 97 for installation instructions.

Windows remote media servers running Facility Commander 2.1 can be upgraded to Facility Commander 2.2.2. The process requires uninstalling the previous version and installing the new version. Refer to Installing remote Media Servers on page 97 for installation procedures.

Upgrading client workstations

Client workstations running Facility Commander 2.1 can be upgraded to Facility Commander 2.2.2. The process requires uninstalling the previous version and installing the new version. Refer to Installing Client Workstations on page 101.

Assigning the media server to video devices after upgrading

For customers that were running a Facility Commander 2.1 Application Server functioning as a Media Server on the same machine, you must reconfigure the DVRs so that they are assigned to the appropriate Media Server after upgrading to Facility Commander 2.2.2. Refer to the Facility Commander Administration Guide, Configuring Video Devices for detailed information.
Chapter 3 Installing Windows Server 2008

This chapter covers the information needed to install and configure the Windows Server 2008 operating system for Facility Commander.

In this chapter:

- Overview ................................................................. 34
- Preinstallation checklist .............................................. 34
- Installing the network card ........................................... 34
- Configuring the computer for the network ......................... 35
- Installing the operating system .................................... 35
- Setting the network properties ...................................... 36
- Firewall settings ....................................................... 36
Overview

This chapter provides important information on configuring a Facility Commander server computer. We recommend that you read these sections carefully before you begin the installation of Facility Commander software and complete the steps in the order they appear.

The following items are required for a Windows server computer:

- Microsoft Windows Server 2008 and any applicable Service Packs
- Internet Explorer (6.0 with Service Pack 1 or 7.0).
- If you received the server computer from GE Security, the computer is preloaded with the operating system, necessary hardware, SQL Server 2008 Standard Edition, Internet Explorer, and Facility Commander.

You need to connect the servers to the network before installing the Windows operating system.

Preinstallation checklist

To prepare your Windows Server 2008 computer, refer to this checklist of reminders:

Note: If you purchased this system from GE, these tasks were completed for you.

- Meet minimum recommended hardware and software requirements.
- Install the network card.
- Configure the computer for the network.
- Set the network properties.
- Set monitor resolution to a minimum of 1024 by 768 pixels.
- Install MS SQL Server 2008.
  - You must have SQL Server installed prior to installing Facility Commander 2.2.2 software.
  - SQL Server Agent must be running to keep the databases in optimal condition.

Installing the network card

If you have not already done so, install the network card now. Follow the instructions included with the board.

Note: If you purchased this system from GE, the network card is installed for you.
Configuring the computer for the network

Determining server type

Before you continue, you need to determine the server type of this network computer. Always consult with the network administrator before adding any computers to an existing network.

The server computer can be:

- Part of a new or existing workgroup.
- Part of an existing domain.
- The primary domain controller (PDC) in its own domain.

**Note:** Setup will be different depending on which option you choose. Decide which Server type applies before you continue with the installation.

Adding the computer to an existing domain

If the server computer will be part of an existing domain, you will need to add the server computer to the network. Since network configuration varies from company to company, see your network administrator for assistance.

**Note:** If your server and client computers participate in a workgroup, add the workgroup name during the installation. Write down the server name and workgroup name as these are required during the client installation.

It is important that the server and client systems use the same network properties. Refer to *Setting the network properties* on page 36 for more information or consult with your network administrator.

Installing the operating system

The server computer must be running Windows Server 2008. If it is not already installed on your system, you will need to install it now, along with the latest applicable Service Packs.

**Note:** If you purchased this system from GE Security, the operating system is installed for you.

1. Insert the Windows Server 2008 Installation disc in your CD/DVD drive, and then follow the instructions provided by the Microsoft documentation. Use NTFS (default) as the file system for Windows Server 2008.

2. A Welcome to the Windows Server 2008 Setup Wizard page opens. Follow all on-screen instructions. Each window provides an explanation of the settings and choices available. In most cases, accept default settings and values. If you are unsure, consult the Microsoft documentation or contact your network administrator for guidance.

3. After installation of Windows Server 2008 is complete, you are prompted to change your administrator users password. By default, the password complexity policy is enabled. Refer to your Microsoft documentation for the complexity password requirements.

**Note:** If you purchased your system from GE Security, the default password is SecurityMaster08 (case sensitive).
Setting the network properties

Windows Server 2008

To check the network settings:

1. Click Start, and then click Control Panel.
   Control Panel Home view: Click Network and Internet, and then click Network and Sharing Center.
   Classic view: Double-click Network Sharing Center.
2. Click Manage network connections.
3. Right-click the Local Area Connection, and then select Properties. The Local Area Connection Properties page opens.
6. Click the Use the following IP address: radio button, and then enter an IP address.
   Note: Facility Commander 2.2.2 computers require static IP address. You must obtain a valid IP address from the network administrator, or use a local IP address that no other computer is using in your network. Consult your network administrator for detailed instructions.
7. Click OK.
8. Click Close to exit the Local Area Connection Properties page.
9. Close all open pages.
10. After Windows is installed, restart the computer and make sure it is connected to the network. Verify that you do not have any hardware errors under Device Manager.

Firewall settings

If the Firewall is selected ON, the following must be enabled in the Firewall Exceptions list and port 8085 must be added:

- File and Printer Sharing
- Network discovery
- Workgroup Only: Remote Administration

To enable Firewall Exceptions selections and add port 8085:

1. Click Start, and then click Control Panel. The Control Panel page opens.
   Control Panel Home view: Click Allow a program through Windows Firewall under the Security area.
   Classic view: Double-click the Windows Firewall icon. The Windows Firewall page opens. Click Allow a program through Windows Firewall.
2. The Windows Firewall Settings page opens.
3. On the Exceptions tab of the Windows Firewall Settings page, make sure that the following check boxes are checked.
   - File and Printer Sharing
   - Network discovery
   - Workgroup Only: Remote Administration

4. Click Add Port. The Add a Port page opens. Enter the following information, and then click OK.
   - Name: Facility Commander
   - Port Number: 8085
   - Click the TCP radio button

5. Close the Windows Firewall page, and then close the Control Panel page.

Continue to *SQL Server 2008 (Windows)* on page 55.
This chapter includes the information needed to install and configure the Linux 5.3 operating system.

In this chapter:

Overview ................................................................. 40
Installing Red Hat Linux 5.3 on a Facility Commander 2.2.2
Application Server .................................................... 40
Overview

If your Facility Commander 2.2.2 server was purchased from GE Security, the Linux operating system and Facility Commander software are preloaded on it.

If not, start below and follow the instructions to install and configure Red Hat Linux 5.3 software.

If you are installing Facility Commander 2.2.2 application server co-resident on a Picture Perfect 4.5.1 server, additional logical volumes are required. These logical volumes should have been setup when installing Red Hat Linux 5.3 on the Picture Perfect server. Refer to the Picture Perfect 4.5.1 Release Notes and the Picture Perfect 4.5 Installation Manual for details.

Installing Red Hat Linux 5.3 on a Facility Commander 2.2.2 Application Server

The following procedures are for the installation of Red Hat Linux 5.3 on a standalone Facility Commander Application Server.

Typically accept the default selections as instructed in the steps that follow. If you are in doubt, consult with your system administrator.

Click Release Notes for information on this version of Red Hat Linux.

To install Red Hat Linux, follow these steps:

1. Insert the Red Hat Linux 5.3 Operating System DVD, and then boot the computer. The boot prompt displays.
2. At the boot prompt, click Enter to proceed and wait for the process to load the basic operating system drivers.
3. The CD Found dialog box opens, press tab or use the right arrow key to select SKIP. Press enter or the spacebar to start the installation.
4. The Red Hat Welcome page opens. Click Next.
5. The Language Selection page opens. Choose the appropriate language, and then click Next.
6. The Keyboard Configuration page opens. Choose the appropriate keyboard configuration, and then click Next.
7. The Installation Number dialog box opens. Click Skip entering Installation Number, and then click OK.
8. The Skip dialog box opens, click Skip.
9. The installation type page opens. Click Install Red Hat Enterprise Linux Server, and then click Next.
10. The hard drive partition page opens. Select all disk drives available in your system, and then click Review and modify partitioning layout. Click Next.
11. A warning dialog box opens asking you to confirm your selections. Click Yes.
12. The Disk Setup page opens.
13. If you are reinstalling an existing system, the existing LVM volume groups must be deleted. To do this, select a LVM volume group from the list on the Disk Setup page, and then click Delete.

The Confirm Delete dialog box opens. Click Delete. The LVM volume group is removed from the list.
Repeat the above procedure for all remaining LVM volume groups.

14. On the Disk Setup page, delete each partition on a specific drive until all disk space is shown as free space. To do this, select a partition displayed in the list, and then click Delete.

The Confirm Delete dialog box opens. Click Delete. The partition is removed from the list.

15. Select the hard drive displayed in the list, and then click New.

**Note:** It will be necessary to create a boot partition and swap space partition. The remaining space from the physical volume(s) can be assigned to a volume group. The volume group is then partitioned into Logical Volumes using the LVM. See *Figure 8 and Figure 9*, for more detailed sizing information.


17. Create the boot partition as follows:
   - Mount Point: /boot
   - File System Type: ext3
   - Allowable Drives: Select the hard disk on which you are installing the Linux operating system.
   - Size (MB): 100
   - Additional Size Options: Fixed size
   - Click the Force to be a primary partition check box.

18. Click OK. You are returned to the Disk Setup page.

19. Click New again.

20. Create the swap partition as follows:
   - Mount Point: Leave blank.
   - File System Type: swap
   - Allowable Drives: Select the hard disk on which you are installing the Linux operating system.
   - Size (MB): Refer to Table 9, *Physical volume sizing (boot and swap)* on page 41.
   - Additional Size Options: Fixed size
   - Click the Force to be a primary partition check box.

<table>
<thead>
<tr>
<th>Logical/physical drive</th>
<th>Partition</th>
<th>Recommended size</th>
</tr>
</thead>
<tbody>
<tr>
<td>sda or hda</td>
<td>boot</td>
<td>100 MB</td>
</tr>
<tr>
<td></td>
<td>swap</td>
<td>RAM Less than 1 GB Swap space 2 times the size of RAM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 GB to 2 GB 1.5 times the size of RAM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 GB to 8 GB Equal to the size of RAM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>More than 8 GB 0.75 times the size of RAM</td>
</tr>
</tbody>
</table>

Table 9: *Physical volume sizing (boot and swap)*
21. Click OK. You are returned to the Disk Setup page.

22. Click New again.

23. Create the rootvg volume group as follows:
   • Mount Point: Leave blank.
   • File System Type: physical volume (LVM)
   • Allowable Drives: The hard disk on which you are installing the Linux operating system.
   • Size (MB): Leave the default value.
   • Additional Size Options: Fill to maximum allowable size
   • Click OK. You are returned to the Disk Setup page.

24. Click (highlight) LVM PV, and then click LVM.

25. The Make LVM Volume Group page opens. Create the rootvg volume group as follows:
   • Volume Group Name: Rename it to rootvg (must be spelled exactly as shown in lower case).
   • Physical Extent: 32 MB.
   • Physical Volumes to Use: Select the hard disk where you are installing the Linux operating system.
   • Click Add to create necessary logical volumes.

26. The Make Logical Volume dialog box opens. Create Logical Volumes LogVol00 through LogVol10 using the values listed in Table 10, Logical volume sizing on page 42.

   Note: For small Facility Commander server configurations that have the disk storage capacity as specified in the minimum system configurations, allocate the LogVol05 (/bud) last and assign all remaining disk space to this volume. LogVol05 (/bud) is used for the backup directory. The size must be at least 30,000 MB.

   If your Facility Commander server configuration exceeds the minimum system requirements, ignore this note.

27. After entering each logical volume, click OK. You will be returned to the Make LVM Volume Group page. Repeat step 26 and step 27 for each logical volume entry.

<table>
<thead>
<tr>
<th>Volume group</th>
<th>Logical volume</th>
<th>Enter mount point</th>
<th>Size required (MB)</th>
<th>Size to enter (MB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>rootvg</td>
<td>LogVol00</td>
<td>/</td>
<td>4,096</td>
<td>5,000</td>
</tr>
<tr>
<td></td>
<td>LogVol01</td>
<td>/home</td>
<td>512</td>
<td>600</td>
</tr>
<tr>
<td></td>
<td>LogVol02</td>
<td>/tmp</td>
<td>2,048</td>
<td>2,400</td>
</tr>
<tr>
<td></td>
<td>LogVol03</td>
<td>/usr</td>
<td>6,144</td>
<td>7,000</td>
</tr>
<tr>
<td></td>
<td>LogVol04</td>
<td>/var</td>
<td>4,096</td>
<td>4,800</td>
</tr>
<tr>
<td></td>
<td>LogVol06</td>
<td>/db1</td>
<td>2,048 (S) 2,048 (M) 2,048 (L)</td>
<td>2,040 (S) 2,040 (M) 2,040 (L)</td>
</tr>
<tr>
<td></td>
<td>LogVol07</td>
<td>/db2</td>
<td>2,048 (S) 2,048 (M) 2,048 (L)</td>
<td>2,040 (S) 2,040 (M) 2,040 (L)</td>
</tr>
<tr>
<td></td>
<td>LogVol08</td>
<td>/db3</td>
<td>256 (S) 384 (M) 512 (L)</td>
<td>400 (S) 500 (M) 700 (L)</td>
</tr>
<tr>
<td></td>
<td>LogVol09</td>
<td>/db4</td>
<td>4,096 (S) 12,288 (M) 32,768 (L)</td>
<td>4,700 (S) 13,800 (M) 36,500 (L)</td>
</tr>
<tr>
<td></td>
<td>LogVol10</td>
<td>/log</td>
<td>2,048 (S) 4,096 (M) 8,192 (L)</td>
<td>2,400 (S) 4,700 (M) 9,300 (L)</td>
</tr>
<tr>
<td></td>
<td>LogVol05</td>
<td>/bud</td>
<td>32,768</td>
<td>36,000</td>
</tr>
</tbody>
</table>

1. S = Standard database, M = Medium database, L = Large database
28. When you have finished defining your partitions, click OK on the Make LVM Volume Group page to accept your settings. You are returned to the Disk Setup page. Click Next to continue.

29. The GRUB Boot Loader Configuration page opens. Accept the default settings, and then click Next.


Configure the Edit Interface dialog as follows:

- Select Enable IPv4 support check box. Click Manual configuration.
- Deselect Enable IPv6 check box.

Click OK. You are returned to the Network Configuration page. Under Hostname, Set the hostname, click manually, and then enter the hostname.

Note: The Facility Commander host must have a static IP address. It does not work with DHCP.

- Under Miscellaneous Settings, configure the Gateway and Primary DNS, if applicable, and then click Next.

CAUTION: Do not leave the hostname field blank, it must be set to an alphanumeric value before Facility Commander is installed!

Keep the following in mind:

- Use LOWERCASE a through z, and/or 0 through 9. Do NOT use UPPERCASE.
- Use the simple machine name, such as fchost1, not the fully qualified name.
- The host name may not be more than 16 characters in length.
- Do not use host names containing the dash character (-).
  Informix Dynamic Server 11.5 does not recognize this as a valid character and will prevent the database from starting.
- Do not use host names containing the underscore character (_).
  This is not a valid character in the web server running on the Facility Commander host.

Under Miscellaneous Settings, configure the Gateway and Primary DNS, if applicable, and then click Next.

- If you fail to provide a Primary DNS, an error message dialog box opens. Depending on your network environment, this could cause future problems. If you do not know what this should be, consult your Network Administrator. Click Continue on the error message dialog box.

31. The Region Selection page opens. Select the region corresponding to the server location from the drop-down menu. Click the System clock uses UTC check box, and then click Next.

Note: Selecting three letter time zone designators ("EST", "PST", "CST", etc.) cause a problem with daylight savings time. Instead of using these designators, the full "America/New York", "America/San Francisco", etc should be used.

If it is necessary to adjust the date and/or time, use the dateconfig command when the Linux installation is complete.

32. The Set Root Password page opens. In the Root Password field, enter a password (minimum six characters) for root. In the Confirm field, enter the password again, and then click Next.

You will need this password later when you install the Informix database (See Linux Informix Database on page 65).
33. The Package Group Selection window opens. Click Customize now to open the Package Selection page.

Select the following packages, and then click Next.

Desktop Environments:
• GNOME Desktop Environment

Applications:
• Editors
• Graphical Internet
• Office/Productivity
• Sound and Video

Development:
• Development Tools
• Legacy Software Development
• X Software Development

Servers:
• Legacy Network Server
• Mail Server
• Printing Support
• Server Configuration Tools

Base System:
• Administration Tools
• Base
• X Windows Systems

Languages:
• No selection

34. After a check of dependencies in packages is performed, the About to Install Red Hat Enterprise Linux Server page opens. Click Next to begin the installation of Red Hat Linux 5.3.

Note: if, for some reason, you do not wish to continue with the installation process, this is your last opportunity to safely cancel the process and reboot your machine. Once you press the Next button, partitions will be written and packages will be installed. If you wish to abort the installation, you should reboot now before any existing information on any hard drive is rewritten.

To cancel this installation process, press your computer’s Reset button or use the [Control]-[Alt]-[Delete] key combination to restart your machine.

35. After installation, the Congratulations, the installation is complete page opens. Remove any media used during the installation process, and then click Reboot.

36. When the reboot is complete, the Welcome page opens. Click Forward to continue.

37. The License Agreement page opens. Click Yes, I agree to the License Agreement, and then click Forward.
38. The Firewall page opens. Select Firewall: Disabled, and then click Forward. A confirmation dialog box opens. Click Yes to continue.

39. The SELinux Setting page opens. Select SELinux: Disabled, and then click Forward. A confirmation dialog box opens. Click Yes to continue.

40. The Kdump page opens. Accept the default settings, and then click Forward.

   Optional: If you want the host to synchronize its clock with a remote time server, click the Network Time Protocol tab.
   - Check the Enable Network Time Protocol check box and use the drop-down menu to select a time server.

41. The Set Up Software Updates page opens. Select No, I prefer to register at a later time, and then click Forward. A confirmation dialog box opens, click No thanks, I’ll connect later. The Finish Updates page opens, Click Forward.

   Optional: To register with Red Hat and provide a Red Hat login:
   - If you have already registered with Red Hat Network, click Yes, I’d like to register now. Click Forward and the Choose Server page opens. Select your server and click Forward to continue.
   - If you provided your Red Hat login account information, the Activate dialog opens.
   - Enter the subscription number in the appropriate field. Otherwise, select I do not have a subscription number. Click Forward to continue.
   - If you have never registered, choose Why Should I Connect to RHN? The Why Register dialog box opens, providing registration information.

42. The Create User page opens. Since a user account will be created during the installation of the Facility Commander application, it is not necessary to create an account now. Click Forward to continue. A confirmation dialog box opens, click continue.

43. The Sound Card page opens. Click Forward to continue.

44. The Additional CDs page opens, There are no required add-ons for Facility Commander. Click Forward to continue.

45. The Finish Setup dialog box opens. Click OK to reboot the server.

46. After installation of Red Hat Linux 5.3, the /etc/hosts file needs to be updated with the correct entries for the application server before the database is installed. The installation process incorrectly assigns the loopback address to the hostname.

   **To update the etc/hosts file:**
   a. Right-click on My Computer, and then select Browse Folder.
   b. Click File system, and then click the Etc folder.
   c. In the list of files, click Hosts.
   d. Change the incorrect localhost entry to the following:

   127.0.0.1     localhost   localhost.localdomain
e. Add a new entry for the Facility Commander server hostname as follows:

<FC server IP address> <FC server hostname> <FC server hostname.domain>

47. The set up for Red Hat Linux is now complete and you may proceed to install the Informix database. Refer to *Linux Informix Database* on page 65
### Physical RAM (GB) | Recommendation for Swap Space Allocation
--- | ---
< 1.00 | 2 times the size of RAM
1.00 ≥ 2.00 | 1.5 times the size of RAM
2.00 > 8.00 | Equal to the size of RAM
8.00 + | 3.4 times the size of RAM

### Disk Space Allocations

<table>
<thead>
<tr>
<th>Volume Logical Group</th>
<th>Volume Points</th>
<th>Minimum Sizes to Enter (MB)</th>
<th>Minimum Sizes Required (MB)</th>
<th>Allocated Space to Supervisor (MB)</th>
<th>Used Space by Linux Install (MB)</th>
<th>Available Space to Applications (MB)</th>
<th>Purpose of Disk Space</th>
</tr>
</thead>
<tbody>
<tr>
<td>swap</td>
<td>/</td>
<td>4,096</td>
<td>4.00</td>
<td>4,096</td>
<td>-</td>
<td>4,094</td>
<td>4.00</td>
</tr>
<tr>
<td>boot</td>
<td>/boot</td>
<td>100</td>
<td>0.10</td>
<td>100</td>
<td>99</td>
<td>12</td>
<td>0.01</td>
</tr>
<tr>
<td>rootvg</td>
<td>LV00</td>
<td>/</td>
<td>5,000</td>
<td>4,886</td>
<td>4,836</td>
<td>4.72</td>
<td>342</td>
</tr>
<tr>
<td>rootvg</td>
<td>LV01</td>
<td>/home</td>
<td>600</td>
<td>512</td>
<td>558</td>
<td>0.54</td>
<td>17</td>
</tr>
<tr>
<td>rootvg</td>
<td>LV02</td>
<td>/tmp</td>
<td>2,400</td>
<td>2,348</td>
<td>2,325</td>
<td>2.27</td>
<td>68</td>
</tr>
<tr>
<td>rootvg</td>
<td>LV03</td>
<td>/var</td>
<td>7,000</td>
<td>6,848</td>
<td>6,758</td>
<td>6.80</td>
<td>1,967</td>
</tr>
<tr>
<td>rootvg</td>
<td>LV04</td>
<td>/var</td>
<td>4,800</td>
<td>4,698</td>
<td>4,650</td>
<td>4.54</td>
<td>194</td>
</tr>
<tr>
<td>rootvg</td>
<td>LV05</td>
<td>/dev</td>
<td>36,000</td>
<td>35,16</td>
<td>32,783</td>
<td>34.05</td>
<td>177</td>
</tr>
</tbody>
</table>

**Space Allocated:**

- Total Space Allocated:
  - Physical RAM (GB): 59.996
  - 59.59
  - 53.800
  - 52.60
  - 50.192
  - 68.03
  - 2.767
  - 2.70
  - 52.638
  - 51.40

**Space Allocated:**

- 48.161
- 47.33
- 2.69
- 2.69
- 52.638
- 51.40
### Figure 9. RHEL ES 5.3 Database disk space allocations

#### LARGE FCC Informix Database

<table>
<thead>
<tr>
<th>Volume Group</th>
<th>Volume</th>
<th>Disk Space</th>
</tr>
</thead>
<tbody>
<tr>
<td>rootvg LV06</td>
<td>/db1</td>
<td>2,400</td>
</tr>
<tr>
<td>rootvg LV07</td>
<td>/db2</td>
<td>2,400</td>
</tr>
<tr>
<td>rootvg LV08</td>
<td>/db3</td>
<td>700</td>
</tr>
<tr>
<td>rootvg LV09</td>
<td>/db4</td>
<td>36,500</td>
</tr>
<tr>
<td>rootvg LV10</td>
<td>/log</td>
<td>9,300</td>
</tr>
</tbody>
</table>

**DB Space Allocated:** 51,300

**Total Space Allocated:** 111,296

#### MEDIUM FCC Informix Database

<table>
<thead>
<tr>
<th>Volume Group</th>
<th>Volume</th>
<th>Disk Space</th>
</tr>
</thead>
<tbody>
<tr>
<td>rootvg LV06</td>
<td>/db1</td>
<td>2,400</td>
</tr>
<tr>
<td>rootvg LV07</td>
<td>/db2</td>
<td>2,400</td>
</tr>
<tr>
<td>rootvg LV08</td>
<td>/db3</td>
<td>500</td>
</tr>
<tr>
<td>rootvg LV09</td>
<td>/db4</td>
<td>13,800</td>
</tr>
<tr>
<td>rootvg LV10</td>
<td>/log</td>
<td>4,700</td>
</tr>
</tbody>
</table>

**DB Space Allocated:** 23,800

**Total Space Allocated:** 83,796

#### SMALL FCC Informix Database

<table>
<thead>
<tr>
<th>Volume Group</th>
<th>Volume</th>
<th>Disk Space</th>
</tr>
</thead>
<tbody>
<tr>
<td>rootvg LV06</td>
<td>/db1</td>
<td>2,400</td>
</tr>
<tr>
<td>rootvg LV07</td>
<td>/db2</td>
<td>2,400</td>
</tr>
<tr>
<td>rootvg LV08</td>
<td>/db3</td>
<td>400</td>
</tr>
<tr>
<td>rootvg LV09</td>
<td>/db4</td>
<td>4,700</td>
</tr>
<tr>
<td>rootvg LV10</td>
<td>/log</td>
<td>2,400</td>
</tr>
</tbody>
</table>

**DB Space Allocated:** 12,300

**Total Space Allocated:** 72,296
This chapter covers the information needed to install and configure the AIX operating system for Facility Commander.

In this chapter:

- **Overview** .......................................................... 50
- **Install AIX** ....................................................... 50
Overview

If your Facility Commander 2.2.2 server was purchased from GE Security, the AIX operating system and Facility Commander software are preloaded on it.

If not, start below and follow the instructions to install and configure AIX 6.1 software.

Install AIX

To install the AIX operating system, follow these steps:

1. Insert the AIX Volume 1 media into the media device.
2. Shut down your system. If your machine is currently running, power it off by following these steps:
   a. Log in as the root user.
   b. Type the following command:
      ```bash
      shutdown -h
      ```
   c. If your system does not automatically power off, place the power switch in the Off position.
      Note: Any external devices (CD-ROM drive, monitor, etc.) attached to the server must be powered on before the server is powered on.
3. Power up all attached external devices.
4. Power up the server.
5. When the system beeps twice, press the F5 key (or 5 on an ASCII terminal). If you have a graphics display, you will see the keyboard icon on the screen when the beeps occur. If you have an ASCII terminal, you will see the word keyboard when the beeps occur.
   Note: Note: If your system does not boot using the F5 key (or the 5 key on an ASCII terminal), refer to your hardware documentation for information about how to boot your system from an AIX product media.
   The system begins booting from the installation media.
6. When prompted to Define the System Console, press F1 on the keyboard (or 1 on an ASCII terminal), and then press Enter.
7. You will be prompted to select a language to be used for installation. Select 1 for English, and then press Enter.
8. The Welcome to Base Operating System Installation and Maintenance page opens. Select 2, Change/Show Installation Settings and Install, and then press Enter.
9. The Installation and Settings page opens. Select 1, System Settings, and then press Enter.
10. The Change Method of Installation page opens. Select 1, New and Complete Overwrite, and then press Enter.
11. The Change Disk(s) Where You Want to Install page opens. Select the hard disk (volume group) on which to install the operating system.

   Type 0, Continue with choices indicated above, and then press Enter.

12. The Installation and Settings page opens again. Review the settings and type 0, Install with the current settings listed above, or type the number of the one(s) you want to change. When you are satisfied with the settings, press Enter.

   If you are installing over a previous operating system, the Overwrite Installation Summary page opens. Select 1, Continued with Install, and then press Enter.

   **Note:** The installation process will begin and messages will display on the screen as filesets are loaded from the CD(s). This will take a while, depending on your system. When the installation is complete, the system will reboot.

**Configure AIX**

**To configure AIX using a non-graphical terminal:**

1. The Set Terminal Type page opens. Select this terminal as the console and enter the appropriate terminal type, for example: ibm3151, and then press Enter.

2. The Software License Agreements page opens. Highlight Accept License Agreements, and then press Enter.

3. The Accept License Agreements page opens. Highlight Accept Installed License Agreement. Press tab to select Yes, and press Enter.

4. Press F3 three times to return to the Software Maintenance Agreement page. Highlight Accept Software Maintenance Terms and Conditions, and then press Enter.


6. The Command Status page opens. Press F3 three times.

7. The Installation Assistant page opens. Highlight Set Date and Time, and then press Enter.

8. The Set Date and Time page opens. Select Change/Show Date, and then press Enter.

9. The Change/Show Date and Time page opens. Make necessary changes, and then press Enter.

10. Press F3 three times to return to the Set Date and Time page. Select Change Time Zone Using System Defined Values, and then press Enter.

11. The Time Zone name page opens. Highlight the appropriate choice, and then press Enter.

   **Note:** Selecting three letter time zone designators ("EST", "PST", "CST", etc.) cause a problem with daylight savings time. Instead of using these designators, the full "America/New York", America/San Francisco", etc. should be used.

12. The Change Time Zone page opens. To accept the system defined offsets for your time zone, press Enter.

13. The Command Status page opens. Press F3 twice to return to the Installation Assistant page. Highlight Set Root Password, and then press Enter.
14. The Set Root Password page opens. Type the new password and then type it again to confirm the entry. Press Enter.

15. The Installation Assistant page opens again. Highlight Configure Network Communications, and then press Enter.


17. The Available Network Interfaces submenu will display. Highlight the Standard Network Interface being configured, and then press Enter.

18. The Minimum Configuration and Startup screen page opens. You are asked to enter the following information: Type or select values in all fields and when complete, press Enter.
   - Host name
   - Internet address
   - Network mask
   - Network interface nameserver
     - Internet address
     - Domain name
   - Default gateway address
     - Address
     - Cost

19. The Command Status page opens. Press F3 three times to return to the Installation Assistant page. Highlight Task complete, Exit to login, and then press Enter.

20. The console login page opens. Log in as root with the associated password, and then press Enter.

21. Reboot the system by typing: `shutdown -r [Enter]`
   Do not use the `reboot` command at any time. Doing so will corrupt any existing databases. A number of welcome messages are displayed. This may take several minutes.

If you are installing an Informix database, continue to *AIX Informix Database* on page 72.
This chapter describes the installation tasks associated with installing the databases used by Facility Commander.

In this chapter:

- **Overview** .......................................................... 54
- **SQL Server 2008 (Windows)** ........................................ 55
- **Microsoft SQL Server 2008** ......................................... 55
- **Microsoft SQL Server 2008 communication configuration** .... 60
- **Windows communication foundation HTTP activation** .......... 60
- **Verifying SQL Server Services** ..................................... 60
- **Firewall settings for the SQL Server 2008 database** ............ 61
- **Installing Facility Commander SQL Server Schema** .............. 62
- **Linux Informix Database** ........................................... 65
- **Installing the Informix database** .................................... 65
- **Installing the Linux Informix Schema** .............................. 69
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- **Moving Physical Volumes** .......................................... 72
- **Creating the user accounts** ......................................... 72
- **Creating the database logical volumes** ............................. 74
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- **File system sizing** .................................................. 76
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- **Installing the AIX Informix Schema** ............................... 81
Overview

Facility Commander supports SQL Server 2008 and Informix databases.

This chapter includes information about database space requirements, default database names, login names, and passwords created during the installation process.

Table 11 lists the operating systems and databases supported by Facility Commander. Refer to the appropriate section for instructions.

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Windows</th>
<th>Linux</th>
<th>AIX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Database:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SQL Server 2008</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>See page 55</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Informix</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>See page 65</td>
<td>See page 72</td>
<td></td>
</tr>
</tbody>
</table>
SQL Server 2008 (Windows)

This section describes the procedures needed to install and configure the Microsoft SQL Server 2008 database on a Windows OS system. If you purchased this system from GE Security, SQL Server 2008 is already installed.

The Microsoft SQL Server 2008 software is not included on the Facility Commander DVD.

After installation of Microsoft SQL Server 2008 is complete, you must run the Facility Commander database schema to create the required tables. Refer to Installing Facility Commander SQL Server Schema on page 62. If you are upgrading from Facility Commander 2.1 to Facility Commander 2.2.2, installation of the Facility Commander database schema is not required.

**Note:** The SQL Server 2008 database must be installed before installing the Facility Commander client and server software.

Use the checklist below to install the SQL Server 2008 database:

| ☐ | Verify SQL Server. Refer to Verifying SQL Server Services on page 60. |
| ☐ | Install SQL Schema (new installations only). Ref to Installing Facility Commander SQL Server Schema on page 62. |

**Microsoft SQL Server 2008**

**To install Microsoft SQL Server 2008:**

1. Insert the Microsoft SQL Server 2008 DVD. The Microsoft SQL Server 2008 page opens.
2. When the AutoPlay page opens, click Run SETUP.EXE.
3. A window displays a list of prerequisites required prior to installing SQL Server. Click OK to begin installing the components.
4. When the .NET Framework Welcome to Setup page opens, review the agreement, select I have read and ACCEPT the terms of the Licence Agreement, and then click Install.
5. When the process is complete, the .NET Installation complete page opens, click Exit.
6. The Windows Update Standalone Installer page opens, click OK to install Windows software updates.
7. A dialog box opens indicating that the installation is complete. Click Restart Now.
8. After the computer has been restarted, log on as Administrator using your Administrator password.
9. You must restart the SQL Server 2008 installation again by either of the following methods:
   - Open and close your CD/DVD drive to initialize setup
   - Using Windows Explorer, browse to the CD/DVD drive and double-click Setup.exe.
10. The SQL Server Installation Center window opens. Click Installation and then click New SQL SERVER stand-alone installation or add features to an existing installation as shown in Figure 10.
11. The Setup Support Rules window opens. When the operation is complete, click OK.

12. The Product Key window opens. If the product key is not already entered for you, enter the product key, and then click Next.

13. The License Terms window opens. Review the agreement, and then select I accept the license terms. Click Next.

14. The Setup Support Files page opens and provides a list of components that are required for SQL Server setup. Click Install.

15. The Setup Support Rules page opens and identifies problems that might occur when you install SQL Server Setup support files. Click Next.

16. The Feature Selection page opens as shown in Figure 11. Select the following options, and then click Next.

**Instance Features:**
- Database Engine Services
- Full-Text Search.

**Shared Features:**
- Client Tools Connectivity
- Client Tools Backwards Compatibility
- Management Tools - Basic
- Management Tools - Complete.
17. The Instance Configuration page opens. Select Named Instance, and then enter FCSQL. Click Next. See Figure 12.

**Note:** It is very important that you enter the correct instance for the appropriate product.
18. The Disk Space Requirements page opens. Click Next.

19. The Server Configuration page opens. Click the Service Accounts tab, and then configure settings as follows: See Figure 13.

   Click Use the same account for all SQL Server services to apply the same username and password to the SQL Server Agent, SQL Server Database Engine and SQL Server Reporting Services.

   Enter the following information, and then click OK:
   
   - Account Name: Enter Administrator or the domain account name.
   - Password: Enter the administrator password for this operating system.
   
   Startup Type: Select Automatic for SQL Server Agent, SQL Server Database Engine, and SQL Server Browser.

   Click Next.

20. The Database Engine Configuration page opens. Click the Account Provisioning tab, and then configure the settings as follows: See Figure 14.

   Authentication Mode: Click Mixed Mode (SQL Server authentication and Windows authentication).

   Built-in SQL Server system administrator account: In the Enter password field, enter the ‘sa’ password. The default ‘sa’ password is SecurityMaster08 (case sensitive).

   Specify SQL Server administrators: Click Add. The Select Users or Groups page opens as shown in Figure 15. In the Enter the object names to select field, enter Administrator, and then click Check Names to make sure you have entered the Administrator for this computer. Click OK to close the Select Users or Groups page.

   Click Next.
21. The Error and Usage Reporting page opens. Click Next.
22. The Installation Rules page opens. Click Next.
23. The Ready to Install page opens. Click Install.
24. The Installation Progress page opens. When the setup process is complete, click Next.
26. We recommend that you restart your computer at this time.
Microsoft SQL Server 2008 communication configuration

To enable the Protocols for SQL Native Client:

1. From the SQL Server Configuration Manager, click SQL Native Client 10.0 Configuration.
2. Double-click Client Protocols. One at a time, right-click on Shared Memory, Named Pipes, and TCP/IP, and then select Enabled.
3. Click File, and then Exit.

To enable the Protocols for FCSQL:

1. Click Start, All Programs, Microsoft SQL Server 2008, Configuration Tools, and then SQL Server Configuration Manager.
2. The SQL Server Configuration Manager page opens. Double-click SQL Server Network Configuration, and then double-click Protocols for FCSQL.
3. One at a time, right-click on Shared Memory, Named Pipes, and TCP/IP, and then select Enabled.
4. Right-click on TCP/IP. The TCP/IP properties page opens. Click the IP Addresses tab, and then scroll to the bottom of the list to the IPAll category. In the TCP Port field, enter port number 1433. This must be done prior to installing the Facility Commander SQL Server schema.
5. Click OK. You are prompted to restart your computer. We recommend that you restart your computer at this time for the changes to take effect.

Windows communication foundation HTTP activation

If the Video Management Console (VMC) will be running on this computer, Windows Communication Foundation HTTP Activation must be enabled.

To enable Windows Communication Foundation HTTP Activation:

1. Click Start, Control Panel, and then Programs and Features.
2. Select Turn Windows features on or off from the Tasks panel on the left.

Verifying SQL Server Services

When the system is restarted, log in as Administrator. Once SQL Server is installed, you should verify that it is installed properly and the service is running.

To ensure SQL server services is running:

1. Click Start, Control Panel, then double-click Administrative Tools.
3. The Services page opens. Locate SQL Server (FCSQL). The status should read Started, which means that the service is running.
4. If it is blank, then the service is not running. Check the SQL Server documentation for more information on troubleshooting.
5. Close all open pages.

**Firewall settings for the SQL Server 2008 database**

If the Firewall is selected ON, the following items must be configured to allow the Facility Commander application to access the SQL Server 2008 database.

**To allow required ports and programs through the Windows Firewall:**

1. Click Start, and then click Control Panel. The Control Panel page opens.
   
   Control Panel Home view: Click Allow a program through Windows Firewall under the Security area.
   
   Classic view: Double-click the Windows Firewall icon. The Windows Firewall page opens. Click Allow a program through Windows Firewall.

2. The Windows Firewall Settings page opens. Click Add Port.

3. The Add a Port page opens. Enter the information for the first port listed in Table 12, Required ports for exception list and then click OK. You are returned to the Firewall settings page. Repeat Steps 2 and 3 for each required port.

4. On the Windows Firewall Settings page, click Add Program.

5. The Add a Program page opens. Click Browse to open the Browse dialog box.

6. Browse to the following file, and then click OK.
   
   `C:\Program Files\Microsoft SQL Server\MSSQL10.FCSQLSERVER\MSSQL\Binn\sqlserver.exe`

7. On the Windows Firewall Settings page, click OK to complete the changes

8. Close the Windows Firewall Settings page, and then close the Control Panel.

<table>
<thead>
<tr>
<th>Name</th>
<th>Port</th>
<th>TCP/UDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQL Server 2008 Client Port (TCP 1433)</td>
<td>1433</td>
<td>TCP</td>
</tr>
<tr>
<td>SQL Server 2008 Client Port (UDP 1434)</td>
<td>1434</td>
<td>UDP</td>
</tr>
<tr>
<td>SQL Server 2008 Dynamic Port (TCP 2730)</td>
<td>2730</td>
<td>TCP</td>
</tr>
</tbody>
</table>
Installing Facility Commander SQL Server Schema

**Note:** The Facility Commander SQL Server Schema installation is not required for upgrade installations. Refer to *Upgrading from version 2.1 to 2.2.2 (Windows)* on page 26.

**To install Facility Commander SQL Server Schema:**

1. Insert the Facility Commander DVD.
2. When the AutoPlay page opens, click Run FC_INSTALLER.exe.
3. The Facility Commander Welcome page opens as shown in Figure 16. Click Database.
5. The Facility Commander SQL Server 2008 Introduction page opens. Click Next to continue.
6. The SQL Server 2008 License Agreement page opens. Click I accept the terms of the License Agreement, and then click Next.
7. The SQL Server 2008 Password page opens. Enter the password for the system administrator (sa) of the SQL Server 2008 database. This is the password created when SQL Server 2008 was installed. The default password is SecurityMaster08 (case sensitive). Click Next to continue.
8. The SQL Server Port page opens. Accept the default setting of 1433 for the port number to which the SQL Server is connected. Click Next to continue.
9. The Choose a Location page opens. Select where you would like to store your database files, and then click Next.
10. The Choose a Shortcut Folder page opens. Click Next.
11. The Database Size page opens as shown in Figure 17. Select the size that best describes your site, and then click Next.

The database can reside on one or more logical volumes. Two factors determine the number of drives are the database vendor requirements and the Facility Commander database size.

Figure 17. Database size

12. The Data Files page opens as shown in Figure 18.

Use the Data Files page to select the disk drives to install the database, and then click Next.

The drive must be a local drive on the system; it cannot be a network drive. The data file structure consists of:

- **Master** (includes the data dictionary and schema)
- **Data** (includes the Facility Commander database)
- **History** (includes the Facility Commander history tables)
- **Log** (includes all database transaction activity)

The database can reside on one or more disk drives. The factors that determine the number of drives are the database vendor requirements and the size of the Facility Commander database.
13. The Pre-Installation Summary page opens. Click Install to complete the installation. When the installation is complete, you are notified that the SQL Server 2008 Database Schema has been successfully installed.

14. Click Done. Close the Database Installation and Setup page. A dialog box opens asking if you want to reboot now. Click Yes.

Continue with *Installing Facility Commander applications* on page 85.
Linux Informix Database

This section describes the steps needed to install Informix database using a Red Hat Linux 5.3 operating system on a standalone Facility Commander Application Server and co-resident with a Picture Perfect 4.5.1 Server.

After installation of Informix is complete on the standalone system, you must run the Facility Commander database schema to create the required tables. Refer to Installing the Linux Informix Schema on page 69.

For co-resident installations, the Picture Perfect 4.5.1 Server already has the Informix database installed, so you do not need to reinstall the Informix database. You must run the Facility Commander database schema to create the required tables. Refer to Installing the Linux Informix Schema on page 69.

Installing the Informix database

To install the Informix database, follow these steps:

1. Log in as root, and then open a terminal window.
2. Insert the Facility Commander 2.2.2 Installation DVD. If the autorun feature does not launch, mount the DVD and start the installation as follows:
   
   Change directories to Media:
   ```bash
   cd /media [Enter]
   ```

   Make the dvd directory:
   ```bash
   mkdir dvd [Enter]
   ```

   Mount the DVD:
   ```bash
   mount /dev/dvd /media [Enter]
   ```

   Change directories to dvd:
   ```bash
   cd /media/dvd [Enter]
   ```

   Start the Facility Commander installation:
   ```bash
   sh FC_Installer_Linux [Enter]
   ```

3. The Facility Commander Welcome page opens as shown in Figure 19. Click Database.
4. The Database Installation and Setup page opens. Click Informix. A dialog box opens to confirm that you want to install Informix. Click Yes.

5. The Informix Database Introduction page opens. Click Next to continue.

6. The Informix Database License Agreement page opens. Click I accept the terms of the License Agreement, and then click Next.

7. The Informix Account Password page opens. Enter a password (minimum length is six characters) for the Informix user account. This creates an Informix user, group, and owner. Click Next.

8. The Database Size page opens as shown in Figure 20. Use the Database Size window to select the size of the database, and then click Next.

Refer to Table 13 for a summary of the sizing requirements, which are based on the number of disk drives being used. The database can reside on one or more logical volumes.

Two factors that determine the number of drives are the database vendor requirements and the Facility Commander database size.
9. The Data Files page opens as shown in Figure 21.

The drive must be a local drive on the system; it cannot be a network drive. The data file structure consists of:

- Master (/db1): Includes the data dictionary and schema
- DB Logs (/db2): Includes transactions (DML) updates to the database
- Log (/log): Includes logical log archive (backup) files

Select the disk drives to install the database, and then click Next.
10. The Pre-Installation Summary page opens. Click Install to complete the installation. A progress bar displays during the installation.

   This page allows you to verify the following before installing the database:
   - Product Name (Informix)
   - Disk Space Information (lists the required and available disk space)

11. When the installation is complete, a message displays stating the database has been successfully installed. Click Done. The system must be rebooted after installation.

12. To reboot the system, type: `reboot [Enter]`

   If errors occur, during the Informix installation, go to `/tmp/informix`. The error file is named `InformixDatabase_InstallLog.log`. Use the `more` command to review the log file.

13. Continue with *Installing the Linux Informix Schema* on page 69.
Installing the Linux Informix Schema

The Linux Informix Schema must be installed on Facility Commander standalone Application Servers and on Facility Commander co-resident with Picture Perfect 4.5.1 systems. For Facility Commander co-resident with Picture Perfect 4.5.1 systems, you must run the Linux Informix Schema on the Picture Perfect 4.5.1 server.

To install the Informix database, follow these steps:

1. Log in as root.
2. Open a terminal window, and then mount the DVD and start the installation as follows:
   
   Mount the DVD:
   
   ```
   mount /dev/dvd /media/dvd
   ```
   
   Change directories to dvd:
   
   ```
   cd /media/dvd
   ```
   
   Start the Facility Commander installation:
   
   ```
   sh FC_Installer_Linux
   ```
   
3. The Facility Commander Welcome page opens as shown in Figure 22. Click Database.
4. **Standalone only:** A dialog box opens and asks if you want to upgrade the schema for Informix. Click No.
5. **Standalone only:** A dialog box opens and asks if you want to install the schema for Informix. Click Yes.
7. A dialog box opens confirming that Informix must already be installed on your system. Click Yes to continue setup of your database.
8. The Informix Schema Introduction page opens. Click Next to continue.
9. The Informix Schema License Agreement page opens. Click I accept the terms of the License Agreement, and then click Next.

10. The Informix ppadmin Password page opens. Enter a password for the ppadmin User, and then click Next. The ppadmin User has Database Administrator privileges.
    **Note:** The ppadmin password must match the Picture Perfect ppadmin password on co-resident installations.

11. The Informix ppapp Password page opens. Enter a password for the ppapp User, and then click Next. The ppapp User has database resource privileges.
    **Note:** The ppapp password must match the Picture Perfect ppapp password on co-resident installations.

12. The Database Size window opens. Select the same database size used during installation of the Informix database, and then click Next.

13. The Schema Data Files page opens. See **Figure 23**.

   The partition must be a local drive on the system; it cannot be a network drive. The data file structure consists of
   - Data (/db3): Includes the data dictionary and schema
   - History (/db4): Includes the Facility Commander history tables

   Select the partitions to install the schema data and history files, and then click Next.

---

**Figure 23. Schema Data Files page**

14. The Pre-Installation Summary page opens.

   This page allows you to verify the following before installing the database:
   - Product Name (Informix Schema)
   - Disk Space Information (lists the required and available disk space)

   Click Install to complete the installation.
15. When the installation is complete, the Install Complete page opens. Click Done. The system must be rebooted after installation.

16. To reboot the system, type: `reboot [Enter]`

   If errors occur, during the Informix Schema installation, go to `/tmp/informix`. The error file is named `InformixSchema.InstallLog.log`.

   You can also go to `/tmp/informix/logs`. The error files are named `SchemaCreator.log`, `SchemaCreatorErr.log`, and `create_files`. Use the `more` command to review the log file.

17. Continue with *Installing Facility Commander applications* on page 85.
AIX Informix Database

This section describes the steps needed to install the Informix database on an AIX operating system. After installation of Informix is complete, you must run the AIX Informix schema to create the required tables. Refer to Installing the AIX Informix Schema on page 81.

Before you begin installation of the AIX Informix, you will need to complete these tasks:

- Moving Physical Volumes
- Creating the user accounts
- Creating the database logical volumes on page 74
- Allocating space for the databases on page 75
- File system sizing on page 76

Moving Physical Volumes

To move all remaining disk drives from the rootvg volume group, follow these steps:

1. Go to the AIX Application Manager and double-click System_Admin.
2. Double-click the Management Console icon. The Web-based System Manager window displays. In the Navigation Area, expand the host name folder, then expand the Volumes folder.
3. Click Volume Groups. Right-click rootvg, and then select Properties. This displays the volume group properties for rootvg.
4. Select the Physical Volumes tab. Move the available remaining physical volumes (physical drives) to Physical Volumes in Volume Group. Click OK. If this operation fails, select Forced option.
5. You are notified when this operation has successfully completed.

Creating the user accounts

To create the user accounts using the System Management Interface Tool (SMIT) graphical interface:

1. Open the System Management Interface Tool as follows:
   - On the command line, type: smit, and then press Enter.
   - or
   - Open the Application Manager and double-click the SMIT icon.
2. The System Management Interface Tool main page opens. Click Security & Users, Groups, and then Add a Group.
3. The Add a Group page opens. Enter informix in the Group Name field. Change the field from False to True in the Administrative group by clicking the up arrow.
   - Click Ok, and then click Cancel to close the page. The Add a Group page opens, showing the group was added. Click Done, and then click Cancel.
4. Click Return to: Security & Users. Click Users, and then click Add a User.
5. The Add a User page opens. Create the following user accounts.
Create the informix user account as follows:

- **User Name**: Type informix
- **Administrative User**: False
- **Primary Group**: Click List, and then select informix.
- **Another User can SU to user**: True
- **SU Group**: All

Configure all other options depending on your preferences, and then click OK.

Create the ppadmin user account as follows:

**Note:** The ppadmin user has Database Administrator privileges.

- **User Name**: Type ppadmin
- **Primary Group**: Click List, and then select informix.

Configure all other options depending on your preferences, and then click OK.

Create the ppapp user account as follows:

**Note:** The ppapp User has database resource privileges.

- **User Name**: Type ppapp
- **Primary Group**: Click List, and then select usr.

Configure all other options depending on your preferences, and then click OK.

Click Ok, and then click Cancel to close the page. The Add a User page opens, showing the users were added. Click Done, and then click Cancel to exit the page.

6. Exit the System Management Interface Tool by clicking Exit.

7. Open a terminal window and then type `passwd informix` to create a password.

   Enter the new password, type: informix [Enter]

   Enter the password again, type: informix [Enter]

8. Type `su informix` twice. If, after the second time, you are prompted to change the password, change it to informix.

9. Type `passwd ppadmin` to create a password.

   Enter the new password, type: ppadmin [Enter]

   Enter the password again, type: ppadm1 [Enter]

10. Type `passwd ppapp` to create a password.

    Enter the new password, type: ppapp [Enter]

    Enter the password again, type: ppapp1 [Enter]

11. Type `exit` to return to root.
Creating the database logical volumes

To create the database logical volumes, follow these steps:

1. Open the System Management Interface Tool as follows:
   - On the command line, type: smit, and then press Enter.
   - or
   - Open the Application Manager and double-click the SMIT icon.

2. The System Management Interface Tool main page opens. Click System Storage Management (Physical and Logical Storage), Logical Volume Manager, Logical Volumes, and then Add a Logical Volume.

3. The Add a Logical Volume dialog box opens. Click List, and then select rootvg to add it to the Volume Group name field on the Add a Logical Volume dialog box. Click Ok.

4. The Add a Logical Volume page opens. Enter the following: (the default value is used for many of the fields)
   - Logical volume name: lv01
   - Number of logical partitions: 1
   - Physical volume name: Click List and select hdisk0 only if it is the only disk available. Otherwise select all of the remaining physical volumes (hdisk1, hdisk2, etc.). Click OK.
   - Logical volume type: Click List and then click jfs2 (Enhanced Journaled File System).
   - Range of physical volumes: Click List and then click maximum.
   - Logical volume label: Enter /db1.
   - Maximum number of logical partitions (num.):  
     - If one hard disk, enter 512
     - If two hard disks, enter 1024
     - If three hard disks, enter 1536
   - Click OK. A success message displays when complete. Click Done. Click Cancel to return to the System Management Interface Tool main page.

Repeat steps 2 through 4 for each logical volume listed in Table 14, Creating database logical volumes for standalone systems.

5. Click Cancel to exit the page.

<table>
<thead>
<tr>
<th>Volume group</th>
<th>Logical volume name</th>
<th>Logical volume label</th>
</tr>
</thead>
<tbody>
<tr>
<td>rootvg</td>
<td>lv01</td>
<td>/db1</td>
</tr>
<tr>
<td></td>
<td>lv02</td>
<td>/db2</td>
</tr>
<tr>
<td></td>
<td>lv03</td>
<td>/db3</td>
</tr>
<tr>
<td></td>
<td>lv04</td>
<td>/db4</td>
</tr>
<tr>
<td></td>
<td>lv05</td>
<td>/log</td>
</tr>
</tbody>
</table>
Allocating space for the databases

To allocate space for the databases, follow these steps:


2. **Standalone systems only:** The Add an Enhanced Standard Journaled File System page opens. Fields indicated with an asterisk (*) are required. Enter the following:
   - **Logical volume name:** Click List, and then select lv01
   - **Mount point:** /db1
   - **Mount automatically at system restart?:** Yes

   Click OK. A success message displays when complete. Click Done. Click Cancel to return to the System Management Interface Tool main page. Repeat steps 1 and 2 for lv02 through lv06. Refer to Table 15, Logical volume sizing for databases.

3. Exit from the System Management Interface Tool main page.

4. Reboot the system by typing: `shutdown –r [Enter]`
   Do not use the `reboot` command at any time.

5. Open the System Management Interface Tool as follows:
   - On the command line, type: `smit`, and then press Enter.
   - or
   - Open the Application Manager and double-click the SMIT icon.


7. The Single Select List page opens. Select `/db1` from the Files System Name list.


9. In the Size of File System field, Unit size, click List. Select Megabytes for the unit size.

10. In the Number of units (Num.), enter the appropriate value as shown in Table 15, Logical volume sizing for databases. Click Ok. You are notified when this process successfully completes.

11. Repeat steps 7, 8, 10, 11, and 12 for `/db2`, `/db3`, `/db4`, `/log`, and `/bud`. Refer to Table 15, Logical volume sizing for databases.
Note: For small Facility Commander server configurations that have the disk storage capacity as specified in the minimum system configurations, allocate the lv06 (/bud) last and assign all remaining disk space to this volume. lv06 (/bud) is used for the backup directory. The size must be at least 30,000 MB. If your Facility Commander server configuration exceeds the minimum system requirements, ignore this note.

File system sizing

To size the file systems, follow these steps:


2. The Single Select List page opens. Based on the sizing changes you need to make, select a File System Name from the Single Select list.


4. In the Size of File System field, Unit size, click List. Select Megabytes for the unit size.

5. In the Number of units (Num.), enter the appropriate value as shown in Table 16, System sizing requirements. Click Ok. You are notified when this process successfully completes.

6. Repeat steps 2 through 6 for all file systems that require resizing.

### Table 15. Logical volume sizing for databases

<table>
<thead>
<tr>
<th>Volume group</th>
<th>Logical volume name</th>
<th>Mount point</th>
<th>Size required (MB)</th>
<th>Size to enter (MB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>rootvg</td>
<td>lv01</td>
<td>/db1</td>
<td>2,048 (S) 2,048 (M) 2,048 (L)</td>
<td>2,400 (S) 2,400 (M) 2,400 (L)</td>
</tr>
<tr>
<td></td>
<td>lv02</td>
<td>/db2</td>
<td>2,048(S) 2,048 (M) 2,048 (L)</td>
<td>2,400 (S) 2,400 (M) 2,400 (L)</td>
</tr>
<tr>
<td></td>
<td>lv03</td>
<td>/db3</td>
<td>256 (S) 384 (M) 512 (L)</td>
<td>400 (S) 500 (M) 700 (L)</td>
</tr>
<tr>
<td></td>
<td>lv04</td>
<td>/db4</td>
<td>4,096 (S) 12,288 (M) 32,768 (L)</td>
<td>4,700 (S) 13,800 (M) 36,500 (L)</td>
</tr>
<tr>
<td></td>
<td>lv05</td>
<td>/log</td>
<td>2,048 (S) 4,096 (M) 8,192 (L)</td>
<td>2,400 (S) 4,700 (M) 9,300 (L)</td>
</tr>
<tr>
<td></td>
<td>lv06</td>
<td>/bud</td>
<td>32,768</td>
<td>36,000</td>
</tr>
</tbody>
</table>

1. S = Standard database, M = Medium database, L = Large database

### Table 16. System sizing requirements

<table>
<thead>
<tr>
<th>Volume group</th>
<th>Logical volume name</th>
<th>Enter mount point</th>
<th>Size required (MB)</th>
<th>Size to enter (MB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>rootvg</td>
<td>hd1</td>
<td>/home</td>
<td>512</td>
<td>600</td>
</tr>
<tr>
<td></td>
<td>hd2</td>
<td>/usr</td>
<td>6,144</td>
<td>7,000</td>
</tr>
<tr>
<td></td>
<td>hd3</td>
<td>/tmp</td>
<td>2,048</td>
<td>2,400</td>
</tr>
<tr>
<td></td>
<td>hd4</td>
<td>/var</td>
<td>4,096</td>
<td>5,000</td>
</tr>
<tr>
<td></td>
<td>hd9var</td>
<td>/var</td>
<td>4,096</td>
<td>4,800</td>
</tr>
</tbody>
</table>
To size the boot and paging logical volumes, follow these steps:

1. Open the System Management Interface Tool as follows:
   - On the command line, type: `smit`, and then press Enter.
   - or
   - Open the Application Manager and double-click the SMIT icon.

2. The System Management Interface Tool main page opens. Click System Storage Management (Physical and Logical Storage), Logical Volume Manager, Logical Volumes, Set Characteristic of a Logical Volume, and then Increase the Size of a Logical Volume.

3. The Increase the size of a Logical Volume dialog box opens. Click List, and then select `boot` or `paging` to add it to the Logical Volume name field on the Increase the size of a Logical Volume dialog box. Click Ok.

4. The Increase the size of a Logical Volume page opens. In the Number of Additional logical partitions (Num.) field, enter a number of blocks of 128 MB that you want to add or delete from the existing value. Click Ok. Size the boot and paging as shown in Table 17, Boot and paging size.

   Example: The current paging file size is 4 logical partitions (4 x 128 MB = 512 MB) and you want to increase the size to 1024 MB. Put a value of 4 in the Number of Additional logical partitions (Num.) field so that the logical partitions will now be 8 (8 x 128 MB = 1024 MB).

5. You are notified when this process successfully completes. Click Done. Click Cancel to return to the System Management Interface Tool main page.

6. Exit from the System Management Interface Tool main page

Table 17. Boot and paging size

<table>
<thead>
<tr>
<th>Volume group</th>
<th>Logical volume name</th>
<th>Recommended size</th>
</tr>
</thead>
<tbody>
<tr>
<td>rootvg</td>
<td>hd5 (boot)</td>
<td>100 MB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>RAM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Paging space</td>
</tr>
<tr>
<td>hd</td>
<td>hd6 (paging)</td>
<td>Less than 1 GB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 times the size of RAM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 GB to 2 GB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.5 times the size of RAM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 GB to 8 GB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Equal to the size of RAM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>More than 8 GB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.75 times the size of RAM</td>
</tr>
</tbody>
</table>
Installing the AIX Informix database

To install the AIX Informix database, follow these steps:

1. Log in as root, and then open a terminal window.
2. Log into Bash by typing `bash` in the terminal window.
3. Insert the Facility Commander 2.2.2 Installation DVD. If the autorun feature does not launch, mount the DVD and start the installation as follows:
   
   Change directories to mnt:
   ```
   cd /mnt
   ```

   Make the dvd directory:
   ```
   mkdir dvd
   ```

   Mount the DVD:
   ```
   mount -vcdrfs -oro /dev/cd0 /mnt/dvd
   ```

   Change directories to dvd:
   ```
   cd /mnt/dvd
   ```
   
   If you are installing Facility Commander from an xterm window, type the following command:
   ```
   export DISPLAY=<IP address of this computer>:0.0
   ```

   Start the Facility Commander installation:
   ```
   sh FC_Installer_aix
   ```

4. The Facility Commander Welcome page opens as shown in Figure 24. Click Database.

---

**Figure 24. Facility Commander Welcome page**

---
5. The Database Installation and Setup page opens. Click Informix. A dialog box opens to confirm that you want to install Informix. Click Yes.

6. The Informix Database Introduction page opens. Click Next to continue.

7. The Informix Database License Agreement page opens. Click I accept the terms of the License Agreement, and then click Next.

8. The Informix Password page opens. Enter a password (minimum length is six characters) for the Informix user account. This creates an Informix user, group, and owner. Click Next.

9. The Database Size page opens. Select the size of the database, and then click Next.

10. The Data Files page opens as shown in Figure 26.

The drive must be a local drive on the system; it cannot be a network drive. The data file structure consists of:

- Master (/db1): Includes the data dictionary and schema
- DB Logs (/db2): Includes the Facility Commander database
- Log (/log): Includes logical log archive (backup) files

Select the disk drives to install the database, and then click Next.
11. The Pre-Installation Summary page opens. This page allows you to verify the following before installing the database:
   - Product Name (Informix)
   - Disk Space Information (lists the required and available disk space)
   
   Click Install to complete the installation. A progress bar displays during the installation.

12. When the installation is complete, a message displays stating the database has been successfully installed. Click Done. The system must be rebooted after installation.

13. To reboot the system, type: `reboot` [Enter]

14. If errors occur, during the Informix installation, go to `/tmp/informix`. The error file is named `InformixDatabase_InstallLog.log`. Use the `more` command to review the log file. Continue with Installing the AIX Informix Schema on page 81.
Installing the AIX Informix Schema

To install the Informix database, follow these steps:

1. Log in as root.

2. Open a terminal window, and then mount the DVD and start the installation as follows:
   Mount the DVD:
   ```
   mount -vcdrfs -oro /dev/cd0 /mnt/dvd [Enter]
   ```
   Change directories to dvd:
   ```
   cd /mnt/dvd [Enter]
   ```
   If you are installing Facility Commander from an xterm window, type the following command:
   ```
   export DISPLAY=<IP address of this computer>:0.0 [Enter]
   ```
   Start the Facility Commander installation:
   ```
   sh FC_Installer_aix [Enter]
   ```

3. The Facility Commander Welcome page opens as shown in Figure 27. Click Database.

4. A dialog box opens and asks if you want to upgrade the schema for Informix. Click No.

5. A dialog box opens and asks if you want to install the schema for Informix. Click Yes.


7. A dialog box opens confirming that Informix must already be installed on your system. Click Yes to continue setup of your database.

8. The Informix Schema Introduction page opens. Click Next to continue.
9. The Informix Schema License Agreement page opens. Click I accept the terms of the License Agreement, and then click Next.

10. The Informix ppadmin Password page opens. Enter a password for the ppadmin User, and then click Next.
    The ppadmin User has Database Administrator privileges.

11. The Informix ppapp Password page opens. Enter a password for the ppapp User, and then click Next.
    The ppapp User has database resource privileges.

12. The Database Size window opens. Select the same database size used during installation of the Informix database, and then click Next.

13. The Schema Data Files page opens. See Figure 28.
    The drive must be a local drive on the system; it cannot be a network drive. The data file structure consists of:
    • Data (/db3): Includes the data dictionary and schema
    • History (/db4): Includes the Facility Commander history tables
    Select the disk drives to install the schema data and history files, and then click Next.

14. The Pre-Installation Summary page opens.
    This page allows you to verify the following before installing the database:
    • Product Name (Informix Schema)
    • Disk Space Information (lists the required and available disk space)
    Click Install to complete the installation.

15. When the installation is complete, the Install Complete page opens. Click Done. The system must be rebooted after installation.
16. To reboot the system, type: `reboot [Enter]`

   If errors occur, during the Informix Schema installation, go to `/tmp/informix`. The error file is named `InformixSchema.InstallLog.log`. You can also go to `/tmp/informix/logs`. The error files are named `SchemaCreator.log`, `SchemaCreatorErr.log`, and `create_files`. Use the `more` command to review the log file.

Continue to *Installing Facility Commander applications* on page 85.
Chapter 7  Installing Facility Commander applications

This chapter describes the necessary procedures to install Facility Commander for server and client workstations, as well as remote media servers.

In this chapter:

- Overview ................................................................. 86
- Installing Facility Commander 2.2.2 Server ....................... 86
- License Manager ....................................................... 93
- Installing the Media Server on the Facility Commander Server ...... 94
- Installing remote Media Servers ................................... 97
- Installing Client Workstations ..................................... 101
- Host File Setup ......................................................... 105
- Starting Facility Commander ....................................... 106
- Installing Facility Commander Reports on Picture Perfect (AIX and Linux only) .................. 106
- Using vi Editor ........................................................ 115
Overview

This chapter contains the instructions necessary for installing the Facility Commander server, media server, and client workstations as well as other components and options. Refer to the appropriate sections listed below. Exit all other applications before starting the installation process.

Linux (co-resident)

The Facility Commander 2.2.2 server can be installed co-resident on a Picture Perfect 4.5.1 Server. If you are upgrading your Facility Commander 2.1 server, you must first complete the database migration procedures prior to installing Facility Commander 2.2.2 server installation. Refer to Upgrading from version 2.1 to 2.2.2 (Linux and AIX) on page 21.

If you are upgrading from Facility Commander 2.2.0 to Facility Commander 2.2.2 server, you must backup and restore the database prior to installing Facility Commander 2.2.2. Refer to Changing from version 2.2.0 to 2.2.2 (Co-resident, Linux) on page 20.

Linux and AIX

If you are upgrading your Facility Commander 2.1 server, you must first complete the database migration procedures prior to installing Facility Commander 2.2.2 server installation. Refer to Upgrading from version 2.1 to 2.2.2 (Linux and AIX) on page 21.

Windows

If you are upgrading your Facility Commander 2.1 server, you must first complete the database backup procedures prior to installing Facility Commander 2.2.2 server installation. Refer to Upgrading from version 2.1 to 2.2.2 (Windows) on page 26.

Note: The database must be installed before proceeding to the server and client installations. Refer to Chapter 6, Installing Databases on page 53.

Installing Facility Commander 2.2.2 Server

Depending on the operating system, follow these steps:

Linux

1. Log in as root.
2. Insert the Facility Commander Installation DVD.
3. Unmount the DVD by typing the following command:
   ```
   umount /media/FC_22_Main [Enter]
   ```
4. Mount the DVD by typing the following command:
   ```
   mount /dev/dvd /media [Enter]
   ```
5. Change directories to dvd by typing the following command:
   ```
   cd /media [Enter]
   ```
6. Start the Facility Commander installation by typing the following command:
   ```
   sh FC_Installer_Linux [Enter]
   ```
7. Continue with Continuing the Server Installation on page 88.
AIX

Note: Prior to installing Facility Commander 2.2.2, Java 6 must be installed.

To install Java 6:

1. Start the Facility Commander installation:
   
```
   sh FC_Installer_aix [Enter]
   ```

2. Mount the Facility Commander installation DVD as follows:
   
   a. Mount the DVD by typing the following command:
       
```
   mount -vcdrfs -oro /dev/cd0 /mnt/dvd [Enter]
   ```
   b. Change directories to dvd by typing the following command:
       
```
   cd /mnt/dvd [Enter]
   ```
   c. If you are installing Facility Commander from an Xterm window, type the following command:
       
```
   EXPORT display=<IP address of this computer>:0.0 [Enter]
   ```

3. Copy the Java6.sdk.tar file by typing the following commands:
   
```
   mkdir /tmp/java_home [Enter]
   cd /tmp/java_home [Enter]
   cp /mnt/dvd/aixsdk/Java* . [Enter]
   ```

4. Untar the Java6.sdk.tar file by typing the following command:
   
```
   tar -xvpf Java6.sdk.tar [Enter]
   ```

5. Install the Java SDK file by typing the following command:
   
```
   smitty installp [Enter]
   ```

6. The Install and Update Software page opens. Click Install Software.

7. The Install Software page opens. Enter ./ in the INPUT device / directory for software entry field, then press Enter.

8. With the cursor on SOFTWARE to install, click F4 to view the Java6.sdk software to install, and then click F7 to select it. Press Enter.

9. With the cursor on ACCEPT new license agreements?, click Tab to accept the license agreement.

10. Press Enter twice to begin the installation. Java 6 software is installed.

11. Press F10 to exit the installation page.

12. To verify that Java 6 has been installed, type the following command:

```
   lslpp -l | grep Java
   ```

   All the installed Java runtime environments available will be listed. Look for Java6.sdk in the output.
13. Once Java 6 has been successfully installed, open the Facility Commander Welcome page by typing the following command:
   `cd /mnt/dvd [Enter]`
   `sh FC_Installer_aix [Enter]`


**Windows**

1. Insert the Facility Commander Installation DVD.
2. When the AutoPlay page opens, click Run FC INSTALLER.exe.
3. Continue with *Continuing the Server Installation* on page 88.

**Continuing the Server Installation**

To continue the server installation, follow these steps:

1. With the Facility Commander Installation DVD inserted in the DVD drive, click Server from the Facility Commander Welcome page as shown in *Figure 29*.

*Figure 29. Facility Commander Welcome page*

2. A dialog box opens confirming that you want to install the server. Click Yes.
3. The Facility Commander Server Introduction page opens, click Next.
4. The Facility Commander License page opens. Select “I accept the terms of the License Agreement,” and then click Next.
5. **Windows only**: The Location page opens. Click Next to accept the default location for the Facility Commander files.
6. The Select a Database page opens.
   
   **Linux/AIX:** Select Informix
   
   **Windows:** Select SQL Server 2008

7. The Hostname page opens. Accept the default value. This is the Facility Commander Server host name. Click Next.
8. The Database Username page opens. Enter a database user name for the database server or accept the default value. Click Next.

   The default Informix database user name is `ppapp`.

   **Note:** For co-resident installations the `ppapp` password must match the Picture Perfect `ppapp` password.

   The default SQL Server database user name is `sa`.

9. The Server Database Password page opens. Enter the password for the database server, and then click Next.

   This password must match the one assigned when you created the user account as in the appropriate procedure listed below.

   **Note:** The `ppadmin` password must match the Picture Perfect `ppadmin` password on co-resident installations.

   - SQL Server for Windows *(SQL Server 2008 (Windows) on page 55)*
   - Informix for Linux *(Installing the Linux Informix Schema on page 69)*
   - Informix for AIX *(Creating the user accounts on page 72)*

10. The Database Port page opens. Accept the default setting for the port number to which the server is connected. Follow the on-screen directions based on the installed database, and then click Next.

    The defaults values are:
    - Informix: 9088
    - SQL Server: 1433

11. The Facility Commander NTPD page opens as shown in *Figure 30*.

---

*Figure 30. Facility Commander NTPD page*
Enter the host name of the machine that will serve as the master-timekeeper. The system uses NTPD as its time synchronization method between the Facility Commander and other systems.

**Note:** Consult your IT department for the host name of the NTP server. If there is none, enter the host name of the Picture Perfect server. You will set up the NTP services on the Picture Perfect system later during the installation.

**AIX/Linux:** Enter a Stratum Value. The Stratum Value determines a computer’s role in the time synchronization process. By default, the Picture Perfect server is assigned a Stratum Value of 10. Enter 11 here, unless the Picture Perfect server has been assigned a different value. Check the `/etc/ntp.conf` on the Picture Perfect server. If that file does not exist, then enter 11.

**Windows:** The Stratum Value is greyed out and cannot be edited.

Click Next.

12. The Modem Setup page opens. Click Setup Modem to set up your modem or if it is already installed, click Next.

13. The SSL page opens. The Facility Commander Server host name is automatically entered. Enter the name of the organization, the organizational unit (if applicable), city, state, and country. Click Next. SSL enables a secure communication channel between the access control system and the Facility Commander Server.

14. The Pre-Installation Summary page opens. Click Install to complete the installation. A progress bar displays during the installation.

This page allows you to verify the following before actually launching the installation:

- Product Name (Facility Commander)
- Install Folder (location where Facility Commander files are stored)
  - Linux/AIX (Default Directory)/var/FacilityCommanderServer
  - Co-resident with Picture Perfect (Linux) (Default Directory) /var/www/apache-tomcat
  - Windows (Default Directory) C:\Program Files\FacilityCommanderServer
- Disk Space Information (required and available space)

15. When the installation is complete, the Facility Commander Server has been successfully installed page opens. Click Done to finish the installation. You are returned to the Facility Commander Main Welcome window. Click Exit.

If errors occur, during the Facility Commander Server installation, review the FacilityCommander_InstallLog.log error file at the following location:

**Linux/AIX**

/var/FacilityCommanderServer

**Linux co-resident**

/var/www/apache-tomcat

**Windows**

\Program Files\FacilityCommanderServer

**Note:** Use the more command to review the log file.

16. A dialog box opens stating Do you want to reboot now? Click Yes.
Windows only

17. Change the Facility Commander Server service from Automatic start to Automatic (Delayed Start) as follows:
   a. Click Start, Control Panel, and then double-click Administrative Tools.
   c. Select, and then right-click Facility Commander Server. Click Properties.
   d. In the Startup type: drop down list, select Automatic (Delayed Start), and then click Apply.
   e. Click OK, and then close all open pages.

AIX only

Note: The following only applies to Facility Commander installed on a standalone IBM server running the AIX operating system.
After completing installation of the Facility Commander server application on a server running AIX, and then rebooting the server, errors are logged in the app_server.log file indicating the Informix database is not fully operational. To provide more time for the database to become operational, insert a sleep command in the inittab file located in the /etc directory.

18. Add a sleep command in the inittab file, located in the /etc directory as follows:
   a. Log on as root, and then open a terminal window.
   b. At the command line, type:
      cd /etc
      vi inittab
   c. While in the vi editor, type the following command to place the cursor at the start of the last line in the file:
      <Shift>g
   d. Type the following command to insert the sleep command:
      isleep 30 <Enter>
   e. Press Esc to exit the insert mode.
   f. Type the following command to save the modified file and exit the vi editor:
      :x
   g. Reboot the server by typing the following command:
      shutdown -r now

After installing Facility Commander Server, you will need to obtain a software license key. Continue to License Manager on page 93.
License Manager

Facility Commander includes a copy-protection mechanism that requires a software license key. Facility Commander licensable components of Facility Commander system include, but are not limited to, the number of workstations, number of cameras, and software interface options.

After Installing Facility Commander, the License Manager window displays a 10-character machine code, and prompts you to install the 40-character license key. This is when you should call GE Security for the key.

To complete licensing for Facility Commander, follow these steps:

1. Make sure you have successfully installed the appropriate database for the operating system and the Facility Commander server software.
2. Reboot the system. For Linux and AIX users, make sure you are operating in graphical mode.
3. Open the License Manager page as follows:
   - **Windows:** Click Start, All Programs, Facility Commander Server, and then FCLicenseManager.
     The License Manager page opens and displays a 10-character machine code. Continue to the next step.
   - **Linux:** Log in as root. Click the Facility Commander License icon on your desktop. A dialog box opens to confirm that you want to run the Facility Commander License Manager, click Run.
     The License Manager page opens and displays a 10-character machine code. Continue to the next step.
   - **AIX:** Log in as root. Open a terminal window, and type:
     
     ```
     cd /var/FacilityCommanderServer/server/webapps/Merlin/WEB-INF/lib
     ./LicenseManager
     ```
     
     The License Manager page opens and displays a 10-character machine code. Continue to the next step.
4. To obtain a license key, contact GE Security Customer Support at:
   - Telephone: 1-888-437-3287, option 5
   - Email: gesecuritylicenses@ge.com
   
   Provide the following information. Customer Support will ask for the 10-character machine code. After you have supplied that, Customer Support provides a 40-character license key code.
   - Customer company name and address
   - Business Partner name and address
   - Sales Order number
   - 10-character machine code identifying the system
   
   In the License code field, enter the license key code as provided by Customer Support, and then click Validate and Save.
5. Check that all licensed components listed in the Facility Commander License Manager window are correct. The Select location of License File page opens. Accept the default location for the `license.xml` file. Click Save.
6. Reboot the system.
   **Windows:** Click Start, and then Shut Down
   **Linux:** Type: `reboot`
   **AIX:** Type: `shutdown -r`

Once you install the key, we strongly recommend that you store the key in a secure place if the system has to be re-installed for any reason. Also, if the network interface card has to be replaced, a new key must be generated.

## Installing the Media Server on the Facility Commander Server

The Media Server can be installed on the Facility Commander Server (Linux (standalone) and Windows only), or on a separate computer. To install the Media Server on a separate computer refer to *Installing remote Media Servers* on page 97.

### Installing the Media Server

**To install the Media Server on the Facility Commander Server, follow these steps:**

1. Insert the Facility Commander Installation DVD.
   **Linux:** A window displays asking if you want to run `/mnt/cdrom/autorun?` Click Yes to continue.
   **Windows:** When the AutoPlay page opens, click Run FC INSTALLER.exe.
2. The Facility Commander Welcome page opens as shown in *Figure 31*. Click Media Server.
3. A dialog box opens to confirm that you want to install the Media Server. Click Yes.

5. The Facility Commander Media Server License page opens. Select “I accept the terms of the License Agreement,” and then click Next.

6. **Windows only:** The Location page opens. To accept the default, click Next.

7. The Facility Commander Server page opens. Enter the Facility Commander Server hostname. Accept the default setting for the Facility Commander Server port. Click Test to verify the connection. You are notified whether the test passes or fails. Click Next.

8. The Facility Commander Media Server NTPD page opens as shown in Figure 32.

    Enter the host name of the machine that will serve as the master-timekeeper. The system uses NTPD as its time synchronization method between the Facility Commander and other systems.

    **Note:** Consult your IT department for the host name of the NTP server. If there is none, enter the host name of the Picture Perfect server. You will set up the NTP services on the Picture Perfect system later during the installation.

    **Linux:** Enter a Stratum Value. The Stratum Value determines a computer’s role in the time synchronization process. By default, the Picture Perfect server is assigned a Stratum Value of 10. Enter 11 here, unless the Picture Perfect server has been assigned a different value. Check the `/etc/ntp.conf` on the Picture Perfect server. If that file does not exist, then enter 11.

    **Windows:** The Stratum Value is greyed out and cannot be edited.

    Click Next.
9. The Facility Commander Media Server Pre-Installation Summary page opens. This page allows you to verify the following before actually launching the installation:

- **Product Name**
- **Install Folder**
- **Link Folder**
- **Install Set**:
- **Disk Space Information**

10. Click Install to complete the installation. A progress bar displays during installation.

11. The Install Complete pages opens. Click Done to quit the Installer.

    **Windows only:** Click the Yes, restart my system radio button.

12. You are returned to the Facility Commander Welcome page. Click Exit.

13. **Linux only:** A dialog box opens asking if you want to reboot now. Click Yes.
Installing remote Media Servers

The remote Media Server is an optional component when there are several geographically distributed sites and it may be undesirable to transmit video clips across the network. For more information, see:

- Centralized video management on page 3
- Distributed video management on page 4

The media server software is installed on a separate, dedicated computer. The media server connects to remote DVRs and processes the requests for video tagging and video playback. The Facility Commander server would normally process the requests in a smaller environment.

The Media Server runs the media software, does not have a user interface, and does not contain a database. In addition, some digital video software interfaces are Windows DLL-dependent. In those cases, a Windows-based Media Server is required to play video.

The software must be installed on a Windows Professional XP, Windows Vista Professional, Windows Server 2008, or Linux 5.3 system (media server only).

The Media Server software can be installed in one of two ways:

- By connecting to the Facility Commander Server computer through the Web browser

  **Note:** The web installers need to be manually copied from the webinstallers folder in root of the Facility Commander Installation disc to the Facility Commander 2.2.2 Server. Refer to Media server and client Web installations.

- From the Facility Commander Installation DVD.

Media server and client Web installations

To enable the media server and client installations to be installed from the Facility Commander 2.2.2 Server over the Web, the web installer files need to be manually copied from the webinstallers folder located in the root of the Facility Commander Installation DVD to the Facility Commander 2.2.2 server.

**To copy the Web installer files onto the Facility Commander 2.2.2 server:**

**Windows**

1. Browse to the drive on your Facility Commander 2.2.2 server where the Facility Commander Installation DVD is installed, and then double-click the Web_Installers folder.
   
   Copy the client and mediaserver folders.

2. On the drive where you installed the Facility Commander application, browse to the following folder:

   FacilityCommanderServer\Server\webapps\Merlin

3. Paste the client and mediaserver folders into the Merlin folder.

**Linux**

1. Open a terminal window on the Facility Commander 2.2.2 server.
2. Type the following commands:

**Standalone**

cd /var/FacilityCommanderServer/server/webapps/Merlin [Enter]
cp -r <DVD mount point>/Web_Installers/* . [Enter]

**Co-resident**

cd /var/www/apache-tomcat/webapps/Merlin [Enter]
cp -r <DVD mount point>/Web_Installers/* . [Enter]

For co-resident installations, you must change the owner and group from root to ppadmin for the client and media folders as follows:

**To change the client folder owner and group, type the following command:**

```
chown -R ppadmin client [Enter]
chgrp -R pperf client [Enter]
```

**To change the media folder owner and group, type the following command:**

```
chown -R ppadmin media [Enter]
chgrp -R pperf media [Enter]
```

3. Exit the terminal window.

**Installing the remote Media Server from the Facility Commander Server**

**Note:** Prior to installing the remote Media Server from the Facility Commander Server, the hosts file on each computer must be set up properly for the computers to communicate across the network. Refer to *Host File Setup* on page 105.

To install the Media Server application from the Facility Commander Server computer, follow these steps:

1. **Windows only:** If upgrading a Facility Commander 2.1 media server, Facility Commander 2.1 media server must first be uninstalled prior to installing the new Facility Commander 2.2.2 media server.
   
   Click Start, Settings, Control Panel, and then Add or Remove Programs.
   
   Click Facility Commander Media Server from the list, and then click Remove.

2. Open a Web browser.

3. Click in the Address bar and type the following URL:
   
   `http://hostname:8085/Merlin/mediaserver/Web_Installers/install.htm`

   **Note:** Hostname represents the Facility Commander host name. Enter the host name or IP address in this instance only.

4. The Facility Commander Media Server download page opens. Click on either Windows Download or Linux Download.

   **Windows**
   
   The File Download dialog box opens. Click Run to begin the MediaServer.exe download or click Save to save the MediaServer.exe to your computer.
If you click Save, after the download is complete, double-click the MediaServer.exe file to begin the download.

**Linux**

The File Download dialog box opens. Click Save File to begin downloading the files to the default location on your desktop in the Media.bin folder.

Once the download is complete, open a terminal window and type the following commands:

```
cd /root/desktop
sh ./Media.bin
```

5. Proceed to step 5 of *Installing the remote Media Server from the Installation DVD* on page 99.

### Installing the remote Media Server from the Installation DVD

**To install the remote Media Server application from the Facility Commander Installation DVD:**

1. With the Facility Commander Installation DVD inserted in the DVD drive, the Facility Commander Welcome page opens.

2. Click Media Server from the Facility Commander Welcome page as shown in *Figure 33*.

---

**Figure 33. Facility Commander Welcome page**

3. **Windows only:** If upgrading a Facility Commander 2.1 media server, perform these additional steps:

   A dialog box opens asking you to confirm that you are ready to upgrade the Facility Commander Media Server. Click Yes and another dialog box opens, showing the location of the Media Server archive. When prompted, click Uninstall to delete the previous installation of the Facility Commander Client.

   Click Done when the uninstall completes, and the proceed to the next step.
4. A dialog box opens to confirm that you want to install the Media Server. Click Yes.

5. The Facility Commander Media Server Introduction page opens. Click Next.

6. The Facility Commander Media Server License page opens. Select “I accept the terms of the License Agreement,” and then click Next.

7. **Windows only**: The Location page opens. To accept the default, click Next.

8. The Facility Commander Server page opens. Enter the Facility Commander Server hostname. Accept the default setting for the Facility Commander Server port. Click Test to verify the connection. You are notified whether the test passes or fails Click Next.

9. The Facility Commander Media Server NTPD page opens as shown in Figure 34.

   Enter the host name of the machine that will serve as the master-timekeeper. The system uses NTPD as its time synchronization method between the Facility Commander and other systems.

   **Note:** Consult your IT department for the host name of the NTP server. If there is none, enter the host name of the Picture Perfect server. You will set up the NTP services on the Picture Perfect system later during the installation.

   **Linux:** Enter a Stratum Value. The Stratum Value determines a computer’s role in the time synchronization process. By default, the Picture Perfect server is assigned a Stratum Value of 10. Enter 11 here, unless the Picture Perfect server has been assigned a different value. Check the `/etc/ntp.conf` on the Picture Perfect server. If that file does not exist, then enter 11.

   **Windows:** The Stratum Value is greyed out and cannot be edited.

---

**Figure 34. Facility Commander Media Server NTPD page**

10. The Facility Commander Media Server Pre-Installation Summary page opens. This page allows you to verify the following before actually launching the installation:

   - **Product Name**
• Install Folder
• Link Folder
• Install Set
• Disk Space Information

11. Click Install to complete the installation. A progress bar displays during installation.

12. The Install Complete pages opens. Click Done to quit the Installer.

   **Windows only:** Click the Yes, restart my system radio button.

13. You are returned to the Facility Commander Welcome page. Click Exit.

14. A dialog box opens asking if you want to reboot now. Click Yes.

### Installing Client Workstations

The client software provides monitor and control functionality through a series of applications that include the Alarm Monitor, Event Monitor, Video Viewer, and Graphics Viewer.

The software must be installed on a Windows Professional XP, Windows Vista Professional, or Windows 7 system (clients only).

For Windows Vista and Windows 7 systems, you must be logged in as the local administrator (not a user with administrator privileges).

**Note:** The client installation creates a group called FCAdmin, to which all client users will be added. Only members of the FCAdmin group have full access to the client software. Non-members may be able to log on, but they will not be able to perform operations such as modifying or saving a map file.

The Client software can be installed in one of two ways:

• By connecting to the Facility Commander Server computer through the Web browser, or

**Note:** The web installers need to be manually copied from the webinstallers folder in root of the Facility Commander Installation disc to the Facility Commander 2.2.2 Server. Refer to Media server and client Web installations on page 97.

• From the Facility Commander Installation DVD.

### Installing the Client from the Facility Commander Server

**Note:** Prior to installing the Client from the Facility Commander Server, the hosts file on each computer must be set up properly for the computers to communicate across the network. Refer to Host File Setup on page 105.

**To install the client application from the Facility Commander Server computer, follow these steps:**

1. **Windows only:** If upgrading a Facility Commander 2.1 client, Facility Commander 2.1 client must first be uninstalled prior to installing the new Facility Commander 2.2.2 client.

   Click Start, Settings, Control Panel, and then Add or Remove Programs.

   Click Facility Commander Client from the list, and then click Remove.

2. Open a Web browser.

3. Click in the Address bar and type the following URL:
Standalone

http://hostname:8085/Merlin/client/Web_Installers/install.htm

Co-resident

http://hostname:8075/Merlin/client/Web_Installers/install.htm

Note: Hostname represents the Facility Commander host name. Enter the host name or IP address in this instance only.

4. The Facility Commander Client download page opens. Click Windows Download.

5. The File Download dialog box opens. Click Run to begin the Client.exe download or click Save to save the Client.exe to your computer.

   If you click Save, after the download is complete, double-click the Client.exe file to begin the download.

6. Proceed to step 5 of Installing the Client from the Installation DVD.

Installing the Client from the Installation DVD

To install the client application from the Facility Commander Installation DVD:

1. With the Facility Commander Installation DVD inserted in the DVD drive, the Facility Commander Welcome page opens.

2. Click Client from the Facility Commander Welcome page as shown in Figure 35.

---

Figure 35. Facility Commander Welcome page
3. If upgrading the Facility Commander client, perform these additional steps:

   A dialog box opens asking you to confirm that you are ready to upgrade the Facility Commander Client. Click Yes and another dialog box opens, showing the location of the Client archive. When prompted, click Uninstall to delete the previous installation of the Facility Commander Client.

   Click Done when the uninstall completes.

4. A confirmation dialog box opens. Click Yes.

5. The Facility Commander Client Introduction page opens, click Next.

6. The Facility Commander License page opens. Select “I accept the terms of the License Agreement,” and then click Next.

7. The Choose Install Folder page opens to indicate the directory that the Facility Commander client will be installed in. Accept the default location or specify another by clicking Choose. If changed the location, but decided to accept the default setting, click Restore Default Folder. Click Next.

8. The Choose Shortcut Folder page opens. Select a location for the Facility Commander Client shortcut from the available options, and then click Next.

9. The Facility Commander Server page opens as shown in Figure 36. Enter the host name and the port number of the Facility Commander server. Click Test to verify the connection. You are notified whether the test passes or fails. Click Next.

   Standalone: Port 8085
   Co-resident: Port 8075

Figure 36. Facility Commander Server page
10. The NTPD page opens. Enter the NTP server name, and then click Next.

11. The Pre-Installation Summary page opens. Click Install to complete the installation. A progress bar displays during the installation.

   This page allows you to verify the following before actually launching the installation:
   - Product Name (Facility Commander Client)
   - Install Folder (location where Facility Commander files are stored)
   - Shortcut Folder (location of the Facility Commander Client shortcut)
   - Disk Space Information (required and available space)

12. The Install Complete page opens. Click Yes, restart my system, and then click Done.

Continue to *Starting Facility Commander*. 
Host File Setup

The hosts file on each computer in a Facility Commander system must be set up properly for all computers to communicate across the network.

The Facility Commander server, remote media servers, and Kalatel DVRs must have static IP addresses. Client systems that are used for browser configuration or the Command and Control clients do not require static IP addresses.

Client systems can use DHCP as long as there is a domain name server (DNS) that can resolve their host names with IP addresses. Refer to Table 18.

Table 18. Hosts File Configuration Table

<table>
<thead>
<tr>
<th>Computer system</th>
<th>Code</th>
<th>Static IP Required?</th>
<th>Not Using DNS (you need hosts file entries for:)</th>
<th>Using DNS for Clients only (you need hosts file entries for:)</th>
<th>Using DNS system-wide</th>
</tr>
</thead>
<tbody>
<tr>
<td>FC Server</td>
<td>F</td>
<td>Y</td>
<td>F M C P</td>
<td>F M C P</td>
<td>No entries required for the hosts file on any computer system.</td>
</tr>
<tr>
<td>Remote Media Servers</td>
<td>M</td>
<td>Y</td>
<td>F M C P</td>
<td>F M C P</td>
<td></td>
</tr>
<tr>
<td>DVRs</td>
<td>D</td>
<td>Y</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Client systems</td>
<td>C</td>
<td>N</td>
<td>F M P</td>
<td>F M P</td>
<td></td>
</tr>
<tr>
<td>Picture Perfect Server</td>
<td>P</td>
<td>Y</td>
<td>F</td>
<td>F</td>
<td></td>
</tr>
</tbody>
</table>

The host name should be entered wherever prompted except for the DVR. Do not use localhost as the host name of a computer because Facility Commander uses the host name in services and for SSL certificates.

The Facility Commander definition of host name is the response that displays when you type `hostname` at the command prompt in a terminal window.

The `hostname` command is valid regardless of the computer type (server, client) or operating system (Windows, Linux, AIX). Host names are case-sensitive.

If you are not using DNS (domain name server), remember to add IP addresses in the appropriate host file in the `/etc` directory as shown in Table 18. For example, the Facility Commander server requires IP addresses in its host file for itself, media server (if present), the client, and the Picture Perfect server.

Make sure you can ping all computers by host name and DVRs by IP Address in all appropriate directions.

It is necessary to include Picture Perfect in all other computers’ host files because Picture Perfect is the master timekeeper and is designated as the server for NTP time synchronization of the system. Refer to Appendix A, Time Synchronization (NTP Setup).

If the host name or IP address of the Facility Commander server or client systems needs to be changed, please refer to the “Advanced Configuration” chapter in the Facility Commander Administration Guide.
Starting Facility Commander

Facility Commander starts automatically as a service in the Windows, Linux, and AIX operating systems.

To access and configure Facility Commander, follow these steps:

1. Open a Web browser.
2. Click in the Address bar and type the following URL:
   - **Standalone**
     http://hostname:8085/Merlin
   - **Co-resident**
     http://hostname:8075/Merlin

   **Note:** Hostname represents the Facility Commander Application Server host name.
3. When the Login page displays, enter the user name (admin) and password (admin).

Installing Facility Commander Reports on Picture Perfect (AIX and Linux only)

With some configuration on the Facility Commander 2.2.2 Application Server and the Picture Perfect 4.5.1 Server, you can add the following Facility Commander reports to the Picture Perfect 4.5.1 application. This allows you to generate, print, and save these reports from the Picture Perfect Reports page.

FC 2.2.2 Standard Reports:

- FC Access Points Report
- FC Alarm Instructions Report
- FC Alarm Profiles Report
- FC Cameras Report
- FC Contexts Report
- FC Digital Inputs Report
- FC Digital Outputs Report
- FC Digital Video Recorders Report
- FC Facilities Report
- FC Facility Memberships Report
- FC Logical Inputs Report
- FC Operators Report
- FC Servers Report
- FC Workstations Report
FC 2.2.2 History Reports:

- FC Alarm History Report
- FC Events History Report
- FC Intercom Events History Report
- FC Intrusion Events History Report
- FC MEA Audit Events History Report
- FC Media Action Events History Report
- FC Table Rollover Events History Report
- FC Operator History Report

Standalone Facility Commander 2.2.2 server

The following items must be completed to configure Facility Commander reports to be viewed on Picture Perfect:

- Modify /etc/hosts, /etc/services, /usr/Informix/etc/sqlhosts, and /usr/Informix/etc/onconfig files on the Facility Commander application server
- Modify /etc/hosts, /etc/services, and /cas/db/etc/sqlhosts files on the Picture Perfect server
- Add .rhosts files to the home directory of the ppapp user account on the Facility Commander application server
- Run the sh FC_RC_Informix_Env_Build.sh script on the Facility Commander application server
- Run the sh FC_RC_Install_Reports_on_PP.sh script on the Picture Perfect server
- Add the Picture Perfect Server host name to the Web Client workstations

Note: The following procedures require that you have experience editing files such as the /etc/hosts using an editor tool such as vi editor. Refer to Using vi Editor on page 115 for a brief description of vi editor functions.

To configure Facility Commander reports on Facility Commander application server:

1. Log on as root, and then open a terminal window.

2. Modify the /etc/hosts file using an editor such as vi editor as follows:

   Insert the generic host name fchost on the same line, just after the IP address and Facility Commander host name specified during Linux operating system installation.

   Insert a new line at the end of the file with the following text:

   `<network IP address>   <Picture Perfect host name>`

   See Example below:
3. Modify the `/etc/services` file using an editor such as vi editor as follows:

   Insert a new line just before `sqlexec......9088/tcp....` with the following text:

   ```
   fchost   9087/tcp    # Generic FC host for Informix
   ```

   Example:

   ```
   -----------
   g1rpc   9080/tcp        # Groove GLRPC
   g1rpc   9080/udp        # Groove GLRPC
   fchost   9087/tcp    # Generic FC host for Informix
   sqlexec  9088/tcp    # IBM Informix SQL Interface
   sqlexec  9088/udp    # IBM Informix SQL Interface
   sqlexec-ssl  089/tcp   # IBM Informix SQL Interface
   ```

4. Modify the `/usr/Informix/etc/sqlhosts` file (Linux) or the `/usr/informix/etc/sqlhosts` (AIX) using an editor such as vi editor as follows:

   Insert two new lines just after the `<Facility Commander host name>` `onsoctcp ...` with the following text:

   ```
   fchost onsoctcp <Facility Commander host name> fchost
   <Picture Perfect host name> onsoctcp <Picture Perfect host name> <Picture Perfect host name_star>
   ```

   Example:

   ```
   -----------
   #demo_on onipcshm on_hostname on_servername
   #demo_se seipcpip se_hostname sqlexec
   #fchost22 onsoctcp fchost22 fchost22_star
   fchost22 onsoctcp fchost22 sqlexec
   fchost onsoctcp fchost22 fchost
   pphost45 onsoctcp pphost45 pphost45_star
   ```

5. Modify the `/usr/Informix/etc/onconfig` file (Linux) or the `/usr/informix/etc/onconfig` (AIX) using an editor such as vi editor as follows:

   Change the value for parameter `DBSERVERALIASES` from blank or no value to `fchost`.

   Example:

   ```
   ---------------
   DBSERVERNAME  fchost2  # Name of default database server
   DBSERVERALIASES  fchost  # List of alternate dbservernames
   ```
6. Reboot the Facility Commander application server for the changes to take effect.

To configure Facility Commander reports on the Picture Perfect server:

1. Log on as root, and then open a terminal window.

2. Modify the /etc/hosts file using an editor such as vi editor as follows:
   Insert a new line at the end of the file with the following information:
   
   `<network IP address>     <Facility Commander host name>   fchost   #FC Server`
   
   See Example below:
   
   Example:
   
   ----------
   # Do not remove the following line, or various programs
   # that require network functionality will fail.
   127.0.0.1     localhost     localhost.localdomain
   3.137.170.40   pphost45.localdomain    pphost45    pphost45_e
   3.137.169.153    fchost22   fchost  #FC Server

3. Modify the /etc/services file using an editor such as vi editor as follows:
   Insert two new lines at the end of the file with the following information:
   
   sqlexec  9088/tcp #FC hostname Informix sqlexec port
   fchost  9087/tcp    #fchost Informix fchost port
   
   See Example below:
   
   Example:
   
   ----------
   pphost45_star 9088/tcp star1 star2 # pphost45 Informix STAR port
   sqlexec  9088/tcp    #fchost22 Informix sqlexec port
   fchost  9087/tcp     # Generic FC host for Informix

4. Modify the /cas/db/etc/sqlhosts file using an editor such as vi editor as follows:
   Insert two new lines at the end of the file with the following text:
   
   `<Facility Commander host name>  onsoctcp  <Facility Commander host name>  sqlexec
   fchost  onsoctcp  <Facility Commander host name>     fchost`
   
   See Example below:
   
   Example:
   
   ----------
   pphost45   onsoctcp     pphost45     pphost45_star
   pphost45_e  onsoctcp  pphost45     pphost45_e_star
   fchost22     onsoctcp     fchost22       sqlexec
   fchost     onsoctcp     fchost22       fchost

5. Reboot the Picture Perfect server for the changes to take effect.
To add `.rhosts` files to the home directory of the `ppapp` user account on the Facility Commander application server:

1. Log on as root, and then open a terminal window.
2. Go to the home directory of `ppapp` by typing the following command:
   
   ```bash
   cd /home/ppapp
   ```

3. To create the required file in this directory, open the `vi` editor by typing:
   
   ```bash
   vi .rhosts
   ```

4. To enter the required text, press the "i" key to switch to insert mode, and then type the following:
   
   ```bash
   <Picture Perfect host name>
   ```

5. Press the Esc key to exit the insert mode, and then type the following to exit the `vi` editor and create the file:
   
   ```bash
   :x
   ```

6. Reboot the Facility Commander application server.

To run the `sh FC_RC_Informix_Env_Build.sh` script on the Facility Commander application server:

1. Log on as root, and then open a terminal window.
2. Insert the Facility Commander 2.2.2 Installation DVD into the server, and then mount the DVD by typing the following command:
   
   ```bash
   mount /dev/dvd /media/dvd
   ```

3. To access the shell script, type the following command:
   
   ```bash
   cd /media/dvd/fcreports
   ```

4. To run the shell script, type the following command:
   
   ```bash
   sh FC_RC_Informix_Env_Build.sh
   ```

5. Text similar to the following will display:
   
   ```bash
   FC Report Commander Database Schema & Objects
   ==============================================
   Starting Time: Thu Jan 28 14:12:53 EST 2010
   Creating FC Reporting DB Schema & Objects ... 
   Finished Time: Thu Jan 28 14:12:53 EST 2010
   ```

To run the `sh FC_RC_Install_Reports_on_PP.sh` script on the Picture Perfect server:

1. Log on as root, and then open a terminal window.
2. Insert the Facility Commander 2.2.2 Installation DVD into the server, and then mount the dvd by typing the following command:
   
   ```bash
   mount /dev/dvd /media/dvd
   ```

3. To access the shell script, type the following command:
   
   ```bash
   cd /media/dvd/fcreports
   ```

4. To run the shell script, type the following command:
   
   ```bash
   sh FC_RC_Install_Reports_on_PP.sh
   ```
5. Text similar to the following will display:

**FC RC Install Reports on PP Script Initialization**

Thu Jan 28 14:17:03 EST 2010 - INFO: Shell Script Log File: /tmp/FC_RC_Install_Reports_on_PP.log
Thu Jan 28 14:17:03 EST 2010 - INFO: Operating System Environment: Linux
Thu Jan 28 14:17:03 EST 2010 - INFO: Informix Database (IDS) Name: PROTEUS
Thu Jan 28 14:17:03 EST 2010 - INFO: Informix Env. Base Directory: /cas
Thu Jan 28 14:17:03 EST 2010 - INFO: Loading FC RC Reports Parameter File: FC_Reports_22
Thu Jan 28 14:17:03 EST 2010 - INFO: Shell Script File Directory Location: /media/dvd/fcreports
Thu Jan 28 14:17:03 EST 2010 - INFO: Executing: . /cas/bin/profile
Thu Jan 28 14:17:03 EST 2010 - INFO: Creating Report Categories in PP with Utility: /cas/bin/sqlstmt

**FC Report Commander: Insert Report Categories into PP Database**

Starting Time: Thu Jan 28 14:17:03 EST 2010
Inserting FC Report Categories into PP Database...
Thu Jan 28 14:17:03 EST 2010 - INFO: Deleting old FC Report Categories from PP Database.
Thu Jan 28 14:17:03 EST 2010 - INFO: Inserting new FC Report Categories into PP Database.
 Finished Time: Thu Jan 28 14:17:03 EST 2010

**FC Report Commander: Load Reports into PP Database**

Starting Time: Thu Jan 28 14:17:03 EST 2010
Loading FC Reports into PP Database...
Thu Jan 28 14:17:03 EST 2010 - INFO: Deleting old FC Reports from PP Database.
Thu Jan 28 14:17:03 EST 2010 - INFO: Inserting new FC Reports into PP Database.
Loaded report 'FC Access Points Report'.
Loaded report 'FC Alarm Instructions Report'.
Loaded report 'FC Alarm Profiles Report'.
Loaded report 'FC Cameras Report'.
Loaded report 'FC Contexts Report'.
Loaded report 'FC Digital Inputs Report'.
Loaded report 'FC Digital Outputs Report'.
Loaded report 'FC Digital Video Multiplexer Recorders Report'.
Loaded report 'FC Facilities Report'.
Loaded report 'FC Facility Memberships Report'.
Loaded report 'FC Logical Inputs Report'.
Loaded report 'FC Operators Report'.
Loaded report 'FC Servers Report'.
Loaded report 'FC Workstations Report'.
Loaded report 'FC Alarm History Report'.
Loaded report 'FC Event History Report'.
Loaded report 'FC Operator History Report'.
Loaded report 'FC Intercom Events History Report'.
Loaded report 'FC Intrusion Events History Report'.

To add the Picture Perfect Server host name to the Web client workstations:

1. On the Web client workstation, navigate to the following file:
   C:\WINDOWS\system32\drivers\etc\hosts
2. Double-click on the hosts file, and then open it using Notepad.
3. Add the following line to the end of the file, and then save and close the file.
   `<Network IP address of the Picture Perfect server>  <name of the Picture Perfect server>`
   Example:
   ```
   3.137.170.40    pphost45
   ```

To view the Facility Commander reports in Picture Perfect:

1. Log onto Picture Perfect
2. From the main menu bar, click Reports, and then click Reports. The Reports page opens.
3. Select your Facility Commander reports from the list.

**Co-resident Facility Commander 2.2.2 with Picture Perfect 4.5.1 server (Linux only)**

The following items must be completed to configure Facility Commander reports to be viewed on Picture Perfect in a Linux co-resident system:

- Modify `/etc/services`, `/cas/db/etc/sqlhosts`, and `/cas/db/etc/onconfig` files on the server.
- Run the `sh FC_RC_Informix_Env_Build.sh` script on the server
- Run the `sh FC_RC_Install_Reports_on_PP.sh` script on the server
- Add the Picture Perfect Server host name to the Web Client workstations

*Note:* The following procedures require that you have experience editing files such as the `/etc/hosts` using an editor tool such as vi editor. Refer to Using vi Editor on page 115 for a brief description of vi editor functions.

To configure Facility Commander reports on the Picture Perfect co-resident server:

1. Log on as root, and then open a terminal window.
2. Insert the `/etc/services` file using an editor such as vi editor as follows:
   Insert a new line just before `9088/tcp` with the following text:
   ```
   fchost  9087/tcp  #Generic FC host for Informix
   ```
   Example:  
   ```
   # Local services
   fchost    9087/tcp  # Generic FC host for informix
   ```
3. Modify the `/cas/db/etc/sqlhosts` file using an editor such as vi editor as follows:

Insert a new line just after the `<Facility Commander host name>` onsoctcp ... with the following text:

```
fchost onsoctcp <Picture Perfect host name> fchost
```

Example:

```
#demo_on onipcshm on_hostname on_servername
#demo_se seipcapii se_hostname sqlexec
coresident onsoctcp coresident coresident_star
fchost onsoctcp coresident fchost
coresident_e onsoctcp coresident coresident_e_star #csm=(PPENCCSM)
```

4. Modify the `/cas/db/etc/onconfig` file using an editor such as vi editor as follows:

Add the new value `fchost` after the parameter `DBSERVERALIASES` value `<PPhostname>_e`

Example:

```
# System Configuration
SERVERNUM 0 # Unique id corresponding to a OnLine instance
DBSERVERNAME coresident # Name of default database server
DBSERVERALIASES coresident_e,fchost # List of alternate dbservernames
NETTYPE onsoctcp,1,192,CPU # Configure poll thread(s) for nettype
DEADLOCK_TIMEOUT 60 # Max time to wait of lock in distributed env.
RESIDENT 0 # Forced residency flag (Yes = 1, No = 0)
```

5. Reboot the Picture Perfect server.

To run the `sh FC_RC_Informix_Env_Build.sh` script on the co-resident server:

1. Log on as root, and then open a terminal window.
2. Insert the Facility Commander 2.2.2 Installation DVD into the server, and then mount the DVD by typing the following command:

   ```
   mount /dev/dvd /media/dvd
   ```

3. To access the shell script, type the following command:

   ```
   cd /media/dvd/fcreports
   ```

4. To run the shell script, type the following command:

   ```
   sh FC_RC_Informix_Env_Build.sh
   ```

5. Text similar to the following will display:

   ```
   FC Report Commander Database Schema & Objects
   ===============================================================
   Starting Time: Thu Jan 28 14:12:53 EST 2010
   Creating FC Reporting DB Schema & Objects ... 
   Finished Time: Thu Jan 28 14:12:53 EST 2010
   ```

To run the `sh FC_RC_Install_Reports_on_PP.sh` script on the co-resident server:

1. Log on as root, and then open a terminal window.
2. Insert the Facility Commander 2.2.2 Installation DVD into the server, and then mount the dvd by typing the following command:

```
mount /dev/dvd /media/dvd
```

3. To access the shell script, type the following command:

```
cd /media/dvd/fcreports
```

4. To run the shell script, type the following command:

```
sh FC_RC_Install_Reports_on_PP.sh
```

5. Text similar to the following will display:

```
FC RC Install Reports on PP Script Initialization
=================================================
Thu Jan 28 14:17:03 EST 2010 - INFO: Shell Script Log File: /tmp/FC_RC_Install_Reports_on_PP.log
Thu Jan 28 14:17:03 EST 2010 - INFO: Operating System Environment: Linux
Thu Jan 28 14:17:03 EST 2010 - INFO: Informix Database (IDS) Name: PROTEUS
Thu Jan 28 14:17:03 EST 2010 - INFO: Informix Env. Base Directory: /cas
Thu Jan 28 14:17:03 EST 2010 - INFO: Loading FC RC Reports Parameter File: FC_Reports_22
Thu Jan 28 14:17:03 EST 2010 - INFO: Shell Script File Directory Location: /media/dvd/fcreports
Thu Jan 28 14:17:03 EST 2010 - INFO: Executing: . /cas/bin/profile
Thu Jan 28 14:17:03 EST 2010 - INFO: Creating Report Categories in PP with Utility: /cas/bin/sqlstmt
FC Report Commander: Insert Report Categories into PP Database
=================================================
Starting Time: Thu Jan 28 14:17:03 EST 2010
Inserting FC Report Categories into PP Database ...
Thu Jan 28 14:17:03 EST 2010 - INFO: Deleting old FC Report Categories from PP Database.
Thu Jan 28 14:17:03 EST 2010 - INFO: Inserting new FC Report Categories into PP Database.
Finished Time: Thu Jan 28 14:17:03 EST 2010
FC Report Commander: Load Reports into PP Database
=================================================
Starting Time: Thu Jan 28 14:17:03 EST 2010
Loading FC Reports into PP Database ...
Thu Jan 28 14:17:03 EST 2010 - INFO: Deleting old FC Reports from PP Database.
Thu Jan 28 14:17:03 EST 2010 - INFO: Inserting new FC Reports into PP Database.
Loaded report 'FC Access Points Report'.
Loaded report 'FC Alarm Instructions Report'.
Loaded report 'FC Alarm Profiles Report'.
Loaded report 'FC Cameras Report'.
Loaded report 'FC Contexts Report'.
Loaded report 'FC Digital Inputs Report'.
Loaded report 'FC Digital Outputs Report'.
Loaded report 'FC Digital Video Multiplexer Recorders Report'.
Loaded report 'FC Facilities Report'.
Loaded report 'FC Facility Memberships Report'.
```
To add the Picture Perfect Server host name to the Web client workstations:

1. On the Web client workstation, navigate to the following file:
   C:\WINDOWS\system32\drivers\etc\hosts
2. Double-click on the hosts file, and then open it using Notepad.
3. Add the following line to the end of the file, and then save and close the file.
   
   `<Network IP address of the Picture Perfect server>  <name of the Picture Perfect server>`
   
   Example:
   
   `3.137.170.40    pphost45`

To view the Facility Commander reports in Picture Perfect:

1. Log onto Picture Perfect
2. From the main menu bar, click Reports, and then click Reports. The Reports page opens.
3. Select your Facility Commander reports from the list.

Using vi Editor

Overview

The **vi editor** is a full-screen editor. While there are several editors available in a UNIX environment, **vi** is a standard editor available on every UNIX system.

Modes

The **vi editor** has 3 modes: **Command**, **Insert**, and **Ex**.

**Command:** When you enter the **vi editor** you are in **Command** mode. **Command** mode allows you to move around the document.

**Insert:** Allows you to insert text.
Ex: Used for special operations, such as saving a file and exiting.

Changing Modes

The following table provides a quick reference to the key strokes required to change from one mode to another.

Table 19. Mode Change Key Strokes

<table>
<thead>
<tr>
<th>FROM Mode</th>
<th>Key Stroke</th>
<th>TO Mode</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>i</td>
<td>Insert</td>
<td>Allows you to enter text at the cursor</td>
</tr>
<tr>
<td>Command</td>
<td>a</td>
<td>Insert</td>
<td>Allows you to enter text after the cursor</td>
</tr>
<tr>
<td>Command</td>
<td>o</td>
<td>Insert</td>
<td>Adds a blank line below the current line</td>
</tr>
<tr>
<td>Command</td>
<td>O</td>
<td>Insert</td>
<td>Adds a blank line above the current line</td>
</tr>
<tr>
<td>Insert</td>
<td>ESC Command</td>
<td>Command</td>
<td>Allows you to enter command mode</td>
</tr>
<tr>
<td>Command</td>
<td>:</td>
<td>Ex</td>
<td>Allows you to enter an Ex command</td>
</tr>
</tbody>
</table>

Command Mode Functions

The following tables lists some of the functions available when in Command mode.

Table 20. Command Mode Functions

<table>
<thead>
<tr>
<th>Function</th>
<th>Key Stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insert text in front of cursor</td>
<td>i</td>
</tr>
<tr>
<td>Append text after cursor</td>
<td>a</td>
</tr>
<tr>
<td>Move down one cursor position</td>
<td>j</td>
</tr>
<tr>
<td>Move up one cursor position</td>
<td>k</td>
</tr>
<tr>
<td>Move left one cursor position</td>
<td>h</td>
</tr>
<tr>
<td>Move right one cursor position</td>
<td>l</td>
</tr>
<tr>
<td>Undo last change</td>
<td>u</td>
</tr>
<tr>
<td>Undo all changes to current line</td>
<td>U</td>
</tr>
<tr>
<td>Save file and exit</td>
<td>ZZ</td>
</tr>
<tr>
<td>Go to beginning of next line</td>
<td>+</td>
</tr>
<tr>
<td>Go to beginning of current line</td>
<td>0</td>
</tr>
<tr>
<td>Go to beginning of file</td>
<td>1G</td>
</tr>
<tr>
<td>Go to end of file</td>
<td>G</td>
</tr>
</tbody>
</table>
Ex Mode Functions

The following tables lists some of the functions available when in Ex mode.

Table 21. Ex Mode Functions

<table>
<thead>
<tr>
<th>Function</th>
<th>Key Stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quit without saving</td>
<td>q!</td>
</tr>
<tr>
<td>Save and Quit</td>
<td>wq</td>
</tr>
</tbody>
</table>

Editing the /etc/hosts File

Follow the steps below to add the internet addresses of the Host machine and one for the Workstation.

1. At the system console, login as root.
2. To open the /etc/hosts file using vi, type: vi /etc/hosts
   The beginning of the file will display. You can enter the address anywhere in the file but to make the file understandable, add the address in order.
3. To move forward one screen at a time, press Ctrl-f and Ctrl-i. Continue pressing Ctrl-f until you have reached the correct section.
4. Move to the line where you would like to enter the address. You can enter the address above or below this line.
5. To insert a blank line …
   ABOVE, press Shift-o
   BELOW, press o
6. At the blank line enter the name and address (or address and name depending on the current format of your file).
7. Press the Esc key to move from Insert mode to Command mode.
8. Repeat step 4 to step 7 for each address you need to enter. Remember: you need one address for the Host and one for each Workstation.
9. When you have completed entering all addresses, type: ZZ Enter.
   This will save the changes to the file and exit the vi editor.
This chapter provides information on how to contact technical support in case you need assistance with your GE equipment.

In this chapter:

    Contacting technical support ........................................ 120
Contacting technical support

For assistance installing, operating, maintaining, and troubleshooting this product, refer to this document and any other documentation provided. If you still have questions, you may contact technical support during normal business hours (Monday through Friday, excluding holidays, between 8 a.m. and 7 p.m. Eastern Time).

GE Security
United States: +1 888 437 3287
Asia: +852 2907 8108
Australia: +61 3 9259 4700
Europe: +48-58 326 22 40
Latin America: +503 885 5700
This appendix provides information on how to synchronize the time between all the components of your Facility Commander system.

In this appendix:

- Overview .......................................................... 122
- Achieving Time Synchronization ................................. 122
- Manual NTP Setup on the Picture Perfect Server ............. 123
Overview

It is essential that all devices and systems be synchronized for data accuracy. A Facility Commander system may include:

- Picture Perfect servers
- Facility Commander application server
- Facility Commander Remote Media Servers
- Facility Commander clients and browsers
- Digital Video Recorders (DVRs) and associated cameras.

Time synchronization across all components of the system, including Digital Video Recorders (DVRs) is mandatory.

To illustrate the importance, consider an event-to-action mapping event to tag video associated with an alarm condition.

For example, a Picture Perfect alarm is sent to the Facility Commander server and the associated video for the alarm condition is tagged.

The timestamp of this video clip and the alarm event must be identical to make the association for both real-time viewing and subsequent history reporting.

*It is very important all systems in this process be synchronized to the same master clock for data accuracy.*

Contact your IT Department to find out if NTP services have been established at your site. If so, have the IT Department implement it in the Picture Perfect and Secure Perfect servers. If not, follow the instructions below to setup NTP in Picture Perfect.

The following section describes how to configure NTP services, if you want to use the Picture Perfect system as the NTP master clock.

Achieving Time Synchronization

Network Time Protocol (NTP) is a protocol used to synchronize computer clock times in a network of computers. NTP services are configured to start when the operating system boots up.

- The Picture Perfect server is designated as the master time-keeper and runs the NTP service as Server.
- All Facility Commander systems run the NTP service as Client.
- For DVR time synchronization, the Facility Commander server software sends the time to each DVR at regular intervals.

NTP must be set up manually on the Picture Perfect server, and should be done at the same time that the EIF package is installed.

The NTP services are set up automatically for the Facility Commander servers and clients during the Facility Commander installation process.
Manual NTP Setup on the Picture Perfect Server

To set up the NTP service as a server in the Picture Perfect host, follow these steps:

1. Make sure that the NTP configuration file (/etc/ntp.conf) is set up properly. AIX and Linux use the same file.
   - Refer to Picture Perfect (Linux System) on page 123.
   - Refer to Picture Perfect (AIX system) on page 124.

2. Start NTP as a service so that it becomes part of the boot-up (init) sequence.
   - Refer to NTP Config File on page 123.
   - Refer to NTP Service Startup on page 124.

3. Verify that NTP is running.

Picture Perfect (Linux System)

NTP Config File

The /etc/ntp.conf file must contain the following lines:

```
server 127.127.1.0
server <ntphostname>
ntphostname is the host name of the Picture Perfect to which the Facility Commander server is synchronized.
fudge 127.127.1.0 stratum 10
driftfile /etc/ntp/drift
broadcastdelay 0.008
authenticate yes
```

NTP Service Startup

This section describes how to start the service, set the service to run as a permanent service, and verify the service is running.

To start NTP as a permanent service, type:

```
# chkconfig ntpd on [Enter]
```

To verify that it is started as a permanent service, follow these steps:

1. Run `setup` from the command line.
2. Select System Services.
3. Verify there is an asterisk (*) next to `ntpd`.
4. Reboot the system.
To verify that the service is running, follow these steps:

Type:
```
ps -ef | grep ntp [Enter]
```

The response should be:
```
ntpd -U ntp
```

**Picture Perfect (AIX system)**

**NTP Config File**

Verify the `/etc/ntp.conf` file contains the following lines:

```
server 127.127.1.0
fudge 127.127.1.0 stratum 10
driftfile /etc/ntp.drift
tracefile /etc/ntp.trace
```

**NTP Service Startup**

This section includes instructions to start the service, verify the service set to run as a permanent service, and that the service is running.

To start NTP from the command line (will not restart after a reboot), type:
```
startsrc -s xntpd [ENTER]
```

To start NTP as a permanent service, use SMIT as shown below:

```
smit
Communication Applications and Services
TCP/IP
Further Configuration
Server Network Services
Other Available Services
Select xntpd subsystem
Start using the xntpd Subsystem
BOTH
```

To verify that the service is running, type:
```
ps -ef | grep ntp
```

The response should be:
```
/usr/sbin/xntpd
```
Appendix B  Configuring a firewall port

This appendix provides information on how to configure firewall ports.
In this appendix:

  Configuring a firewall port ................................. 126
Configuring a firewall port

This section describes the ports used by the Facility Commander system, and how to configure your system for use through a firewall.

As with any application, in order to establish communications through a firewall it is necessary to allow for the appropriate protocols to pass through the firewall on the appropriate ports. Listed below are the ports used by the various components of the Facility Commander system. To ensure that the security of your firewall is not compromised, open only those ports needed for your specific system configuration.

**Table 22. Firewall port configuration**

<table>
<thead>
<tr>
<th>Task</th>
<th>Protocol</th>
<th>Port number assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application server</td>
<td>HTTP (Standard)</td>
<td>Standalone: Port 8085&lt;br&gt;Co-resident with Picture Perfect: Port 8075 Port 8443</td>
</tr>
<tr>
<td></td>
<td>HTTPS (Secured SSL enabled)</td>
<td></td>
</tr>
<tr>
<td>Client stations</td>
<td>http - xml-rpc media server communication</td>
<td>Port 8083&lt;br&gt;Port 8085&lt;br&gt;Port 8088</td>
</tr>
<tr>
<td></td>
<td>http - xml-rpc application server communication</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TCP streaming video</td>
<td></td>
</tr>
<tr>
<td>Media server</td>
<td>http - xml-rpc Client communication</td>
<td>Port 8083&lt;br&gt;Port 8086&lt;br&gt;Port 8087&lt;br&gt;Port 8088</td>
</tr>
<tr>
<td></td>
<td>http - incoming WebServices communication</td>
<td></td>
</tr>
<tr>
<td></td>
<td>http - outgoing WebServices communication</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TCP streaming video</td>
<td></td>
</tr>
<tr>
<td>DVRs</td>
<td>• DVRM and StoreSafe</td>
<td>Port 1024</td>
</tr>
<tr>
<td></td>
<td>• Integral</td>
<td>Port 18772</td>
</tr>
<tr>
<td></td>
<td>• Intellex</td>
<td>Port 5000 to 5002</td>
</tr>
<tr>
<td></td>
<td>• Nice</td>
<td>Port 2024</td>
</tr>
<tr>
<td></td>
<td>• Panasonic</td>
<td>Port 80</td>
</tr>
<tr>
<td></td>
<td>• Pelco</td>
<td>Port 9002</td>
</tr>
<tr>
<td></td>
<td>• SymSuite</td>
<td>Port 1024 (randomly selected UDP ports are used for streaming video)</td>
</tr>
<tr>
<td></td>
<td>• VisioWave</td>
<td>Port 5000 (UDP ports 5001 to 5500 are sequentially selected for streaming video)</td>
</tr>
</tbody>
</table>