



## **Installation Guide for Cisco Unified Provisioning Manager**

Software Release 1.3.1

Cisco Unified Communications Management Suite

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*Installation Guide for Cisco Unified Provisioning Manager*

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## Preface

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This manual describes Cisco Unified Provisioning Manager (Provisioning Manager) and provides instructions for using and administering it.

## Audience

The audience for this document includes network administrators and operators who monitor, maintain, and configure the status of the IP telephony systems and applications.

## Conventions

This document uses the following conventions:

Item	Convention
Commands and keywords	<b>boldface</b> font
Variables for which you supply values	<i>italic</i> font
Displayed session and system information	<code>screen</code> font
Information you enter	<b>boldface screen</b> font
Variables you enter	<i>italic screen</i> font
Menu items and button names	<b>boldface</b> font
Selecting a menu item in paragraphs	<b>Option&gt;Network Preferences</b>
Selecting a menu item in tables	Option>Network Preferences



### Note

Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the publication.



### Caution

Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.

# Product Documentation


**Note**

We sometimes update the printed and electronic documentation after original publication. Therefore, you should also review the documentation on Cisco.com for any updates.

[Table 1](#) describes the product documentation that is available.

**Table 1**      **Product Documentation**

Document Title	Available Formats
<i>Supported Devices Table for Cisco Unified Provisioning Manager 1.3.1</i>	On Cisco.com at the following URL: <a href="http://www.cisco.com/en/US/products/ps7125/products_device_support_tables_list.html">http://www.cisco.com/en/US/products/ps7125/products_device_support_tables_list.html</a>
<i>Release Notes for Cisco Unified Provisioning Manager 1.3.1</i>	<ul style="list-style-type: none"> <li>• In PDF on the product CD-ROM</li> <li>• On Cisco.com at the following URL: <a href="http://www.cisco.com/en/US/products/ps7125/prod_release_notes_list.html">http://www.cisco.com/en/US/products/ps7125/prod_release_notes_list.html</a></li> </ul>
<i>Installation Guide for Cisco Unified Provisioning Manager 1.3.1</i>	<ul style="list-style-type: none"> <li>• In PDF on the product CD-ROM</li> <li>• On Cisco.com at the following URL: <a href="http://www.cisco.com/en/US/products/ps7125/prod_installation_guides_list.html">http://www.cisco.com/en/US/products/ps7125/prod_installation_guides_list.html</a></li> </ul>
<i>User Guide for Cisco Unified Provisioning Manager 1.3.1</i>	<ul style="list-style-type: none"> <li>• In PDF on the product CD-ROM</li> <li>• On Cisco.com at the following URL: <a href="http://www.cisco.com/en/US/products/ps7125/products_user_guide_list.html">http://www.cisco.com/en/US/products/ps7125/products_user_guide_list.html</a></li> </ul>

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For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

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This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (<http://www.openssl.org/>).

This product includes cryptographic software written by Eric Young (eay@cryptsoft.com).

This product includes software written by Tim Hudson (tjh@cryptsoft.com).

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# CHAPTER 1

## Prerequisites

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This chapter describes the prerequisites for installing Cisco Unified Provisioning Manager on a Windows system. It includes:

- [Product Overview, page 1-1](#)
- [New Features in Cisco Unified Provisioning Manager 1.3.1, page 1-2](#)
- [Server Requirements, page 1-3](#)
- [Client Requirements, page 1-6](#)

## Product Overview

Cisco Unified Provisioning Manager (Provisioning Manager) is a provisioning tool for Cisco Unified Communications initial deployments and implementations. Provisioning Manager manages IP communication services in an integrated IP telephony, voicemail, and unified messaging environment that includes Cisco Unified Communications Manager, Cisco Unified Communications Manager Express, Cisco Unity, Cisco Unity Express, and Cisco Unity Connection systems.

Provisioning Manager is a product from the Cisco Unified Communications Management Suite. It provides provisioning for Cisco Unified Communications initial deployments and implementations, and then remains deployed to provide ongoing operational provisioning and activation services for individual subscriber changes. Provisioning Manager provides a single, consolidated view of subscribers across the organization. It provides a set of business-level management abstractions, which are policy-driven through the use of automation, for managing subscriber services across the Cisco Unified Communications infrastructure.

A template capability permits defining standard configurations that can be reused for new sites or location deployments. Batch provisioning permits the rollout of large numbers of subscribers at the same time.

Administrators can configure policy at various levels to determine who can do delegated management, for whom that delegation applies, and how business-level services apply to Cisco Unified Communications voice and messaging applications and which types of end users (subscribers) are permitted to order which standard services. Through the use of this policy and standard configuration approach, provisioning and activating subscriber services is greatly simplified, while retaining the overall ability to manage and provide services that make use of the underlying Cisco Unified Communications applications.

# New Features in Cisco Unified Provisioning Manager 1.3.1

Cisco Unified Provisioning Manager adds the following:

- Set-only Provisioning Attributes—Provisioning attributes that can only be set. You can provision their settings, but they are not stored once they are set, and they are not retrieved from the Call Processor during a synchronization.

Following is a list of the new set-only provisioning attributes:

- BLF Directed Call Park
- Device Mobility Mode
- DND Incoming Call Alert
- DND Option
- Do Not Disturb
- Call Pickup Group Audio Alert Setting (Phone Active)
- Call Pickup Group Audio Alert Setting (Phone Idle)
- Ignore Presentation Indicators (Internal Calls Only)
- Presence Group
- Primary Phone
- Rerouting Calling Search Space
- Secondary Calling Search Space for Forward All
- SIP Profile
- Subscribe Calling Search Space
- The following provisioning attributes:
  - Busy Lampfield Info
  - Enable ResyncMWI
- The following provisioning attributes for Extension Mobility Line:
  - Alerting Name
  - ASCII Alerting Name
  - ASCII Display (Internal Caller ID)
  - ASCII Line Text Label
  - Line Groups
- The following business rules:
  - AssociateUsersByDevicePool
  - AssociateUsersByLocation
- Enhancements to the Call Pickup Group configuration template.
- Ability to unlock voicemail accounts.
- Ability for users to have privileges for multiple Domains.
- Ability to add external AAA servers (LDAP servers) for user authentication.
- Support for third-party SIP phones.

- Support for Cisco Unified Communications Manager 6.1(3).
- Support for Cisco Unified Communications Manager Express 7.0(1).
- Support for Cisco Unity Express 7.0.1.
- Support for Third-party SIP Device (Advanced and Basic).
- Support for VMware.

## Server Requirements

Table 1-1 lists the minimum server system requirements for different levels of performance and scale.

**Table 1-1** Server System Requirements (Standalone)

Requirement Type	Minimum Requirements
System Processor	<p>Server platform with one of the following processor configurations:</p> <ul style="list-style-type: none"> <li>• (Up to 1,000 phones) Single Intel Pentium 4, 3.0 GHz.</li> <li>• (Up to 10,000 phones) Dual-core Intel Pentium 4, 3.0 GHz.</li> <li>• (Up to 30,000 phones) Two-system deployment, with the following configuration: <ul style="list-style-type: none"> <li>– Two Intel Xeon processors, 3.0 GHz, for the Web and application server.</li> <li>– Two Intel Xeon processors, 3.0 GHz, for the database.</li> </ul> </li> </ul> <p><b>Note</b> If you will have more than five operators placing concurrent orders, you should use two dual-core Intel Xeon processors.</p>
Other System Hardware	<ul style="list-style-type: none"> <li>• Color monitor.</li> <li>• CD-ROM drive.</li> <li>• 100 Mbps NIC.</li> </ul>
Memory (RAM) <sup>1</sup>	<ul style="list-style-type: none"> <li>• 2 GB—Up to 1000 phones.</li> <li>• 4 GB—Up to 10,000 phones.</li> <li>• 4 GB on each system—Up to 30,000 phones.</li> </ul>
Swap File Space	Same as RAM, with a maximum size of twice that of RAM.
Available Drive Space <sup>2</sup>	<ul style="list-style-type: none"> <li>• 30 GB—Up to 1000 phones.</li> <li>• 60 GB—Up to 10,000 phones.</li> <li>• Two-system configuration (up to 30,000 phones); requires the following: <ul style="list-style-type: none"> <li>– 30 GB on the Web and application system.</li> <li>– 80 GB on the database system.</li> </ul> </li> </ul>
System Software <sup>3</sup>	Windows Server 2003 with Service Pack 1 or Service Pack 2, Standard or Enterprise Edition.

1. Provisioning Manager will not install either the medium (up to 10,000 phones) or the large (up to 30,000 phones) configuration if Windows 2003 reports that less than 4 GB of memory is installed. There is a known issue with Windows 2003 when working with certain hardware. Even though 4 GB of memory is installed on the system, Windows 2003 reports that there is less than 4 GB of memory installed. For more details, see <http://msdn2.microsoft.com/en-us/library/ms791485.aspx>.
2. SAS or SCSI drives in a RAID configuration are recommended for servers supporting 1000 to 10,000 phones. SAS drives in a RAID (1+0) configuration are recommended for servers supporting over 10,000 phones.

- You must install Provisioning Manager on a dedicated system. Do not install Provisioning Manager on a Primary Domain Controller (PDC) or Backup Domain Controller (BDC).



## Coresident Guidelines

Operations Manager, Service Monitor, Service Statistics Manager, and Provisioning Manager can be coresident with up to 10,000 phones. [Table 1-2](#) provides the minimum requirements for a coresident installation.

**Table 1-2** *Installation Server System Minimum Requirements for Coresidence*

Requirement Type	Minimum Requirements for Coresident Deployment of up to 10,000 Phones
Processor	Two-way quad-core Xeon X5365 processors at 3 GHz. <b>Note</b> A two-way quad-core processor is a system that contains 2 physical processors—each of which is a quad-core processor—effectively containing 8 (2x4) logical CPUs.
Memory (RAM)	16 GB (PAE enabled)
Page File Space <sup>1</sup>	32 GB.
Disk Space	<ul style="list-style-type: none"> <li>320 GB recommended. (Minimum four SAS drivers.)</li> </ul> <p>For optimal I/O throughput, you must have a Battery Backed Write Cache (BBWC); we also recommend two I/O controllers (with two disks on each controller).</p> <ul style="list-style-type: none"> <li>NTFS file system (required for secure operation).</li> <li>At least 16 MB in Windows temporary directory (%TEMP%).</li> </ul>
Hardware	<ul style="list-style-type: none"> <li>Color monitor. ((For optimum viewing on the Operations Manager display, Cisco recommends that you use the highest native resolution supported by the client PC and monitor. A large, high resolution display will also allow for less scrolling through information presented and increase operator efficiency. The minimum resolution recommended is 1024 x 768 on a 17" monitor.)</li> <li>CD-ROM drive.</li> <li>Support for one or two 1-GB NICs (one is required, and the second is for failover support; both NIC cards must have the same IP address).</li> </ul>

**Table 1-2** Installation Server System Minimum Requirements for Coresidence (continued)

Requirement Type	Minimum Requirements for Coresident Deployment of up to 10,000 Phones
Software	One of these: <ul style="list-style-type: none"> <li>• Windows Server 2003 Enterprise Edition SP2 (32-version)</li> <li>• Windows Server 2003 R2 Enterprise Edition SP2 (32-version)</li> </ul>
	 <b>Note</b> The system that you use for your Operations Manager server should meet all the security guidelines that Microsoft recommends for Windows 2003 Server. See the Microsoft website for security guidance: <a href="http://www.microsoft.com/technet/security/prodtech/WindowsServer2003.mspx">http://www.microsoft.com/technet/security/prodtech/WindowsServer2003.mspx</a> (This website is Copyright © 2009, Microsoft Corporation.)
	<ul style="list-style-type: none"> <li>• ODBC Driver Manager<sup>2</sup> 3.5.10 or later.</li> </ul>  <b>Note</b> <ul style="list-style-type: none"> <li>• If you are going to use Cisco Unified Service Monitor, configure the server to use Network Time Protocol (NTP) to synchronize with the time server that is used by Cisco Unified Communications Managers in your network. See <a href="#">Installation Guide for Operations Manager 2.2</a>.</li> <li>• Windows Terminal Services is supported in Remote Administration mode only. Use of Windows Terminal Services or Remote Desktop and Virtual Network Computing (VNC) to remotely control the server is not recommended for performing day-to-day operations (for example, running reports, keeping dashboards and Service Level View open, and so on). For more information, see <a href="#">Installation Guide for Operations Manager 2.2</a>.</li> </ul>

1. When configuring the page file, you should set both the minimum and maximum file size parameters to 32 GB. This will ensure that Windows creates a 32-GB page file.

2. To verify the version of ODBC Driver Manager, from the Windows desktop, select **Start > Settings > Control Panel > Administrative Tools > Data Sources (ODBC)**. Select the **About** tab. If necessary, install Microsoft Data Access Component (MDAC) 2.5 or later.

- Install each application along with its databases on a separate drive. You can install one of the applications on the system drive (C:), but, if you have a sufficient number of drives, we recommend that none of the applications be installed on the system drive.
- Install applications in this order (recommended, not required):
  1. Operations Manager (includes Service Monitor)
  2. Service Statistics Manager
  3. Provisioning Manager (in Advanced mode)




**Note** If Operations Manager and Provisioning Manager are using the same port number for SSL, you must change the port used by SSL for one of the applications (see [Changing the Port Used By SSL, page 2-4](#)).

# Client Requirements

Table 1-3 lists the minimum client system requirements for installing Provisioning Manager.

**Table 1-3** *Client System Requirements*

Requirement Type	Minimum Requirements
System Hardware	<ul style="list-style-type: none"> <li>Any PC or server platform with a Pentium 4 processor greater than 1.0 GHz.</li> <li>Color monitor with video card set to 24 bits color depth.</li> <li>Screen resolution of 1024 x 768 dpi.</li> </ul> <p> <b>Note</b> Not every LCD projector or monitor provides a clear display at the minimum resolution. On LCD projectors and monitors, dot pitch impacts the readability of the screen.</p>
System Software	<ul style="list-style-type: none"> <li>One of the following:               <ul style="list-style-type: none"> <li>Windows XP with Service Pack 2.</li> <li>Windows Server 2003 with Service Pack 1 or Service Pack 2, Standard or Enterprise Edition.</li> </ul> </li> <li>One of the following               <ul style="list-style-type: none"> <li>Internet Explorer 6.0 with Service Pack 2 or 7.0.</li> <li>Mozilla 1.7.x.</li> <li>Firefox 2.0</li> </ul> </li> </ul>
Memory (RAM)	1 GB recommended.
Environment	<p>Clients must be able to access Provisioning Manager:</p> <ul style="list-style-type: none"> <li>From outside a firewall—Refer to the documentation for your firewall for information on how to configure client access.</li> <li>Across a Virtual Private Network (VPN)—The VPN tunnel should connect the client and a VPN router or similar device. See <a href="#">Ports that Provisioning Manager Uses, page 2-11</a>.</li> </ul>

## IPv6-Aware Support in Provisioning Manager

Provisioning Manager is IPv6 aware. IPv6 aware is defined as containing IPv6 functional information, but using IPv4 for transport.

As an IPv6-aware application, Provisioning Manager continues to communicate with Cisco Unified Communications Manager devices through an IPv4 link.

The following also apply to IPv6-aware support in Provisioning Manager:

- In the Call Processor Configuration page, you can only enter an IPv4 IP address. If you enter an IPv6 address, an error message appears.

- Configuring an IP phone for IPv6-only does not affect Provisioning Manager functionality.
- The support for IPv6-aware functions does not affect Provisioning Manager support for Cisco Unified Communications Manager Express, Cisco Unity Express, Cisco Unity, or Cisco Unity Connection devices.

## VMware Support in Provisioning Manager

Provisioning Manager supports VMware environments. For Provisioning Manager to meet its minimum system requirements (Table 1-1) in a virtual environment, Provisioning Manager must have the same resources available to it inside the virtual environment that it does for a standard (non-virtual) installation. When determining the performance of Provisioning Manager in your virtual setup, you must take into account that the VMware instance will use up system resources that would normally be available to Provisioning Manager in a standard installation.

Provisioning Manager has been tested on VMware ESX Server 3i version 3.5 and VMware ESX Server 3.5.

When setting up Provisioning Manager in a VMware environment, keep in mind the following guidelines:

- To enable you to use Provisioning Manager in a VMware environment, you must configure your virtual machine with a static MAC address. If you try to install Provisioning Manager on a virtual machine that does not have a static MAC address, a message appears stating that a static MAC address is required.
- Resources must be dedicated to the virtual machines, resources cannot be shared.
- For better performance in a distributed deployment, it is recommended that you install the application and the database on the same physical server.
- Due to the additional resource requirements of virtualization, it is recommended that you do not have more than five concurrent client (browser) logins to Provisioning Manager running at one time.



### Note

Using VMWare snapshots in a product environment will drastically degrade performance and may even impact stability. You should not have any snapshots on a production system.

To set up a static MAC address, do the following:

- Step 1** Power down the virtual machine.
- Step 2** In the Inventory Panel, select the virtual machine.
- Step 3** Click the **Summary** tab and then click **Edit Settings**.
- Step 4** In the Hardware list, select **Network Adapter**.
- Step 5** For MAC address, select **Manual**.
- Step 6** Change the current MAC address of the virtual machine to a static MAC address in the following range: 00:50:56:00:00:00 to 00:50:56:3F:FF:FF.
- Step 7** Click **OK**.





## CHAPTER 2

# Installing, Upgrading and Uninstalling Cisco Unified Provisioning Manager

---

This chapter describes installing Cisco Unified Provisioning Manager.

It includes:

- [Preparing to Install Provisioning Manager, page 2-1](#)
- [Installing Provisioning Manager, page 2-13](#)
- [Upgrading Provisioning Manager 1.3 to Provisioning Manager 1.3.1, page 2-17](#)
- [Uninstalling Provisioning Manager, page 2-26](#)

## Preparing to Install Provisioning Manager

The information in this section helps you to deploy Provisioning Manager in your network. Do the following before you install Provisioning Manager:

- Make sure that hardware and software requirements for the server are met. (See [Server Requirements, page 1-3](#).)
- Preparing the Provisioning Manager server for installation. (See [Preparing the Server, page 2-2](#).)
- Configure end systems so that Provisioning Manager can obtain correct information from them. ([Preparing End Systems, page 2-5](#).)
- Determine whether your existing applications are already using ports that Provisioning Manager uses. (Existing applications should not use the ports that Provisioning Manager requires.) See [Ports that Provisioning Manager Uses, page 2-11](#).
- Gather information that you might need to provide during the Provisioning Manager installation. (See [Gathering Information to Provide During Installation, page 2-12](#).)

## Preparing the Server

This section describes procedures that you may need to perform to prepare your server for installing Provisioning Manager on it.



### Note

The system that you use for your Provisioning Manager server should meet all the security guidelines that Microsoft recommends for Windows 2003 Server. See the Microsoft website for security guidance (<http://www.microsoft.com/technet/security/prodtech/WindowsServer2003.mspx>).

## Enabling the Full 4 GB of RAM

Provisioning Manager will not install either the medium (up to 10,000 phones) or the large (up to 30,000 phones) configuration if Windows 2003 reports that less than 4 GB of memory is installed. There is a known issue with Windows 2003 when working with certain hardware. Even though 4 GB of memory is installed on the system, Windows 2003 reports that there is less than 4 GB of memory installed. For more details, see <http://msdn2.microsoft.com/en-us/library/ms791485.aspx>.

To enable all 4 GB of RAM on the system, use the following procedure:

- 
- Step 1** On the Provisioning Manager system, in Windows right-click **My Computer**.
  - Step 2** Select **Properties**.
  - Step 3** Select the **Advanced** tab.
  - Step 4** Under Startup and Recovery, click **Settings**.
  - Step 5** Click **Edit**. The boot.ini file opens.
  - Step 6** In the file, add **"/PAE"** in line starting with "multi(0)disk(0)rdisk(0)partition(1)WINDOWS=..."
  - Step 7** Restart the system.
- 

## Enabling SSL on the Provisioning Manager Server

Secure Socket Layer (SSL) is an application-level protocol that enables secure transactions of data through privacy, authentication, and data integrity. It relies upon certificates, public keys, and private keys.

Provisioning Manager supports SSL between clients and the server. When you start Provisioning Manager, the login page always opens in secure mode, providing secure access between the client browser and the Provisioning Manager server. In secure mode, SSL is used to encrypt the transmission channel between the browser and the server. To use secure mode throughout Provisioning Manager, you must enable SSL.

To enable SSL, you must install Win32 OpenSSL Light and then configure the Apache server.

### Installing OpenSSL and Generating a Certificate

- 
- Step 1** On the Provisioning Manager system, install the latest version of Win32 OpenSSL v0.9.8 Light in C:\OpenSSL. You can find Win32 OpenSSL Light at <http://www.slproweb.com/products/Win32OpenSSL.html> (Provisioning Manager was last tested with v9.8i).



**Note** If you receive an error message stating that Visual C++ 2008 Redistributables are missing, you must download and install them before proceeding. They are available at the same location as Win32 OpenSSL Light (<http://www.slproweb.com/products/Win32OpenSSL.html>).

When installing Win32 OpenSSL, do the following:

- In the *Copy OpenSSL DLLs to* dialog box, select the OpenSSL binaries (\bin) directory.
- After the Win32 OpenSSL installation is complete, copy the libraries `ssleay32.dll` and `libeay32.dll` (located in the `C:\OpenSSL\bin` folder) to the `C:\CUPM\httpd\bin` folder (if you accepted `C:\CUPM` as the default location for Provisioning Manager during installation, and if you accepted `C:\OpenSSL` as the location for Win32 OpenSSL during installation).

**Step 2** In a command prompt, go to `<Install directory>\httpd\conf`.

**Step 3** In the command prompt, run the following command:

```
c:\OpenSSL\bin\openssl.exe genrsa -des3 -out server.key 1024
```

**Step 4** A prompt appears, asking for a passphrase. Enter a phrase.

**Step 5** Run the following command:

```
c:\OpenSSL\bin\openssl.exe req -new -x509 -days 365 -key server.key -out server.crt
```



**Note** This command assumes the certificate is valid for 365 days. If you need a longer license, enter a higher number of days.

**Step 6** At the prompt, enter the passphrase you entered previously. Enter it again.

**Step 7** Enter the information for the Distinguished Name fields for the certificate.

**Step 8** Run the following command:

```
copy server.key server.key.orig
```

**Step 9** Run the following command:

```
c:\OpenSSL\bin\openssl.exe rsa -in server.key.orig -out server.key
```

**Step 10** Enter the passphrase you used previously. This removes the need to enter the passphrase every time you start Provisioning Manager.

## Configuring the Apache Server

**Step 1** On the Provisioning Manager system, back up the `httpd.conf` file (located at `<install directory>\httpd\conf`).

**Step 2** In the `httpd.conf` file, uncomment the line `LoadModule ssl_module modules/mod_ssl.so`.



**Note** When editing the `httpd.conf` file, be aware that some text editors may overwrite the file format. If this happens, an error will occur when you restart the Apache2 Windows Service. If you are using Notepad, you can avoid this problem by turning off word wrap in Notepad before opening the file.

- Step 3** If your original version of Provisioning Manager was earlier than 1.2 and you have continually upgraded through the versions, you may need to update the ssl.conf file. Perform a search for @DOCROOT@ in <install directory>/httpd/conf/ssl.conf.
- If the search does not find @DOCROOT@, you do not need to make any updates. Go to step [Step 4](#).
  - If the search finds @DOCROOT@ (it should appear in two places), set @DOCROOT@ to <install directory>/httpd/htdocs.
- Step 4** Restart the Apache2 Windows Service.
- Now you can log into Provisioning Manager using HTTPS.
- 

**Note**

When using SSL, remember the following:

- The URL for logging in uses HTTPS (for example, https://<host name or IP address>/cupm/Login).
  - If you upgraded from Provisioning Manager 1.2, the ssl.conf file may be read only. Remove the read only property using Windows Explorer.
  - By default, port 443 is configured in the ssl.conf file. If you need to change the port number, in the ssl.conf file, change the line *Listen 443* to the desired port.
  - If you want to exclusively run only HTTPS, you must disable the nonsecure HTTP by commenting out the line *Listen 80* in the C:\CUPM\httpd\conf\httpd.conf file, and then restart the Apache server.
- 

## Changing the Port Used By SSL

If Provisioning Manager is installed on a coresident system (with Operations Manager), you must change the port used by SSL of one of the applications. This section describes how to change the port used for SSL by Provisioning Manager.

---

- Step 1** On the Provisioning Manager system, open the ssl.conf file (located at <install directory>/httpd/conf).
- Step 2** Change the port number in the following lines to a different number (46443 is recommended):
- Listen 443
  - VirtualHost \_default\_:443
- Step 3** Save the changes and close the file.

**Note**

After you change this port number, when you access Provisioning Manager you must enter the new port number. For example, http://<hostname>:46443.

---

## Additional Server Software

The software applications listed in this section have undergone interoperability testing with Provisioning Manager. These applications are optional, they are not required to run Provisioning Manager on your system.

- Cisco Security Agent 5.0 and 6.0—Provisioning Manager has been tested to work with Cisco Security Agent, however support is not provided.



---

**Note** Cisco Security Agent must be disabled during installation of Provisioning Manager.

---

- Third-party virus protection software:
  - McAfee Virus Scan Enterprise 8.0

For McAfee Enterprise VirusScan 8.0, you must have patch version 11 installed. Install the McAfee VirusScan Enterprise 8.0 Patch Version 11 before installing Provisioning Manager on the system.



---

**Note** You should exclude the following from virus scanning:

---

- The *pgsql* folder (if you selected the default location during installation, it is C:\CUPM\pgsql).
  - The *postmaster.exe* file (located in the CUPM\pgsql\bin folder).
- 

## Preparing End Systems

In Provisioning Manager, the physical resources (end systems that deliver voice and messaging services) are modeled as Processors. For example, a Cisco Unified Communications Manager or Cisco Unified Communications Manager Express system is modeled as a Call Processor and a Cisco Unity, Cisco Unity Express, or Cisco Unity Connection voicemail/unified messaging system is modeled as a Unified Message Processor.

Using Provisioning Manager, an administrator creates and configures these various processors. After the processors have been configured, all configuration and interaction with the end systems is handled by Provisioning Manager.

Some minimal configuration is required on the end systems before you can use them with Provisioning Manager. This section describes the preconfiguration steps required for Cisco Unified Communications Manager, Cisco Unified Communications Manager Express, Cisco Unity systems, Cisco Unity Connection, and Cisco Unity Express.

## Cisco Unified Communications Manager Preconfiguration Dependencies

The Cisco Unified Communications Manager is the software-based, call-processing component of the Cisco IP telephony solution, and is part of Cisco Architecture for Voice, Video and Integrated Data (AVVID).

Additional data, voice, and video services such as unified messaging, multimedia conferencing, collaborative contact centers, and interactive multimedia response systems interact with the IP telephony solution through Cisco Communications Manager's open telephony application programming interface (API). Cisco Communications Manager is installed on the Cisco Media Convergence Server (MCS).

No specific preconfiguration is generally required on the Cisco Unified Communications Manager for Provisioning Manager. However, the following conditions should already have been met during a normal installation or upgrade, and are noted here as installation dependencies for creating a Call Processor in Provisioning Manager:

- Install Cisco Unified Communications Manager.
- If Cisco Unity is used in this configuration, configure the Cisco Unified Communications Manager voicemail ports.
- Create a user and password with administrator privileges that can be used by Provisioning Manager to access Cisco Unified Communications Manager. The requirements of the user and password vary depending on whether multilevel administration access (MLA) is enabled (see [Table 2-1](#)).

**Note**

All interactions with Cisco Unified Communications Manager and Provisioning Manager are through the AVVID XML Layer APIs (AXL/SOAP).

### Determining the Media Server Account to Use for Cisco Unified Communications Manager Access

To enable Provisioning Manager to access a Cisco Unified Communications Manager, you must supply the username and password for an account on the media server. The account to use depends upon the Cisco Unified Communications Manager version and might also depend on whether MLA is enabled for the Cisco Unified Communications Manager. [Table 2-1](#) lists the options.

**Table 2-1** Accounts Required to Access Cisco Unified Communications Manager

Cisco Unified Communications Manager Version on Media Server	MLA Enabled or Disabled for Cisco Unified Communications Manager	Required Account
4.x	Enabled	Multilevel administration access account with full access to the Standard Serviceability Functional Group.
	Disabled	Valid Windows 2000 administrator account on the media server.
5.x, 6.x, or 7.x	N/A	A Unified Communications Manager user who is assigned a role with the privilege to use the AXL Database API resource in the Cisco Call Manager AXL Database application.  <i>Standard AXL API Access</i> is one of the predefined roles in Unified Communications Manager that has this privilege.

### Cisco Unified Communications Manager Express Preconfiguration Dependencies

Cisco Unified Communications Manager Express is a solution, embedded in Cisco IOS Software, that provides call processing for Cisco Unified IP Phones.

Like Cisco Unified Communications Manager, Cisco Unified Communications Manager Express is modeled in Provisioning Manager as a Call Processor. The only difference from an administrative aspect is that it is represented by a different type of Call Processor.

Provisioning Manager requires that the Cisco Unified Communications Manager Express be installed on a supported platform with the appropriate Cisco IOS Software version and Cisco Unified Communications Manager Express load.

Before you can create a Call Processor based on a Cisco Unified Communications Manager Express in Provisioning Manager, you must do the following:

- Disable the auto-allocation of directory numbers. Do this through the Cisco IOS interface (see [Disabling the Auto-Allocation of Directory Numbers and Ephone Auto-Registration, page 2-7](#)).
- Disable the ephone auto-registration. You must do this through for Cisco Unified Communications Manager Express 4.0 or later (see [Disabling the Auto-Allocation of Directory Numbers and Ephone Auto-Registration, page 2-7](#)).
- If you have changed the Rivest, Shamir, and Adelman (RSA) key pair for Secure Shell Version 2 (on the router where Cisco Unified Communications Manager Express resides) to a length less than 512 bits, you must reconfigure the RSA key back to a length equal to or greater than 512 bits. For information on configuring the RSA keys in Secure Shell Version 2, see your router's documentation.

### Disabling the Auto-Allocation of Directory Numbers and Ephone Auto-Registration

Do the following configurations through the Cisco IOS interface.

#### Step 1 First, verify that auto-allocation is enabled.

```
$ telnet 172.19.50.247
Trying 172.19.50.247...
Connected to 172.19.50.247.
Escape character is '^]'.

User Access Verification

Password:

CCME-1>enable
Password:
CCME-1#show telephony
CONFIG (Version=3.0)
=====
Cisco Communications Manager Express
ip source-address 172.19.50.247 port 2000
max-ephones 24
max-dn 100
max-conferences 4
max-redirect 5
time-format 12
date-format mm-dd-yy
keepalive 30
timeout interdigit 10
timeout busy 10
timeout ringing 180
web admin system name root password cisco
web admin customer name cisco password cisco
edit DN through Web: enabled.
edit TIME through web: enabled.
Log (table parameters):
  max-size: 150
  retain-timer: 15
  (password): abcd
```

```
create cnf-files version-stamp 7960 Jan 15 2004 16:48:05
auto assign 1 to 100 type 7960 cfw 5001 timeout 30
local directory service: enabled.
xml schema http://gkar.cisco.com/schema/axlsoap.xsd
```

In this case, auto-allocation is on, as shown by the *auto assign* line.

**Step 2** To disable auto-allocation, run the following command at the *enable* prompt:

```
CCME-1#config term
Enter configuration commands, one per line. End with CNTL/Z.
CCME-1(config)#telephony-service
CCME-1(config-telephony)#no auto assign 1 to 100 type 7960 cfw 5001 timeout 30
CCME-1(config-telephony)#no auto-reg-ephone
```




---

**Note** The **no auto-reg-ephone** command is required for Cisco Unified Communications Manager Express 4.0 or later.

---

```
CCME-1(config-telephony)#exit
CCME-1(config)#exit
CCME-1#show telephony
```

**Step 3** To verify that the change has taken effect, run another **show telephony** command. The *auto assign* line should no longer appear.

**Step 4** Run a **write memory** command, which will write the changes out to the system's nonvolatile memory in case of a reboot.

---

## How Provisioning Manager Manages Communications Manager Express

Cisco Unified Communications Manager Express uses two main commands to provision phones for end subscribers:

- **telephony ephone-dn**—Manages directory numbers.
- **telephony ephone**—Assigns directory numbers to lines on one or more phones.

Both commands allow subscriber information to be associated to the directory number or the line. Provisioning Manager uses these native abilities in Cisco Unified Communications Manager Express to store and synchronize subscriber information.

Provisioning Manager is able to synchronize back the phones, lines, directory numbers, and subscriber information from an existing Cisco Unified Communications Manager Express. Depending on how the subscriber information was used in the **telephony ephone** and **telephony ephone-dn** commands, Provisioning Manager is able to fully construct a user account for that subscriber. Provisioning Manager supports shared lines and directory numbers while doing this.

When provisioning, Provisioning Manager uses the **description** command in the ephone configlet to hold the subscriber name and department information. Provisioning Manager also uses the **name** command in the ephone-dn configlet to hold the subscriber's first and last names.




---

**Note** The Cisco Unified Communications Manager Express ephone-dn name field is limited to 30 characters. If the subscriber's first and last names (combined) exceed that limit, you may get an error.

---

## Cisco Unity and Cisco Unity Connection System Preconfiguration Dependencies

**Note**

Provisioning Manager does not support Cisco Unity when it is configured with multiple Cisco Unified Communications Manager clusters.

Before you can create a Unified Message Processor based on Cisco Unity in Provisioning Manager, you must do the following:

- Install and configure the message store using Microsoft Exchange 2000 or 2003. (Required for Cisco Unity only.)
- Configure an integration with one corresponding Cisco Unified Communications Manager.
- Create a SQL Server user and password that can be used by Provisioning Manager to access the SQL Server database on Cisco Unity. The SQL Server user requires access to both the Cisco Unity and master databases. See [Creating an SQL Server User and Password for Cisco Unity, page 2-9](#). (Required for Cisco Unity only.)
- Verify the TCP/IP port used by Cisco Unity. This port number is required when you create a Unified Message Processor. (Required for Cisco Unity only.)
- Define Class of Service and Subscriber templates.
- Configure IMAP in Cisco Unity Connection. This is required so that Provisioning Manager can provision email and Unified Messaging Services in Cisco Unity Connection. (Required for Cisco Unity Connection only.)

**Note**

To configure IMAP: on the Cisco Unity Connection system, go to **System Settings > External Services > Add New**, and fill in all the fields required to add external services.

### Creating an SQL Server User and Password for Cisco Unity

- Step 1** On the Cisco Unity system, select **Start > SQL Server > Enterprise Manager**. The Enterprise Manager window appears.
- Step 2** In the navigation tree, select **Microsoft SQL Servers > SQL Server Group > (local) (Windows NT)**.
- Step 3** Right-click **(local) (Windows NT)** and select **Properties**. The SQL Server Properties (Configure) window appears.
- Step 4** Click the Security tab.
- Step 5** Under Authentication, select **SQL Server and Windows**.
- Step 6** In the navigation tree under (local) (Windows NT), select **Security > Logins**.
- Step 7** Create a new login. Do the following:
  - a. Right-click **Logins**. The SQL Server Login Properties - New Login window appears.
  - b. Enter a name for the login.
  - c. Select **SQL Server Authentication**.
  - d. Select **UnityDb**.
  - e. Click the **Database Access** tab.
  - f. Select both the **UnityDb** and the **master** database.

- g. For both databases, select the following roles: db\_owner, db\_datareader, and db\_datawriter.
  - h. Reboot the SQL server.
- 

### Verifying the TCP/IP Port Used by Cisco Unity

- 
- Step 1** On the Cisco Unity system, select **Start > SQL Server > Enterprise Manager**. The Enterprise Manager appears.
  - Step 2** From the menu, click **Action**. Then select **Properties**. The SQL Server Properties (Configure) dialog box appears.
  - Step 3** In the General tab, click **Network Configuration**. The SQL Server Network Utility window appears.
  - Step 4** Select **TCP/IP**, then click **Properties**.
  - Step 5** In the window that appears, the default TCP/IP port is displayed. You will need to know this port number when you create a Unified Message Processor.
- 

### Cisco Unity Express Preconfiguration Dependencies

Before you can create a Unified Message Processor based on Cisco Unity Express in Provisioning Manager, you must do the following:

- If you have changed the RSA key pair for Secure Shell Version 2 (on the router where Cisco Unity Express resides) to a length less than 512 bits, you must reconfigure the RSA key back to a length equal to or greater than 512 bits. For information on configuring the RSA keys in Secure Shell Version 2, see your router's documentation.
- Determine the Service Engine Interface number for Cisco Unity Express. The Service Engine Interface number is required when adding a Cisco Unity Express to Provisioning Manager (see [Determining the Service Engine Interface Number for Cisco Unity Express, page 2-10](#)).

### Determining the Service Engine Interface Number for Cisco Unity Express

The Service Engine Interface number is located on the router that hosts Cisco Unity Express.

---

- Step 1** Log in to the router that hosts Cisco Unity Express.
- Step 2** Run the command `show running-config`.

In the resulting output, look for the following:

```
Interface Service-Engine 2/0
```

In this example, 2/0 is the Service Engine Interface number.

---

## Interfaces that Provisioning Manager Uses

Table 2-2 lists the interfaces that Provisioning Manager uses to communicate with the end systems.

**Table 2-2** *Interfaces that Provisioning Manager Uses*

Call Processor/ Unified Message Processor	Interface
Cisco Unified Communications Manager	AXL and SOAP
Cisco Unified Communications Manager Express	CLI over Telnet and SSH
Cisco Unity	JDBC
Cisco Unity Connection	Webservice API
Cisco Unity Express	CLI over Telnet and SSH

## Ports that Provisioning Manager Uses

Before installing Provisioning Manager, make sure that the appropriate ports are available.

Table 2-3 lists the ports that need to be open on the Provisioning Manager system. Table 2-4 lists the ports that need to be open on the firewall between Provisioning Manager and the device.

**Table 2-3** *Ports Used on the Provisioning Manager System*

Port Numbers Used—Standalone <sup>1</sup>	Port Numbers Used—Coresident <sup>2</sup>	Additional Information
1098	46098	—
1099	46099	—
1602	46001	Network Interface and Configuration Engine (NICE). This is configurable during the advanced installation process.
4444	46444	—
4445	46445	—
5432	5432	PostgreSQL database. This is configurable during the advanced installation process.
8008	46008	JBoss Application Server. This is configurable during the advanced installation process.
8009	46009	—
8083	46083	—
8093	46093	—
80	80	HTTP/Apache Web Server. This is configurable during the advanced installation process.
—	46443	HTTPS/Apache Web Server. To configure SSL, see <a href="#">Enabling SSL on the Provisioning Manager Server</a> , page 2-2.

1. These are the ports used by Provisioning Manager when it is the only Cisco Unified Communications Management Suite product installed on a system.

2. These are the ports used by Provisioning Manager when it is installed (coresident) on a system with other Cisco Unified Communications Management Suite products. The ports used are changed to avoid conflicts with other applications.

**Table 2-4** *Ports Used to Communicate with Other Devices*

Port Numbers	Service Name/Protocols	Application
80	HTTP/Apache Web Server	Cisco Unified Communications Manager.
8443	HTTPS	Cisco Unified Communications Manager 5.0.
22	SSH	Cisco Unified Communications Manager Express and Cisco Unity Express.
23	Telnet	Cisco Unified Communications Manager Express and Cisco Unity Express.

## Gathering Information to Provide During Installation

You might need to supply the following information while you are installing Provisioning Manager:

- For a simple installation, you will need to have the following:
  - A license file, or you can choose to use the evaluation version.
  - Password for the administrator user.
  - Username and password for the PostgreSQL administrator (default is postgres).
  - Time zone.
- For an advanced installation, what you need depends on your installation. The following list contains information you may need to have:
  - A license file, or you can choose to use the evaluation version.
  - A port number for the Apache web server.
  - A port number for the PostgreSQL database.
  - Hostname or IP address for the systems that can connect to the PostgreSQL database.
  - Username and password for the Windows user that the PostgreSQL database uses.
  - Username and password for the PostgreSQL administrator (default is postgres).
  - The JBoss application server name.
  - The port number for the JBoss application server.
  - Username and password for the application database user.
  - Password for the administrator user.
  - Port number for the NICE service.
  - Time zone.

# Installing Provisioning Manager

The installation process takes approximately 60 minutes to complete.

Follow these guidelines when installing Provisioning Manager:

- Provisioning Manager requires a dedicated system; do not install it on a system with:
  - Third-party management software (such as HP OpenView or NetView).
  - Cisco Secure Access Control Server (ACS).
  - Any Cisco applications other than those that are documented to be able to coexist with Provisioning Manager.
- If installing on a system with Cisco Security Agent, before installing Provisioning Manager disable Cisco Security Agent.
- Do not install on any of your voice application servers on a Cisco Unified Communications Manager server.
- Verify that the system date and time are set properly.
- To speed up installation, disable all virus-scan software while installing.

---

**Step 1** Make sure your system meets these prerequisites:

- Required (or desired) operating system upgrades have been performed.
- Required service packs are installed.

For system requirements, see [Server Requirements, page 1-3](#).

**Step 2** Close all open or active programs. Do not run other programs during the installation process.

**Step 3** As the local administrator, log in to the machine on which you will install the Provisioning Manager software, and insert the Cisco Unified Provisioning Manager CD-ROM into the CD-ROM drive. The Cisco Unified Provisioning Manager 1.3.1 window opens.



---

**Note** If the CD-ROM is already in the CD-ROM drive and you stopped the installation process to close programs or if Autostart is disabled, click **cupm1.3.1-setup.exe** to restart the process.

---

**Step 4** Click **Install**. The Welcome window appears.

**Step 5** Click **Next**. The Software License Agreement window appears.

**Step 6** Accept the Software License Agreement and then click **Next**.

**Step 7** In the Destination Directory window, click **Next** to accept the default installation directory.



---

**Note** Do not install Provisioning Manager under any directory where the directory name contains a space (for example, Program Files).

---

**Step 8** Select the appropriate sizing for your Provisioning Manager installation.



---

**Note** The options that appear depend on the amount of memory that your system has.

---

**Step 9** Click **Next**.

**Step 10** Choose an installation type, Simple or Advanced:

- Select **Simple**, and click **Next**.
  - a. Select one of the following, and then click **Next**:
    - If you have a license file for this product, specify its location—Browse to enter the location.
    - Select this option to evaluate the product—You can complete the installation and then register the license file later.
  - b. Enter a username and password for the PostgreSQL administrator (default is postgres), then click **Next**.




---

**Note** Enter only alphanumeric characters for the password. Do not enter any special characters.

---

- c. Enter a password for the Provisioning Manager administrator user.




---

**Note** Provisioning Manager is preconfigured with a permanent administrator account (padmin).

---

- d. Click **Next**.
  - e. Select the appropriate time zone, then click **Next**. The Summary page appears.
  - f. Click **Install**.
- Select **Advanced**, and click **Next**. The advanced installation has two distribution options. In the first, all of Provisioning Manager (application and database) is installed on one system. In the second, the Provisioning Manager application and database are installed on separate systems. This scenario requires that you enter the IP address of the two systems.
    - a. Choose the components:
      - Database—Installs the Provisioning Manager database only.
      - CUPM—Installs the Provisioning Manager application only.




---

**Note** If you choose to install the database and the application on separate systems, Provisioning Manager is not completely installed until both the database and application are installed. When you install the database on a separate machine, at the end of the installation you will receive a message that states Provisioning Manager was installed successfully. But only the database is installed on that system.

---

Advanced installation enables you to configure the following information, depending on which components you are installing:

- Port number for the Apache web server.
- Port number for PostgreSQL database.
- Hostname or IP address for the Provisioning Manager application server that can connect to the PostgreSQL database. This is required if the database or the application is being installed on a separate system.
- Username and password for the Windows user that the PostgreSQL database uses—The username is limited to 20 characters. Enter only alphanumeric characters for the password. Do not enter any special characters.



**Note** The Windows Users group must have read and write access to the root directory of the hard disk drive on which Provisioning Manager is installed.



**Note** If the username already exists on the system, make sure of the following: that the password entered is the current password for that user, that the user belongs to the Windows Users group, that the setting *User must change password at next login* is not set, and the setting *Password never expires* is set. Also, the Windows user should not have administrator privileges.

- Username and password for the PostgreSQL administrator (default is postgres)—Enter only alphanumeric characters for the password. Do not enter any special characters.
  - Application (JBoss) server name.
  - Port number for the JBoss application server.
  - Username and password for the application database user—Enter only alphanumeric characters for the password. Do not enter any special characters.
  - Password for the Provisioning Manager administrator user.
  - Port number for the NICE service.
- b.** Select one of the following, and then click **Next**:
- If you have a license file for this product, specify its location—Browse to enter the location.
  - Select this option to evaluate the product—You can complete the installation and then register the license file later.
- c.** Select the appropriate time zone, then click **Next**. The Summary page appears.
- d.** Click **Install**.



**Note** If an error message appears similar to the following appears, it means that the installation has failed:

```
Postgres install failed with error code 1603
```

Before trying to install Provisioning Manager again, you must clean up the system. See [Cleaning Up a Failed New Installation, page 2-16](#).

**Step 11** Eject the CD-ROM.



**Note** Store the CD-ROM in a secure, climate-controlled area for safekeeping.

**Step 12** Click **Finish**.

**Step 13** After the installation completes, verify that Provisioning Manager is installed correctly by accessing the Provisioning Manager login page. From the Windows desktop, select **Start > Programs > Cisco Unified Provisioning Manager > Log in to Cisco Unified Provisioning Manager**.

**Note**

If Enhanced Security is enabled on the Windows 2003 system, you must add the Provisioning Manager home page to the Internet Explorer Trusted Sites Zone. You will not be able to access the Cisco Unified Provisioning Manager home page until it is added to the trusted sites. See [Adding the Provisioning Manager Home Page to the Internet Explorer Trusted Sites Zone, page 2-16](#).

## Adding the Provisioning Manager Home Page to the Internet Explorer Trusted Sites Zone

If Enhanced Security is enabled on the Windows 2003 system, you must perform the following procedure before you can access the Provisioning Manager home page.

- Step 1** Open Provisioning Manager and select **Start > Programs > Cisco Unified Provisioning Manager**.
- Step 2** From the File menu, select **Add this site to**.
- Step 3** Click **Trusted Sites Zone**.
- Step 4** In the Trusted Sites dialog box, click **Add** to move the site to the list.
- Step 5** Click **Close**.
- Step 6** Refresh the page to view the site from its new zone.
- Step 7** Check the Status bar of the browser to confirm that the site is in the Trusted Sites Zone.

## Cleaning Up a Failed New Installation

If Provisioning Manager did not install correctly, you must first clean up the system before trying to install Provisioning Manager again. These procedures are for a failed new installation of Provisioning Manager 1.3.1. If you need to clean up a failed upgrade of Provisioning Manager 1.3 to 1.3.1, see [Restoring Provisioning Manager 1.3 If the Provisioning Manager 1.3.1 Installation Fails, page 2-22](#).

After a failed installation, do the following:

- Delete the CUPM installation folder. If you selected the default location during installation, it is C:\CUPM.
- Delete the folder C:\Program Files\Common Files\InstallShield\Universal\common\Gen1.
- Delete the Documents and Settings\cupmuser folder.
- Remove the Windows user cupmuser (cupmuser is the default name provided during installation). The Windows username can be different, if you changed it during installation. For instructions on removing the Windows cupmuser, see [Removing the CUPM Windows User, page 2-16](#).

## Removing the CUPM Windows User

- Step 1** On the Windows desktop, select **Start > Settings > Control Panel**.

- Step 2** Double-click **Administrative Tools**.
- Step 3** Double-click **Computer Management**.
- Step 4** In the console tree, under Local Users and Groups, click **Users**.
- Step 5** Right click the user account **cupmuser** and delete it.



---

**Note** The Windows username, cupmuser, is the default name provided during installation. The Windows username can be different, if you changed it during installation.

---

- Step 6** Delete cupmuser's home directory. The default location is in the directory C:\Documents and Settings\.
- 

## Upgrading Provisioning Manager 1.3 to Provisioning Manager 1.3.1

There are two upgrade scenarios; select the procedure that matches your scenario:

- [Upgrading Provisioning Manager on One System \(Application and Database on the Same System\), page 2-17](#)
- [Upgrading Provisioning Manager on a Distributed System \(Application and Database Are on Separate Systems\), page 2-19](#)

### Upgrading Provisioning Manager on One System (Application and Database on the Same System)

- 
- Step 1** Manually back up your database. For instructions, see [Provisioning Manager Database Backup, page 2-19](#).



---

**Note** This manual backup is not the same backup that occurs automatically during upgrade. Both backups must be performed.

---

- Step 2** On the system where Provisioning Manager 1.3 is installed, make sure the following prerequisites are met:
- Required (or desired) operating system upgrades have been performed.
  - Required service packs are installed.

For system requirements, see [Server Requirements, page 1-3](#).

- Step 3** Close all open or active programs. Do not run other programs during the installation process.
- Step 4** As the local administrator, log in to the machine on which you will install the Provisioning Manager software, and insert the Cisco Unified Provisioning Manager CD-ROM into the CD-ROM drive. The Cisco Unified Provisioning Manager 1.3.1 window opens.




---

**Note** If the CD-ROM is already in the CD-ROM drive and you stopped the installation process to close programs or if Autostart is disabled, click **cupm1.3.1-setup.exe** to restart the process.

---

- Step 5** Click **Install**. The Welcome window appears.
- Step 6** Click **Next**. The Software License Agreement window appears.
- Step 7** Accept the Software License Agreement and then click **Next**.
- Step 8** A confirmation box appears, telling you that an upgrade to Provisioning Manager 1.3.1 will occur. Click **Next**. A check of the system is performed, which verifies the following:
- No orders are in the Released state.
  - All service actions are in the Closed state.
  - All workflows are in the Finished state.
  - No infrastructure, subscriber, or Domain synchronizations are running.
  - No batch projects are running or are in the Active state.
  - That there are not any unsupported devices configured in Provisioning Manager.




---

**Note** For device support information, see the *Supported Devices Table for Cisco Unified Provisioning Manager 1.3.1* at [http://www.cisco.com/en/US/products/ps7125/products\\_device\\_support\\_tables\\_list.html](http://www.cisco.com/en/US/products/ps7125/products_device_support_tables_list.html).

---

If any of these conditions are not met, the installation will stop.




---

**Note** If you are upgrading only the database or only the application (because you have a distributed setup) not all the screens will appear during the upgrade process. Also, to complete the upgrade of a distributed setup, you must run the Cisco Unified Provisioning Manager 1.3.1 installation CD on both systems.

When only upgrading the database (for distributed setup), you will be required to re-enter the PostgreSQL database administrator password and the application database user username (the default is cupm) and password.

---

- Step 9** Select a directory in which to back up the Provisioning Manager 1.3 data during upgrade. Click **Next**. The Summary page appears.
- Step 10** Click **Install**.
- Step 11** Eject the CD-ROM.




---

**Note** Store the CD-ROM in a secure, climate-controlled area for safekeeping.

---

- Step 12** Click **Finish**.
- Step 13** After the installation completes, verify that Provisioning Manager is installed correctly by accessing the Provisioning Manager login page. From the Windows desktop, select **Start > Programs > Cisco Unified Provisioning Manager > Log in to Cisco Unified Provisioning Manager**.

**Note**

After upgrading Provisioning Manager, you must synchronize all of your Unified Message Processors in Provisioning Manager before placing any orders for a processor.

**Note**

If Enhanced Security is enabled on the Windows 2003 system, you must add the Provisioning Manager home page to the Internet Explorer Trusted Sites Zone. You will not be able to access the Cisco Unified Provisioning Manager home page until it is added to the trusted sites. See [Adding the Provisioning Manager Home Page to the Internet Explorer Trusted Sites Zone](#), page 2-16.

## Upgrading Provisioning Manager on a Distributed System (Application and Database Are on Separate Systems)

You must upgrade both the Provisioning Manager application and the Provisioning Manager database systems.

- Step 1** Back up the Provisioning Manager 1.3 database. For information, see [Provisioning Manager Database Backup](#), page 2-19.
- Step 2** Upgrade the Provisioning Manager 1.3 database to 1.3.1. The installation program will only take you through the applicable upgrade screens. If you need additional information, see [Upgrading Provisioning Manager on One System \(Application and Database on the Same System\)](#), page 2-17.
- Step 3** Upgrade the Provisioning Manager 1.3 application to 1.3.1. The installation program will only take you through the applicable upgrade screens. If you need additional information, see [Upgrading Provisioning Manager on One System \(Application and Database on the Same System\)](#), page 2-17.

**Note**

After upgrading Provisioning Manager, you must synchronize all of your Unified Message Processors in Provisioning Manager before placing any orders for a processor.

## Provisioning Manager Database Backup

There are two backup scenarios; select the procedure that matches your scenario:

- Backing up on a single machine; see [Backing Up the Single-Machine Provisioning Manager Database](#), page 2-20.
- Backing up for a distributed scenario; see [Backing Up Provisioning Manager on a Distributed Database](#), page 2-21.

**Note**

When backing up files, you should place the files on a different file server. Also, you should burn the backup data onto a CD.

## Backing Up the Single-Machine Provisioning Manager Database

This procedure requires that you have administrator-level access to the Provisioning Manager database (the PostgreSQL database).

**Step 1** On the Provisioning Manager system, stop the following services:

- Apache
  - cupm JBossService
  - cupm NiceService
- a. On the Windows desktop, select **Start > Control Panel > Administrative Tools > Services**.
  - b. Right-click each of the services and click **Stop**.

**Step 2** On the Windows desktop, select **Start > All Programs > PostgreSQL8.2 > Command Prompt**. A command prompt opens in the <Install directory>\pgsql\bin directory.



**Note** If you accepted the default location during installation, the installation directory is C:\CUPM.

**Step 3** In the command prompt, run the following command and enter the PostgreSQL administrator password when prompted:

```
pg_dumpall -o -U<username> > <directory>\<backup file name>
```

where:

- <username> is the username of the PostgreSQL administrator. If you accepted the default, the administrator username is *postgres*.
- <directory> is an existing directory.
- <backup file name> is a filename that does not currently exist.



**Note** Enter the password each time that you are prompted.

Use this command to back up the database. The command tells Provisioning Manager to store the database information in a file.

**Step 4** If you are backing up for the same installation, proceed to the next step. If you are backing up for a new installation, make backup copies as described in this step.

In a backup folder, make copies of the following files and directories:

- <Installation directory>\install.log
- <Installation directory>\sep\dfc.properties
- <Installation directory>\sep\dfc.keystore
- <Installation directory>\jboss-4.0.3SP1\server\cupm\conf\login-config.xml

**Step 5** Start the following services:

- Apache
- cupm JBossService
- cupm NiceService

- a. On the Windows desktop, select **Start > Control Panel > Administrative Tools > Services**.
- b. Right-click each of the services and click **Start**.

## Backing Up Provisioning Manager on a Distributed Database

This procedure requires that you have administrator-level access to the Provisioning Manager database (the PostgreSQL database).

- Step 1** On the system where Provisioning Manager is running, stop the following services:
- Apache
  - cupm JBossService
  - cupm NiceService
- a. On the Windows desktop where Provisioning Manager is running, select **Start > Control Panel > Administrative Tools > Services**.
  - b. Right-click each of the services and click **Stop**.

- Step 2** On the Windows desktop where the Provisioning Manager database is running, select **Start > All Programs > PostgreSQL8.2 > Command Prompt**. A command prompt opens in the <Installation directory>\pgsql\bin directory.



**Note** If you accepted the default location during installation, the installation directory is C:\CUPM.

- Step 3** In the command prompt, run the following command and enter the PostgreSQL administrator password when prompted:

```
pg_dumpall -o -U<username> > <directory>\<backup file name>
```

where:

- <username> is the username of the PostgreSQL administrator. If you accepted the default, the administrator username is *postgres*.
- <directory> is an existing directory.
- <backup file name> is a filename that does not currently exist.



**Note** Enter the password each time that you are prompted.

This command is used to backup the database, by storing the database information in a file.

- Step 4** If you are backing up for the same installation, proceed to the next step. If you are backing up for a new installation, either with the same IP address or a new one, do the following. On the machine where Provisioning Manager is running, in a backup folder, make copies of the following files and directories:
- <Installation directory>\install.log
  - <Installation directory>\sep\dfc.properties
  - <Installation directory>\sep\dfc.keystore
  - <Installation directory>\jboss-4.0.3SP1\server\cupm\conf\login-config.xml

**Step 5** Start the following services:

- Apache
  - cupm JBossService
  - cupm NiceService
- a. On the Windows desktop, select **Start > Control Panel > Administrative Tools > Services**.
  - b. Right-click each of the services and click **Start**.

## Restoring Provisioning Manager 1.3 If the Provisioning Manager 1.3.1 Installation Fails

If Provisioning Manager did not upgrade correctly, you must first clean up the system before trying to install Provisioning Manager again. These procedures are only for a failed upgrade. If you need to restore a failed new installation of Provisioning Manager, see [Cleaning Up a Failed New Installation, page 2-16](#).

After a failed upgrade, do the following:

- Clean up the old installation of Provisioning Manager 1.3 (see [Cleaning Up the Old Installation, page 2-22](#)).
- Restore Provisioning Manager 1.3 (see [Restoring Provisioning Manager 1.3, page 2-23](#)).

## Cleaning Up the Old Installation

**Step 1** Uninstall the Provisioning Manager installation. Depending upon where the installation failed, the installed application may appear as Provisioning Manager 1.3 or Provisioning Manager 1.3.1. Try to use the standard uninstallation process (see [Uninstalling Provisioning Manager, page 2-26](#)).

If the standard uninstallation process does not work, go to [Step 2](#).

**Step 2** If standard uninstallation fails, you will have to perform some or all of the following steps:

- a. Uninstall Postgres 8.2 if it still exists. If PostgreSQL 8.2 is listed under **Windows Control Panel > Add or Remove Programs**, click **Remove** to uninstall it.
- b. Remove the installation directory *CUPM*. This step may require a system reboot if the Provisioning Manager services are still running and using the resources from the installation location.



**Note** If you selected the default location during installation, it is C:\CUPM.

- c. Remove the *cupmuser* (Windows user) if it still exists:
  1. Select **Start > Settings > Control Panel**.
  2. Double-click **Administrative Tools**.
  3. Double-click **Computer Management**.
  4. In the console tree, under Local Users and Groups, click **Users**.
  5. Right-click the user account **cupmuser** and delete it.
  6. Delete cupmuser's home directory. The default location is in the directory C:\Documents and Settings\.

- d. Remove the folder C:\Program Files\Common Files\InstallShield\Universal\common\Gen1.
- e. (Optional) You may need to delete the Provisioning Manager services. Make sure the services are not running before you delete them.

Provisioning Manager services that need to be deleted:

- Apache2
- cupm JbossService
- cupm NICEService
- pgsq1-8.2

Use the following command to delete Windows services: `sc.exe delete <service name>`.

## Restoring Provisioning Manager 1.3

There are two restore scenarios; select the procedure that matches your scenario:

- Restoring on a single machine, see [Restoring the Single-Machine Provisioning Manager Database, page 2-23](#).
- Restoring for a distributed scenario, see [Restoring Provisioning Manager for a Distributed Database, page 2-25](#).

### Restoring the Single-Machine Provisioning Manager Database

If you are restoring to a new installation, have the system with the new installation up and running before beginning this procedure.

This procedure requires that you have administrator-level access to the Provisioning Manager database (the PostgreSQL database).

#### Before You Begin

If you are restoring the database on a new system, you must verify that the following ports are not being used by another application:

- dfc.jboss.port=8008
- dfc.postgres.port=5432
- dfc.nice.rmi.registry.internal.port=1602
- dfc.webport=80

If a port is being used by another application, you must change the port number to a vacant port. These settings are defined in the <Installation directory>\sep\dfc.properties file. (If you accepted the default location during installation, the installation directory is C:\CUPM.)

---

**Step 1** Stop Provisioning Manager services (for information on which services to stop, see [Step 1 on page 2-20](#)).

**Step 2** On the Windows desktop, select **Start > All Programs > PostgreSQL8.2 > Command Prompt**.

A command prompt opens in the <Installation directory>\pgsq1\bin folder.



---

**Note** If you accepted the default location during installation, the installation directory is C:\CUPM.

---

**Step 3** To enter the PostgreSQL prompt, run the following command and enter the PostgreSQL administrator password for the current installation when prompted:

```
psql.exe -U<username>
```

where <username> is the username of the PostgreSQL administrator. If you accepted the default, the administrator username is *postgres*.

**Step 4** Before restoring the database, you must drop the database name and role. In the command prompt, run the following commands exactly as shown, one at a time and in the following order:

- **DROP DATABASE cupm;**

where *cupm* is the database name to be removed.

Expected output: DROP DATABASE

- **DROP ROLE <rolename>;**

where <rolename> is the username for the SEP database user. If you accepted the default, the username is *cupm*.

Expected output: DROP ROLE

- **ALTER ROLE <username> WITH PASSWORD '<password>;'**

where *username* is the username of the PostgreSQL administrator user, and <password> should be the password that was set for the PostgreSQL administrator with backed-up data. If you accepted the default administrator username, the username is *postgres*.

Expected output: ALTER ROLE

**Step 5** Enter \q to quit the PostgreSQL prompt.

**Step 6** From the command line, run the following command; when prompted, enter the password that was set in the previous step for the PostgreSQL user:

```
psql.exe -U<username> -d postgres < <directory>\<file name to be restored from>
```

where <username> is the username of the PostgreSQL administrator. If you accepted the default, the administrator username is *postgres*.

This command restores the database.

**Step 7** Copy the following backed-up files to the location from which they are backed up:

- <Installation directory>\install.log
- <Installation directory>\sep\dfc.properties
- <Installation directory>\sep\dfc.keystore
- <Installation directory>\jboss-4.0.3SP1\server\cupm\conf\login-config.xml

**Step 8** Start the following services:

- Apache
  - cupm JBossService
  - cupm NiceService
- a. On the Windows desktop, select **Start > Control Panel > Administrative Tools > Services**.
  - b. Right-click each of the services and click **Start**.
-

## Restoring Provisioning Manager for a Distributed Database

If you are restoring to a new installation, either with the same or a new IP address, have the system with the new installation up and running before beginning this procedure.

This procedure requires that you have administrator-level access to the Provisioning Manager database (the PostgreSQL database).

### Before You Begin

If you are restoring the database on a new system, you must verify that the following ports are not being used by another application:

- `dfc.jboss.port=8008`
- `dfc.postgres.port=5432`
- `dfc.nice.rmi.registry.internal.port=1602`
- `dfc.webport=80`

If a port is being used by another application, you must change the port number to a vacant port. These settings are defined in the `<Installation directory>\sep\dfc.properties` file. (If you accepted the default location during installation, the installation directory is `C:\CUPM`.)

Also, you will need to change the system name in one of the following settings:

- `dfc.postgres.host=<system name>` (If the database is on one system.)
- `dfc.postgres.hostlist=<system names>` (If the database is on multiple systems.)

---

**Step 1** On the Provisioning Manager application system, stop the Provisioning Manager services (for information on which services to stop, see [Step 1 on page 2-21](#)).

**Step 2** On the Windows desktop where the Provisioning Manager database is running, select **Start > All Programs > PostgreSQL8.2 > Command Prompt**.

A command prompt opens in the `<Installation directory>\pgsql\bin` folder.




---

**Note** If you accepted the default location during installation, the installation directory is `C:\CUPM`.

---

**Step 3** To enter the PostgreSQL prompt, run the following command and enter the PostgreSQL administrator password for the current installation when prompted:

```
psql.exe -U<username>
```

where `<username>` is the username of the PostgreSQL administrator. If you accepted the default, the administrator username is `postgres`.

**Step 4** Before restoring the database, you must drop the database name and role. In the command prompt, run the following commands exactly as shown, one at a time and in the following order:

- `DROP DATABASE cupm;`

where `cupm` is the database name to be removed.

Expected output: `DROP DATABASE`

- `DROP ROLE <rolename>;`

where `<rolename>` is the username for the SEP database user. If you accepted the default, the username is `cupm`.

Expected output: `DROP ROLE`

- `ALTER ROLE <username> WITH PASSWORD '<password>';`

where *<username>* is the username of the PostgreSQL administrator, and *<password>* is the password that was set for the PostgreSQL administrator with backed-up data. If you accepted the default administrator username, the username is *postgres*.

Expected output: ALTER ROLE

**Step 5** Enter `\q` to quit the PostgreSQL prompt.

**Step 6** From the command line, run the following command; when prompted, enter the password that was set in the previous step for the PostgreSQL user:

```
psql.exe -U<username> -d postgres < <directory>\<file name to be restored from>
```

where *<username>* is the username of the PostgreSQL administrator. If you accepted the default, the administrator username is *postgres*.

This command restores the database.

**Step 7** Copy the following backed-up files to the machine where the Provisioning Manager application is running:

- `<Installation directory>\install.log`
- `<Installation directory>\sep\dfc.properties`
- `<Installation directory>\sep\dfc.keystore`
- `<Installation directory>\jboss-4.0.3SP1\server\cupm\conf\login-config.xml`

**Step 8** On the system where the Provisioning Manager application is running, start the following services:

- Apache
  - cupm JBossService
  - cupm NiceService
- a. On the Windows desktop, select **Start > Control Panel > Administrative Tools > Service**.
  - b. Right-click each of the services and click **Start**.

## Uninstalling Provisioning Manager



### Caution

You must use the Provisioning Manager uninstallation program to remove Provisioning Manager from your system. If you try to remove the files and programs manually, you can seriously damage your system.

**Step 1** Close all applications that are using Provisioning Manager files.

**Step 2** As the local administrator, log in to the system on which Cisco Unified Provisioning Manager is installed.

**Step 3** To start the uninstallation process, from the Windows desktop select **Start > Programs > Cisco Unified Provisioning Manager > Uninstall Cisco Unified Provisioning Manager**.

**Step 4** Click **Next** to begin uninstalling.

A window appears, listing the components selected for uninstallation.

**Step 5** Click **Uninstall**.

Messages showing the progress of the uninstallation appears.

**Step 6** A message appears, reminding you that the *cupmuser* (Windows user) directory and the *CUPM* installation folder must be removed manually. Click **Next**.



---

**Note** The default Windows user name provided during installation is *cupmuser*. If you changed it during installation, the Windows user name may be different.

---

**Step 7** Click **Finish**.

**Step 8** If you want to reboot the system, select **Yes, restart my computer**, then click **Finish**.

**Step 9** Manually delete the following folders from the Provisioning Manager system:

- The CUPM installation folder. If you selected the default location during installation, it is C:\CUPM.
  - The Documents and Settings\cupmuser folder.
-





# APPENDIX A

## Licensing

---

This appendix provides licensing information for Cisco Unified Provisioning Manager (Provisioning Manager). It contains the following sections:

- [Licensing Overview, page A-1](#)
- [Licensing Warnings, page A-4](#)

## Licensing Overview

Provisioning Manager features software-based product registration and license key technologies. Licensing ensures that you possess a licensed copy of Provisioning Manager 1.3.1.



### Note

---

Licensing uses node-locking technology. The license file can only be used with the MAC address that you supply.

---

To determine whether Provisioning Manager is licensed, see [Verifying Provisioning Manager License Status, page A-1](#). If you do not have a license or you want to upgrade your license, see [Licensing Scenarios, page A-2](#).

## Verifying Provisioning Manager License Status

---

- Step 1** Select **System Administration > License Information**. The Licensing Status Information page appears, displaying the following information:
- **Unavailable features**—Any features in Provisioning Manager that you do not have access to, because you do not have the appropriate license or because you have reached the limit for the use of the feature.
  - **Features in overdraft state**—Any features that you are using that have exceeded their allowable use limit.
  - **Valid features**—List of features and their corresponding use limit (Available), overuse amount (Overdraft), current use (Used) and date of expiration (Expiry).
-

## Licenses that Can Be Purchased

The license that you purchase determines the number of phones that Provisioning Manager can provision.


**Note**

CTI Ports do not count toward the number of phones.

You can purchase licenses in the following increments:

- Up to 500 phones.
- Up to 1,000 phones.
- Up to 2,000 phones.
- Up to 5,000 phones.
- Up to 10,000 phones.
- Up to 20,000 phones.
- Up to 30,000 phones.


**Note**

Licenses are cumulative. Meaning you can combine licenses to increase the number of phones you can support.

## Licensing Scenarios

Table A-1 describes what to do in different scenarios if you do not have a licensed, registered copy of Provisioning Manager or if you want to increase phone support.

**Table A-1** How to Obtain and Register a License

Scenario	What to Do
Installing with a purchased license.	<ol style="list-style-type: none"> <li>1. Before installing, obtain a license file. See <a href="#">Licensing Process, page A-3</a>.</li> </ol> <p><b>Note</b> You can install Provisioning Manager without the license file. You can upgrade your license after installation. See <a href="#">Registering a License File with Provisioning Manager, page A-4</a>.</p> <ol style="list-style-type: none"> <li>2. During installation, select License File Location, and provide the location of your license file.</li> </ol>
Installing with an evaluation license.	<p>During installation, select the option to evaluate the product. Evaluation versions are active for 90 days before you are required to purchase a license.</p> <p><b>Note</b> The evaluation license is limited to monitoring 100 phones, 5 Call Processors, and 2 Unified Message Processors.</p> <p>If you want to upgrade to a purchased license after installation, obtain a PAK and license file for the installed version of Provisioning Manager. For information on the licensing process, see <a href="#">Licensing Process, page A-3</a>.</p>

**Table A-1** *How to Obtain and Register a License (continued)*

Scenario	What to Do
Getting a license for additional devices (either upgrading from an evaluation license, or increasing the number of supported devices).	See <a href="#">Licensing Process, page A-3</a> .
Moving Provisioning Manager to another server.	Call the Cisco TAC for assistance.

## Licensing Process

The Provisioning Manager license file includes support for at least 500 phones. You can purchase incremental licenses for additional phone support and register up to 30,000 phones with a single Provisioning Manager. For each incremental license that you purchase, you will receive a Product Authorization Key (PAK), and you must use that PAK to obtain a license file.

This process applies to new installations and license upgrades.

1. Obtain a PAK—The PAK is used to register Provisioning Manager, and any additional device support that you might purchase for Provisioning Manager, on Cisco.com, and it contains resource limitations. See [Obtaining a PAK, page A-3](#).
2. Obtain a license file—A license file is sent to you after you register the PAK on Cisco.com. See [Obtaining a License File, page A-3](#).
3. Copy the license file to the server where Provisioning Manager is to be installed. If Provisioning Manager is already installed and you are upgrading your license file, you must register the license file with Provisioning Manager. See [Registering a License File with Provisioning Manager, page A-4](#).

## Obtaining a PAK

The PAK is located on the software claim certificate that is shipped with the Provisioning Manager product CD.

## Obtaining a License File

- Step 1** Register the PAK and the MAC address of the system where Provisioning Manager is installed with Cisco.com at <http://www.cisco.com/go/license>. You will be asked to log in. You must be a registered user of Cisco.com to log in.



**Note** The MAC address is required because licensing uses node-locking technology. The license file can only be used with the MAC address that you supply.

The license file will be emailed to you. After you obtain a license file, register the license with the Provisioning Manager server.

## Registering a License File with Provisioning Manager

- 
- Step 1** Copy the license file to the Provisioning Manager server, in the folder <Install Directory>\license. The system validates the license file and updates the license. The updated licensing information appears on the Licensing Status Information page.
- Step 2** The license should automatically take effect in a few minutes. If it does not, select **System Administration > License Information**.
- Step 3** Click **PERFORM AUDIT**. You will see the phones that you are licensed to update.
- Step 4** If you purchased more than one license, repeat [Step 1](#) to install each additional license.
- 

## Licensing Warnings

Provisioning Manager provides a licensing warning mechanism. A licensing warning icon (⚠) appears in the top right corner of the Provisioning Manager page when one of the following occurs:

- A license file does not exist or cannot be read.
- One or more features have reached or exceeded the limit specified in the licensing file.
- Entries for one or more features do not exist in the license file (this occurs only when the license file is not generated correctly or if the file is manually edited).

## Evaluation Version: Before Expiry

If you have installed the evaluation version of Provisioning Manager, you must obtain the license file from Cisco.com if you want to continue to use the product after the 90-day evaluation period. For details, see [Licensing Process, page A-3](#).

If you go past the 90-day evaluation period, you will see a licensing warning icon (⚠) in the top right corner of Provisioning Manager. You can view the expiry date on the Licensing Information page.

## Purchased Version: Phone Limit Exceeded

If you have a restricted license, Provisioning Manager displays the information on which of the phones have exceeded the limit on the Licensing Information page (see [Verifying Provisioning Manager License Status, page A-1](#)). You will not be able to add more phones.

If you go past the phone limit for your license, you will see a licensing warning icon (⚠) in the top right corner of Provisioning Manager.



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