Prisma II Software Upgrade Program (SOUP) Installation Guide

Overview

The Prisma II Software Upgrade Program (SOUP) is a user-friendly utility that allows users to perform firmware upgrades on Prisma II modules. The SOUP utility simplifies the firmware upgrade process by providing a graphical user interface (GUI) that is easy to use and requires little training.

When connected to a chassis, the SOUP utility shows the user the current versions of firmware on all modules and allows the user to download and activate other versions from system release files. The SOUP works together with the ICIM2 to send the binary image files and appropriate commands to the modules to upgrade their firmware. As the modules are being upgraded, the SOUP displays relevant progress information to the user.

Purpose

This document provides instructions for installing and using the Prisma II SOUP.

Audience

This document is intended for system engineers, managers, and customers responsible for operating or maintaining Prisma II and Prisma II XD Platform equipment.

Qualified Personnel

Only appropriately qualified and skilled service personnel should attempt to install, operate, maintain, and service this product.

WARNING:

Allow only qualified and skilled personnel to install, operate, maintain, and service this product. Otherwise, personal injury or equipment damage may occur.

Related Publication

You may find the following publication useful as you implement the procedures in this document.

- *Prisma II Platform Installation Guide*

Safe Operation for Software Controlling Optical Transmission Equipment

If this manual discusses software, the software described is used to monitor and/or control ours and other vendors' electrical and optical equipment designed to transmit video, voice, or data signals. Certain safety precautions must be observed when operating equipment of this nature.

For equipment specific safety requirements, refer to the appropriate section of the equipment documentation.

For safe operation of this software, refer to the following warnings.

WARNING:

- **Ensure that all optical connections are complete or terminated before using this equipment to remotely control a laser device. An optical or laser device can pose a hazard to remotely located personnel when operated without their knowledge.**
- **Allow only personnel trained in laser safety to operate this software. Otherwise, injuries to personnel may occur.**
- **Restrict access of this software to authorized personnel only.**
- **Install this software in equipment that is located in a restricted access area.**

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Installing the SOUP

To Install the SOUP on Windows

Complete the following steps to install the Prisma II SOUP on Windows.

1. Locate the Prisma II SOUP installation file on www.cisco.com/support and copy the file to your Windows desktop.

   Note: If you need help locating the SOUP installation program, see ***Customer Support Information*** (on page 18) to locate customer support for your area.
2. Double-click the Prisma II SOUP installation icon to start the installation.
3. Follow the instructions of the installation wizard.
4. After the installation is complete, you will have an icon on the desktop to launch the SOUPLauncher application. There will also be a program group called Prisma II SOUP on your Start button menu.

To Uninstall the SOUP on Windows

Complete the following steps to remove the Prisma II SOUP from your computer.

1. Open the **Control Panel** from the Windows Start menu.
2. From the Control Panel, open the **Add or Remove Programs** application.
3. Find and choose the **Prisma II SOUP** entry in the list of installed programs. If the entry is not present, the program is not installed on the computer or was not installed properly.
4. Click the **Change/Remove** button.
5. Follow the instructions of the uninstall wizard.

Concepts

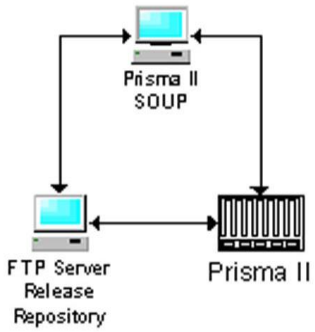
The Chassis and the ICIM2

The ICIM2 (or ICIM2-XD) acts as the communication interface to all modules in the chassis system. All communication with the chassis system from the SOUP program or the FTP server is managed by the ICIM2. The physical IP network connection for the chassis system is made through the Ethernet connector on the ICIM2 front panel.

Release Files

The Prisma II SOUP works with system release files. A Prisma II system release contains binary image files for the modules that can be installed in the chassis.

System release files are held in a repository accessible through FTP. The Prisma II SOUP can access this repository to display information about available system releases and let the user choose among them. When the user selects a system release, the ICIM2 retrieves the binary image files and upgrades the installed modules.



Note: Although shown separately above for clarity, the Prisma II SOUP and the FTP Server Release Repository may be resident on the same computer.

The format of a release file is explained in ***Firmware Updates*** (on page 14).

Active and Inactive Flash

The application modules have two flash memory areas, active and inactive. Each area can hold a copy of the module firmware. Module code always loads from active flash at boot-up. Inactive flash is used only for module firmware upgrades.

When upgrading firmware, the new version is downloaded to inactive flash. The module is then commanded to make the inactive flash active (and vice versa) and reboot, causing the new module code to load from the now active flash.

Concurrency

The upgrade process for a chassis depends on the number of modules in the chassis, the firmware versions that the modules are currently running, and the firmware versions that are currently being stored in the inactive flash area of each module.

The SOUP reads the current state of the modules in the chassis to determine what tasks are necessary to perform the upgrade, and then executes these tasks. For the upgrade process to work correctly, the state of the modules in the chassis must be fully known and not changed by another instance of the program running on a different system. This means that only one instance of the SOUP can be allowed to make any changes in a chassis at a time.

To enforce this, the SOUP attempts to grab a semaphore when it first connects to an ICIM2 in a chassis. A semaphore is a control token that can only be grabbed by one instance of the SOUP at a time, and must be released before another instance can grab it. The attempt fails if the semaphore is already taken by another instance of the program running on another system and already connected to this ICIM2.

If the SOUP detects that the semaphore is taken, it does not attempt to make any changes to the modules in the chassis. Instead, it displays a message giving the user the option of proceeding in Browse Only mode. In Browse Only mode, the user is able to look at module information, but cannot download new firmware versions or change active or inactive flash areas.

Integration with an NMS (Optional)

The SOUP is designed to integrate into a network management system (NMS) that will handle permission security, access to the SOUP and its features, and actual launching of the SOUP utility.

When invoked, the SOUP requires a number of command line parameters to identify the ICIM2 to be managed, the FTP server address, and the SNMP settings. Among these parameters is a security key that the NMS must retrieve from the ICIM2 and pass to the SOUP.

If this parameter is not correct, or if the program is launched from the command line without it, the SOUP will only allow the user to run in Browse Only mode. In this mode, you can view information from the ICIM2 and modules, but you cannot make changes.

Specifics on launching the SOUP utility vary from one NMS to another. Consult your system administrator for details on running the SOUP from your NMS.

Usage

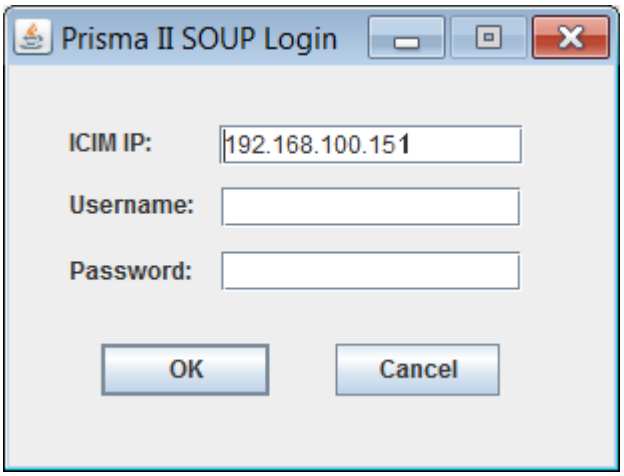
When launched, the SOUP utility first tries to connect to the ICIM2 and retrieve information about the modules it manages. After retrieving the module information, the SOUP connects to the FTP server holding the system release files and retrieves the firmware versions available for each module. Information about new and existing module firmware is then displayed in the SOUP application main screen.

Launching Standalone (Windows Only)

A Windows program called SOUPLauncher also lets Admin users launch the Prisma II SOUP manually as a standalone application.

Complete the following steps to launch SOUP as a standalone application.

1 Open the Windows Start menu, open the Prisma II SOUP program group, and click the SOUPLauncher program item. The Prisma II SOUP Login window appears as shown in the following illustration.

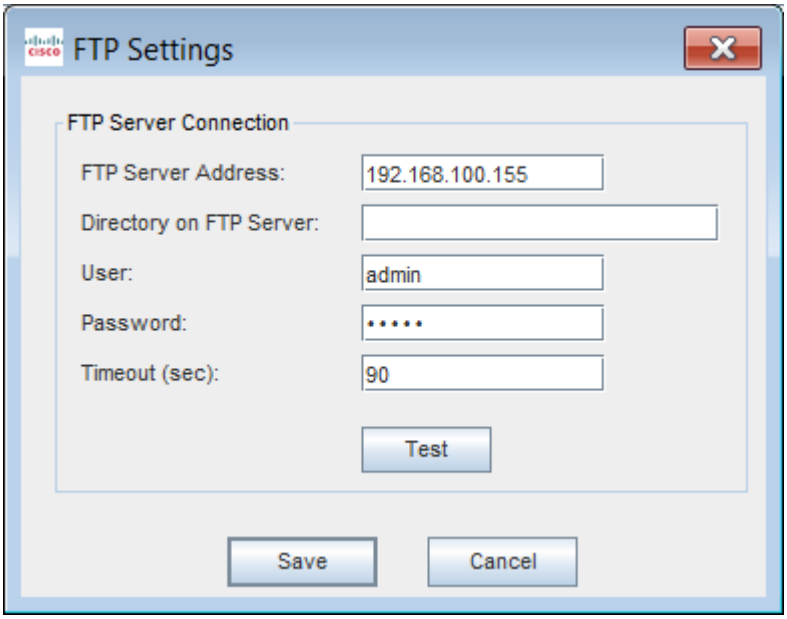


2 In the ICIM IP: field, type the IP address of the ICIM2 to receive the download.

3 Type your Admin username and password in the fields provided.

Note: You must be an Admin user to log into the Prisma II SOUP.

4 Click **OK**. The Prisma II SOUP FTP Configuration window appears as shown in the following illustration.



Note: This window is bypassed after the first use of SOUPLauncher as long as the initial FTP server configuration remains valid.

5 In the FTP Host field, type the IP address of the FTP server to be used for the download.

6 In the FTP User and FTP Password fields, type the name and password of a user with permission to access files on the FTP server.

7 If the release files are in a folder rather than at the login root directory, type the name of the folder in the FTP Dir field.

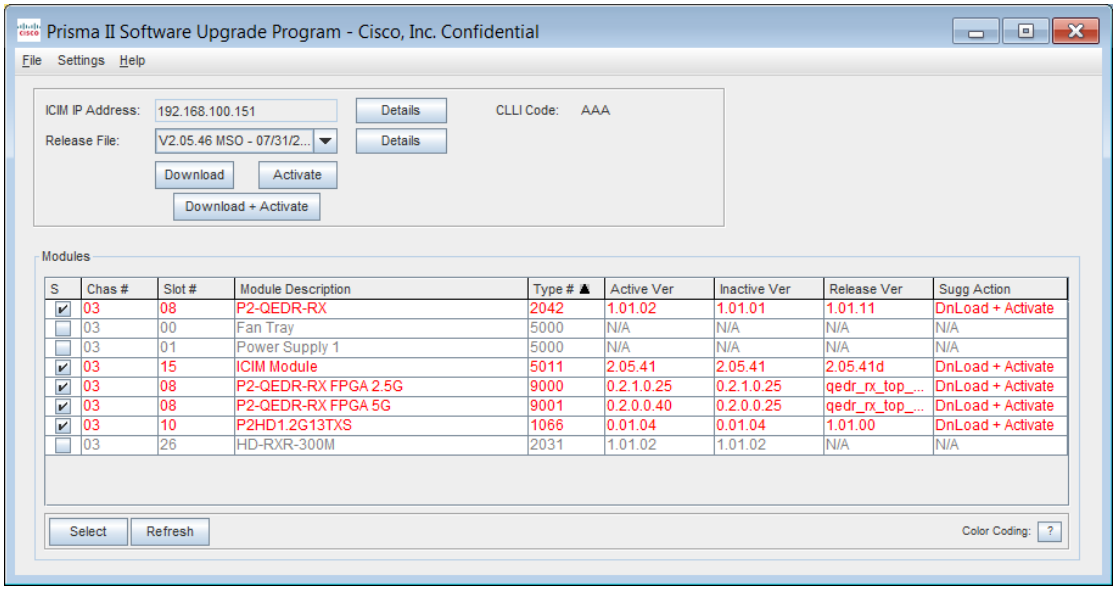
If the release files are located at the login root directory, leave this field blank.

8 Click **OK** to launch the SOUP application.

After the Prisma II SOUP is running, you can change the FTP configuration if needed by accessing the FTP Server option from the Settings menu. See ***FTP Settings*** (on page 12) for details.

SOUP Main Screen

This screen serves as the control center for the SOUP utility. Most SOUP operations will be driven from here.



Note: FPGA 2.5G and 5G need to upgrade separately.

The table below describes the information displayed in this screen.

Item	Description
ICIM IP Address	The address of the ICIM2 currently connected. This is determined at utility startup and cannot be changed.
CLLI Code	The value of the p2icimCLLICode SNMP element in the ICIM2.
Release File	The system release version and date of the current release file. Release files are listed in a drop-down box that the user can choose from to select the desired release.
Modules	This table lists the modules and ICIM2 present in the connected chassis. The table displays one row per module, with each row displaying details about the module. Each row in the table also displays: ■ The firmware version contained in the release file for each module according to module type. ■ The Suggested Action, a value determined by the program as explained below.

Suggested Action

The SOUP utility determines a Suggested Action for each module by comparing the firmware version available in the system release file with the firmware version in the module Active and Inactive flash areas. The possible values for the Suggested Action are listed below.

Value	Description
None	No action needed; this module already holds the correct version of the firmware.
DnLoad + Activate	The module is not running the version of the firmware in the release file and that version is not available in the inactive flash. To upgrade the module, the program will need to first download the firmware to the inactive flash in the module, and then activate the firmware.
Activate	The module is not running the version of the firmware in the release file, but it is holding that version in its inactive flash. To upgrade the module, the program just needs to make the inactive flash active.
N/A	There is no information about this module in the system release file.

Screen Functions

The user can then initiate any of the following functions from the main screen.

Function	Description
Details (ICIM)	This function displays a dialog box containing additional details from the ICIM2 to which the program is connected.
Details (Release File)	This function displays a dialog box containing additional details from the release file currently chosen.
Download	The download function looks at the selected modules in the Modules table and determines which ones need to have a new firmware binary image downloaded to their inactive flash. It then presents a dialog to the user with this list before starting the download process.
Activate	The activate function looks at the selected modules in the Modules table and checks that all the modules have a version that matches the release version in either their active or inactive flash. If this is not the case, the program displays an error and does not allow the user to proceed. If it is the case, the program creates a list of the modules whose flash areas will be switched, and then presents the list to the user before starting to send commands to the modules.

Function	Description
DnLoad + Activate	The download and activate function combines the two previous functions into a single step. When called, the program determines which modules need a new binary image download and which need to have their flash areas switched. The program then presents a combined list of modules to the user before proceeding.
Select	This function is a shortcut to select or clear a number of modules in one step. When the button is pressed, a menu is shown that allows the user to select or clear all modules, or to select all modules of a particular type.
Refresh	This function retrieves module information from the ICIM2 and refreshes the Modules table.
Color Coding	Module rows are displayed in different colors to indicate the active, inactive, and current revisions.

Firmware Upgrade Process

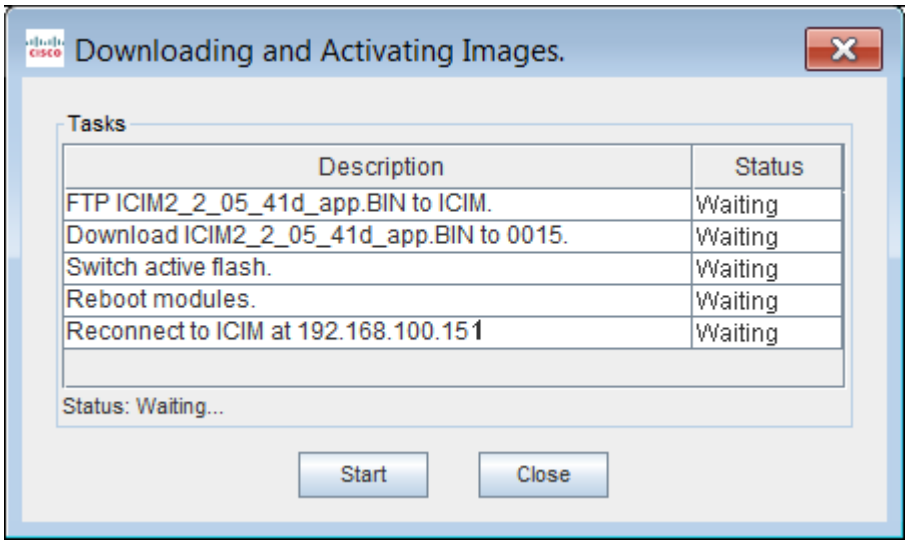
The procedure for upgrading the firmware in the ICIM2 or application module has two main steps:

- Download the new firmware image to the module.
- Make the downloaded firmware image active.

These functions are available through the interface through the two buttons "Download" and "Activate." They can also be combined into a single action using the "DnLoad + Activate" button.

When any of these functions is selected, the program first determines the tasks required by comparing the active and inactive firmware versions in the module flash areas to the version in the system release file. The list of tasks is then shown to the user in a dialog box, and the program waits for the user to respond.

For example, the task list displayed after the “DnLoad + Activate” button is pressed might appear as shown below.



This dialog shows the tasks necessary to upgrade the ICIM2 to a new firmware version. These tasks are described individually below.

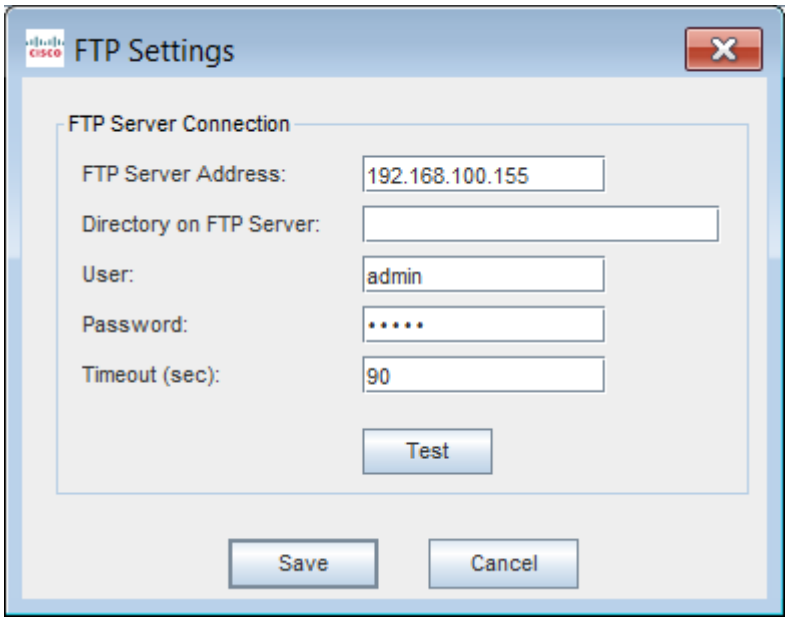
1. Transfer the file to the ICIM2 memory. File transfer is done using FTP. The SOUP utility sends the FTP server information to the ICIM2 and then commands it to download the file. The SOUP then polls the ICIM2 until the file transfer is finished or an error occurs.
2. Transfer the file from the ICIM2 memory to the inactive flash area of the target module. The SOUP will send the necessary commands to the ICIM2 to start this transfer and then poll the ICIM2 until the transfer is finished or an error occurs. Even when the module being upgraded is the ICIM2, the binary image still has to be downloaded from the ICIM2 RAM to the inactive flash.
3. Switch the active flash pointer on the module and then tell the module to reboot. A module always has a pointer to the flash memory area that it will use to load its firmware on boot-up. After downloading the new image to the inactive flash area, the SOUP will first send a command to the module to switch the flash pointer. Then, it will send a command to reboot the module so that the new firmware is loaded. The reboot command used is a soft reboot, meaning that the module will not go through its full reboot process to minimize service interruption. The ICIM2 performs a hard reboot.
4. If one of the modules is the ICIM2, as it is in this case, the SOUP loses contact with the chassis while rebooting. If the SOUP detects that one of the modules is the ICIM2, it waits after sending the reboot command until it regains its connection to the ICIM2.

FTP Settings

To upgrade firmware for Prisma II application modules, an FTP server is needed to transfer system release files and firmware binary images. When the Prisma II SOUP utility is launched from a network management system (NMS), information about the FTP server must be passed to it in the command line. When launched as a standalone application using SOUPLauncher, this information is requested from the user.

Specifically, the SOUP needs the FTP server address, the user and password to log into the server, and an optional subdirectory path for the location of the system release files. If the SOUP is running in Administrator level, you can look at and change these settings by first clicking on **Settings** in the main menu bar, and then choosing **FTP Server**.

A dialog box displaying the FTP server information opens, allowing you to change and test the settings.



The table below describes the fields in the FTP Settings dialog box.

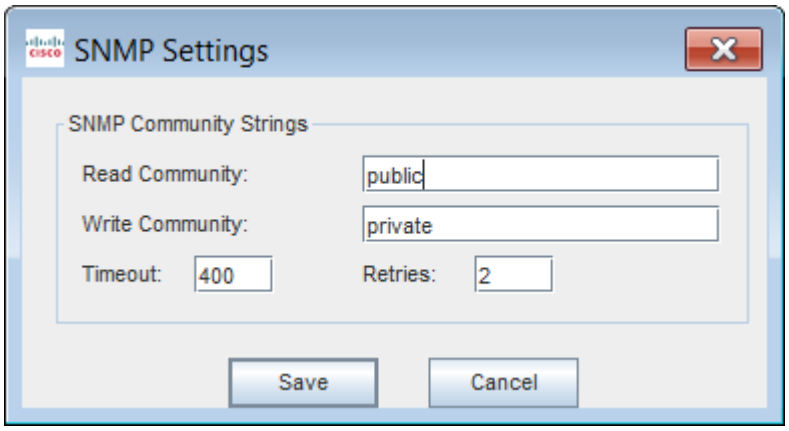
Item	Description
FTP Server Address	The address of the FTP server. This can be an IP address or a name that can be resolved by the computer running the SOUP.
Directory on FTP Server	The path to the system release files within the FTP server; for example, **/dload/Prisma2**.
User	The user name to log into the FTP server.
Password	The password to log into the FTP server.
Timeout (sec)	Timeout to prevent SOUP from hanging up due to an FTP file transfer problem. The timeout value is adjustable from 1 to 180 seconds; the default value is 180.

SNMP Settings

SNMP Settings are passed to the SOUP utility by an NMS as command line parameters. If launched using SOUPLauncher, this information is retrieved from the ICIM2 after a successful login.

To connect to the ICIM2 through SNMP, the SOUP utility needs the SNMP Read and Write community strings. If the SOUP is running in Administrator mode, you can browse and change the SNMP settings by first clicking on **Settings** in the main menu bar, and then choosing **SNMP Settings**.

The SNMP Settings dialog appears as shown in the following illustration.



In addition to the Read and Write community strings, the Administrator can change:

- The timeout value (in milliseconds) to use when communicating with the ICIM2.
- The number of retries for SNMP messages.

These two settings are saved locally by the SOUP utility.

FTP Server

The SOUP utility and the ICIM2 work together with an FTP server to perform firmware upgrades. The FTP server makes the binary image files available to the ICIM2 and acts as a repository for system release files. The only requirement for the FTP server is that it be accessible through TCP/IP by both the SOUP and the ICIM2.

Consult your system administrator for details on how to configure an FTP server for this application.

Note: If the ICIM2 has IPsec enabled, the FTP server must also be set up for IPsec and included in the ICIM2 list of IPsec peers.

Firmware Updates

New system release files are distributed when a firmware update becomes available. System release files package the firmware binary images for the different modules and provide version information for those images. These files are produced and distributed by the manufacturer, and are not intended to be created or modified by end users in any manner.

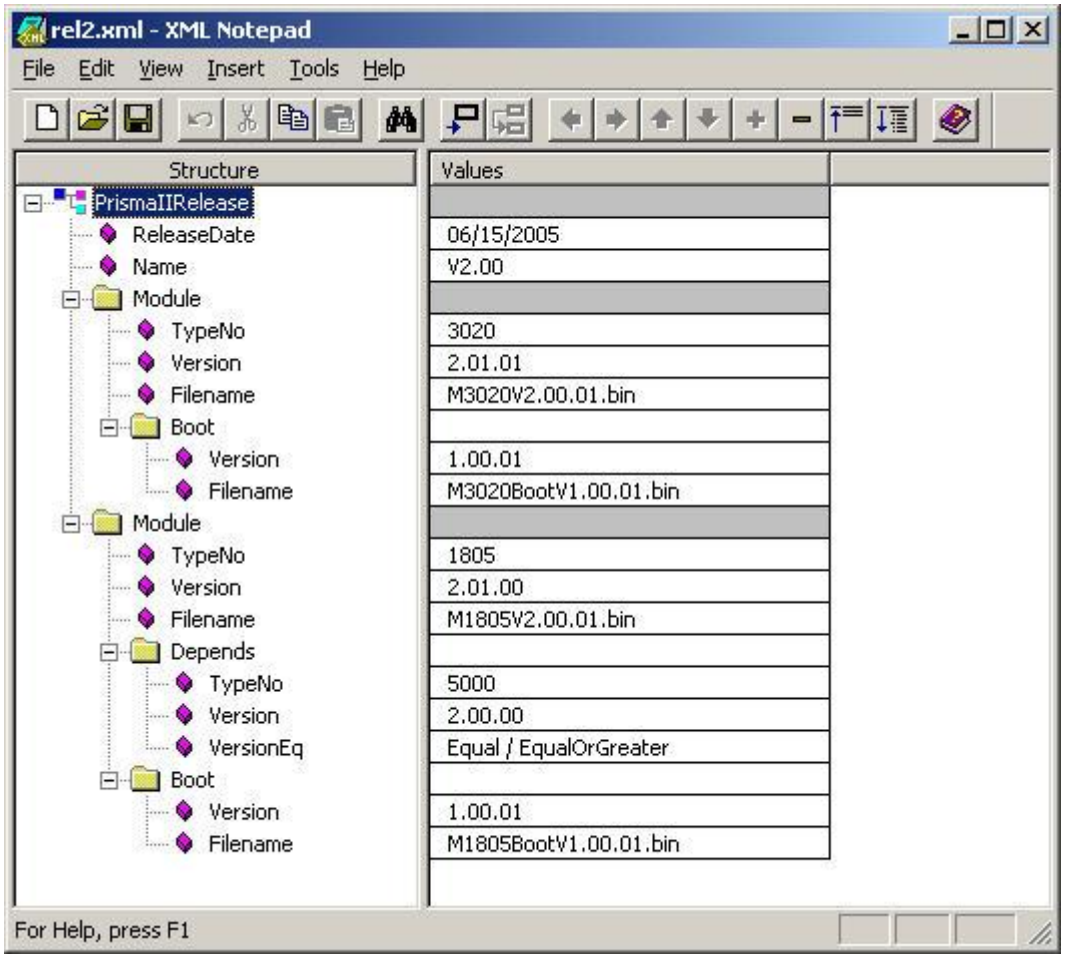
CAUTION:

Do not try to perform a firmware update that would result in downgrading ICIM2 or ICIM2-XD firmware below system release 2.05.41d. Earlier system releases may incorrectly identify the ICIM2 or ICIM2-XD slot number and fail to connect with the ICIM2 or ICIM2-XD when completing the download.

The following is a sample system release file. The information contained in the XML file is listed in the table below.

Item	Description
PrismaIIRelease	The root element in the file identifies this to be a Prisma II system release file.
ReleaseDate	The official release date.
Name	A descriptive name for the system release, typically a system version number.

Item	Description
Module	One or more module elements containing information about the versions contained in this system release file for a particular module type. ■ TypeNo – The target module type number. ■ Version – The version of the firmware for the module. ■ Filename – The file name of the binary image holding the module firmware. ■ Boot – An element containing information about the boot image necessary to run this version of the firmware (ICIM2 or ICIM2-XD only). – Version – The version of the boot image. – Filename – The file name that holds the boot image. ■ Depends – An optional element containing information about dependencies of this version of the firmware to other modules and their version. These elements are used to make sure that when an upgrade is performed, any dependencies across modules are enforced. – TypeNo – The type number of the module depended on. – Version – The version of the firmware necessary in the module on which it depends. – VersionEq – A comparison operator to use when looking at the version in the module. This can either be Equal for strict equality, or EqualOrGreater to accept a matching or newer version.


rel2.xml - XML Notepad
File Edit View Insert Tools Help
Structure
Values
PrismaIIRelease
ReleaseDate
06/15/2005
Name
V2.00
Module
TypeNo
3020
Version
2.01.01
Filename
M3020V2.00.01.bin
Boot
Version
1.00.01
Filename
M3020BootV1.00.01.bin
Module
TypeNo
1805
Version
2.01.00
Filename
M1805V2.00.01.bin
Depends
TypeNo
5000
Version
2.00.00
VersionEq
Equal / EqualOrGreater
Boot
Version
1.00.01
Filename
M1805BootV1.00.01.bin
For Help, press F1

Customer Support Information

If You Have Questions

If you have technical questions, call Cisco Services for assistance. Follow the menu options to speak with a service engineer.

Access your company's extranet site to view or order additional technical publications. For accessing instructions, contact the representative who handles your account. Check your extranet site often as the information is updated frequently.

Americas Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA

http://www.cisco.com
Tel: 408 526-4000
800 553-6387
Fax: 408 527-0883

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