



Cisco Prime Network Registrar IPAM 8.1.3 Upgrade Guide

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Cisco Prime Network Registrar IPAM 8.1.3 Upgrade Guide
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Introduction

About This Guide

This guide describes the sequence of steps needed to successfully upgrade any version of Cisco Prime Network Registrar 8.1.1 or 8.1.2 to Cisco Prime Network Registrar IPAM 8.1.3 using an automatic upgrade script. You will need to plan this procedure and schedule an outage for your production environment during the upgrade process. Please read this guide thoroughly, and preferably practice this routine in a lab environment before actually beginning the upgrade procedure in the production environment. Cisco Prime Network Registrar IPAM strongly suggests following the Automatic Upgrade Procedure described in this document, as long as the production start version of Cisco Prime Network Registrar IPAM 8.1.3 with or without patches. Other start versions/builds may be attempted, but practicing it in a lab environment is strongly encouraged. If the production environment requires a manual upgrade approach, those instructions are also described later in this document.

The term “INCHOME” will be referenced throughout this document. This is a general representation of the INCHOME environment variable within a terminal or command prompt session. On UNIX it should be interpreted as “\$INCHOME”, and on Windows it should be interpreted as “%INCHOME%”.

\$INCHOME=/opt/incontrol

The directory, “/opt/incontrol”, will be referenced throughout this document because it is the default install location for UNIX operating systems. If Cisco Prime Network Registrar IPAM was installed to a non-default location, when referenced, please substitute “/opt/incontrol” with the correct path to the installed Cisco Prime Network Registrar IPAM files.

%INCHOME%= C:\Program Files\Cisco\Cisco Prime Network Registrar IPAM

The directory, “C:\Program Files\Cisco\Cisco Prime Network Registrar IPAM”, will be referenced throughout this document because it is the default install location for Windows operating systems. If Cisco Prime Network Registrar IPAM was installed to a non-default location, when referenced, please substitute “C:\Program Files\Cisco\Cisco Prime Network Registrar IPAM” with the correct path to the installed Cisco Prime Network Registrar IPAM files.

Planning a Cisco Prime Network Registrar IPAM 8.1.3 Upgrade

To begin planning the upgrade, review the following questions and points:

1. What is gained by upgrading to Cisco Prime Network Registrar IPAM 8.1.3?

There are many new features obtained in Cisco Prime Network Registrar IPAM 8.1.3. Some of them include:

- Audit creation/update/delete of Admins via the APIs
- Implement a policy-driven Workflow callout.
- Device Callout - Multi Homed Device
- Implement a policy-driven domain creation callout.
- Network Services - Allow extensions entry on DNS views.
- Network Services - Allow extensions entry on DNS galaxies.

- Add support for IPv6 communication between Executive and Agents
- Undo Delete feature for Devices, including addition of IDN support to Restore lists.
- Get Next Available Device(s) Feature for Devices/Pools for IPv4 and IPv6.
- Show only leased addresses toggle checkbox on the Subnet list - dynamic leases tab
- Display create time, last update time and last update admin on domains.
- Domain Search
- Convert Router Subnet Differences page to GWT
- Export for Container View Screen
- Add ImportDomainResourceRecord to the GUI Import Wizard
- Add ImportDomain to the GUI Import Wizard
- IPv6 - Expanded IPv6 Host Support
- Ping/release
- Hidden master/slave
- Statistics channel
- Task Status for DHCP Preview with Errors
- Decode DB parameters on Device Audit Report
- Get Effective DHCP Servers for Container CLI
- Enable Selection of Keys for Zone Transfers
- Add Print Severity to Logging Channels
- Non-Broadcast Subnets.
- Detach Stale Interface
- CLIs/APIs:

DeleteAdminRole CLI, DeleteAdmin CLI, ExportAdmin CLI, ExportAdminRole CLI, ImportAdminRole API and CLI - overwrite support (modify admin role), ImportAdmin API and CLI - overwrite support (modify admin), ImportAdminRole API and CLI, ImportAdmin API and CLI, Get Container Hierarchy API, Add a switch (e.g, "-c") to the DhcpConfigurationTask CLI – If there are no changes, push will be ignored., ExportDomainResourceRecord, Import, Export and Delete NetworkElement.

Refer to the Cisco Prime Network Registrar IPAM 8.1.3 Release notes for the list of fixed bugs in Cisco Prime Network Registrar IPAM 8.1.3. If you have further questions about a particular feature, please contact the Technical Assistance Center.

2. Will all Cisco Prime Network Registrar IPAM 8.1.1 and 8.1.2 systems need to be upgraded to 8.1.3 at once?

No, you may stagger the upgrade into phases. However, the all Cisco Prime Network Registrar IPAM Executive server must be the first Cisco Prime Network Registrar IPAM system upgraded in your environment. Versions 8.1.1 and 8.1.2 agents can use the automatic upgrader. In either case, DNS and/or DHCP versions that were installed with Cisco Prime Network Registrar IPAM Agents will be upgraded as well.

3. How long does the upgrade process take?

For the Executive server, this time will vary based on the size of your data. It is suggested to practice your Executive server upgrade in a lab environment before actually doing so in production. This will give you an accurate estimate of how long the upgrade process will take for the Executive and bring to the surface any problems that may arise during the upgrade.

For the Remote Agent systems, the upgrade time is between 5-10 minutes for the uninstall/reinstall phase. Twin Mirror Sapphire Appliances could take upward to 20 minutes to finalize. Extra time will be required if specific customizations need to be finalized manually.

4. Are there any new special system requirements for running Cisco Prime Network Registrar IPAM 8.1.3?

Only for Executive. As of Cisco Prime Network Registrar IPAM 8.1.2, Tomcat and MySQL require 2 GB of RAM to function at a minimum.

5. What version must I currently be running to begin the automatic upgrade process to Cisco Prime Network Registrar IPAM 8.1.3?

For Executive servers, the oldest version Cisco requires starting from is Cisco Prime Network Registrar IPAM 8.1.1. If you are running a version prior to Cisco Prime Network Registrar IPAM 8.1.1, then visit the 'Browse Downloads' section of the Support site. Refer to the Cisco Prime Network Registrar IPAM 4.0 section. Use the instructions under the Upgrade section to bring your environment to one of the recommended start versions. Once you've successfully upgraded to version 8.1.1 or newer, then you may continue to upgrade to Cisco Prime Network Registrar IPAM to 8.1.3 automatically. Please feel free to call the Technical Assistance Center for further clarification.

Your current version and build number of Cisco Prime Network Registrar IPAM can be located from the Home tab while logged in to the Cisco Prime Network Registrar IPAM GUI.

6. How will I upgrade my customizations?

This is covered in the **Restoring Custom Scripts and Files** section of this document. Please review that section before you begin the upgrade process. The automatic upgrade process will try to retain some, but not all, of your customizations. If your concerns are still not covered in the section below, please contact the Technical Assistance Center to discuss it further.

7. Can I use the same license key I used for previous Cisco Prime Network Registrar IPAM versions?

No. You must obtain a new license key for Cisco Prime Network Registrar IPAM 8.1.3 Call the Cisco Technical Assistance Center (TAC) and ask for the Licensing Team to request a license key that is compatible with Cisco Prime Network Registrar IPAM 8.1.3. For your local Cisco TAC phone number, see the Cisco Worldwide Contacts page at:

http://www.cisco.com/en/US/support/tsd_cisco_worldwide_contacts.html

You will enter the new key upon logging into Cisco Prime Network Registrar IPAM 8.1.3 after a successful upgrade.

8. My environment uses a remote MySQL or Oracle database not installed with Cisco Prime Network Registrar IPAM. Can I still use the Cisco Prime Network Registrar IPAM 8.1.3 Automatic Upgrade package?

Yes! The Cisco Prime Network Registrar IPAM 8.1.3 Automatic Upgrade package supports remote MySQL upgrades. Remote Oracle databases (versions 10 or 11) are supported as well. But either case requires manual database backups to be performed as described in this document.

9. Supported Platforms

Cisco Prime Network Registrar IPAM 8.1.3 platforms

- Windows Server 2008 (32-bit), Windows 2008 R2 (64-bit), Windows 2012
- Linux - RHEL v5 32bit, RHEL v6 64bit
- Linux - CentOS v6 64bit
- Sparc Solaris 10
- Oracle 10, 11
- MySQL Community Edition 5 (supplied)

Cisco Prime Network Registrar IPAM 8.1.3 browsers

- Internet Explorer 10 and above
- Mozilla Firefox (current version)
- Google Chrome (current version)

Important 8.1.3 Upgrade Prerequisites

1. Cisco Prime Network Registrar IPAM 8.1.3 Agents cannot connect to an Executive server running any prior versions of With Cisco Prime Network Registrar IPAM. The Executive server must be the first component installed or upgraded in your environment.
2. UNIX users, during the upgrade you may need to keep your SSH session alive by pressing any key from inside the session to prevent the session from timing out. This can be addressed before you begin the upgrade by increasing the SSH timeout on the system (and being local to the machine to restart sshd). Or if you're using Putty, review the "Connection" category of the session setup, and change "Seconds between keepalives (0 to turn off)" from 0 to **1200**. If the system's session timeout is greater than 30 minutes, this value will send the keepalive packet every 20 minutes. If the SSH timeout is 20 minutes or lower, then adjust that value accordingly lower, in seconds.
3. Please call the Cisco Technical Assistance Center (TAC) with your scheduled upgrade date, so they are prepared to assist if there are any complications. For your local Cisco TAC phone number, see the Cisco Worldwide Contacts page at: http://www.cisco.com/en/US/support/tsd_cisco_worldwide_contacts.html.
4. Linux users: The library, libaio.so.1, is required before installing Cisco Prime Network Registrar IPAM 8.1.3 with MySQL. If the library is not present on your system, you will be notified during the installation. Consult your system administrator for more details.
 - a. 64 bit Linux users installing 32 bit With Cisco Prime Network Registrar IPAM: During the installation of Cisco Prime Network Registrar IPAM you may receive the following error:
Error unpacking jar files. The architecture or bitness (32/64)

of the bundled JVM might not match your machine.

Installing the following packages on your Linux system will resolve this error:

- glibc.i686, libgcc.i686, libaio.i686, ncurses-libs.i686

5. .ActiveMQ is upgraded during the Cisco Prime Network Registrar IPAM 8.1.3 Executive and Agent upgrades. Note that the service's log file will now appear under INCHOME/activemq/data for Cisco Prime Network Registrar IPAM 8.1.3, rather than the old INCHOME/log location.
6. Oracle users: Cisco Prime Network Registrar IPAM 8.1.3 requires greater access to the database. The Cisco Prime Network Registrar IPAM database user (usually incadmin) will need the following performed by sysdba prior to starting the upgrade:
 - GRANT create sequence to INCADMIN;
 - Replace INCADMIN above with the actual Cisco Prime Network Registrar IPAM database user. See INCHOME/classes/jdbc.properties on your production Executive if you are unsure of this value.

Upgrading a Linux or Solaris Executive

This section describes the steps for upgrading Cisco Prime Network Registrar IPAM to version 8.1.3 on a Linux or Solaris system.

Before you begin the upgrade procedure, the Cisco Prime Network Registrar IPAM services on the Executive and/or Agent system **must be** running. During this procedure the services will be stopped. On an Executive system, the schema will be modified (MySQL and Oracle). A database backup will be saved automatically for local MySQL users. Oracle and remote MySQL users **must** backup their data manually before proceeding because the current data will be modified. Oracle users, you may also want to run “PURGE RECYCLEBIN;” against your Cisco Prime Network Registrar IPAM database, prior to the upgrade procedure, to prevent errors during the schema update phase of the upgrade.

Step 1: Obtain your Cisco Prime Network Registrar IPAM 8.1.3 License Key

Call the Cisco Technical Assistance Center (TAC) and ask for the Licensing Team to request a license key that is compatible with Cisco Prime Network Registrar IPAM 8.1.3. For your local Cisco TAC phone number, see the Cisco Worldwide Contacts page at:

http://www.cisco.com/en/US/support/tsd_cisco_worldwide_contacts.html. After the upgrade completes successfully, upon logging into Cisco Prime Network Registrar IPAM 8.1.3 for the first time, the new 8.1.3 license key must be entered to access the product. **Your existing keys will not work with version 8.1.3. Do not proceed without a new 8.1.3 License Key or your setup will become inaccessible.**

Step 2: Verify Free Space

The upgrade procedure requires the following amount of free space in order to run successfully:

$$3 \times \text{DB Size} + 5\text{GB}$$

The current DB Size can be obtained using the “du” command, e.g.

```
du -sh /opt/incontrol/mysql/data
3.1G    /opt/incontrol/mysql/data
```

In this example, the database occupies 3.1GB of space, so the total free space required will be 14.3 GB. The value you come up with does not represent the final amount of space used, but only the amount of space needed for upgrade flexibility.

Step 3: Download the Upgrade Package

Download the upgrader `cpnr_8_1_3-ipam- \langle O/S \rangle -upgrader.gtar.gz`, extract the compressed file and copy the ‘`PNR813Upgrade- \langle O/S \rangle -7.0.45-2.bin`’ file to the `/tmp` directory on the system being upgraded. The file is roughly between 600 to 900 MB in size, depending on OS, so ensure that there’s enough space in the `/tmp` directory to hold it. (Replace `O/S`, `XX` and `#` within the filename to the respective operation system, highest available build number and upgrader revision number found on the download site.) Also, you may substitute `/tmp` with a desired directory location, though `/tmp` will be referenced throughout these instructions.

Step 4: Execute the Upgrade Package

Log in as the 'root' user on the Executive or Agent system being upgraded.

Change directories to the /tmp directory, or the directory where you placed the Upgrade Package, e.g. `cd /tmp`

Run the following command to set the Cisco Prime Network Registrar IPAM environment for the 'root' user:

```
. /opt/incontrol/etc/shrc (Notice the space after the dot.)
```

Execute the upgrade script using this command and follow the on-screen instructions.

```
sh PNR813Upgrade-<O/S>-7.0.45-#.bin
```

Do not terminate the terminal session or press Ctrl-C at any time until the upgrade has passed or failed.

If this is an Agent upgrade, see the **Upgrading Cisco Prime Network Registrar IPAM Agents** section found later in this document for more information.

For an Executive system, you will be prompted if any of the Database, Schema or Block Integrity checks fail. Use the (R) option repeatedly, up to 5 times, or until there are no issues found. If the repair feature doesn't seem to resolve the problems found, use the (C) option to continue. At this time, there's a high probability that the upgrade may fail if the found errors cause a disturbance upgrading the database. If the upgrade does fail, it will roll back to the original start state. But if the upgrade completes after continuing past any errors found, you will want to run the DatabaseIntegrityChecker, SchemaChecker or BlockCheck utilities manually to discuss found issues with the Technical Assistance Center.

Do not be alarmed of database update exceptions during the upgrade process. Some environments will contain duplicate entries that cause these kinds of errors. Depending on the severity level of the error received, the upgrade will roll back to your previous environment if the upgrade cannot continue.

If the upgrade rolls back to the original start state, collect the files /tmp/upgrade-<date-time>.log and /tmp/support.log and provide that information to the Technical Assistance Center.

The automatic upgrade script attempts to carry forward custom scripts and settings though it cannot account for all possibilities. After the upgrade has completed, continue to the **Restoring Custom Scripts and Files** section below to verify that all of your custom scripts and settings have been carried forward.

After testing your new InControl environment, you may manually remove any files from /tmp that were not originally there before starting the upgrade. Otherwise, they will be removed during the next system reboot if /tmp was used.

Do not remove the /opt/incontrol-<date-time> directory until you are completely satisfied with the upgrade and have successfully run with Cisco Prime Network Registrar IPAM 8.1.3 for a considerable amount of time. This is the backup of your previous version. If space is needed on your system before you are comfortable with deleting the old setup, consider zipping/tarring this directory and moving it off the system, before completely removing it from the system.

Upgrading a Windows Executive or Agent

This section describes the steps for upgrading Cisco Prime Network Registrar IPAM to version 8.1.3 on a Windows 2008 system running the Cisco Prime Network Registrar IPAM Executive or Agent components.

Before you begin the upgrade procedure, the Cisco Prime Network Registrar IPAM services on the Executive and/or Agent system **must be** running. During this procedure the services will be stopped. On an Executive system, the schema will be modified (MySQL and Oracle). A database backup will be saved automatically for local MySQL users. Oracle and remote MySQL users **must** backup their data manually before proceeding because the current data will be modified. Oracle users, you may also want to run "PURGE RECYCLEBIN;" against your InControl database, prior to the upgrade procedure, to prevent errors during the schema update phase of the upgrade.

Step 1: Obtain your Cisco Prime Network Registrar IPAM 8.1.3 License Key

Contact the Technical Assistance Center for your Cisco Prime Network Registrar IPAM 8.1.3 key by emailing a request to http://www.cisco.com/en/US/support/tsd_cisco_worldwide_contacts.html. After the Executive upgrade completes successfully, upon logging into Cisco Prime Network Registrar IPAM 8.1.3 for the first time, the new 8.1.3 license key must be entered to access the product. **Your existing keys will not work with version 8.1.3. Do not proceed without a new 8.1.3 License Key or your setup will become inaccessible.**

Step 2: Verify Free Space

The upgrade procedure requires the following amount of free space in order to run successfully:

$$3 \times \text{DB Size} + 5\text{GB}$$

The current DB Size can be obtained by navigating Windows Explorer C:\Program Files\Cisco\Cisco Prime Network Registrar IPAM\mysql. Right-click on the data directory and select Properties. The displayed Size value is a close estimate to the total database size.

In this example, the database occupies about 1GB of space, so the total free disk space required will be 8 GB. The value you come up with does not represent the final amount of space used, but only the amount of space needed for upgrade flexibility.

Step 3: Download the Upgrade Package

Download the self-extracting windows upgrader file 'cprn_8_1_3-ipam-windows-upgrader.exe', extract the file and copy 'PNR813Upgrade-win32-7.0.45-#.zip' file to the C:\tmp directory on the Windows Executive or Agent system that is being upgraded. The file is roughly 800 MB in size. (Replace XX and # within the filename to the highest available build number and upgrader revision number found on the download site.) Also, you may substitute C:\tmp with a desired directory location, though C:\tmp will be referenced throughout these instructions.

Step 4: Execute the Upgrade Package

Log in as the Administrator, or a user with Administrator level privileges on your Windows Executive.

From Windows Explorer go to C:\tmp, and extract the 'PNR813Upgrade-win32-7.0.45-#.zip' file. Its contents should be extracted into the same directory.

Go to Start > Run, and type CMD. Then hold Ctrl+Shift and press Enter to open the command line console as Administrator. Click “Yes” if prompted about Admin level control.

Within the command line console, change the directory to C:\tmp. e.g. `cd C:\tmp`

Execute the upgrade script using this command and follow the on-screen instructions:

`PNR813Upgrade.exe`

Do not terminate the command line console or Ctrl-C within that window at any time until the upgrade has passed or failed.

If this is an Agent upgrade, see the **Upgrading Cisco Prime Network Registrar IPAM Agents** section found later in this document for more information.

For an Executive system, you will be prompted if any of the Database, Schema or Block Integrity checks fail. Use the (R) option repeatedly, up to 5 times, or until there are no issues found. If the repair feature doesn't seem to resolve the problems found, use the (C) option to continue. At this time, there's a high probability that the upgrade may fail if the found errors cause a disturbance upgrading the database. If the upgrade does fail, it will roll back to the original start state. But if the upgrade completes after continuing past any errors found, you will want to run the DatabaseIntegrityChecker, SchemaChecker or BlockCheck manually to discuss found issues with the TAC.

Do not be alarmed of database update exceptions during the upgrade process. Some environments will contain duplicate entries that cause these kinds of errors. Depending on the severity level of the error received, the upgrade will roll back to your previous environment if the upgrade cannot continue.

If the upgrade rolls back, collect the files C:\tmp\Cisco Prime Network Registrar IPAMUpgrade.log and C:\tmp\support.log and provide that information to the Technical Assistance Center team.

The automatic upgrade script attempts to carry forward custom scripts and settings. After the upgrade has completed, continue to the **Restoring Custom Scripts and Files** section below to verify that all of your custom scripts and settings have been carried forward.

After testing your new Cisco Prime Network Registrar IPAM environment, you may manually remove any files from c:\tmp that were not originally there before starting the upgrade. Otherwise, they will be removed during the next system reboot if c:\tmp was used

Do not remove the C:\tmp* directory until you are completely satisfied with the upgrade and have successfully run with Cisco Prime Network Registrar IPAM 8.1.3 for a considerable amount of time. This is the backup of your previous version. If space is needed on your system before you're comfortable with deleting the old setup, then consider zipping this directory and moving it off the system, before completely removing it from the system.

See the **During the Upgrade** section below for more details.

Upgrading Executives Running MySQL Replication

Below describes what's needed to upgrade Executives utilizing MySQL Replication.

Before you begin, please arrange a time where users do not need access to the Cisco Prime Network Registrar IPAM GUI. This will assure a smooth upgrade of both Executives running MySQL Replication. Since the MySQL database is replaced during an upgrade of With Cisco Prime Network Registrar IPAM, MySQL Replication will need to be re-initialized again after the upgrade of both Executives. The flow to upgrade Executives running MySQL Replication is to upgrade the Primary Executive first, then the Slave Executive, then initiate MySQL Replication.

If the MySQL Replication upgrade cannot be performed immediately after the first upgrade, you can continue normal practice against the Primary Executive until such time you can apply Replication again. Just be aware that you are running without database replication until then.

Follow the instructions for Executive upgrades in this document for both the Primary and Slave Executives. When finished upgrading both systems, please refer to section 2 of the Cisco Prime Network Registrar IPAM Replication User Guide to apply MySQL Replication to Cisco Prime Network Registrar IPAM 8.1.3 after successfully upgrading.

During the Upgrade

At this time a local database backup occurs automatically. The current Cisco Prime Network Registrar IPAM file structure is saved and Cisco Prime Network Registrar IPAM 8.1.3 is installed. The database updates are then applied, which may take some time to complete, especially in larger environments. Monitor this phase closely as database updates are the main reason why an upgrade could fail.

The Automatic Upgrade for Cisco Prime Network Registrar IPAM 8.1.3 will also perform the following database functions before attempting the actual upgrade:

DatabaseIntegrityCheck

A Database Integrity Check is performed to identify foreign key and ID cooperation throughout the database. If the Upgrade detects a problem, you will be prompted to review and attempt repairing those problems found. The check and repair process must be repeated as necessary until zero problems are found. If you've reached 5 repair attempts you may contact the Technical Assistance Center. If the repair feature doesn't seem to resolve the problems found, use the (C) option to continue. At this time, there's a high probability that the upgrade may fail if the found errors cause a disturbance upgrading the database.

BlockCheck

A Block Check is performed to identify discrepancies in the block structure of With Cisco Prime Network Registrar IPAM. If the Upgrade detects a problem, you will be prompted to review and attempt repairing those problems found. The check and repair process must be repeated as necessary until zero problems are found. If you've reached 5 repair attempts, contact the Technical Assistance Center and do not continue the upgrade.

SchemaChecker

A new utility, Schema Checker, is also executed to identify inconsistent table and column structures, as well as foreign key and index applied throughout the database.

Unfortunately, problems found in this phase cannot be fixed automatically. If differences are found in the Schema Report, use the (S) option to display the report. The report is broken down into three sections: Errors, Warnings and Informational.

If you are concerned with the Schema Report results, you may choose to (E) Exit the Upgrade at this time. Contact the Technical Assistance Center to provide and discuss the Schema Report, which can be found in /tmp or C:\tmp.

If you are not concerned with the Schema Report results, you may choose (C) to Continue with the problems found by the SchemaChecker. If the Upgrader fails

applying new database schema changes, it will stop and restore the setup to the original Cisco Prime Network Registrar IPAM state before the Upgrade was attempted.

Restoring Custom Scripts and Files

If your Cisco Prime Network Registrar IPAM 8.1.1 or 8.1.2 environment was customized in any way, you'll need to go through some areas in 8.1.3 to make sure that the settings were carried forward after the upgrade. The upgrader is designed to handle common changes, but it's still best to verify all of your customizations manually for continuity.

If you used the Automatic upgrader, review the upgrade-`<datestamp>`.log file in the directory where you launched the upgrade (`/tmp` or `C:\tmp`). This log file will recommend files which it believes are different than the default setup. If it states "Additional action may be required", it is up to you to make the final determination if the differences are still needed in the new Cisco Prime Network Registrar IPAM version, and then make those modifications manually, if desired. **Do not** overwrite any new files with its backup copy. Since some default Cisco Prime Network Registrar IPAM files have changed slightly between versions, this check filter may pick up those differences and can likely be ignored if you do not remember making changes to a particular file. If you are unsure, please contact the Technical Assistance Center.

After the upgrade, check your new Cisco Prime Network Registrar IPAM 8.1.3 file structure for filenames that end with `-<datestamp>`. These files are from your Cisco Prime Network Registrar IPAM 8.1.1 or 8.1.2 environment where Cisco Prime Network Registrar IPAM suspect's customizations were made. They have been copied to the new structure to allow for easy comparison. Once you've finished reviewing these files and finalizing your customizations into the new version of the file, feel free to remove the file(s) containing `"-<datestamp>"` in the name under the `/opt/incontrol` or `C:\Program Files\Cisco\Cisco Prime Network Registrar IPAM` structure. On Unix, a complete backup of your Cisco Prime Network Registrar IPAM 8.1.1 or 8.1.2 files can be found under the `/opt/incontrol-<datestamp>` directory. On Windows, the upgrader will only retain the DNS config and zone files and Cisco Prime Network Registrar IPAM config and properties files in `C:\tmp\backup-<datestamp>`

For those who have upgraded manually, you will need to compare any custom files from the Cisco Prime Network Registrar IPAM 8.1.1 or 8.1.2 backup directory that you created.

MySQL

If you've made any customizations to your MySQL database in your old environment, you will have to verify those same changes in your new installation. The upgrade script attempts to carry your changes forward, but the version of MySQL has changed from 5.0.x to 5.6.17. Verify the contents of the `my.cnf` file, found under `/opt/incontrol/mysql` or `C:\Program Files\Cisco\Cisco Prime Network Registrar IPAM \mysql` and enter any changes in the new `my.cnf` file that are desired. **Do not** overwrite this file with the backup copy. Also, you may need to confirm your original customizations to the new format of the file.

Note: Under Cisco Prime Network Registrar IPAM 8.1.1 and 8.1.2, the `my.cnf` file resides in `/opt/incontrol/mysql` or `C:\Program Files\Cisco\Cisco Prime Network Registrar IPAM \mysql (my.ini)`.

Any customizations to MySQL that were made dynamically and not via the `my.cnf/my.ini` file will have to be done again on the new MySQL database if they are still desired. This procedure is not recommended. All database configurations should be made in the `my.cnf` file. Before the upgrade, you may use the 'SHOW STATUS;' command in MySQL to compare the differences between the output and what's defined in the `my.cnf` file.

Database Credentials

If your database resides on a separate system from the Executive server system, or if you've changed the database username and password for the Cisco Prime Network Registrar IPAM database from its default value, then you will need to modify INCHOME/classes/jdbc.properties. Again, the automatic upgrade script attempts to carry forward these changes. Compare the old version of this file with the new version, and if the values are different, make sure the new file is modified to retain your old values. The parameter names may be slightly different. **Do not** overwrite this file with the backup copy.

Custom Callout Manager Routines

If you had configured Callout Manager to execute a script when a specific function takes place, then you may need to restore those scripts.

If your custom scripts resided under the Cisco Prime Network Registrar IPAM directory tree, the automatic upgrade will try carrying them forward to your new Cisco Prime Network Registrar IPAM 8.1.3 Installation.

Verify the new INCHOME/callout_manager.properties, making changes as necessary. **Do not** overwrite this file with the backup copy. The backup copy of this file will be helpful for restoring which functions you had previously set, as well as the path locations to the custom scripts being called. Those custom scripts should be copied from the backup directory to the new installation directory, if they were not copied automatically.

After callout_manager.properties has been modified, double-check the new **Tools > System > Policies and Options** menu in Cisco Prime Network Registrar IPAM 8.1.3 to make sure the desired callout policies are still enabled.

Custom mysqlexport script

You may have modified your old /opt/incontrol/etc/mysqlexport.sh file (on UNIX only) to be more specific to your environment. Compare the old version of this file with the new version and, if they are different, make sure the new file is modified to conform to your old settings. **Do not** overwrite this file with the backup copy.

Custom dbmover script

You may have modified your old /opt/incontrol/etc/dbmover.sh (on UNIX only) file to be more specific to your environment. Compare the old version of this file with the new version, and if they are different, make sure the new file is modified to conform to your old settings. **Do not** overwrite this file with the backup copy.

Customizations to the old dbmover-~~wrapper~~.sh script would need to be moved over to the new file version as well. **Do not** overwrite this file with the backup copy.

We highly recommend implementing the MySQL Replication disaster solution, as support for dbmover is planned to be phased out.

Custom properties files

You may have modified some of the properties files for the Cisco Prime Network Registrar IPAM services. The upgrade script attempts to carry these changes forward. If those changes are still desired, you should compare the old files with the new files to see what was customized. If they are different, make sure the new file(s) conforms to your old settings. **Do not** overwrite these files with the backup copies.

Custom web security settings

If you've modified your Tomcat environment to use HTTPS instead of the default HTTP, then you will need to reconfigure `INCHOME/tomcat/conf/server.xml` again. Note that Tomcat was upgraded to Version 7 as part of the upgrade. You should compare the old file with the new one to see what was changed. If they are different, make sure the new file conforms to your old settings. **Do not** overwrite this file with the backup copy.

Other files to compare

If you use External Authentication, see **Tools > System > Policies and Options** in Cisco Prime Network Registrar IPAM to make sure your script is set correctly, then make sure that script actually exists in the correct location.

`$INCHOME/conf/gssLogin.conf`

`$INCHOME/conf/*.keystore`

`$INCHOME/tomcat/conf/*.keystore`

`$INCHOME/etc/cli/cli.properties`

Logging into the Web Interface

Before Logging In

Before logging into the Web Interface for the first time, it is mandatory to clear your browser cache, especially from any client that has accessed previous versions of Cisco Prime Network Registrar IPAM on an Executive which is now running Cisco Prime Network Registrar IPAM 8.1.3. Otherwise, random GUI level errors will be seen. Some cases it may seem like data is missing. These errors are resolved by clearing old browser cache.

Also note, it is not recommended to access Cisco Prime Network Registrar IPAM through a proxy server, as this may cause some users to experience issues after an upgrade if the proxy server caches Cisco Prime Network Registrar IPAM web pages. Proxy configuration for the web browser should ensure that accessing the hostname/IP address of the Cisco Prime Network Registrar IPAM Executive should bypass the proxy.

It is also suggested to restart all of the Cisco Prime Network Registrar IPAM services. This is done automatically during the Automatic Upgrade Routine.

- On UNIX, run this command as incadmin:

```
/opt/incontrol/etc/incontrol restart
```

- On Windows, use the Windows Services. All services begin with “Cisco Prime Network Registrar IPAM”, along with MySQL and Tomcat.

- Starting order: MySQL, Tomcat, Cisco Prime Network Registrar IPAM *

Logging In

Open a supported web browser and enter:

```
http://{IP or resolvable name of your Executive}:8080/incontrol
```

```
Example: http://10.20.30.100:8080/incontrol
```

Give Tomcat about 2 minutes or so to finish initializing for the first time after install, and shortly after that the login screen will appear. If the login page takes longer than expected to appear, enter the URL again and try once more. If there is still a problem, contact the Technical Assistance Center.

Enter the incadmin username, and your incadmin password used in prior versions. By default this value is ‘incadmin’. If you have lost your incadmin password, please contact the Technical Assistance Center for assistance.

The very first time you successfully login to the Web Interface, you will be prompted for your 8.1.3 license. Enter the key and click Submit, and you will be prompted to login once again. At that time, your Cisco Prime Network Registrar IPAM 8.1.3 Executive is ready to go!

Upgrading Cisco Prime Network Registrar IPAM Agents

Linux/Solaris users, see the **“Upgrading a Linux or Solaris Executive”** section and Windows users see the **“Upgrading a Windows Executive”** section found earlier in this document for instructions to automatically upgrade Cisco Prime Network Registrar IPAM Agents and begin on Step 3. The same upgrade package file is used on Agents as was used on the Executive server, except a database procedure is not performed.

Upgrade Order

Once the Executive is on Cisco Prime Network Registrar IPAM 8.1.3, it does not matter if you upgrade your DNS or DHCP server(s) Agents to 8.1.3. If both services are on the same machine, they will be upgraded together. Whichever you decide, remember the following when doing so:

DNS servers – The DNS master server(s) should be upgraded first, then the DNS secondary server(s).

DHCP servers – Standalone DHCP servers can be upgraded as desired. DHCP Failover server pairs should be upgraded at the same time, the Primary server being first.

After the Agent upgrade

Be aware that the Automatic upgrader stores your previous version backup in `/opt/incontrol-<timestamp>`. Your custom files and scripts that resided in your Cisco Prime Network Registrar IPAM 8.1.1 or 8.1.2 directory structure can now be located in `/opt/incontrol-<timestamp>`, if needed.

Manual Upgrade Procedure

Though Cisco Prime Network Registrar IPAM strongly suggests using the Automatic Upgrade Procedure, in some cases it is not desired or feasible. Especially for environments that are running on OS platforms that are no longer supported with Cisco Prime Network Registrar IPAM, such as Red Hat 3 and 4, Solaris 9, or Windows 2003.

If you're using this section because the Cisco Prime Network Registrar IPAM Executive is moving to a new supported OS, it is suggested to first install the Cisco Prime Network Registrar IPAM 8.1.3 Executive software on the new OS. For full installation details, please refer to the Cisco Prime Network Registrar IPAM Installation Guide.

Be sure to make a safe database backup of your current, production Cisco Prime Network Registrar IPAM environment.

Local database users: Install Cisco Prime Network Registrar IPAM as usual, allowing MySQL to install on the system. Copy the database backup of your production environment on to the new system.

After Cisco Prime Network Registrar IPAM 8.1.3 has completed installing, stop all Cisco Prime Network Registrar IPAM services, except for MySQL. From a command prompt/terminal session login to mysql as incadmin, drop the InControl database, create a new InControl database, use the InControl database, and then source your database backup file.

Remote MySQL or Oracle users: Before installing, be sure to stop the production Cisco Prime Network Registrar IPAM services on your current Cisco Prime Network Registrar IPAM Executive. On the remote database server, leave the database running. While installing Cisco Prime Network Registrar IPAM 8.1.3 on the new system, be sure to provide the remote database details. Do not start the Cisco Prime Network Registrar IPAM Services at the end of the install.

Now that your Cisco Prime Network Registrar IPAM 8.1.3 environment has been installed and is pointing to the old database, and none of the Cisco Prime Network Registrar IPAM services are running, open a command prompt/terminal session. Navigate to INCHOME/etc/support. All of the following commands will be executed from this start directory.

When '**xy**' is referred to in the command samples below, replace it with the current Cisco Prime Network Registrar IPAM version of the database:

8.1.1 – Use DatabaseChecks-5.0.xml

8.1.2 – Use DatabaseChecks.xml

You do not need to repeat this command with different filename versions in succession. Only the filename that matches the current version of the database is needed to continue.

Database Integrity

UNIX:

```
./DatabaseIntegrityChecker.sh -f DatabaseChecks-xy.xml -d /opt/incontrol/tmp -o /opt/incontrol/tmp/DBICout.txt -e /opt/incontrol/tmp/DBICerr.txt -u incadmin -p incadmin
```

Windows:

```
DatabaseIntegrityChecker.cmd -f DatabaseChecks-xy.xml -d C:\tmp -o C:\tmp\DBICout.txt -e C:\tmp\DBICerr.txt -u incadmin -p incadmin
```

Summary:

You should see similar Database Integrity Check results, with 0 failed checks before you continue.

```
Integrity checks run: 168  
Integrity checks passed: 168  
Integrity checks failed: 0
```

If the above output has more than zero failed checks, rerun the last command again, but append a `-r` at the end of the command. This should auto repair the problems found. If the `-r` option does not work after 5 to 10 attempts, contact the Technical Assistance Center for further assistance. **DO NOT CONTINUE WITH THE UPGRADE UNTIL THE CHECKS FAILED VALUE IS ZERO**, or the data has been determined safe by TAC to continue the upgrade.

Block Integrity

UNIX:

```
./BlockCheck.sh -u incadmin -p incadmin -b 0
```

Windows:

```
BlockCheck.cmd -u incadmin -p incadmin -b 0
```

Summary:

You should see the following Block Integrity Check results before you continue to the next step.

```
BlockIntegrityCheck completed.  
Total Problems Found: 0
```

If the above output has more than zero failed checks, rerun the last command, but append a `"-r -l"` at the end of the command. This should auto repair the problems found. If the `-r -l` option does not work after 5 to 10 attempts, contact the TAC for further assistance. **DO NOT CONTINUE WITH THE UPGRADE UNTIL THE TOTAL PROBLEMS FOUND VALUE IS ZERO**, or the data has been determined safe by TAC to continue the upgrade.

Schema Check

UNIX:

```
./SchemaChecker.sh -f /opt/incontrol/tmp
```

Windows:

```
SchemaChecker.cmd -f "C:\Program Files\Cisco\Cisco Prime Network Registrar IPAM\tmp"
```

Additional info:

-f = The output directory for the report file. The output filename is SchemaReport.txt

-u & -p parameters are not required since these values are picked up from jdbc.properties.

Summary:

After the command completes, review the report found in INCHOME/tmp. If any details appear below the "ERRORS" section toward the top of the report, contact the TAC and provide the report file when opening a ticket. If the report starts with "WARNINGS" or "INFORMATIONAL", you may contact the TAC, but you may also continue the upgrade without an immediate response. There is not an automatic fix option for this script. A custom repair script will need to be provided by TAC once they have reviewed the report.

Fix Root Block IDs

UNIX:

```
./FixRootBlockIDs.sh
```

Windows:

```
FixRootBlockIDs.cmd
```

Summary:

No further action is required. Running this command just double checks that all blocks have a Root ID. The output to the screen may look erroneous, but they are benign and can be ignored.

Database Schema Updates

UNIX:

Logged in as the 'incadmin' system user, from /opt/incontrol/etc/support, run this command:

```
./UpgradeSchema.sh
```

Windows:

Logged in as 'Administrator' or a user with equal privileges, open a command prompt. From C:\Program Files\Cisco\Cisco Prime Network Registrar IPAM\etc\support, run this command:

```
UpgradeSchema.cmd
```

Summary:

This script will apply all required schema updates, including BIND dictionary updates, against the Cisco Prime Network Registrar IPAM database from its current version to the latest version of 8.1.3. No errors should occur during this time. If so, please contact the TAC to discuss the problem further.

Once this script completes successfully, local MySQL users, stop MySQL. All users start all Cisco Prime Network Registrar IPAM 8.1.3 Executive services.

Continue to the **Logging into the Web Interface** section earlier in this document to finalize the upgrade.

Restoring Original Cisco Prime Network Registrar IPAM Files

If there is a need to restore Cisco Prime Network Registrar IPAM to the version you were running prior to attempting the Cisco Prime Network Registrar IPAM 8.1.3 upgrade, you will need to perform the following steps.

When using the method below, your MySQL data will also be restored, but only to the point where your upgrade began. Oracle database users, contact your DBA for assistance with restoring your original database backup, after your original Cisco Prime Network Registrar IPAM files have been restored.

UNIX Executive

- As the incadmin user, stop the Cisco Prime Network Registrar IPAM services, including DNS and DHCP, if installed.

```
/opt/incontrol/etc/incontrol stop
```

- Double check all services are stopped:

```
ps -ef | grep inc
```

If this command lists any processes running for Cisco Prime Network Registrar IPAM then stop or kill those processes.

- In the /opt directory, make note of a sub-directory called “incontrol-”, followed by some numbers. For example, incontrol-20110627112456. This number is a date/time stamp of when your upgrade was executed. If you have more than one occurrence of a time stamped sub-directory, this means the upgrade was attempted more than once. You’ll likely want to use the oldest directory, since that was your original starting point. Or if the first few attempts failed, and the latest attempt completed successfully, then you’ll want to use the youngest sub-directory found.
- As the root user, rename your current /opt/incontrol directory to /opt/incontrol-70.

```
mv /opt/incontrol /opt/incontrol-70
```

- As the root user, rename your original time stamped sub-directory to /opt/incontrol

```
mv /opt/incontrol-20110627112456 /opt/incontrol
```

-This setup will restore all original files, including any customizations you may have had defined, and have not touched since the 8.1.3 upgrade occurred

Oracle users: Restore your original Cisco Prime Network Registrar IPAM backup by following the above steps. After your Oracle DBA has restored your 8.1.1 or 8.1.2 data on the Database server, you may start your Cisco Prime Network Registrar IPAM services on the restored Executive system.

As the incadmin user, start the Cisco Prime Network Registrar IPAM services.

```
/opt/incontrol/etc/incontrol start
```

- Give the services a few moments to get started, and then try logging into your Cisco Prime Network Registrar IPAM web interface and confirm that you're now back to your original start version.
- Test the functionality of the product to ensure you're back to a working state.