



Overview

This chapter provides an overview of the software installation process. You can install the Cisco Prime Access Registrar software on a machine for the first time, or you can upgrade the existing Prime Access Registrar software to a latest version.

Prime Access Registrar software is available in a packaged DVD-ROM or can be download from the Cisco.com website. [“Downloading Cisco Prime Access Registrar Software” section on page 1-5](#) provides detailed information about downloading the Prime Access Registrar 7.0 software.

Before you install the Prime Access Registrar 7.0 software, you must copy a license file to the location where you will install the software. You will receive the license file as an e-mail attachment. [“Cisco Prime Access Registrar 7.0 Licensing” section on page 1-6](#) provides detailed information about the new licensing mechanism in Prime Access Registrar.



Note

Before you begin the software installation, ensure that your server has the recommended patches. For patch details refer to [Installing Cisco Prime Access Registrar 7.0](#). A dedicated server should be allocated for Prime Access Registrar installation and it is recommended to run Prime Access Registrar as a standalone application. Installing any other application(s) in the same server is not supported.

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About Cisco Prime Access Registrar

Prime Access Registrar is a 64-bit, 3GPP-complaint RADIUS (Remote Authentication Dial-In User Service)/Diameter server that enables multiple dial-in Network Access Server (NAS) devices to share a common authentication, authorization, and accounting database.

Prerequisites

Before you install Prime Access Registrar, ensure that:

- You have the recommended hardware and software requirements.
- You have a valid Prime Access Registrar license.
- You have installed 64-bit Java 1.6 or 1.7.
- You have 64-bit Oracle client installed, if you are using Oracle Call Interface (OCI) services. Supported Oracle client versions are 10.2.0.1.0 to 12c.


Note

Oracle Instant Client libraries are not supported. For ODBC, Prime Access Registrar supports MySQL database connectivity and for OCI, it supports Oracle database connectivity.

- You have the 64-bit rpm files for the relevant RHEL and Cent OS versions while installing Prime Access Registrar. For the list of required rpms for the relevant OS versions, see [Required 64-bit rpms for Relevant RHEL OS Versions](#).


Note

You must install the rpm versions relevant to the RHEL OS versions while installing Prime Access Registrar.

- The 'bc' command (which is an arbitrary precision calculator language) is present while installing Prime Access Registrar in a Linux machine. If the 'bc' command is not present, install the relevant rpm such as bc-1.06.95-1.el6.x86_64 on that machine.
- Before enabling the SIGTRAN-M3UA remote server, ensure the following:
 - LKSTCP is not available in the Prime Access Registrar server.
 - You restart the Prime Access Registrar server whenever you make any SIGTRAN-M3UA configuration changes.

Required 64-bit rpms for Relevant RHEL OS Versions

rpm	RHEL OS Version 6.4	RHEL OS Version 6.6	RHEL OS Version 7.0
glibc	Yes	Yes	Yes
gdome2	Yes	Yes	Yes
glib	Yes	Yes	Yes
glib2	Yes	Yes	Yes
libgcc	Yes	Yes	Yes
libstdc++	Yes	Yes	Yes
libxml2	Yes	Yes	Yes
ncurses	No	No	No
nspr	Yes	Yes	Yes
nss	No	No	No
zlib	Yes	Yes	Yes

rpm	RHEL OS Version 6.4	RHEL OS Version 6.6	RHEL OS Version 7.0
nss-softokn-freebl	Yes	Yes	Yes
ncurses-libs	Yes	Yes	Yes
nss-util	Yes	Yes	Yes
gamin	Yes	Yes	Yes
libselinux	Yes	Yes	Yes

System Requirements

This section describes the system requirements to install and use the Prime Access Registrar software.

[Table 1](#) lists the system requirements for Prime Access Registrar 7.0.

Table 1 Minimum Hardware and Software Requirements for Prime Access Registrar Server

OS version	RHEL 6.4/6.6/7.0 Cent OS 6.5
Model	X86
CPU type	Intel Xeon CPU 2.30 GHz
CPU Number	4
CPU speed	2.30 GHz
Memory (RAM)	8 GB
Swap space	10 GB
Disk space	1*146 GB

Installation Dialog Overview

Prime Access Registrar 7.0 uses the RedHat Package Manager (RPM) and installs as a script. When you begin the software installation, the installation process uses a dialog to determine how to install the software.

Installation Location

The next question in the installation dialog asks, “Where do you want to install?” The default location to install the software is `/opt/CSCOAr`. You can choose to specify another location by entering it at this point. That directory would then be the base install directory, sometimes referred to as `$INSTALL` or `$BASEDIR`.

License File Location

The installation dialog asks for the location of the license file.

Cisco Prime Access Registrar requires FLEXlm license file to operate. A list of space delimited license files or directories can be supplied as input; license files must have the extension ".lic".

Where are the FLEXlm license files located? [] [?.q]

Prime Access Registrar uses a licensing mechanism that requires a file to be copied from a directory on the Prime Access Registrar workstation. Earlier versions of Access Registrar used a license key. You should copy the license file to the Prime Access Registrar workstation before you begin the software installation. You can copy the license file to **/tmp** or another directory you might prefer. The installation process will copy the license file from the install location that you have provided, for example **/opt/CSCOAr/license**.

See “Cisco Prime Access Registrar 7.0 Licensing” section on page 1-6 for more detailed information about the Prime Access Registrar license file requirements.

Java Runtime Environment

The installation dialog asks for the location of the Java Runtime Environment (JRE). Prime Access Registrar provides a web-based GUI that requires JRE Version 1.6.x/1.7.x to be installed on the Prime Access Registrar server.

Where is the J2RE installed?

If you already have a Java Version 6 or Version 7 platform installed, enter the directory where it is installed. If you need the JRE, you can download it from one of the following websites:

<http://java.sun.com>

<http://openjdk.java.net>

Open Database Connectivity

The installation dialog asks for the location of the Oracle installation directory, required for Oracle Call Interface (OCI) configuration. The installation process uses this information to set the ORACLE_HOME variable in the **/opt/CSCOAr/bin/arserver** script.

If you are not using OCI, press **Enter** to skip this step.



Note

Supported Oracle client versions are 10.2.0.1.0 to 12c.

Example Configuration

The installation dialog asks if you want to install the example configuration. You can use the example configuration to learn about Prime Access Registrar and to understand the Prime Access Registrar configuration.

You can delete the example configuration at any time by running the command:

```
/opt/CSCOAr/bin/aregcmd -f /opt/CSCOAr/examples/cli/delete-example-configuration.rc
```

Base Directory

On initiating the installation process, a message stating whether you want to install the Prime Access Registrar in the `/opt/CSCOAr` base directory is displayed. You need to select the required option to proceed further.

If the base directory does not exist, a message stating whether you want to create the selected base directory is displayed. You need to select the required option to proceed installation.

```
The selected base directory </opt/CSCOAr> must exist before
installation is attempted.
```

```
Do you want this directory created now [y,n,?,q]
```

The base directory must be created before you can install the software. If you do not agree to create the base directory at this point, the installation process terminates and no changes are made to the system. The default base directory is `/opt/CSCOAr`.

Running Prime Access Registrar as Non-root User

Prime Access Registrar can be run as a non-root user as well. Make sure that you have an existing non-root user account. If you wish to run Prime Access Registrar as a non-root user, and the user does not exist, choose to exit the installation.

```
Do you want CPAR to be run as non-root user? [n]: [y,n,?,q] y
```

```
Enter the username that is to be used to run CPAR processes: test
Enter the usergroup of the above username: adm
User test exists.
```

Continue with Installation

Before executing the library files and other packages, a confirmation message stating that “Do you want to continue with the installation of <CSCOAr>?” is displayed. Enter **Y** or **yes** to continue with the installation. No further user input is required.

Downloading Cisco Prime Access Registrar Software

Prime Access Registrar software is available for download at:

<http://www.cisco.com/cgi-bin/tablebuild.pl/access-registrar-encrypted?sort=release>

All versions of Prime Access Registrar software available for download are listed. The current version is `CSCOAr-7.0.0-lnx26_64-install-K9.sh`.

Complete the following steps to download the software.

-
- Step 1** Create a temporary directory, similar to `/tmp`, to hold the downloaded software package.
 - Step 2** Enter the URL to the Cisco.com website for Prime Access Registrar software:
<http://www.cisco.com/cgi-bin/tablebuild.pl/access-registrar-encrypted?sort=release>
 - Step 3** Click on the link for Prime Access Registrar software:

CSCOar-7.0.0-lnx26_64-install-K9.sh

The Software Center Download Rules page appears. You should read these rules carefully.

**Warning**

Before downloading this software please ensure that each of the following licenses and agreements are in place with Cisco Systems or a Cisco Systems authorized reseller.

These rules require you to acknowledge the following:

- A software license
- A valid service agreement

By clicking **Agree**, you confirm that the download of this file by you is in accordance with the requirements listed and that you understand and agree that Cisco Systems reserves the right to charge you for, and you agree to pay for, any software downloads to which you are not entitled. All Cisco Systems Operating System and application software licenses and downloads are governed by Cisco Systems' applicable End User License Agreement/Software License Agreement. By clicking **Agree** you further agree to abide by the terms and conditions set forth in Cisco Systems' End User License agreement/Software License Agreement and your service agreement.

If you click **Agree**, the End User License Agreement / Software License Agreement is displayed.

- Step 4** Read the End User License Agreement / Software License Agreement carefully, and if you accept the terms, click **Accept**.

The software Download page appears. In few seconds, a File Download dialog box appears. If it does not appear, click the link provided in the page.

- Step 5** Click **Save** and indicate where to save the file on your computer, such as **/tmp**, then click **Save** again.
-

Cisco Prime Access Registrar 7.0 Licensing

In Prime Access Registrar 7.0, licensing is based on transactions per second (TPS) or concurrent online/active subscribers/devices sessions (SUB). TPS is calculated based on the number of packets flowing into Prime Access Registrar. In Session based licensing model, the license is managed based on the number of sessions that reside in Prime Access Registrar. During Prime Access Registrar startup, either TPS based licensing or session based licensing model should be loaded.

The Remote Authentication Dial-In User Service (RADIUS) transaction in Prime Access Registrar constitutes:

- Access-Request/Access-Accept pair
- Access-Request/Access-Reject pair
- Access-Request/Access-Challenge pair
- Accounting-Request/Accounting-Response pair

Each pair (request and its response) is one transaction. In a proxy scenario, the additional traffic created by the proxy request from Prime Access Registrar and its response will not be considered as a different transaction. However, only those requests from the RADIUS client/NAS is taken as a transaction.

The Diameter transaction constitutes a complete Diameter-Request and Diameter-Answer.

Prime Access Registrar can be deployed in an active/stand-by server combination (with VERITAS or RHEL clustering solution). The active server performs all the AAA functionality. Only if the active server goes down, VERITAS/RHEL cluster will trigger the stand-by server.

Prime Access Registrar can optionally be deployed in a two-tier architecture—front-end and back-end server. The front-end server performs AAA functions. The back-end server performs session management functions.

License Slabs

Greenfield customers can purchase Prime Access Registrar 7.0 version by purchasing the required part numbers. Prime Access Registrar is also available by e-delivery; with e-delivery, the licenses are obtained electronically. The licenses need to be ordered using the part numbers in [Table 2](#).

Table 2 Cisco Prime Access Registrar Ordering Information

Part Number	Description
PRIME-ACC-REG	Physical delivery of Prime Access Registrar software/license.
R-PRIME-ACC-REG	Electronic delivery of Prime Access Registrar software/license.
PAR70-TPS-K9	Prime Access Registrar Base license; support for RADIUS; required for each region, supports 100 transactions per second
PAR70-NG-TPS-K9	Prime Access Registrar Next Generation Base license; required for each region, support for RADIUS, Diameter, and IPv6; supports 100 transactions per second
PAR70-DIR-BASE-K9	Prime Access Registrar Director Base license; intelligent AAA proxy, and Accounting write support; Includes RADIUS support; required for each region; supports 2000 transactions per second
PAR70-DIR-2KTPS	Prime Access Registrar Director Additional license; supports 2000 transactions per second
PAR70-100TPS	Prime Access Registrar Additional License; supports 100 transactions per second
PAR70-200TPS	Prime Access Registrar Additional License; supports 200 transactions per second
PAR70-500TPS	Prime Access Registrar Additional License; supports 500 transactions per second
PAR70-1000TPS	Prime Access Registrar Additional License; supports 1000 transactions per second
PAR70-2000TPS	Prime Access Registrar Additional License; supports 2000 transactions per second
PAR70-3000TPS	Prime Access Registrar Additional License; supports 3000 transactions per second
PAR70-5000TPS	Prime Access Registrar Additional License; supports 5000 transactions per second
PAR70-SUB-K9	Prime Access Registrar Subscriber Base license; required for each region; support for RADIUS; supports up to 100,000 concurrent active sessions

Table 2 Cisco Prime Access Registrar Ordering Information (continued)

Part Number	Description
PAR70-NG-SUB-K9	Prime Access Registrar Next Generation Subscriber Base license; required for each region; support for RADIUS, Diameter, and IPv6; supports up to 100,000 concurrent active sessions
PAR70-100K	Prime Access Registrar Additional Subscriber License region; supports 100,000 concurrent active sessions
PAR70-200K	Prime Access Registrar Additional Licenser; supports 200,000 concurrent active sessions
PAR70-500K	Prime Access Registrar Additional License; supports 500,000 concurrent active sessions
PAR70-1M	Prime Access Registrar Additional License; supports 1 million concurrent active sessions
PAR70-2M	Prime Access Registrar Additional License; supports 2 million concurrent active sessions
PAR70-RDDR-TRX	Prime Access Registrar License for RADIUS<->Diameter translations framework
PAR70-HSS	Prime Access Registrar License for interaction with HSS and EAP-SIM / EAP-AKA / EAP-AKA' authentication
PAR70-AP-BASE-K9	Prime Access Registrar License for per-Access Point (AP) based licensing model for large deals
PAR70-AP-100-TQ	Prime Access Registrar License for 100 APs in the per-AP based licensing model
PAR70-SIG-TPS-K9	Prime Access Registrar Base license with SIGTRAN enabled; support for RADIUS only; supports 100 transactions per second
PAR70-NGSIG-TPS-K9	Prime Access Registrar Next Generation Base license with SIGTRAN enabled; RADIUS, Diameter, and IPv6; supports 100 transactions per second
PAR70-SIG100TPS	Prime Access Registrar Additional License with SIGTRAN enabled; supports 100 transactions per second
PAR70-SIG200TPS	Prime Access Registrar Additional License with SIGTRAN enabled; supports 200 transactions per second
PAR70-SIG500TPS	Prime Access Registrar Additional License with SIGTRAN enabled; supports 500 transactions per second
PAR70-SIG1KTPS	Prime Access Registrar Additional License with SIGTRAN enabled; supports 1000 transactions per second
PAR70-SIG2KTPS	Prime Access Registrar Additional License with SIGTRAN enabled; supports 2000 transactions per second
PAR70-SIG3KTPS	Prime Access Registrar Additional License with SIGTRAN enabled; supports 3000 transactions per second
PAR70-SIG5KTPS	Prime Access Registrar Additional License with SIGTRAN enabled; supports 5000 transactions per second

Table 2 Cisco Prime Access Registrar Ordering Information (continued)

Part Number	Description
PAR70-SIG-SUB-K9	Prime Access Registrar Subscriber Base license with SIGTRAN enabled; support for RADIUS; supports up to 100,000 concurrent active sessions
PAR70-NGSIG-SUB-K9	Prime Access Registrar Next Generation Subscriber Base license with SIGTRAN enabled; required for each region; support for RADIUS, Diameter, and IPv6; supports up to 100,000 concurrent active sessions
PAR70-SIG-100K	Prime Access Registrar Additional Subscriber License with SIGTRAN enabled; supports 100,000 concurrent active sessions
PAR70-SIG-200K	Prime Access Registrar Additional Subscriber License with SIGTRAN enabled; supports 200,000 concurrent active sessions
PAR70-SIG-500K	Prime Access Registrar Additional Subscriber License with SIGTRAN enabled; supports 500,000 concurrent active sessions
PAR70-SIG-1M	Prime Access Registrar Additional Subscriber License with SIGTRAN enabled; supports 1 million concurrent active sessions
PAR70-SIG-2M	Prime Access Registrar Additional Subscriber License with SIGTRAN enabled; supports 2 million concurrent active sessions

Upgrade Path

Existing Access Registrar customers with versions 4.2 or above can upgrade to Prime Access Registrar 7.0 by purchasing the appropriate upgrade part numbers listed in [Table 3](#). For more information, contact ar-tme(mailer list) <ar-tme@cisco.com>.

Table 3 Cisco Prime Access Registrar Upgrade Ordering Information

Part Number	Description
PAR70-UP-TPS-K9	Prime Access Registrar Upgrade Base license; support for RADIUS; required for each region, supports 100 transactions per second
PAR70-UPNG-TPS-K9	Prime Access Registrar Upgrade Next Generation Base license; required for each region, support for RADIUS, Diameter, and IPv6; supports 100 transactions per second
PAR70-DIR-UP-K9	Prime Access Registrar Upgrade Director Base license; intelligent AAA proxy, and Accounting write support; Includes RADIUS support; required for each Access Registrar Director Base server; supports 2000 transactions per second.
PAR70-UPD2KTPS	Prime Access Registrar Upgrade Director Additional License; supports 2000 transactions per second
PAR70-UP100TPS	Prime Access Registrar Upgrade Additional License; supports 100 transactions per second.
PAR70-UP200TPS	Prime Access Registrar Upgrade Additional License; supports 200 transactions per second.

Table 3 Cisco Prime Access Registrar Upgrade Ordering Information (continued)

Part Number	Description
PAR70-UP500TPS	Prime Access Registrar Upgrade Additional License; supports 500 transactions per second.
PAR70-UP1KTPS	Prime Access Registrar Upgrade Additional License; supports 1000 transactions per second.
PAR70-UP2KTPS	Prime Access Registrar Upgrade Additional License; supports 2000 transactions per second.
PAR70-UP3KTPS	Prime Access Registrar Upgrade Additional License; supports 3000 transactions per second.
PAR70-UP5KTPS	Prime Access Registrar Upgrade Additional License; supports 5000 transactions per second.
PAR70-UP-SUB-K9	Prime Access Registrar Upgrade Subscriber Base license; required for each region; support for RADIUS; supports 100,000 concurrent active sessions.
PAR70-UPNG-SUB-K9	Prime Access Registrar Upgrade Next Generation Subscriber Base license; required for each region; support for RADIUS, Diameter, and IPv6; supports up to 100,000 concurrent active sessions.
PAR70-UP100K	Prime Access Registrar Upgrade Additional Subscriber License; supports up to 100,000 concurrent active sessions.
PAR70-UP200K	Prime Access Registrar Upgrade Additional Subscriber License; supports up to 200,000 concurrent active sessions.
PAR70-UP500K	Prime Access Registrar Upgrade Additional Subscriber License; supports up to 500,000 concurrent active sessions.
PAR70-UP1M	Prime Access Registrar Upgrade Additional Subscriber License; supports up to 1 million concurrent active sessions.
PAR70-UP2M	Prime Access Registrar Upgrade Additional Subscriber License; supports up to 2 million concurrent active sessions.

Getting a Prime Access Registrar 7.0 License

When you order the Cisco Prime Access Registrar product, a text license file will be sent to you by e-mail. If you are evaluating the software, Cisco will provide you with an evaluation license.

If you decide to upgrade your Prime Access Registrar software, a new text license file will be sent to you by e-mail.



Note

While upgrading, the licenses of previous versions cannot be used with Prime Access Registrar 7.0. Backward compatibility support in terms of license will not be available in this version.

If you receive a Software License Claim Certificate, you can get your Prime Access Registrar license file at the following URL:

www.cisco.com/go/license

**Note**

You need to be the registered user of Cisco.com to generate a Software License.

Within one hour of registration at the above website, you will receive your license key file and installation instructions in e-mail.

Installing Prime Access Registrar 7.0 Licenses

You must have a license in a directory on the Prime Access Registrar machine before you attempt to install Prime Access Registrar software. If you have not installed the Prime Access Registrar license file before beginning the software installation, the installation process will fail.

You can store the Prime Access Registrar license file in any directory on the Prime Access Registrar machine. During the installation process, you will be asked the location of the license file, and the installation process will copy the license file to the `/opt/CSCOar/license` directory, or `$INSTALL/license` directory if you are not using the default installation location.

The license file might have the name `ciscoar.lic`, but it can be any filename with the suffix `.lic`. To install the Prime Access Registrar license file, you can copy and paste the text into a file, or you can simply save the file you receive in e-mail to an accessible directory.

Adding Additional Prime Access Registrar 7.0 Licenses

If you add additional licenses, you can open the file in `/opt/CSCOar/license` and add additional lines to the license file, or you can create an additional license file to hold the new lines. If you add a new file, remember to give it a `.lic` suffix. You must restart the Prime Access Registrar server for the new license to take effect. To restart the Prime Access Registrar server, enter the following on the server command line:

```
/opt/CSCOar/bin/arserver restart
```

Sample License File

The following is an example of a Cisco Prime Access Registrar license file.

```
INCREMENT PAR-SIG-NG-TPS cisco 7.0 5-sep-2015 uncounted \  
VENDOR_STRING=<count>1</count> HOSTID=ANY \  
NOTICE="<LicFileID>20150309061829115</LicFileID><LicLineID>1</LicLineID> \  
<PAK></PAK>" SIGN=1234DF7DEC00E4
```

Displaying License Information

Prime Access Registrar provides two ways of getting license information using `aregcmd`:

- `aregcmd` command-line option
- Launching `aregcmd`

aregcmd Command-Line Option

Prime Access Registrar provides a **-l** command-line option to **aregcmd**. The syntax is:

```
aregcmd -l directory_name
```

where *directory_name* is the directory where the Prime Access Registrar license file is stored. The following is an example of the **aregcmd -l** command:

```
aregcmd -l /opt/CSCOar/license
Licensed Application: Cisco Prime Access Registrar (Standard Version)
```

Following are the licensed components:

NAME	VERSION	EXPIRY_INFO	COUNT
====	=====	=====	=====
PAR-SIG-NG-TPS	7.0	5-Sep-2015	100

Launching aregcmd

The Prime Access Registrar server displays license information when you launch **aregcmd**, as shown in the following:

```
aregcmd
```

```
Cisco Prime Access Registrar 7.0.0.0 Configuration Utility
Copyright (C) 1995-2015 by Cisco Systems, Inc. All rights reserved.
Logging in to localhost
```

```
[ //localhost ]
  LicenseInfo = PAR-NG-TPS 7.0 (100TPS:expires on 5-Sep-2015)

  Radius/
  Administrators/
```

```
Server 'Radius' is Running, its health is 10 out of 10
```

Related Documentation

For a complete list of Cisco Prime Access Registrar 7.0 documentation, see the [Cisco Prime Access Registrar 7.0 Documentation Overview](#).

**Note**

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

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, using the Cisco Bug Search Tool (BST), submitting a service request, and gathering additional information, see [What's New in Cisco Product Documentation](#).

To receive new and revised Cisco technical content directly to your desktop, you can subscribe to the [What's New in Cisco Product Documentation RSS feed](#). The RSS feeds are a free service.

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