



## CHAPTER 2

# Installing Cisco Prime Access Registrar 6.0

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This chapter provides information about installing Cisco Prime AR 6.0 software. The software is available in DVD-ROM form and can also be downloaded from the Cisco.com website. The installation instructions differ slightly depending on whether you install the software from the Cisco Prime AR DVD-ROM or from downloaded software.



### Note

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Cisco Prime AR 6.0 can be used with Solaris 10, or Red Hat Enterprise Linux 5.3/5.4/5.5/6.0/6.1/6.2 32-bit /64-bit operating system (with 32-bit library is only for 64-bit operating system) using kernel 2.6.18-128.el5 or later versions of 2.6, and Glibc version: glibc-2.5-34 or later.

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This chapter contains the following sections:

- [Installing the Cisco Prime Access Registrar 6.0 License File, page 2-1](#)
- [Installing Cisco Prime Access Registrar 6.0 Software on Solaris, page 2-2](#)
- [Installing Cisco Prime Access Registrar 6.0 Software on Linux, page 2-7](#)



### Note

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For installing Cisco Prime AR, we have set **/opt/CSCOar** as the install location. However, you can change the install location as required.

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## Installing the Cisco Prime Access Registrar 6.0 License File

You must have a license file in a directory on the Cisco Prime AR machine before you attempt to install Cisco Prime AR software. After purchasing Cisco Prime AR, you will receive a license file in an e-mail attachment. Save or copy this license file to a directory on the Cisco Prime AR workstation. If you have not installed the Cisco Prime AR license file before beginning the software installation, the installation process will fail.

You can store the Cisco Prime AR license file in any directory on the Cisco Prime AR 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 to the base installation directory you specify when you install the software 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 Cisco Prime AR 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.

**Note**

Cisco Prime AR 6.0 can be used with Solaris 10, or Red Hat Enterprise Linux 5.3/5.4/5.5/6.0/6.1/6.2 32-bit /64-bit operating system using kernel 2.6.18-128.el5 or later versions of 2.6, and Glibc version: glibc-2.5-34 or later versions of 2.5. When you use 64-bit operating system, ensure that 32-bit libraries are installed as per the recommendations at [Installing Cisco Prime Access Registrar 6.0 Software on Linux, page 2-7](#).

**Note**

Cisco Prime AR 6.0 evaluation license can be generated using your Cisco.com account in the Product License Registration tool at <http://www.cisco.com/web/go/license/index.html>. The evaluation license is valid only for 90 days. The generated Cisco Prime AR license works for both Solaris and Linux servers.

## Installing Cisco Prime Access Registrar 6.0 Software on Solaris

This section describes the software installation process when installing Cisco Prime AR software on a Solaris workstation for the first time.

This section includes the following subsections:

- [Deciding Where to Install, page 2-2](#)
- [Installing Cisco Prime Access Registrar Software from DVD-ROM, page 2-2](#)
- [Installing Downloaded Software, page 2-3](#)
- [Common Solaris Installation Steps, page 2-3](#)
- [Installing Cisco Prime Access Registrar on LDoms, page 2-7](#)

**Tips**

Before you begin to install the software, check your workstation's **/etc/group** file and make sure that group *staff* exists. The software installation will fail if group *staff* does not exist before you begin.

### Deciding Where to Install

Before you begin the software installation, you should decide where you want to install the new software. The default installation directory for Cisco Prime AR 6.0 software is **/opt/CSCOar**. You can use the default installation directory, or you can choose to install the Cisco Prime AR software in a different directory.

### Installing Cisco Prime Access Registrar Software from DVD-ROM

The following steps describe how to begin the software installation process when installing software from the Cisco Prime AR 6.0 DVD-ROM. If you are installing downloaded software, proceed to [“Installing Downloaded Software” section on page 2-3](#).

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- Step 1** Place the DVD-ROM in the Cisco Prime AR workstation DVD-ROM drive.
- Step 2** Log into the Cisco Prime AR workstation as a root user, and enter the following command line:
- For Solaris 10:

```
pkgadd -d /cdrom/cdrom0/kit/solaris-2.10 CSCOar
```

**Step 3** Proceed to [“Common Solaris Installation Steps”](#) section on page 2-3.

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## Installing Downloaded Software

This section describes how to uncompress and extract downloaded Cisco Prime AR software and begin the software installation.

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**Step 1** Log into the Cisco Prime AR workstation as a root user.

**Step 2** Change directory to the location where you have stored the uncompressed tarfile.

```
cd /tmp
```

**Step 3** Use the following command line to uncompress the tarfile and extract the installation package files.

```
zcat CSCOar-6.0.0.0-sol10-K9.tar.gz | tar xvf -
```

**Step 4** Enter the following command to begin the installation:

```
pkgadd -d /tmp CSCOar
```

where */tmp* is the temporary directory where you stored and uncompressed the installation files.

**Step 5** Proceed to [“Common Solaris Installation Steps”](#) section on page 2-3.

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## Common Solaris Installation Steps

This section describes the installation process immediately after you have issued the **pkgadd** command installing from DVD-ROM or from downloaded software.

```
Processing package instance <CSCOar> from </opt>
```

```
Cisco Prime Access Registrar 6.0.0.0 [SunOS-5.10, official](sparc) 6.0.0.0  
Copyright (C) 1998-2012 by Cisco Systems, Inc.  
This program contains proprietary and confidential information.  
All rights reserved except as may be permitted by prior written consent.
```

```
This package contains the Cisco Prime Access Registrar Server and the  
Cisco Prime Access Registrar Configuration Utility. You can choose to  
perform either a Full installation or just install the  
Configuration Utility.
```

To install Solaris:

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**Step 1** For a Full installation type, press **Enter**.

```
Where do you want to install <CSCOar>? [/opt/CSCOar] [?,q]
```

- Step 2** Press **Enter** to accept the default location of `/opt/CSCOAr`, or enter a different directory to be used as the base installation directory.

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".

Existing license files found. To use the existing license files, just press ENTER to the prompt below.

Note: To enable other features within this package, additional FLEXlm license files can be specified below.

- Step 3** Where are the FLEXlm license files located? `[/opt/CSCOAr/license] [?,q]`  
Enter the directory where you have stored the Cisco Prime AR 6.0 license file.

Cisco Prime Access Registrar provides a Web GUI. It requires J2RE version 1.5.\* or 1.6.\* to be installed on the server

If you already have a compatible version J2RE installed, please enter the directory where it is installed. If you do not, the compatible J2RE version can be downloaded from:

<http://java.sun.com/>

Where is the J2RE installed? `[?,q] /usr/jdk/jdk1.5.0_28`

The J2RE is required to use the Cisco Prime AR GUI. If you already have a Java 2 platform installed, enter the directory where it is installed.



- Note** If you do not provide the JRE path, or if the path is empty or unsupported, the installation process exits. Cisco Prime AR requires either JRE 1.5.x or JRE 1.6.x version.

- Step 4** Enter the directory or mount point where the J2RE is installed.

If you are not using ORACLE, press Enter/Return to skip this step. ORACLE installation directory is required for ODBC configuration. ORACLE\_HOME variable will be set in `/etc/init.d/arsserver` script

Where is ORACLE installed? `[] [?,q]`



- Note** For OCI related services, install Oracle client version 10.2.0.1.0, 11.1.0.6.0 or 11.2.0.1.0 for Solaris. For ODBC related services, install Oracle 10g client for Solaris using `10201_client_solaris32.zip` and `instantclient-basic-solaris32-10.1.0.5-20060511.zip`.

- Step 5** If you plan to use Oracle, enter the location where you have installed Oracle; otherwise press **Enter**.

If you want to learn about Cisco Prime Access Registrar by following the examples in the Installation and Configuration Guide, you need to populate the database with the example configuration.

Do you want to install the example configuration now `[n] [y,n,?,q]`

- Step 6** When prompted whether to install the example configuration now, enter **Y** or **N** to continue.

**Note**

If you are using DIRECTOR/DIRECTOR NEXT GEN Licenses, do not try installing the Example configuration. Set the option for example configuration as 'N'.

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

```
/opt/CSCOar/bin/aregcmd -f /opt/CSCOar/examples/cli/add-example-configuration.rc
```

**Note**

You can delete the example configuration at any time by running the command **/opt/CSCOar/usrbin/aregcmd -f /opt/CSCOar/examples/cli/delete-example-configuration.rc**.

```
## Executing checkinstall script.
```

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

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

**Step 7** Enter **Y** to enable the installation process to create the **/opt/CSCOar** directory.

Using </opt/CSCOar> as the package base directory.

```
## Processing package information.
## Processing system information.
## Verifying package dependencies.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.
## Checking for setuid/setgid programs.
```

The following files are being installed with setuid and/or setgid permissions:

```
/opt/CSCOar/.system/screen <setuid root>
/opt/CSCOar/bin/aregcmd <setgid staff>
/opt/CSCOar/bin/radclient <setgid staff>
```

```
Do you want to install these as setuid/setgid files [y,n,?,q]
```

**Step 8** Enter **Y** to install the **setuid/setgid** files.

This package contains scripts which will be executed with super-user permission during the process of installing this package.

```
Do you want to continue with the installation of <CSCOar> [y,n,?]
```

**Note**

For more information on setuid and setgid, see [setuid and setgid Permissions, page 1-5](#).

**Step 9** Enter **Y** to continue with the software installation.

No further interaction is required; the installation process should complete successfully and the **arservagt** is automatically started.

```
Installing Cisco Prime Access Registrar 6.0.0.0 [SunOS-5.10, official] as <CSCOar>
```

```
## Installing part 1 of 1.
/opt/CSCOar/.system/add-example-config
/opt/CSCOar/.system/run-ar-scripts
/opt/CSCOar/.system/screen
/opt/CSCOar/README
```

```

/opt/CSCOar/bin/arbug
/opt/CSCOar/bin/nasmonitor
/opt/CSCOar/bin/share-access
.
.
.
setting up the web server.....
# configuring the web server.....
# setting up product configuration file /opt/CSCOar/conf/car.conf
# linking /etc/init.d/arserver to /etc/rc.d files
# setting ORACLE_HOME and JAVA_HOME variables in arserver
# flushing old replication archive
# creating initial configuration database
Rollforward recovery using "/opt/CSCOar/data/db/vista.tjf" started Thu Aug 09 07:52:26
2012
Rollforward recovery using "/opt/CSCOar/data/db/vista.tjf" finished Thu Aug 09 07:52:26
2012

# installing example configuration
# removing old session information
# extracting the web application.....
We will now generate an RSA key-pair and self-signed certificate that
may be used for test purposes
Generating a 1536 bit RSA private key
.....++++
.....++++
writing new private key to '/cisco-ar/certs/tomcat/server-key.pem'
-----
Server self-signed certificate now resides in /cisco-ar/certs/tomcat/server-cert.pem
Server private RSA key now resides in /cisco-ar/certs/tomcat/server-key.pem

Remember to install additional CA certificates for client verification
Tomcat private RSA key now resides in /cisco-ar/certs/tomcat/server-key.pem
Starting Cisco Prime Access Registrar Server Agent.....completed.
The Radius server is now running.
# done with postinstall.

Installation of <CSCOar> was successful

hostname root /tmp##

```

## Configuring SNMP

If you choose not to use the SNMP features of Cisco Prime AR, the installation process is completed. To use SNMP features, complete the configuration procedure described in [“Configuring SNMP” section on page 5-15](#).

## RPC Bind Services

The Cisco Prime AR server and the **aregcmd** CLI requires RPC services to be running before the server is started. If the RPC services are stopped, you must restart RPC services, then restart the Cisco Prime AR server. Use the following commands to restart RPC services:

```
/opt/CSCOar/bin/arserver stop
```

```
/etc/init.d/rpc start
```

```
/opt/CSCOar/bin/arserver start
```

If RPC services are not running, the following message is displayed when you attempt to start aregcmd:

```
Login to aregcmd fails with the message:  
400 Login failed
```

## Installing Cisco Prime Access Registrar on LDoms

Logical Domains (LDoms) allows you to allocate a system's various resources, such as memory, CPUs, and devices, into logical groupings and create multiple, discrete systems, each with their own operating system, resources, and identity within a single computer system. LDoms environment helps you to achieve greater resource usage, better scaling, and increased security and isolation.

The server virtualization feature in Cisco Prime AR will enable maximum resource utilization with dynamic resource allocation between LDoms.

## Installing Cisco Prime Access Registrar 6.0 Software on Linux

This section describes the software installation process when installing Cisco Prime AR software on a Linux workstation for the first time. This section includes the following subsections:

- [Deciding Where to Install, page 2-7](#)
- [Installing Cisco Prime Access Registrar Software from DVD-ROM, page 2-8](#)
- [Common Linux Installation Steps, page 2-8](#)



### Tips

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Before you begin to install the software, check your workstation's **/etc/group** file and make sure that group **staff** exists. The software installation will fail if group **staff** does not exist before you begin.

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### Note

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When you install Cisco Prime AR on RHEL (64-bit Operating System), you must download the necessary rpm files and install to ensure that the **libncurses.so** (version 5.5 or above) and **libnssutil3.so** library files are available in the **/usr/lib** directory. Also, you need to install **glibc-32bit-2.10.1-10.5.1.x86\_64.rpm** rpm file so that installation on Linux can be completed successfully.

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## Deciding Where to Install

Before you begin the software installation, you should decide where you want to install the new software. The default installation directory for Cisco Prime AR 6.0 software is **/opt/CSCOar**. You can use the default installation directory, or you can choose to install the Cisco Prime AR software in a different directory.

## Installing Cisco Prime Access Registrar Software from DVD-ROM

The following steps describe how to begin the software installation process when installing software from the Cisco Prime AR 6.0 DVD-ROM. If you are installing downloaded software, proceed to [“Installing Downloaded Software” section on page 2-3](#).

- 
- Step 1** Place the DVD-ROM in the Cisco Prime AR workstation DVD-ROM drive.
- Step 2** Log into the Cisco Prime AR workstation as a root user and find a temporary directory, such as **/tmp**, to store the Linux installation file.



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**Note** The temporary directory requires at least 70 MB of free space.

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- Step 3** Change directory to the CD-ROM.

```
cd /cdrom/cdrom0/kit/linux-2.6
```

- Step 4** Copy the **CSCOAr-6.0.0.0-lnx26-install-K9.sh** file to the temporary directory.

```
cp CSCOAr-6.0.0.0-lnx26-install-K9.sh /tmp
```

- Step 5** Change the permissions of the **CSCOAr-6.0.0.0-lnx26-install-K9.sh** file to make it executable.

```
chmod 777 CSCOAr-6.0.0.0-lnx26-install-K9.sh
```

- Step 6** Run set SELinux to permissive mode:

```
setenforce 0
```



---

**Note** The above command will set SELinux to permissive mode temporarily until you reboot the system. To start the system in permissive mode permanently, edit **/etc/selinux/config** and change **SELINUX=enforcing** to **SELINUX=permissive** and reboot the system.

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To continue the installation, proceed to [“Common Linux Installation Steps” section on page 2-8](#).

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## Common Linux Installation Steps

This section describes how to install the downloaded Cisco Prime AR software for Linux and begin the software installation.



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**Note** The Cisco Prime AR Linux installation automatically installs **aregcmd** and **radclient** as setgid programs in group **adm**.

---

- Step 1** Login to the Cisco Prime AR workstation as a root user.

- Step 2** Change the directory to the location where you have stored the **CSCOAr-6.0.0.0-lnx26-install-K9.sh** file.

```
cd /tmp
```

- Step 3** Enter the name of the script file to begin the installation:

```
./CSCOAr-6.0.0.0-lnx26-install-K9.sh
```

```
Name          : CSCOAr                      Relocations: /opt/CSCOAr
Version       : 6.0.0.0                    Vendor: Cisco Systems, Inc.
Release      : 1313485543                  Build Date: Sun 28 Oct 2012 02:18:57 AM PDT
Install date: (not installed)              Build Host: harvey-ar1
Signature    : (none)
and accounting server.
build_tag: [Linux-2.6.20, official]
```

```
Copyright (C) 1998-2012 by Cisco Systems, Inc.
This program contains proprietary and confidential information.
All rights reserved except as may be permitted by prior written consent.
```

```
Where do you want to install <CSCOAr>? [/opt/CSCOAr] [?,q]
```

You will encounter the following error, if you fail to install the RedHat Enterprise Linux 5.x compatible SCTP library which is a prerequisite for Cisco AR 5.0.0.1 or later installation:

```
The following library required for proper operation of Cisco Prime Access
Registrar is missing:
```

```
/usr/lib/libsctp.so => SCTP library
```

```
Please install a RedHat Enterprise Linux 5.x compatible SCTP library
prior to installing Cisco Prime Access Registrar.
```

- Step 4** Press **Enter** to accept the default location of **/opt/CSCOAr**, or enter a different directory to be used as the base installation directory.

```
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]
```

- Step 5** Enter the directory where you have stored the Cisco Prime AR license file.

```
Cisco Prime Access Registrar provides a Web GUI. It requires J2RE
version 1.5.* to be installed on the server.
```

```
If you already have a compatible version of J2RE installed, please
enter the directory where it is installed. If you do not, the
compatible J2RE version can be downloaded from:
```

```
http://java.sun.com/
```

```
Where is the J2RE installed? [] [?,q]
```

The J2RE is required to use the Cisco Prime AR 6.0 GUI. If you already have a Java 2 platform installed, enter the directory where it is installed.

**Note**

If you do not provide the JRE path, or if the path is empty or unsupported, the installation process exits. Cisco Prime AR requires either JRE 1.5.x or JRE 1.6.x version.

```
If you are not using ORACLE, press Enter/Return to skip this step.
ORACLE installation directory is required for ODBC configuration.
ORACLE_HOME variable will be set in /etc/init.d/arsserver script
```

```
Where is ORACLE installed? [] [?,q]
```

**Note**

For OCI related services, install Oracle client version 10.2.0.1.0, 11.1.0.6.0, or 11.2.0.1.0 for Linux. For ODBC related services, install Oracle 10g client for Linux using 10201\_client\_linux32.zip and instantclient-basic-linux32-10.1.0.5-20060511.zip.

**Step 6** Enter the location where you have installed Oracle, otherwise press **Enter**.

```
If you want to learn about Cisco Prime Access Registrar by
following the examples in the Installation and Configuration Guide,
you need to populate the database with the example configuration.
```

```
Do you want to install the example configuration now? [n]: [y,n,?,q] y
```

**Step 7** Specify whether you want to install SIGTRAN\_M3UA. If you select the option ‘Y’, SIGTRAN-M3UA process will run.

```
Do you want to install SIGTRAN-M3UA functionality now? [n]: [y,n,?,q] n
```

```
If you want to learn about Cisco Prime Access Registrar by following
the examples in the Installation and Configuration Guide, you need
to populate the database with the example configuration.
```

```
NOTE: If you are using DIRECTOR/DIRECTOR NEXT GEN Licenses,
please do not try installing Example configuration, Give the
option for Example configuration as "n"
```

**Note**

You must install the rpm versions relevant to the RHEL OS versions while installing Cisco Prime AR. For more information, see “[Prerequisites, page 1-2](#).”

**Step 8** When prompted whether to install the example configuration now, enter **Y** or **N** to continue.

**Note**

You can delete the example configuration at any time by running the command `/opt/CSCOAr/usrbin/aregcmd -f /opt/CSCOAr/examples/cli/delete-example-configuration.rc`.

```
unpack the rpm file done
Preparing... ##### [100%]
 1:CSCOArui-add ##### [100%]
# setting up the web server.....
# configuring the web server.....
# extracting the web application.....
Preparing... ##### [100%]
 1:CSCOAr ##### [100%]
relink arserver
JAVA_ROOT /opt/jdk1.5.0_17
JAVA_HOME /opt/jdk1.5.0_17
```

```

# setting ORACLE_HOME and JAVA_HOME variables in arserver
ORACLE_HOME
JAVA_HOME /opt/jdk1.5.0_17
set JAVA_HOME
# flushing old replication archive
# creating initial configuration database
Rollforward recovery using "/opt/CSCOar/data/db/vista.tjf" started Tue Nov 6 17:09:07 2012
Rollforward recovery using "/opt/CSCOar/data/db/vista.tjf" finished Tue Nov 6 17:09:07
2012
# add-example-config y
ln: creating symbolic link `/opt/CSCOar/lib/libsctp.so.1' to `/opt/CSCOar/lib/libsctp.so':
File exists
calling gen-tomcat
We will now generate an RSA key-pair and self-signed certificate that
may be used for test purposes
Generating a 1536 bit RSA private key
.++++
.....++++
writing new private key to '/cisco-ar/certs/tomcat/server-key.pem'
-----
Server self-signed certificate now resides in /cisco-ar/certs/tomcat/server-cert.pem
Server private RSA key now resides in /cisco-ar/certs/tomcat/server-key.pem
Remember to install additional CA certificates for client verification
Tomcat private RSA key now resides in /cisco-ar/certs/tomcat/server-key.pem
Starting Cisco Prime Access Registrar Server Agent...completed.
The Radius server is now running

hostname root /tmp###

```

**Note**

After the installation process, run the command **service iptables stop** to disable the iptables firewall.

**Note**

If the Cisco Prime AR server restarts and the Radius process is not started on installation of Cisco Prime AR 6.0 in RHEL 5.3/5.4/5.5/6.0/6.1/6.2, you must create a softlink to libsctp.so file. See [Creating a Softlink to libsctp.so, page 2-11](#) for more details.

## Creating a Softlink to libsctp.so

Complete the following steps to create a softlink to libsctp.so file.

- 
- Step 1** Change the directory to **/cisco-ar/lib**
- ```
cd /cisco-ar/lib
```
- Step 2** Create a soft link to libsctp.so file.
- ```
ln -s libsctp.so libsctp.so.1
```
- Step 3** Restart the Cisco Prime AR server using the following command:
- ```
/cisco-ar/bin/arserver restart
```
-

## Configuring SNMP

If you choose not to use the SNMP features of Cisco Prime AR, the installation process is completed. To use SNMP features, complete the configuration procedure described in [“Configuring SNMP” section on page 5-15](#).