



Installation and Configuration Guide for Cisco Context Directory Agent, Release 1.0

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Preface

Revised: January 28, 2013, OL-26299-01

This guide provides an overview of the Cisco Context Directory Agent (CDA) application, the high level architecture and how to use the Cisco CDA application. In addition, it describes how to install the Cisco CDA application, including the requirement on Active Directory to allow a successful connection with Cisco CDA.

The Cisco CDA provides the same functionalities as AD Agent 1.0 with the addition of a user interface for system configuration and dedicated operation system. The flows and semantics between the Cisco CDA and ASA, WSA, and DC remain the same as in AD Agent 1.0. However, the underlying implementation is changed and adhere to Cisco Identity Services Engine (ISE) technologies.

This preface covers the following topics:

- [Audience](#)
- [Document Organization Map](#)
- [Document Conventions](#)
- [Documentation Updates](#)
- [Related Documentation](#)
- [Other Related Documentation](#)
- [Obtaining Documentation and Submitting a Service Request](#)

Scope

This guide is applicable only if you have installed the Cisco CDA 1.0, Patch 1.

The Cisco CDA 1.0, Patch 1 introduces new functionality and it is recommended to install Patch 1. If you do not install Patch 1, the following functional aspects described in this User Guide will not be applicable:

- Windows 2012 support
- NTLMv2 support—See [Table 2-4, “Supported Authentication Types Based on CDA and AD NTLM Version Settings”](#)
- Configuration of permissions required when an Active Directory user is not a member of the domain admin group—See [Permission Required when an Active Directory User is a Member of the Domain Admin Group, page 7](#) and [Permission Required when an Active Directory User is Not a Member of the Domain Admin Group, page 7](#).

Audience

This guide is written for network administrators who will be using the Cisco Context Directory Agent in their deployments. This guide assumes you have a working knowledge of networking principles and applications, and have experience as a network system administrator.

Document Organization Map

The topics in this guide are grouped into introduction, functional tasks, and reference categories, and are organized in the following way:

Chapter	Description
Chapter 1, “Context Directory Agent Overview”	Provides an overview of the Cisco Context Directory Agent.
Chapter 2, “Installing the Cisco Context Directory Agent”	Provides details about how to install your Cisco Context directory Agent software, how to migrate from Cisco AD Agent to Cisco CDA.
Chapter 3, “Working with Context Directory Agent”	Provides step-by-step procedure on how to work with and use the Cisco Context Directory Agent.
Chapter 4, “Cisco CDA Command Reference”	Provides a list of CLI commands available in the Cisco Context Directory Agent and their usage.

Document Conventions

This guide uses the convention whereby the symbol ^ represents the key labeled *Control*. For example, the key combination ^z means “Hold down the **Control** key while you press the **z** key.”

Command descriptions use these conventions:

- Examples that contain system prompts denote interactive sessions and indicate the commands that you should enter at the prompt. The system prompt indicates the current level of the EXEC command interpreter. For example, the prompt `Router>` indicates that you should be at the *user* level, and the prompt `Router#` indicates that you should be at the *privileged* level. Access to the privileged level usually requires a password.
- Commands and keywords are in **boldface** font.
- Arguments for which you supply values are in *italic* font.
- Elements in square brackets ([]) are optional.
- Alternative keywords from which you must choose one are grouped in braces ({ }) and separated by vertical bars (|).

Examples use these conventions:

- Terminal sessions and sample console screen displays are in *screen* font.
- Information you enter is in **boldface screen** font.
- Nonprinting characters, such as passwords, are in angle brackets (< >).
- Default responses to system prompts are in square brackets ([]).

- An exclamation point (!) at the beginning of a line indicates a comment line.

**Caution**

Means *reader be careful*. You are capable of doing something that might result in equipment damage or loss of data.

**Timesaver**

Means *the described action saves time*. You can save time by performing the action described in the paragraph.

**Note**

Means *reader take note*. Notes identify important information that you should think about before continuing, contain helpful suggestions, or provide references to materials not contained in the document.

Documentation Updates

The following table lists the creation and update history of this document.

Table 1 ***Updates to Installation and Configuration Guide for Cisco Context Directory Agent, Release 1.0***

Date	Description
Jan, 2013	Updated the following sections: <ul style="list-style-type: none"> • Active Directory Domain Controller Machines, page 3 • Supported Active Directory Versions, page 2 • Active Directory Requirements for Successful Connection with Cisco CDA, page 4 • Adding and Editing Active Directory Servers, page 7 • Active Directory General Settings, page 9
June, 2012	Cisco Context Directory Agent, Release 1.0

Related Documentation

**Note**

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

Release-Specific Documentation

Table 2 lists the product documentation available for the Cisco Context Directory Agent Release 1.0, patch 1.

Table 2 Product Documentation for Cisco Context Directory Agent, 1.0, Patch 1

Document Title	Location
<i>Installation and Configuration Guide for Cisco Context Directory Agent, Release 1.0</i>	http://www.cisco.com/en/US/docs/security/ibf/cda_10/Install_Config_guide/cda10.html
<i>Release Notes for Context Directory Agent, Release 1.0</i>	http://www.cisco.com/en/US/docs/security/ibf/cda_10/release_notes/cda10_rn.html
<i>Open Source Licenses used in Context Directory Agent, Release 1.0</i>	http://www.cisco.com/en/US/docs/security/ibf/cda_10/open_source_doc/open_source.pdf

Other Related Documentation

Links to Adaptive Security Appliance (ASA) 5500 Series documentation and Cisco IronPort Web Security Appliance (WSA) documentation are available on Cisco.com at the following locations:

- Cisco ASA 5500 Series Adaptive Security Appliances Page
http://www.cisco.com/en/US/products/ps6120/tsd_products_support_series_home.html
- Cisco IronPort Web Security Appliances Page
http://www.cisco.com/en/US/products/ps10164/tsd_products_support_series_home.html

Notices

See http://www.cisco.com/en/US/docs/security/ibf/cda_10/open_source_doc/open_source.pdf for all the Open Source Licenses used in the Cisco Context Directory Agent, Release 1.0.

Obtaining Documentation and Submitting a Service Request

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

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

Subscribe to the *What's New in Cisco Product Documentation* as an RSS feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service. Cisco currently supports RSS Version 2.0.



CHAPTER 1

Context Directory Agent Overview

The Cisco Context Directory Agent (CDA) is an application that runs on a Cisco Linux machine; monitors in real time a collection of Active Directory domain controller (DC) machines for authentication-related events that generally indicate user logins; learns, analyzes, and caches mappings of IP addresses and user identities in its database; and makes the latest mappings available to its client devices.

Client devices, such as the Cisco Adaptive Security Appliance (ASA) and the Cisco IronPort Web Security Appliance (WSA), interact with the Cisco CDA using the RADIUS protocol in order to obtain the latest set of IP-to-user-identity mappings, in any one of the following ways:

- **On-Demand**—The Cisco CDA can respond to an on-demand query from the client device for a specific mapping.
- **Full Download**—The Cisco CDA can respond to a request from the client device for the entire set of mappings currently in its cache.

For both the on-demand and full-download methods, the request from the client device can be specially tagged to indicate that it also includes a registration regarding any subsequent updates.

For example, when a client device requests a basic on-demand query, the Cisco CDA responds with the specific mapping that might have been found in its cache, and does not send any further updates about that mapping. On the other hand, if the on-demand query also includes a registration, the initial response from Cisco CDA is the same as before and if, at a later point in time, that specific mapping undergoes a change, then Cisco CDA proactively notifies the requesting client device (as well as any other client devices that have registered for notification) about the change in that specific mapping.

Similarly, when a client device requests a basic full download, the Cisco CDA transfers a snapshot of the session data containing all of the mappings currently found in its cache, and does not send any further updates. On the other hand, if the request is to register for replication, then the initial response from the Cisco CDA is the same as before. At a later point in time, if the set of mappings undergoes any sort of change (new mappings added or certain mappings changed and so on), then the Cisco CDA proactively notifies the requesting client device (as well as any other client devices that have registered for replication) about these changes, relative to the snapshot that was previously sent.

The IP-to-user-identity mappings that are discovered, maintained, and provided by the Cisco CDA can include not only IPv4 addresses, but also IPv6 addresses.

The Cisco CDA can send logs to one or more syslog servers.

The Cisco CDA continues to function if any of the Active Directory domain controllers or the client devices have failed. It obtains information from other domain controllers. However, there is no failover for the Cisco CDA. The Cisco CDA internally contains a “watchdog” functionality that continuously monitors the Linux processes internal to it, automatically restarting them if it detects that they have crashed. While there is no failover for CDA in itself, the solution as a whole does support failover,

controlled by the consumer devices, using their capability to configure a primary and secondary CDA (similar to primary and secondary RADIUS server), and failover to the secondary server in case the primary is unresponsive. It should be noted that primary and secondary CDAs are completely unaware of each other, and do not exchange any state information.

Related Topic:

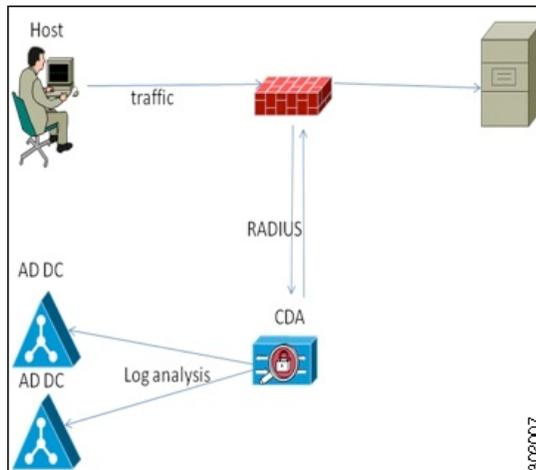
[Functional Overview, page 1-2](#)

Functional Overview

Figure 1-1 represents a simplified view of the Cisco CDA solution. In this example, a user logs in from a computer and generates web traffic by requesting access to a server. The client device intercepts the web traffic and sends a RADIUS request to the Cisco CDA asking for the user who logged into the computer. The Cisco CDA, which has been maintaining the latest set of IP-to-user-identity mappings, sends the user information to the client device. The client device uses the user identity information to determine whether or not to grant access to the end user.

In case ASA is deployed in the network as a VPN concentrator, the Cisco CDA accepts mapping update events in addition to the login events received from the Active Directory.

Figure 1-1 Cisco CDA Architecture



The Cisco CDA is responsible for:

- Supplying (push and pull, single and bulk) IP-to-user-identity mappings to the consumer devices.
- Receiving notification on IP-to-user-identity mapping from consumer devices.
- Providing an interface to retrieve the status of various components (Cisco CDA and domain controllers).
- Maintaining a session directory of IP-to-user-identity mappings.
- Caching the session information.
- Learning the mappings at real time and notifying the consumer devices of the changes.
- Reading historical log data to learn about existing IP-to-user-identity mappings.

- Providing configuration mechanism using the GUI to configure the Cisco CDA, viewing the concurrent mapping list and log events.
- Periodically cleaning expired mappings. Expiration is defined by user logon TTL.

The Cisco CDA interacts with the following components in a network:

- [Consumer Device](#)
- [Active Directory Domain Controller Machines](#)
- [Syslog Servers](#)

Consumer Device

Client devices are responsible for actively retrieving (and/or passively receiving) the latest IP-to-user-identity mappings from the Cisco CDA. A consumer device is responsible for:

- Retrieving the IP-to-user-identity mappings from the Cisco CDA.
- Receiving notifications of IP-to-user-identity mappings from the Cisco CDA.
- Enforcing identity based firewall policy.
- Basic monitoring of the Active Directory connectivity via the Cisco CDA.
- Retrieving group information directly from the Active Directory.
- Web-auth fallback for IPs that the Cisco CDA did not map to identity.
- Forwarding of new mappings revealed by consumer devices via the web-auth to the Cisco CDA.
- Forwarding IP-to-user-identity mapping for VPN sessions.
- Running NetBIOS probing and forwarding disconnect notification to the Cisco CDA.

These updates are sent as RADIUS Accounting-Request messages.

Related Topics:

- [Active Directory Domain Controller Machines, page 1-3](#)
- [Syslog Servers, page 1-4](#)

Active Directory Domain Controller Machines

The Cisco Context Directory Agent monitors the security event log of the Active Directory Domain Controllers in order to retrieve information about user logins and deliver this data to the consumer devices.

Upon startup CDA reads a time based window (history) of users that are already logged-in. After CDA is up and running it monitors and retrieves user logins in realtime. Connection is required between CDA and the Active Directory domain controller for retrieving the user login events.

To connect to the Active Directory Domain Controllers, the CDA uses an Active Directory user.

An Active Directory user used by CDA must have the required permissions in order to connect and monitor the Active Directory Domain Controllers

The Active directory user used by CDA can be a member of the Domain Admin Group; however this is not mandatory if you have installed Cisco CDA patch 1 (any future CDA patches would include patch 1 functionality as well).

The connection between CDA and the Active Directory Domain Controller is also authenticated using MS NTLM protocol. CDA patch 1 supports NTLMv1 and NTLMv2.

Related Topics

- [Permission Required when an Active Directory User is a Member of the Domain Admin Group, page 2-7](#)
- [Permission Required when an Active Directory User is Not a Member of the Domain Admin Group, page 2-7](#)

Syslog Servers

The Cisco CDA can forward logs containing administrative and troubleshooting information to one or more syslog servers. It also updates the IP-to-user-identity mapping information. The contents of these logs are identical to that of the customer logs that are locally available on the Cisco CDA machine. The syslog mechanism allows this information to be distributed remotely, to any target machine running a syslog server and capable of receiving syslog messages.

Related Topics:

- [Consumer Device, page 1-3](#)
- [Active Directory Domain Controller Machines, page 1-3](#)

Cisco CDA Performance and Scalability

The Cisco CDA can support up to 80 domain controller machines, and can internally cache up to 64,000 IP-to-user-identity mappings. It supports up to 100 Identity consumer devices. Cisco CDA processes 1000 IP-to-user-identity mappings per second (input and output).

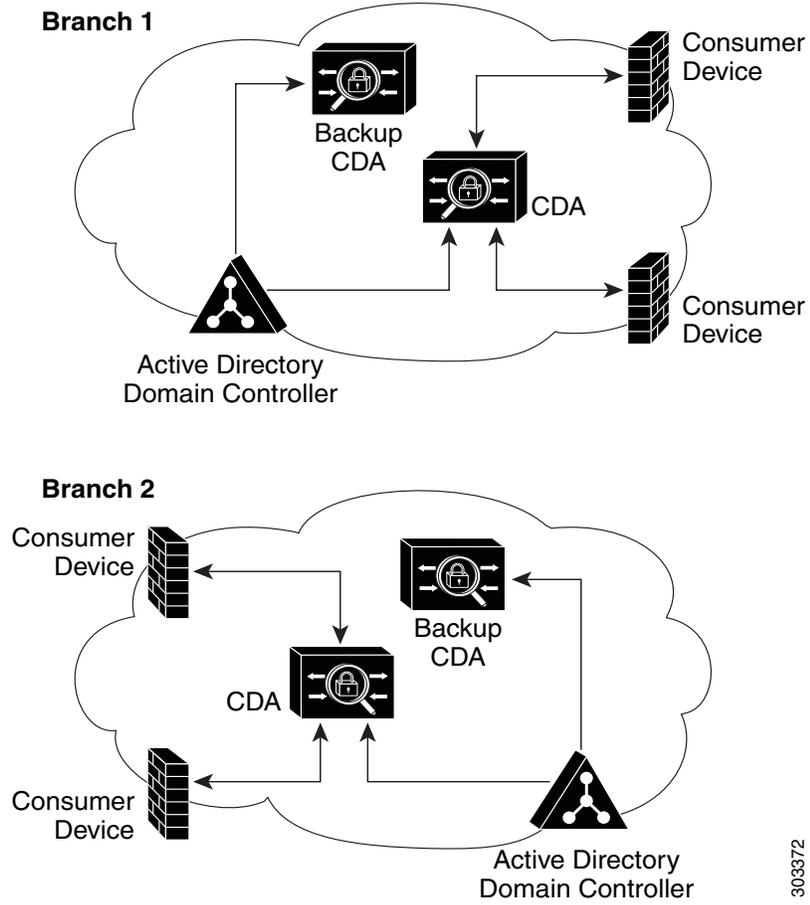
The Cisco CDA is tested to support three Syslog servers, twenty administrators, and five concurrent admin GUI sessions.

CDA Deployment Recommendations

It is recommended to consider the following aspects while deploying CDA:

- Cisco CDA interoperates with the consumer devices using the UDP protocol. Therefore, it is recommended for CDA to be located geographically near the consumer devices. This is mainly important when CDA sends bulk data to the consumer device, which can be time consuming over the WAN.
- It is recommended that any CDA node in the deployment receive all user login information from the Active Directory Domain Controllers. This will allow consumer devices to interoperate with the local CDA for all user logins data. Moreover, having the Active Directory Domain Controller geographically near the CDA will increase reliability.
- To achieve high availability you can use two CDAs with the same configuration where both CDAs must retrieve same user login information from the same Active Directory Domain Controllers. It is the role of the consumer device to switch to the second CDA in case the first CDA is non-responding.

Figure 1-2 The Recommended Cisco CDA Deployment Type



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CHAPTER 2

Installing the Cisco Context Directory Agent

The Cisco Context Directory Agent (CDA) is a software application that is packaged as an ISO image. You can download it from Cisco.com. You must install it on a dedicated X86 machine or a virtual machine on VMware ESX server and configure it with client devices and Active Directory domain controllers.

This chapter contains the following:

- [Requirements, page 2-1](#)
- [Installing Context Directory Agent, page 2-12](#)
- [Migration from Cisco AD Agent to Cisco CDA, page 2-15](#)

Requirements

This section contains the following topics:

- [Supported Operating Systems, page 2-1](#)
- [Hardware Requirements, page 2-2](#)
- [Connectivity Requirements, page 2-3](#)
- [List of Open Ports, page 2-3](#)
- [Active Directory Requirements for Successful Connection with Cisco CDA, page 2-4](#)

Supported Operating Systems

The Cisco CDA is installed on the Cisco Linux OS it is bundled with. When installing the Cisco CDA ISO image on a standalone machine or on a VMware server, Linux is installed as the OS and Cisco CDA is an application running on top of it.

Related Topics:

- [Hardware Requirements, page 2-2](#)
- [Connectivity Requirements, page 2-3](#)
- [Active Directory Requirements for Successful Connection with Cisco CDA, page 2-4](#)

Supported Active Directory Versions

The Cisco CDA supports the following Active Directory versions:

- Windows 2003
- Windows 2003R2
- Windows 2008
- Windows 2008 R2
- Windows 2012

Hardware Requirements

The Cisco CDA machine must be a separate, dedicated appliance or VMware.

In all cases, a Cisco CDA machine must meet the standard hardware and VMWare specifications listed in [Table 2-1](#).

Table 2-1 *Standard/Performance Hardware Requirements for a Standalone Appliance or a VMWare with Equivalent Resources*

Component	Specification
CPU	Intel Xeon 2.66 GHz Q9400 (Quad Core)
System memory	4 GB of SDRAM
Hard disk space	250 GB
NIC	1 NIC or virtual NIC

[Table 2-2](#) lists the minimum hardware requirements for installing Cisco CDA on a VMWare.

Table 2-2 *Minimum Hardware Requirements for a VMWare*

Component	Specification
CPU	2 Virtual Processors
System memory	2 GB of SDRAM
Hard disk space	120 GB
NIC	1 virtual NIC

Related Topics:

- [Supported Operating Systems, page 2-1](#)
- [Connectivity Requirements, page 2-3](#)
- [Active Directory Requirements for Successful Connection with Cisco CDA, page 2-4](#)

Connectivity Requirements

For the Cisco CDA to function properly, it must be able to communicate freely with all the consumer devices, Active Directory domain controller machines, and target syslog servers that are configured with it. If Windows Firewall (or any other comparable third-party firewall software) is running on any of the Active Directory domain controller machines, then the firewall software on each of these endpoints must be configured with the necessary exceptions to allow this communication to flow freely.

This section uses the Windows Firewall as an example and details the exceptions that must be defined on any of the endpoints that might be running Windows Firewall.

For any other comparable third-party firewall software, refer to that vendor's documentation on how to configure the corresponding exceptions.

Windows Firewall Exceptions to be Configured on Each Separate Active Directory Domain Controller Machine

For each separate Active Directory domain controller machine that is configured on the Cisco CDA machine using the GUI, if Windows Firewall is enabled on that separate domain controller machine, then you must define a Windows Firewall exception on that particular domain controller machine that will allow the necessary WMI-related communication.

If that domain controller machine is running Windows Server 2008 or Windows Server 2008 R2, then you can configure this WMI-related exception using the following Windows command line (written in a single line):

```
netsh advfirewall firewall set rule group="Windows Management Instrumentation (WMI)" new enable=yes
```

If that domain controller machine is running Windows Server 2003 or Windows Server 2003 R2 (with SP1 or later installed), then you can configure this WMI-related exception using the following Windows command line (written in a single line):

```
netsh firewall set service RemoteAdmin enable
```

Related Topics:

- [Supported Operating Systems, page 2-1](#)
- [Hardware Requirements, page 2-2](#)
- [Active Directory Requirements for Successful Connection with Cisco CDA, page 2-4](#)

List of Open Ports

[Table 2-3](#) lists some of the Transmission Control Protocol (TCP) and User Datagram Protocol (UDP) ports that the Cisco CDA uses for communication with client devices and Active Directory domain controllers. These ports are open by default on the Cisco CDA.

Table 2-3 List of Default Open Ports on the Cisco CDA

Port No.	Protocol	Service
22	TCP	The Secure Shell (SSH) Protocol
80	TCP	HTTP (Web GUI, redirected to HTTPS)
123	UDP	NTP
443	TCP	HTTPS (Secure web GUI)

Table 2-3 List of Default Open Ports on the Cisco CDA

Port No.	Protocol	Service
1645	UDP	RADIUS
1646	UDP	RADIUS
1812	UDP	RADIUS
1813	UDP	RADIUS Accounting

The following ports are open for internal communication between the Cisco CDA processes, but blocked for access from outside the appliance by the Linux firewall:

- 8005
- 8009
- 8020
- 8090
- 8091
- 8092
- 8093

Active Directory Requirements for Successful Connection with Cisco CDA

Cisco CDA leverages Active Directory login audit events generated by the Active Directory Domain controller to gather user logins information. In order for Cisco CDA to work appropriately, CDA needs to be able to connect to Active Directory and fetch the user logins information. These steps are necessary on the Active Directory domain controller:

1. Make sure the Active Directory version is supported (refer to [Supported Active Directory Versions](#)) and there is network connectivity between Active Directory domain controller and CDA (refer to [Connectivity Requirements](#)).
2. Make sure relevant Microsoft patches are installed on the Active Directory domain controllers. Active Directory domain controller machines run Windows Server 2008 or Windows Server 2008 R2 and must have the appropriate Microsoft hotfixes installed.

The following patches for Windows Server 2008 are required:

- a. <http://support.microsoft.com/kb/958124>

This patch fixes a memory leak in Microsoft's WMI, which prevents CDA from establishing a successful connection with the domain controller (CDA administrator can experience it in CDA Active Directory domain controller GUI page, where the status needs to be "up" once the connection establishes successfully).

- b. <http://support.microsoft.com/kb/973995>

This patch fixes a different memory leak in Microsoft's WMI, which sporadically prevents the Active Directory domain controller from writing the necessary user login events to the Security Log of the domain controller. As a result, CDA may not get all user login events from this domain controller.

The following patches for Windows Server 2008 R2 are required (unless SP1 is installed):

- a. <http://support.microsoft.com/kb/981314>

This patch fixes memory leak in Microsoft's WMI, which sporadically prevents the Active Directory domain controller from writing the necessary user login events to the Security Log of the domain controller. As result CDA may not get all user login events from this domain controller.

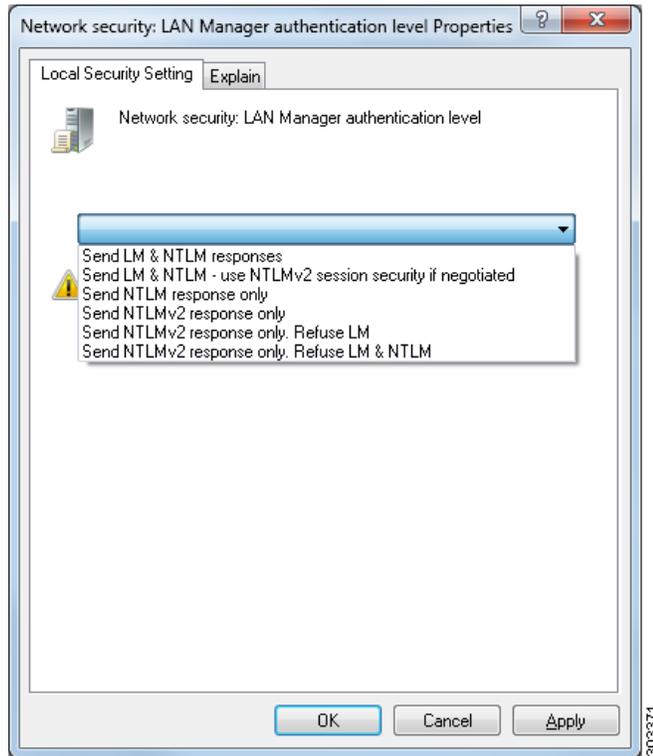
3. Make sure the Active Directory logs the user login events in the Windows Security Log.

Verify that the settings of the “Audit Policy” (part of the “Group Policy Management” settings) allows successful logons to generate the necessary events in the Windows Security Log (this is the default Windows setting, but you must explicitly ensure that this setting is correct). See [Setting the Audit Policy, page 2-6](#).
4. You must have an Active Directory user with sufficient permissions to be used by CDA to connect to the Active Directory. As of CDA patch 1, you can choose whether this user is member of the Active Directory domain admin group or not. Follow the following instructions to define permissions either for admin domain group user or none admin domain group user:
 - [Permission Required when an Active Directory User is a Member of the Domain Admin Group, page 2-7](#)
 - [Permission Required when an Active Directory User is Not a Member of the Domain Admin Group, page 2-7](#)
5. The Active Directory user used by CDA can be authenticated either by NTLMv1 or NTLMv2. You need to verify that the Active Directory NTLM settings are aligned with CDA NTLM settings to ensure successful authenticated connection between CDA and the Active Directory Domain Controller. [Figure 2-1](#) illustrates all Microsoft NTLM options. In case CDA is set to NTLMv2, all six options described in [Figure 2-1](#) are supported. In case CDA is set to support NTLMv1, only the first five options are supported. This is also summarized in [Table 2-4](#).

Table 2-4 Supported Authentication Types Based on CDA and AD NTLM Version Settings

CDA NTLM setting options / Active Directory (AD) NTLM setting options	NTLMv1	NTLMv2
Send LM & NTLM responses	connection is allowed	connection is allowed
Send LM & NTLM - use NTLMv2 session security if negotiated	connection is allowed	connection is allowed
Send NTLM response only	connection is allowed	connection is allowed
Send NTLMv2 response only	connection is allowed	connection is allowed
Send NTLMv2 response only. Refuse LM	connection is allowed	connection is allowed
Send NTLMv2 response only. Refuse LM & NTLM	connection is refused	connection is allowed

Figure 2-1 MS NTLM Authentication Type Options

**Related Topics:**

- [Supported Operating Systems, page 2-1](#)
- [Hardware Requirements, page 2-2](#)
- [Connectivity Requirements, page 2-3](#)

Setting the Audit Policy

Ensure that the “Audit Policy” (part of the “Group Policy Management” settings) allows successful logons to generate the necessary events in the Windows Security Log of that AD domain controller machine (this is the default Windows setting, but you must explicitly ensure that this setting is correct).

-
- Step 1** Choose **Start > Programs > Administrative Tools > Group Policy Management**.
 - Step 2** Navigate under Domains to the relevant domain(s).
 - Step 3** Expand the navigation tree.
 - Step 4** Right-click Default Domain Policy.
 - Step 5** Choose the Edit menu item, which will bring up the Group Policy Management Editor.
 - Step 6** From the navigation pane on the left of Group Policy Management Editor:
 - Step 7** Choose **Default Domain Policy > Computer Configuration > Policies > Windows Settings > Security Settings**.

- For Windows Server 2003 or Windows Server 2008 (non-R2), choose **Local Policies > Audit Policy**. For the two Policy items, **Audit Account Logon Events** and **Audit Logon Events**, ensure that the corresponding **Policy Setting** for each of these either directly or indirectly includes the **Success** condition. To include the **Success** condition indirectly, the Policy Setting must be set to **Not Defined**, indicating that the effective value will be inherited from a higher level domain, and the Policy Setting for that higher level domain must be configured to explicitly include the **Success** condition.
- For Windows Server 2008 R2 and Windows 2012, choose **Advanced Audit Policy Configuration > Audit Policies > Account Logon**. For the two Policy items, **Audit Kerberos Authentication Service** and **Audit Kerberos Service Ticket Operations**, ensure that the corresponding **Policy Setting** for each of these either directly or indirectly includes the **Success** condition as described above.

Step 8 If any **Audit Policy** item settings have been changed, you should then run “**gpupdate /force**” to force the new settings to take effect.

Permission Required when an Active Directory User is a Member of the Domain Admin Group

No special permission is required for the following Active Directory versions:

- Windows 2003
- Windows 2003R2
- Windows 2008

For Windows 2008 R2 and Windows 2012, the Domain Admin group does not have full control on certain registry keys in the Windows operating system by default. In order to get the CDA to work, Active Directory admin must give the Active Directory user Full Control permissions on the following registry key: HKEY_CLASSES_ROOT\CLSID\{76A64158-CB41-11D1-8B02-00600806D9B6}.

In order to grant full control, the Active Directory admin must first take ownership of the key. To do this:

Step 1 Go to the Owner tab by right clicking the key.

Step 2 Click **Permissions**.

Step 3 Click **Advanced**.

Permission Required when an Active Directory User is Not a Member of the Domain Admin Group

The following are the permissions required when an Active Directory user is not part of the Domain Admin group but of the Domain Users group:

- [Required Registry Changes, page 2-8](#)
- [Permissions to Use DCOM on the Domain Controller, page 2-8](#)
- [Permissions to the WMI Root\CIMv2 Name Space, page 2-10](#)
- [Access to Read the Security Event Log of the Active Directory Domain Controller, page 2-11](#)

These permissions are valid for all the following Active Directory versions:

- Windows 2003

- Windows 2003R2
- Windows 2008
- Windows 2008 R2
- Windows 2012

Required Registry Changes

For the Cisco CDA to work with a Domain User, certain registry keys should be added manually. The changes are described in the following registry script. The Active Directory admin can also copy and paste this into a text file with a .reg extension and double click it to make the registry changes. For adding registry keys as described below, the user must be an owner of the root key.

```
Windows Registry Editor Version 5.00

[HKEY_CLASSES_ROOT\CLSID\{76A64158-CB41-11D1-8B02-00600806D9B6}]
"AppID"="{76A64158-CB41-11D1-8B02-00600806D9B6}"

[HKEY_CLASSES_ROOT\AppID\{76A64158-CB41-11D1-8B02-00600806D9B6}]
"DllSurrogate"="  "
```

Make sure that you include two spaces in the value of the key “DllSurrogate”.

You should keep the empty lines as shown in the script above, including an empty line at the end of the file.

Permissions to Use DCOM on the Domain Controller

The Active Directory user must have permissions to use DCOM (remote COM) on the Domain Controller. You can do this by using the **dcomcnfg** tool.

-
- Step 1** Run the **dcomcnfg** tool from the command line.
 - Step 2** Expand Component Services.
 - Step 3** Expand Computers and click on My Computer.
 - Step 4** Select Action from the menu bar, click on properties and click on COM Security.
 - Step 5** Make sure that the CDA account for both Access and Launch has Allow permissions. The Active Directory user should be added to all the four options (Edit Limits and Edit Default for both Access Permissions and Launch and Activation Permissions). See [Figure 2-2](#).
 - Step 6** Allow all Local and Remote access for both Access Permissions and Launch and Activation Permissions.
-

Figure 2-2 My Computer Properties

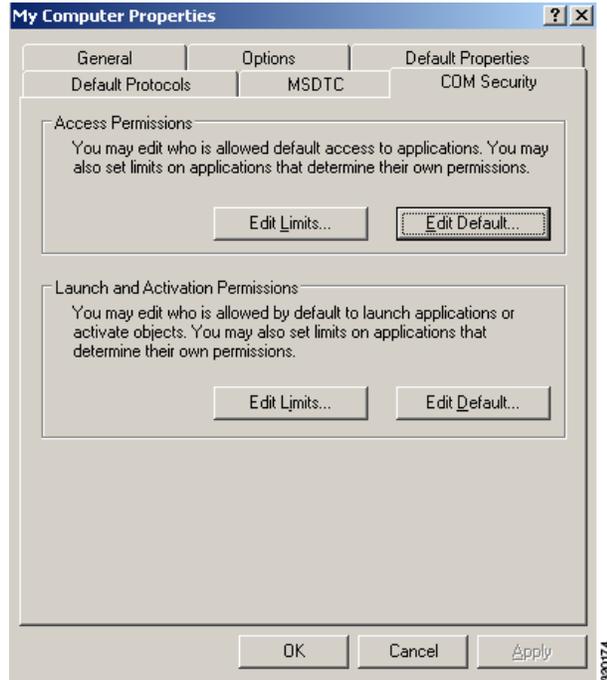


Figure 2-3 Local and Remote Access for Access Permissions

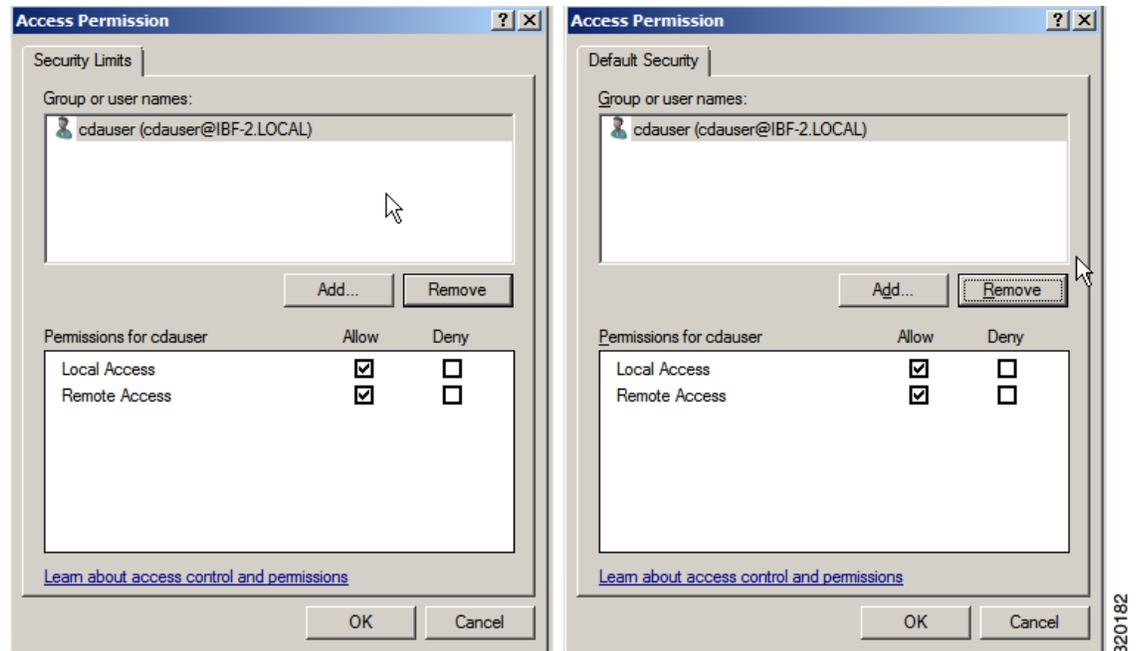
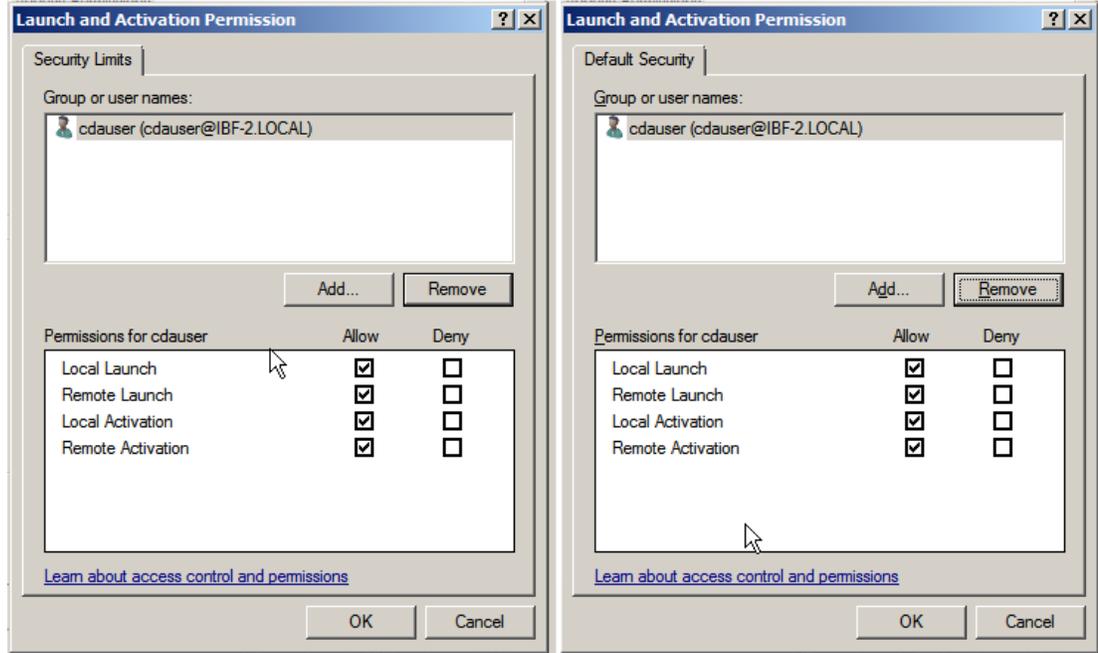


Figure 2-4 Local and Remote Access for Launch and Activation Permissions

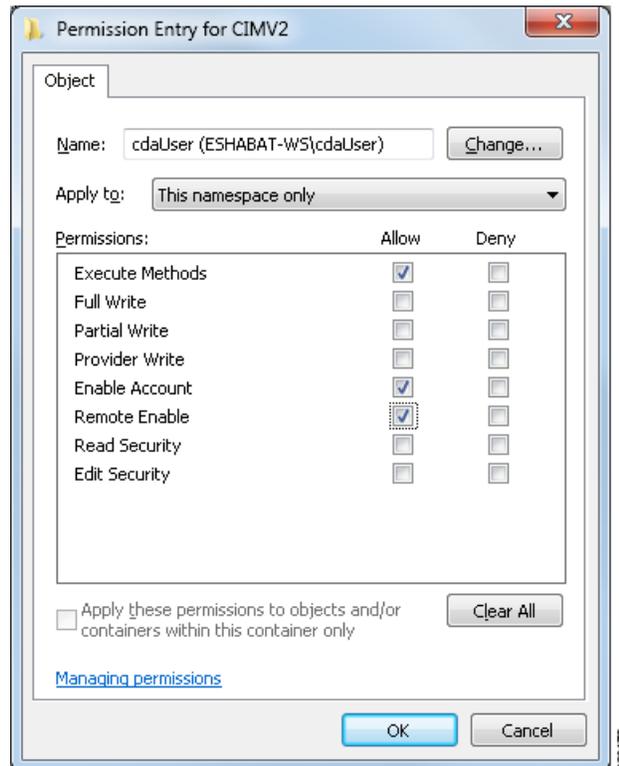


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Permissions to the WMI Root\CIMv2 Name Space

The Active Directory users do not have the Execute Methods and Remote Enable permissions by default. These can be granted by using the `wmimgmt.msc` MMC console.

-
- Step 1** Click **Start > Run** and type `wmimgmt.msc`.
 - Step 2** Right-click WMI Control and click **Properties**.
 - Step 3** Under the Security tab expand Root and choose CIMV2.
 - Step 4** Click Security.
 - Step 5** Add the Active Directory user and give the required permissions as shown in [Figure 2-5](#)
-

Figure 2-5 Required Permissions for WMI Root\CIMv2 Name Space

Access to Read the Security Event Log of the Active Directory Domain Controller

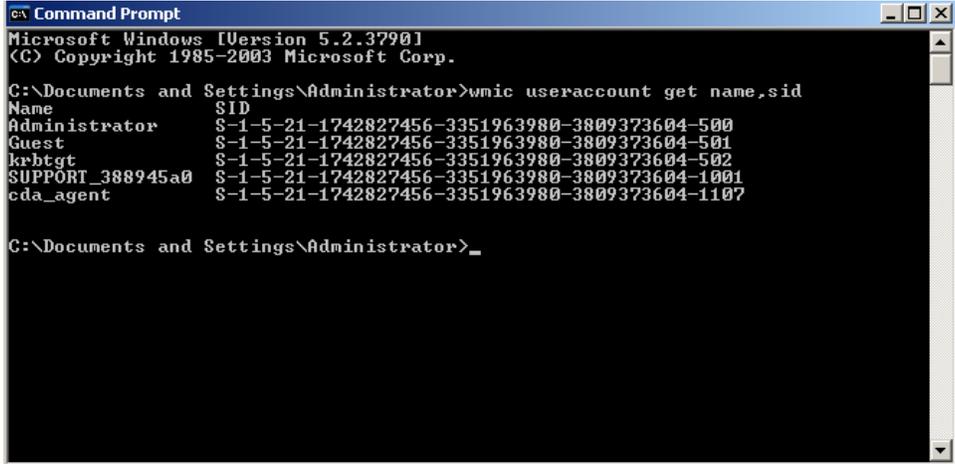
On Windows 2008 and later, this can be done by adding the user to a group called Event Log Readers. On all older versions of Windows, this can be done by editing a registry key in the following way:

-
- Step 1** Find the SID for the account in order to delegate access to the Security event logs.
- Step 2** Use the following command from the command line, as shown in [Figure 2-6](#) to list all the SID accounts:
- ```
wmic useraccount get name,sid
```
- You can also use the following for a specific username and domain:
- ```
wmic useraccount where name="cdaUser" get domain,name,sid
```
- Step 3** Find the SID open Registry Editor and browse to the following location:
HKEY_LOCAL_MACHINE/SYSTEM/CurrentControlSet/Services/Eventlog
- Step 4** Click on Security and double click CustomDS. See [Figure 2-7](#).
- For example, to allow read access to the cda_agent account (SID - S-1-5-21-1742827456-3351963980-3809373604-1107), enter (A;;0x1;;;S-1-5-21-1742827456-3351963980-3809373604-1107)
- Step 5** Restart the WMI service on the DC. You can restart the WMI services in the following two ways:
- Run the following command from the CLI,


```
net stop winmgmt
net start winmgmt.
```
 - Run Services.msc (This opens the Windows Services Management window)

In the Windows Services Management window, locate “Windows Management Instrumentation” service, right click and select Restart.

Figure 2-6 List All the SID Accounts

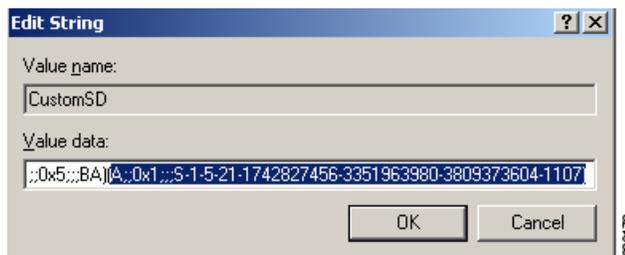


```

C:\Documents and Settings\Administrator>wmic useraccount get name,sid
Name                SID
Administrator      S-1-5-21-1742827456-3351963980-3809373604-500
Guest               S-1-5-21-1742827456-3351963980-3809373604-501
krbtgt              S-1-5-21-1742827456-3351963980-3809373604-502
SUPPORT_388945a0    S-1-5-21-1742827456-3351963980-3809373604-1001
cda_agent           S-1-5-21-1742827456-3351963980-3809373604-1107

C:\Documents and Settings\Administrator>_
  
```

Figure 2-7 Edit CustomSD String



Installing Context Directory Agent

Context Directory Agent is packaged as an ISO image. You can download the package from Cisco.com and install it on a dedicated X86 machine or a VMWare ESX server.



Note

If you are installing the Cisco CDA on a VMWare, you must make sure to select **Use Guest OS as Linux CentOS 4/5 32 bit**. Mis-configuration of the guest OS might result in very low performance.



Note

If you install the Cisco CDA on a VMWare server, VMWare tools are automatically installed.

To install the Context Directory Agent, complete the following steps:

- Step 1** Download the Cisco CDA ISO image, *cda-1.0.0.xxx.i386.iso* and save it in your local repository.
- Step 2** Burn the ISO image on a DVD.

Step 3 Insert the DVD, choose the option to install the image from the optical drive.

The Cisco CDA package installation begins. After the installation is complete, the machine is rebooted. The following prompt is displayed when the boot sequence is completed:

```
*****
Please type 'setup' to configure the appliance
*****
```

The boot sequence takes about two minutes to complete.

Step 4 At the prompt, enter 'setup' to start the Setup program. You are prompted to enter networking parameters and first credentials.

The following illustrates a sample Setup program and default prompts:

```
localhost.localdomain login: setup
Press 'Ctrl-C' to abort setup
Enter Hostname[]: cda-server
Enter IP address []: 192.168.10.10
Enter IP netmask []: 255.255.255.0
Enter IP default gateway []: 192.168.10.100
Enter default DNS domain []: cisco.com
Enter primary nameserver []: 200.150.200.150
Enter secondary nameserver? Y/N: n
Enter primary NTP server [time.nist.gov]: clock.cisco.com
Enter secondary NTP server? Y/N: n
Enter system timezone [UTC]: UTC
Enter username [admin]: admin
Enter password:
Enter password again:
Bringing up the network interface...
Pinging the gateway...
Pinging the primary nameserver...
Do not use 'Ctrl-C' from this point on...
Installing applications...
Installing cda...
Pre install
Post Install

Application bundle (cda) installed successfully
=== Initial setup for application: cda ===
Generating configuration...
Rebooting...
```

Step 5 Install the Cisco CDA patch 1. See [Installing Context Directory Agent 1.0, Patch 1, page 2-14](#).

Step 6 You can log in to the Cisco CDA CLI after the machine is rebooted and verify the package installation. The following illustrates a sample verification procedure:

```
# login: admin
/admin# show application
<name> <description>
```

```
cda Cisco Context Directory Agent
/admin# show application status cda

CDA application server is running PID:2840
```

Step 7 You can now log in to the Cisco CDA user interface and start configuring your Cisco CDA.

**Note**

The username and password specified during the initial setup program can be used for both the CLI and the GUI. If you change the GUI password using the user interface, the CLI password does not change and vice versa.

Related Topics:

- [Supported Operating Systems, page 2-1](#)
- [Hardware Requirements, page 2-2](#)
- [Connectivity Requirements, page 2-3](#)
- [Active Directory Requirements for Successful Connection with Cisco CDA, page 2-4](#)

Installing Context Directory Agent 1.0, Patch 1

You can download and install the Cisco CDA 1.0, patch 1 from Cisco.com.

Step 1 Create a repository which will allow you to upload the patch into CDA. Refer to “[repository](#)” section on [page 4-112](#) for instructions on how to create a repository.

Step 2 Download the Cisco CDA patch 1 to the repository defined.

Step 3 Installing the Cisco CDA patch 1, as described in “[patch install](#)” section on [page 4-28](#).

Step 4 Verify that the patch is installed as follow:

```
/admin# sh application version cda

Cisco Context Directory Agent
-----
Version      : 1.0.0.011
Build Date   : Tue May  8 15:34:26 2012
Install Date : Mon Dec 17 08:53:18 2012

Cisco Context Directory Agent Patch
-----
Version      : 1
Build number  : NA
Install Date : Mon Dec 31 09:35:09 2012
```

Migration from Cisco AD Agent to Cisco CDA

The Cisco CDA is compatible with Cisco AD agent. If AD Agent is already deployed in the network, you can replace it by Cisco CDA with a similar corresponding configuration, without requiring software changes or upgrades in other components of the Identity Based Firewall solution—Active Directory servers and Identity consumer devices (ASA/WSA).

Before you transition from Cisco AD Agent to Cisco CDA, take a note of the following AD Agent configuration details:

- General configuration options:
Use the AD agent command **adacfg options list**
- Syslog servers, including IP address and facility:
Use the AD agent command **adacfg syslog list**
- Connected Active Directory DC list, including username, password, host and domain FQDNs:
Use the AD agent command **adacfg dc list** (does not show the password.)
- Consumer devices (or subnets), including IP address/subnet, shared secret:
Use the AD agent command **adacfg client list** (does not show the shared secret.)

See the [Installation and Setup Guide for the Active Directory Agent, Release 1.0](#) for all the syntax and output examples for the above commands.

Install and configure the Cisco CDA to correspond to your existing Cisco AD Agent application.

- Optionally configure the [Active Directory General Settings](#). AD monitoring in the Cisco CDA is the equivalent of **dcStatusTime** in Cisco AD agent (note that the 10 seconds default in Cisco CDA is different from the 60 seconds default in Cisco AD agent.)
History in Cisco CDA is the equivalent of **dcHistoryTime** in AD agent (note the 10 minutes default in CDA is different than the 24 hours default in AD Agent)
User logon expiration period in CDA is the equivalent of **userLogonTTL** in AD agent (here the 24 hours default remains the same).
- Set the security policy on the DC machines. The differences between the Cisco AD agent and Cisco CDA with respect to Active Directory security policy setting is applicable only for Windows 2008R2 servers. For Cisco CDA, set the account permission on Microsoft Windows 2008 R2 server as described in Step 2 of [“Adding and Editing Active Directory Servers”](#) section on page 7.
- Optionally, configure the Log Level setting in Cisco CDA to correspond to **logLevel** in AD Agent.
- Optionally, add any syslog servers from **adacfg syslog list** to Cisco CDA.
- Add all Active Directory Servers from **adacfg dc list** to Cisco CDA.
- Add all Identity Consumers from **adacfg client list** to Cisco CDA.

If you are replacing the AD agent server with the Cisco CDA server, using the same hostname/IP address, no changes are required in the consumer device (ASA/WSA) configuration, and consumer devices automatically connect to the Cisco CDA to retrieve identify mapping information.

If it is otherwise and you are newly adding a Cisco CDA server in your deployment, you have to update the configuration on the consumer device, to point to the new Cisco CDA server. For more information, refer to the ASA and WSA documentation on Cisco.com.



CHAPTER 3

Working with Context Directory Agent

The Cisco Context Directory Agent (CDA) is a web based application that supports HTTPS, using self-signed certificate.

This chapter contains:

- [Understanding the Cisco CDA User Interface, page 3-1](#)
- [Working in the Cisco CDA User Interface, page 3-3](#)

Understanding the Cisco CDA User Interface

This section contains:

- [Supported Browsers, page 3-1](#)
- [Logging into the Cisco CDA, page 3-2](#)
- [Cisco CDA Dashboard, page 3-3](#)

Supported Browsers

The following browsers are supported with the Cisco CDA:

Table 3-1 **Supported Browsers for Cisco CDA**

Operating System	Supported Browsers
Linux	Firefox versions 9 and 10
Win 7	Microsoft Internet Explorer versions 8, 9 (in compatibility mode), Firefox versions 9 and 11
Win XP	Microsoft Internet Explorer versions 8, Firefox versions 9 and 11
Mac OSX	Safari version 5.1.5

Related Topics:

- [Logging into the Cisco CDA, page 3-2](#)
- [Cisco CDA Dashboard, page 3-3](#)

Logging into the Cisco CDA

You can open a web browser and get connected to the Cisco CDA through the web interface.

To log in to the Cisco CDA, complete the following steps:

-
- Step 1** Enter the Cisco CDA machine URL in the web browser, `https://<ip_address/hostname>/cda`
 - Step 2** Enter your user name and password in the Cisco CDA login page ([Figure 3-1](#)), and click **Login**.

Figure 3-1 Cisco CDA Login Page



- Step 3** The Cisco CDA Dashboard is displayed ([Figure 3-2](#)) when you first log in.

Figure 3-2 Cisco CDA Dashboard

**Related Topics:**

- [Supported Browsers, page 3-1](#)
- [Cisco CDA Dashboard, page 3-3](#)

Cisco CDA Dashboard

The Cisco CDA Dashboard provides dashlets to quickly create, edit, or delete Active Directory servers, Consumer devices, Syslog servers, and Administrators.

It also provides dashlets with lists of existing Active Directory servers, Consumer devices, and Syslog servers. In addition, the dashboard provides links to Active Directory general settings, registered devices page, and log level settings. See [Figure 3-2](#).

To go back to the Dashboard from any other page, click **Home**.

Related Topics:

- [Supported Browsers, page 3-1](#)
- [Logging into the Cisco CDA, page 3-2](#)

Working in the Cisco CDA User Interface

This section contains:

- [Consumer Devices, page 3-4](#)
- [Active Directory Servers, page 3-6](#)
- [Syslog Servers, page 3-10](#)
- [IP-to-User-Identity Mappings, page 3-13](#)
- [Mapping Filters, page 3-15](#)
- [Registered Devices, page 3-15](#)

- [Administrators, page 3-16](#)
- [Password Policy, page 3-17](#)
- [Session Timeout, page 3-18](#)
- [Live Logs, page 3-18](#)

Consumer Devices

Consumer devices are responsible for actively retrieving (and/or passively receiving) the latest IP-to-user-identity mappings from the Cisco CDA. You can add, edit or delete network devices. Cisco CDA validates that the IP address ranges in this table do not overlap.

This section contains:

- [Adding and Editing Consumer Devices, page 3-4](#)
- [Deleting Consumer Devices, page 3-6](#)
- [Filtering Consumer Devices, page 3-6](#)

Adding and Editing Consumer Devices

Consumer device entries in the dashlet are not synonymous with the actual ASA and WSA firewall devices. Instead, each Consumer Device entry here is a logical rule, permitting an IP address (if the Mask is 32), or a range of addresses (if the Mask is 0-31), to communicate with the Cisco CDA over RADIUS.

Creating a consumer device entry in the table or dashlet does not actually initiate any communication with the device. It only creates the rule. The Cisco CDA acts as the RADIUS server in this case, hence it does not initiate the conversation with the device. It is the actual consumer device that initiates the RADIUS conversation with the Cisco CDA. First add the consumer device IP address or range in the Cisco CDA, and then configure the device itself to contact the Cisco CDA using the CLI or management GUI.

To add or edit a consumer device, complete the following steps:

-
- Step 1** Click **Add** on the Identity Consumers dashlet, or check the check box next to a device and click **Edit** to edit it. You can alternatively click Add Consumer Devices link on the Dashboard.

The Consumer Device Configuration dialog box appears ([Figure 3-4](#)).

Figure 3-3 Identity Consumers Dashlet

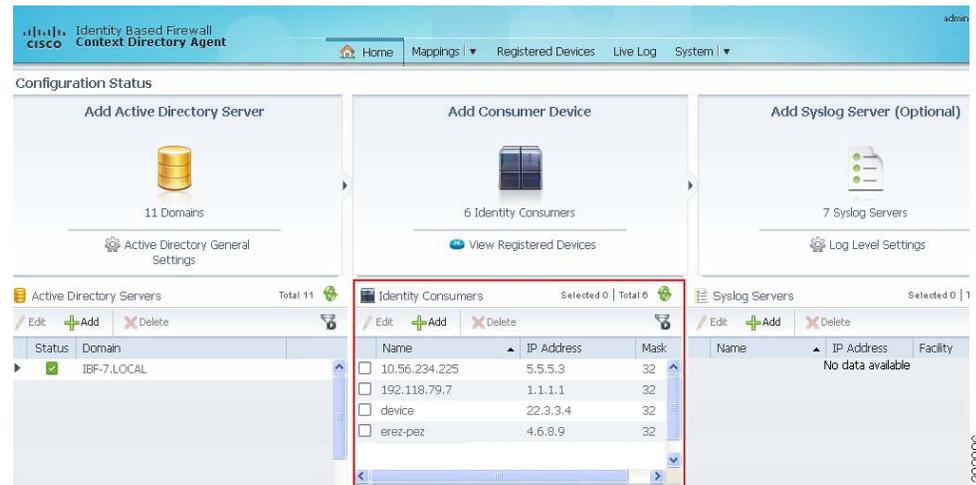


Figure 3-4 Consumer Device Configuration Dialog Box



Step 2 Fill in or edit the following details:

- Name—Name of the rule.
- IP Address—IP address (subnet) of the consumer device (range of devices).
- Mask (range)—A number between 0-32. This describes the consumer device IP range in CIDR notation.
- Shared Secret—Passphrase that a consumer device will use for communicating with the Cisco CDA device. The Shared secret entered here should be identical to that configured in the device with that IP address (or each of the multiple devices in the IP range), attempting to access the Cisco CDA via this rule.

Step 3 Check the **Show Secret** check box if you want the shared secret to be displayed in plain text.

Step 4 Click **Save**.

The new network device is listed in the Identity Consumers dashlet.

Related Topics:

- [Deleting Consumer Devices, page 3-6](#)
- [Filtering Consumer Devices, page 3-6](#)

Deleting Consumer Devices

To delete a Consumer device, complete the following steps:

Step 1 From the Identity Consumers dashlet, select the check box next to device you want to delete in the list and click **Delete**.

Cisco CDA will prompt for a confirmation.

Step 2 Click **OK**.

The consumer device is deleted.

Related Topics:

- [Adding and Editing Consumer Devices, page 3-4](#)
- [Filtering Consumer Devices, page 3-6](#)

Filtering Consumer Devices

You can filter Consumer devices based on the following criteria:

- IP Address
- Mask
- Name

To filter the Consumer Devices list, complete the following steps:

Step 1 Click the filter  icon in the Identity Consumers dashlet.

Step 2 Fill in the criteria on which you want to filter.

Step 3 Press **Enter**.

Related Topics:

- [Adding and Editing Consumer Devices, page 3-4](#)
- [Deleting Consumer Devices, page 3-6](#)

Active Directory Servers

The Active Directory maintains the organization identities and their information. The Cisco CDA inter operates with the Active Directory (or the domain controller) to obtain the IP-to-user-identity mapping information using the MS WMI protocol. You can add, edit or delete Active Directory servers. You should also add a backup Active Directory Domain Controller machine.

This section contains:

- [Adding and Editing Active Directory Servers](#), page 3-7
- [Deleting Active Directory Servers](#), page 3-9
- [Filtering Active Directory Servers](#), page 3-9
- [Active Directory General Settings](#), page 3-9

Adding and Editing Active Directory Servers

Prerequisite

Make sure all the requirements as described in “[Active Directory Requirements for Successful Connection with Cisco CDA](#)” section on page 2-4 are fulfilled, for a successful connection with Cisco CDA.

To add or edit an Active Directory server, complete the following steps:

- Step 1** Click **Add** on the Active Directory Servers dashlet, or check the check box next to a server and click **Edit** to edit it. You can alternatively click Add Active Directory Server link on the Dashboard. The Active Directory Server Configuration dialog box appears. (Figure 3-5).

Figure 3-5 Active Directory Server Configuration Dialog Box



- Step 2** Fill in the following details:
- General Settings
 - Display Name—Display name of the Active Directory server.
 - Domain FQDN—Domain fully qualified domain name (FQDN) of the Active Directory server.
 - Host FQDN—Host FQDN of the Active Directory server.
 - Administrator
 - User name—Username that the Cisco CDA will use to communicate with the Active Directory server.
 - Password—Password that the Cisco CDA will use to communicate with the Active Directory server. It should be the password corresponding to the username specified above.

This account must have the necessary privileges as described in the “[Active Directory Requirements for Successful Connection with Cisco CDA](#)” section on page 2-4.

Step 3 Click **Save**.

The new Active Directory sever is listed in the Active Directory Servers dashlet.

If the Group Policy enforced on the Domain Controller is set to “Send NTLMv2 response only. Refuse LM & NTLM”, see [Figure 3-6](#), then you should use NTLMv2 to connect to the Domain Controller. You must check the “Use NTLMv2” check box in [Active Directory General Settings](#), for the CDA to successfully connect to the Domain Controller.

To see what is the Group Policy applied on the Domain Controller:

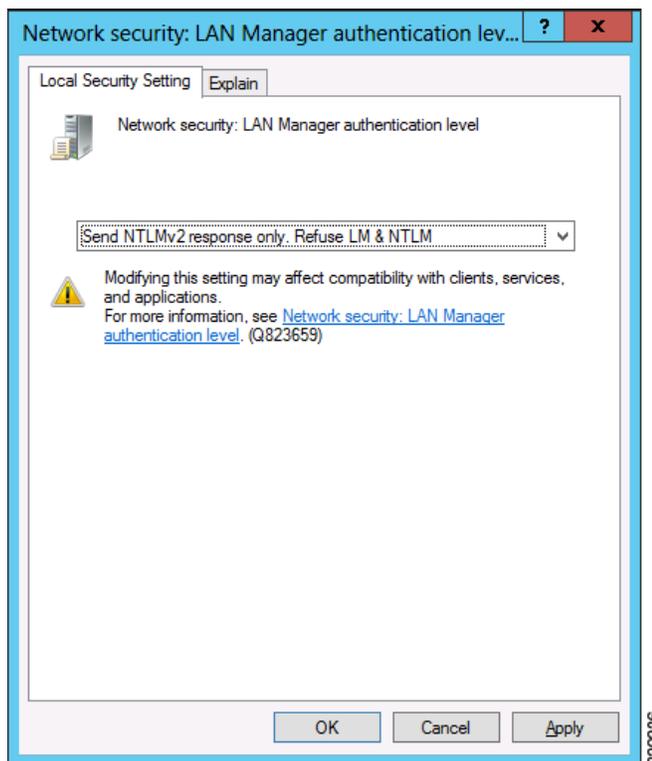
Step 1 Go to **Start > Administrative Tools > Group Policy Management****Step 2** Choose Default Domain Controllers Policy, right click and choose Edit.

Group Policy Management Editor appears.

Step 3 Go to **Security Settings > Local Policies > Security Options**.

The Local Security Settings tab shows the Group Policy.

Figure 3-6 Security Setting

**Related Topics:**

- [Active Directory Requirements for Successful Connection with Cisco CDA](#), page 2-4
- [Connectivity Requirements](#), page 2-3
- [Deleting Active Directory Servers](#), page 3-9

- [Filtering Active Directory Servers, page 3-9](#)
- [Active Directory General Settings, page 3-9](#)

Deleting Active Directory Servers

To delete an Active Directory server, complete the following steps:

-
- Step 1** From the Active Directory Servers dashlet, select the check box next to Active Directory server you want to delete in the list and click **Delete**.
- Cisco CDA will prompt for a confirmation.
- Step 2** Click **OK**.
- The Active Directory server is deleted.
-

Related Topics:

- [Adding and Editing Active Directory Servers, page 3-7](#)
- [Filtering Active Directory Servers, page 3-9](#)
- [Active Directory General Settings, page 3-9](#)

Filtering Active Directory Servers

You can filter Active Directory servers based on the Domain FQDN.

To filter the Active Directory servers list, complete the following steps:

-
- Step 1** Click the filter  icon in the Active Directory Servers dashlet.
- Step 2** Enter the Domain FQDN of the server.
- Step 3** Press **Enter**.
-

Related Topics:

- [Adding and Editing Active Directory Servers, page 3-7](#)
- [Deleting Active Directory Servers, page 3-9](#)
- [Active Directory General Settings, page 3-9](#)

Active Directory General Settings

You can change the Active Directory General Settings to configure how the Cisco CDA interacts with the Active Directory servers.

To configure the Active Directory general settings, complete the following steps:

-
- Step 1** Click the **Active Directory General Settings** link on the Dashboard.
- The Active Directory General Settings dialog box is displayed.

Step 2 Fill in the following details:

- AD Monitoring—Time span between consecutive monitoring of the DC machine’s up/down status.
- History—Specify the number of minutes in the past from which to start reading the security logs of DC machines that are configured. For example, if you want history for the past ten minutes, enter *10*.
- User Logon Expiration Period—Time duration after which logged-in user is marked as logged-out.
- Use NTLMv2—Check this check box to use NTLMv2 protocol. This will cause CDA to use NTLMv2 authentication protocol when connecting to Active Directory Domain Controllers. This check box is not checked by default after installing Cisco CDA, patch 1.

Make sure all the requirements as described in “[Active Directory Requirements for Successful Connection with Cisco CDA](#)” section on page 2-4 are fulfilled, for a successful connection with Cisco CDA.

If the Group Policy enforced on the Domain Controller is set to “Send NTLMv2 response only. Refuse LM & NTLM”, see [Figure 3-6](#), then you should use NTLMv2 to connect to the Domain Controller for the CDA to successfully connect to the Domain Controller.

Step 3 Click **Save**.

Related Topics:

- [Adding and Editing Active Directory Servers, page 3-7](#)
- [Deleting Active Directory Servers, page 3-9](#)
- [Filtering Active Directory Servers, page 3-9](#)

Syslog Servers

The Cisco CDA can forward logs containing administrative and troubleshooting information to one or more syslog servers. The contents of these logs are identical to that of the customer logs that are locally available on the Cisco CDA machine. You can add, edit or delete Syslog servers.

This section contains:

- [Adding and Editing Syslog Servers, page 3-10](#)
- [Deleting Syslog Servers, page 3-11](#)
- [Filtering Syslog Servers, page 3-12](#)
- [Log Level Settings, page 3-12](#)

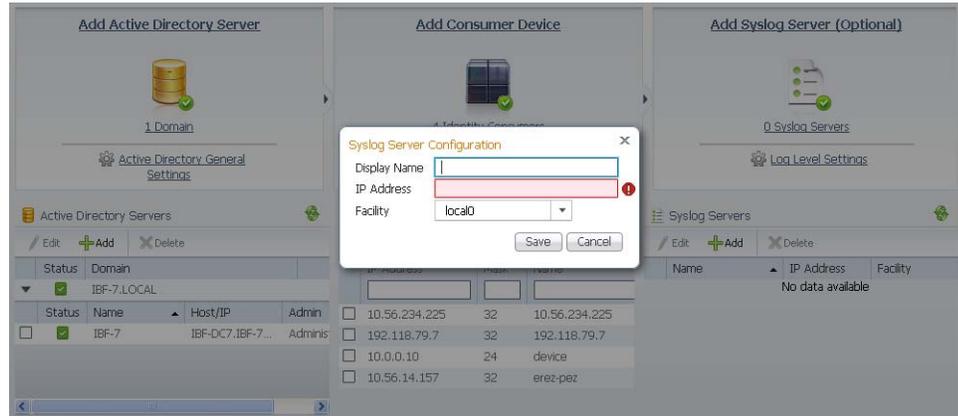
Adding and Editing Syslog Servers

To add or edit a syslog server, complete the following steps:

Step 1 Click **Add** on the Syslog Servers dashlet, or check the check box next to a server and click **Edit** to edit it. You can alternatively click Add Syslog Servers link on the Dashboard.

The Syslog Server Configuration dialog box appears. ([Figure 3-5](#)).

Figure 3-7 Syslog Server Configuration Dialog Box



- Step 2** Fill in the following details:
- Display Name—Display name of the syslog server.
 - IP Address—IP address of the syslog server.
 - Facility—Syslog facility.

- Step 3** Click **Save**.

The new Syslog sever is listed in the Syslog Servers dashlet.

Related Topics:

- [Deleting Syslog Servers, page 3-11](#)
- [Filtering Syslog Servers, page 3-12](#)
- [Log Level Settings, page 3-12](#)

Deleting Syslog Servers

To delete a Syslog server, complete the following steps:

- Step 1** From the Syslog Servers dashlet, select the check box next to server you want to delete in the list and click **Delete**.

Cisco CDA will prompt for a confirmation.

- Step 2** Click **OK**.

The Syslog server is deleted.

Related Topics:

- [Adding and Editing Syslog Servers, page 3-10](#)
- [Filtering Syslog Servers, page 3-12](#)
- [Log Level Settings, page 3-12](#)

Filtering Syslog Servers

You can filter Syslog servers based on the following criteria:

- Name
- IP Address
- Facility

To filter the syslog server list, complete the following steps:

-
- Step 1** Click the filter  icon in the Syslog Servers dashlet.
- Step 2** Fill in the criteria on which you want to filter.
- Step 3** Press **Enter**.
-

Related Topics:

- [Adding and Editing Syslog Servers, page 3-10](#)
- [Deleting Syslog Servers, page 3-11](#)
- [Log Level Settings, page 3-12](#)

Log Level Settings

This is used to globally configure log level settings used for logs sent to syslog servers and the logs that are stored on the Cisco CDA machine and can be viewed in the user interface under live logs.

To configure the global log level settings, complete the following steps:

-
- Step 1** Click the Log Level Settings link on the Dashboard.
The Global Log Level Settings dialog box is displayed.
- Step 2** Select a log level for the Log Level drop-down list. Cisco CDA provides the following log levels:
- Fatal
 - Error
 - Warning
 - Notice
 - Info
 - Debug
- Step 3** Click **Save**.
-

Related Topics:

- [Adding and Editing Syslog Servers, page 3-10](#)
- [Deleting Syslog Servers, page 3-11](#)
- [Filtering Syslog Servers, page 3-12](#)

IP-to-User-Identity Mappings

Cisco CDA lists all the currently cached IP-to-user-identity mappings and allows the administrator to refresh, filter and delete the mappings. [Figure 3-8](#) shows the IP-to-user-identity mappings page.

Figure 3-8 IP-to-User-Identity Mappings Page

ip	mapping-type	domain	mapping-origin	time-stamp	user-name	responds-to-probe
::ffff:192.168.100.1...	dc	IBF-7	IBF-7	2012-01-26T13:29:...	Administrator	true
:::1	dc	IBF-7	IBF-7	2012-01-26T13:29:...	Administrator	true
192.168.7.1	dc	IBF-7	IBF-7	2012-01-26T13:29:...	FakeUser1	true
192.168.7.2	dc	IBF-7	IBF-7	2012-01-26T13:29:...	FakeUser2	true
192.168.7.3	dc	IBF-7	IBF-7	2012-01-26T13:29:...	FakeUser3	true
192.168.7.4	dc	IBF-7	IBF-7	2012-01-26T13:29:...	FakeUser4	true
192.168.7.5	dc	IBF-7	IBF-7	2012-01-26T13:29:...	FakeUser5	true
192.168.7.6	dc	IBF-7	IBF-7	2012-01-26T13:29:...	FakeUser6	true
192.168.7.7	dc	IBF-7	IBF-7	2012-01-26T13:29:...	FakeUser7	true
192.168.7.8	dc	IBF-7	IBF-7	2012-01-26T13:29:...	FakeUser8	true
192.168.7.9	dc	IBF-7	IBF-7	2012-01-26T13:29:...	FakeUser9	true
192.168.7.10	dc	IBF-7	IBF-7	2012-01-26T13:29:...	FakeUser10	true
192.168.7.11	dc	IBF-7	IBF-7	2012-01-26T13:29:...	FakeUser11	true
192.168.7.12	dc	IBF-7	IBF-7	2012-01-26T13:29:...	FakeUser12	true
192.168.7.13	dc	IBF-7	IBF-7	2012-01-26T13:29:...	FakeUser13	true

Listing the IP-to-User-Identity Mappings

To list the IP-to-user-identity mappings, choose **Mappings > IP to Identity**.

Refreshing the IP-to-User-Identity Mappings Page

this page gets automatically refreshed after every 10 seconds, by default. You can change the refresh rate to one of the following:

- 20 seconds
- 30 seconds
- 1 minute
- 2 minutes
- none

Filtering the IP-to-User-Identity Mappings Page

You can use the quick filter or advanced filter options to filter the IP-to-user-identity mapping records.

Step 1 Choose **Mapping > IP to Identity**.

The Mapping of IP Addresses to Identities page appears, which lists all the IP-to-user-identity mapping records.

Step 2 Click the **Show** drop-down to list the filter options.

Here, you can choose a Quick Filter, an Advanced Filter for filtering, or the Manage Preset Filters option, which allows you to manage preset filters for filtering.

**Note**

To return to the IP-to-user-identity mapping list, choose All from the Show drop-down list to display all the mappings without filtering.

To filter by using the Quick Filter option, complete the following steps:

A quick filter filters IP-to-user-identity mapping based on each attribute on the Mapping of IP Addresses to Identities page.

To filter, click inside any field and enter the search criteria in the text box. It refreshes the page with the results on the Mapping of IP Addresses to Identities page. If you clear the field, it displays the list of all the mappings on the Mapping of IP Addresses to Identities page.

To filter by using the Advanced Filter option, complete the following steps:

An advanced filter enables you to filter IP-to-user-identity mapping by using variables that are more complex. It contains one or more filters that filter mappings based on the values that match the field descriptions. A filter on a single row filters mappings based on each attribute and the value that you define in the filter. Multiple filters can be used to match the values and filter mappings by using any one or all of the filters within a single advanced filter.

-
- Step 1** Choose an attribute from the drop-down list. You can filter the IP-to-user-identity mapping records on any of the following record attributes:
- IP
 - Mapping-Type
 - Domain
 - Mapping-Origin
 - Time stamp
 - User name
 - Response-to-probe
- Step 2** Choose the operator from the drop-down list.
- Step 3** Enter the value for the attribute that you selected.
- Step 4** Click the **Add Row** (plus [+] sign) button to add a filter, or click the **Remove Row** (minus [-] sign) button to remove a filter.
- Step 5** Choose **All** to match the value in each filter, or **Any** to match the value in any one of the filters.
- Step 6** Click **Go** to start filtering.
- Step 7** Click the **Save** icon to save the filter.
- The Save a Preset Filter dialog appears. Enter a file name to save the filter, and click **Save**. Do not include spaces when creating the name for a preset filter. Click **Cancel** to clear the filter without saving the current filter.
-

Deleting the IP-to-User-Identity Mappings

You can delete the selected mappings or clear all the mapping records. Both of these operations are asynchronous by nature, therefore, it will take some time for the Identity to IP mappings page to reflect the change.

To delete a mapping, complete the following steps:

-
- Step 1** Choose **Mappings > IP to Identity**
 - Step 2** Select the check box next to the mapping you want to delete
 - Step 3** Click **Delete**.
-

Mapping Filters

You can use the Mapping Filters to block particular users or IP addresses from being monitored by the Cisco CDA.

You can create filters and specify user names, IP addresses or both. The Cisco CDA will ignore mapping updates with the specified users and/or IP addresses, and will not collect mapping data from those updates. The data for the filtered users/IP addresses will not be cached by the Cisco CDA. Hence, it will not be listed on the IP-to-Identity mapping page, nor will it be distributed to consumer devices.

To create Mapping filters, complete the following steps:

-
- Step 1** Choose **Mappings > Filters**.
 - Step 2** Click **Add**.
The Mapping Filters Configuration dialog box is displayed.
 - Step 3** Fill in the following details:
 - **Username**—Username of the device that needs to be blocked.
 - **IP Address**—IP address of the device that needs to be blocked.
 - **Apply on existing mappings**—Check this check box if you want the filter to apply on the existing IP-to-user-identity mapping records.
 - Step 4** Click **Save**.
The new filter will be listed on the filters page.
-

Registered Devices

Registered Devices page displays a list of consumer devices that are connected to CDA and have been subscribed to receive mapping updates for specific IP addresses (On demand with registration), or for the entire mapping database (Full download with registration).

Note that some consumer devices do not register for updates, and will not show up in this page, even though they communicate with CDA as required. For such devices, this does not indicate any issue. The Cisco WSA is an example of such a device.

To view all the registered devices, click on the **Registered Devices** tab in the home page.

This page lists the following details:

- Status
- IP Address
- Configuration Name
- Configuration Range

The status field indicates whether the device is “in-sync” (green) or “out-of-sync” (red) with the Cisco CDA. The other fields display information that was provided when the device was configured.

Administrators

You can add Cisco CDA administrators with admin or user privileges to access the Cisco CDA user interface.

An administrator with only user privilege has access to all the Cisco CDA GUI screens and functionality, except the System menu.

An administrator with both user and admin privileges has access to all the Cisco CDA GUI screens and functionality, including the System menu.

Adding and Editing Administrators

To add or edit an administrator, complete the following steps:

Step 1 Choose **System > Administrators**

The Administrators page appears.

Step 2 Do one of the following

- Click **Add** to add a new device
- Select the check box next to an existing administrator in the list and click **Edit**.

Step 3 Enter the following details:

- User name
- Password
- Verify Password
- Authority
- First Name
- Last Name

Step 4 Click Save to save add or edit the administrator.

Deleting Administrators

To delete an administrator, complete the following steps:

-
- Step 1** Choose **System > Administrators**
- Step 2** Select the check box next to the administrator you want to delete in the list and click **Delete**.
Cisco CDA will prompt for a confirmation.
- Step 3** Click **OK**.
The administrator is deleted.
-

Password Policy

You can create a password policy for administrator accounts to enhance security. The policy that you define here is applied to all accounts with admin privilege in Cisco CDA.

To configure the password policy, complete the following steps:

-
- Step 1** Choose **System > Password Policy**
The Password Policy page appears.
- Step 2** Enter the following information:
- Check or uncheck the attributes a new password must contain:
 - Lower case letters
 - Upper case letters
 - Digits
 - Special characters
 - Check or uncheck the attributes a new password must not contain:
 - Three or more consecutive characters—Check this check box to restrict the use of three or more consecutive characters.
 - Username (or reversed)—Check this check box to restrict the use of the administrator username or its characters in reverse order.
 - “Cisco” (or reversed)—Check this check box to restrict the use of the word “cisco” or its characters in reverse order.
 - Custom word (or Reversed)—Restrict the use of any word that you define or these characters in reverse order.
 - Minimum Length—(Required) Specifies the minimum length of the password (in characters). The default is 4 characters.
 - Maximum Length—(Required) Specifies the maximum length of the password (in characters). The default is 99 characters.
- Step 3** Click **Save** to save the policy.
-

Session Timeout

Cisco CDA also allows you to determine the length of time a Cisco CDA GUI session can be inactive and still remain connected. You can specify a time in minutes after which Cisco CDA logs out the administrator. After a session timeout, the administrator must log in again to access the Cisco CDA user interface.

To configure the session timeout, complete the following steps:

-
- Step 1** Choose **System > Session Timeout**
The Session Timeout page appears.
- Step 2** Enter the Session timeout value in minutes.
- Step 3** Click **Save**.
-

Live Logs

Cisco CDA live logs provide a mechanism for diagnosing, troubleshooting, and auditing the operations of CDA. Live logs gather all the information you need for auditing and troubleshooting the system. Live logs are stored in the db/reports.db file and in the configured Syslog servers. The live logs GUI presents up to the last 10,000 messages generated by CDA.

Message types

The Cisco CDA live logs list the following messages:

- CDA Control Messages
- Configuration Changes
- Mapping Updates
- Sync Requests
- CoA Based Traffic
- Session Data Snapshot Transfer
- On-demand Queries
- Keep Alive Requests
- Domain Status Query
- DC Status Tracking

Message Content

The Cisco CDA live log messages include the following information:

- Timestamp
- Severity
- Origin Component
- Message Coe
- Message Text

Log Levels

The following are the log levels and their status symbols supported by Cisco CDA:

	Debug
	Info
	Notice
	Warning
	Error
	Fatal

Verbosity Levels

The Cisco CDA enables you to configure log verbosity to one of the following values:

- NONE
- FATAL
- ERROR
- WARN
- INFO
- DEBUG

Filtering the Live Logs

You can filter the live logs on any of the log attribute. The log attributes are:

- Time stamp
- Severity
- Origin Component
- Message
- Attributes

To filter the live logs, complete the following steps:

-
- Step 1** Click the filter  icon in the **Live Logs** page.
- Step 2** Enter the filter criteria in the text box.
The filtered data is displayed.
-

Refreshing the Live Logs Page

This page is automatically refreshed after every 10 seconds, by default. You can change the refresh rate to one of the following:

- 20 seconds
- 30 seconds
- 1 minute
- 2 minutes
- none

Deleting the Live Logs

You can clear all the live logs by clicking the **Clear** button.



CHAPTER 4

Cisco CDA Command Reference

This chapter contains an alphabetical listing of the commands specific to the Cisco Context Directory Agent (Cisco CDA).

The commands comprise these modes:

- EXEC
 - System-level
 - Show
- Configuration
 - Configuration submode



Note Use the EXEC mode system-level **config** or **configure** command to access the Configuration mode.

Each of the commands in this chapter is followed by a brief description of its use, command syntax, usage guidelines, and one or more examples. Throughout this chapter, the Cisco CDA server uses the name *CDA* in place of the Cisco CDA server's hostname.



Note

If an error occurs in any command usage, use the **debug** command to determine the cause of the error.

This appendix describes:

- [EXEC Commands, page 4-2](#)
- [Show Commands, page 4-48](#)
- [Configuration Commands, page 4-81](#)

EXEC Commands

This section lists each EXEC command and includes a brief description of its use, command syntax, usage guidelines, and sample output.

Table 4-1 lists the EXEC commands that this section describes.

Table 4-1 List of EXEC Commands

<ul style="list-style-type: none"> • application install • application remove • application reset-config • application reset-passwd • application start • application stop • application upgrade • backup • backup-logs • clock • configure • copy • debug 	<ul style="list-style-type: none"> • delete • dir • exit • forceout • halt • help • mkdir • nslookup • patch install • patch remove • ping • ping6 • reload 	<ul style="list-style-type: none"> • restore • rmdir • show (see Show Commands) • ssh • tech • telnet • terminal length • terminal session-timeout • terminal session-welcome • terminal terminal-type • traceroute • undebug • write
---	--	--

application install



Note

You are not allowed to run the **application install** command from the CLI under normal operations because the Cisco CDA application is preinstalled with the provided ISO image on all supported appliances and VMware.

To install a specific application other than the Cisco CDA, use the **application install** command in the EXEC mode. To remove this function, use the **application remove** command.

application install *application-bundle remote-repository-name*

Syntax Description

application	The application command for an application install and administration.
install	Installs a specific application.
<i>application-bundle</i>	Application bundle filename. Supports up to 255 alphanumeric characters.
<i>remote-repository-name</i>	Remote repository name. Supports up to 255 alphanumeric characters.

Defaults

No default behavior or values.

Command Modes EXEC

Usage Guidelines Installs the specified application bundle on the appliance. The application bundle file is pulled from the specified repository.

If you issue the **application install** or **application remove** command when another installation or removal operation of an application is in progress, you will see the following warning message:

```
An existing application install, remove, or upgrade is in progress. Try again shortly.
```

Examples

```
/admin# application install cda-appbundle-1.0.0.011.i386.tar.gz myrepository
```

```
Save the current ADE-OS running configuration? (yes/no) [yes] ?
Generating configuration...
Saved the ADE-OS running configuration to startup successfully
Initiating Application installation...
```

```
Application successfully installed
/admin#
```

Related Commands

Command	Description
application install	Configures an application.
application remove	Removes or uninstalls an application.
application reset-config	Resets an application configuration to factory defaults.
application reset-passwd	Resets an application password for a specified user.
application start	Starts or enables an application.
application stop	Stops or disables an application.
application upgrade	Upgrades an application bundle.
show application	Shows application information for the installed application packages on the system.

application remove



Note

You are not allowed to run the **application remove** command from the CLI to remove the Cisco CDA application unless you are explicitly instructed for an upgrade.

To remove a specific application other than the Cisco CDA, use the **application remove** command in the EXEC mode. To remove this function, use the **no** form of this command.

application remove *application-name*

Syntax Description

application	The application command for an application install and administration.
remove	Removes or uninstalls an application.
<i>application-name</i>	Application name. Supports up to 255 alphanumeric characters.

Defaults No default behavior or values.

Command Modes EXEC

Usage Guidelines Removes or uninstalls an application.

Examples

```
/admin# application remove cda
Continue with application removal? [y/n] y

Application successfully uninstalled
/admin#
```

Related Commands	Command	Description
	application install	Configures an application.
	application install	Installs an application bundle.
	application reset-config	Resets an application configuration to factory defaults.
	application reset-passwd	Resets an application password for a specified user.
	application start	Starts or enables an application.
	application stop	Stops or disables an application.
	application upgrade	Upgrades an application bundle.
	show application	Shows application information for the installed application packages on the system.

application reset-config

To reset the Cisco CDA application configuration and clear the Cisco CDA database, use the **application reset-config** command in the EXEC mode. (This command does not reset your initial chassis configuration settings like the IP address, netmask, administrator user interface password, and so on.) Part of this reset function requires you to enter new Cisco CDA administrator name and passwords.

application reset-config *application-name*

Syntax Description	Command	Description
	application	The application command for an application install and administration.
	reset-config	Resets the Cisco CDA application configuration and clears the Cisco CDA database.
	<i>application-name</i>	Name of the application configuration you want to reset. Supports up to 255 alphanumeric characters.

Defaults No default behavior or values.

Command Modes EXEC**Usage Guidelines**

You can use the **application reset-config** command to reset the Cisco CDA configuration and clear the Cisco CDA database without reimaging the Cisco CDA appliance or VMware, and reset the Cisco CDA username and passwords.



Note Although the **application reset-config** command resets the Cisco CDA configuration to factory defaults, the operating system (Cisco ADE-OS) configuration still remains intact. The Cisco ADE-OS configuration includes items such as the network settings, CLI password policy, and backup history.

Examples**Example 1**

```
/admin# application reset-config cda
The existing configuration will be lost. Are you sure? [Y/n] Y
Stopping CDA Watchdog...
Stopping CDA Application Server...
Stopping AD Context Manager...
Stopping AD Context Observer...
Stopping CDA Logger...
Enter the CDA administrator username to create[admin]:
Enter the password for 'admin':
Re-enter the password for 'admin':
Starting CDA...
/admin#
```

Related Commands

Command	Description
application install	Configures an application.
application install	Installs an application bundle.
application remove	Removes or uninstalls an application.
application reset-passwd	Resets an application password for a specified user.
application start	Starts or enables an application.
application stop	Stops or disables an application.
application upgrade	Upgrades an application bundle.
show application	Shows application information for the installed application packages on the system.

application reset-passwd

To reset the administrator user interface login password for a specified user account (usually an existing administrator account) in Cisco CDA after you have lost the user account credentials, use the **application reset-passwd** command in the EXEC mode.

application reset-passwd *application-name administrator-ID*

application	The application command for an application install and administration.
reset-passwd	Resets the administrator account password.
<i>application-name</i>	Application name. Supports up to 255 alphanumeric characters.
<i>administrator-ID</i>	The name of an existing administrator account that has been disabled and for which you want to reset the password.

Defaults No default behavior or values.

Command Modes EXEC

Usage Guidelines Resets administrator password.

Examples

```
admin# application reset-passwd cda admin
Enter new password: *****
Confirm new password: *****

Password reset successfully.
/admin#
```

Related Commands	Command	Description
	application install	Configures an application.
	application installs	Installs an application bundle.
	application remove	Removes or uninstalls an application.
	application reset-config	Resets an application configuration to factory defaults.
	application start	Starts or enables an application.
	application stop	Stops or disables an application.
	application upgrade	Upgrades an application bundle.
	show application	Shows application information for the installed application packages on the system.

application start

To enable a specific application, use the **application start** command in the EXEC mode. To remove this function, use the **no** form of this command.

application start *application-name*

Syntax Description

application	The application command for an application install and administration.
start	Enables an application bundle.
<i>application-name</i>	Name of the predefined application that you want to enable. Supports up to 255 alphanumeric characters.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

Enables an application.

You cannot use this command to start the Cisco CDA application. If you use this command to start the application, you can see that the Cisco CDA is already running.

Examples

```
/admin# application start cda
Starting CDA...
```

You can check the status of Cisco CDA using the **show application status cda** command. If you are checking the status right after starting Cisco CDA, it will show the following output:

```
/admin# show application status cda
CDA Application Server process is not running.
```

But after a short while the output will be similar to:

```
/admin# show application status cda
CDA Application Server is running, PID: 16420
```

Related Commands

Command	Description
application install	Configures an application.
application install	Installs an application bundle.
application remove	Removes or uninstalls an application.
application reset-config	Resets an application configuration to factory defaults.
application reset-passwd	Resets an application password for a specified user.
application stop	Stops or disables an application.

Command	Description
application upgrade	Upgrades an application bundle.
show application	Shows application information for the installed application packages on the system.

application stop

To disable a specific application, use the **application stop** command in the EXEC mode.

application stop *application-name*

Syntax Description		
application		The application command for application install and administration.
stop		Disables an application.
<i>application-name</i>		Name of the predefined application that you want to disable. Supports up to 255 alphanumeric characters.

Defaults No default behavior or values.

Command Modes EXEC

Usage Guidelines Disables an application.

Examples /admin# **application stop cda**

```
Stopping CDA Watchdog...
Stopping CDA Application Server...
Stopping AD Context Manager...
Stopping AD Context Observer...
Stopping CDA Logger...
```

```
/admin#
```

Related Commands	Command	Description
	application install	Configures an application.
	application install	Installs an application bundle.
	application remove	Removes or uninstalls an application.
	application reset-config	Resets an application configuration to factory defaults.
	application reset-passwd	Resets an application password for a specified user.
	application start	Starts or enables an application.

Command	Description
application upgrade	Upgrades an application bundle.
show application	Shows application information for the installed application packages on the system.

application upgrade

To upgrade a specific application bundle, use the **application upgrade** command in the EXEC mode.

application upgrade *application-bundle remote-repository-name*

Syntax Description		
application	The application command for application install and administration.	
upgrade	Upgrades a specific application bundle in the remote repository.	
<i>application-bundle</i>	Application name. Supports up to 255 alphanumeric characters.	
<i>remote-repository-name</i>	Remote repository name. Supports up to 255 alphanumeric characters.	

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

Upgrades an application bundle, and preserves any application configuration data.

If you issue the **application upgrade** command when another application upgrade operation is in progress, you will see the following warning message:

```
An existing application install, remove, or upgrade is in progress. Try again shortly.
```



Caution

Do not issue the **backup** or **restore** commands when the upgrade is in progress. This action might cause the database to be corrupted.



Note

Before attempting to use this application upgrade command to upgrade to a newer release, you must read the upgrade instructions in the release notes supplied with that newer release. The release notes contains important instructions updated for upgrading to the newer release, which must be followed.

Examples

```
/admin# application upgrade cda-appbundle-1.1.0.362.i386.tar.gz http
Save the current ADE-OS running configuration? (yes/no) [yes]? yes
Generating configuration...
Saved the ADE-OS running configuration to startup successfully
Initiating Application Upgrade...
Stopping CDA application before upgrade...
Running CDA Database upgrade...
Upgrading CDA Database schema...
CDA Database schema upgrade completed.
```

```
Application upgrade successful
/admin#
```

Related Commands

Command	Description
application install	Configures an application.
application install	Installs an application bundle.
application remove	Removes or uninstalls an application.
application reset-config	Resets an application configuration to factory defaults.
application reset-passwd	Resets an application password for a specified user.
application start	Starts or enables an application.
application stop	Stops or disables an application.
show application	Shows application information for the installed application packages on the system.

backup

To perform a backup of the Cisco CDA configuration data and place the backup in a repository, use the **backup** command in the EXEC mode. To perform a backup of only the Cisco CDA application data without the Cisco ADE OS data, use the **application** command.

**Note**

Before attempting to use this **backup** command in the EXEC mode, you must copy the running configuration to a safe location, such as a network server, or save it as the Cisco CDA server startup configuration. You can use this startup configuration when you restore or troubleshoot your Cisco CDA application from the backup and system logs. For more information of copying the running configuration to the startup configuration, see the “[copy](#)” section on page 4-14.

backup *backup-name* **repository** *repository-name* **application** *application-name*

Syntax Description

backup	The command to perform a backup the Cisco CDA and Cisco ADE OS and place the backup in a repository.
<i>backup-name</i>	Name of backup file. Supports up to 100 alphanumeric characters.
repository	Repository command.
<i>repository-name</i>	Location where the files should be backed up to. Supports up to 80 alphanumeric characters.
application	Application command (application-only backup, excludes the Cisco ODE OS system data).
<i>application-name</i>	Application name. Supports up to 255 alphanumeric characters.

Defaults

No default behavior or values.

Command Modes EXEC

Usage Guidelines Performs a backup of the Cisco CDA and Cisco ADE OS data and places the backup in a repository. To perform a backup of only the Cisco CDA application data without the Cisco ADE OS data, use the **application** command.

Examples

Example 1

```
/admin# backup mybackup repository myrepository
% Creating backup with timestamped filename: backup-111125-1252.tar.gpg
/admin#
```

Example 2

```
/admin# backup mybackup repository myrepository application cda
% Creating backup with timestamped filename: backup-111125-1235.tar.gpg
/admin#
```

Related Commands

Command	Description
backup-logs	Backs up system logs.
delete	Deletes a file from the Cisco CDA server.
dir	Lists a file from the Cisco CDA server.
reload	Reboots the system.
repository	Enters the repository submode for configuration of backups.
restore	Restores from backup the file contents of a specific repository.
show backup history	Displays the backup history of the system.
show repository	Displays the available backup files located on a specific repository.

backup-logs

To back up system logs, use the **backup-logs** command in the EXEC mode.

backup-logs *backup-name* **repository** *repository-name*

Syntax Description

<code>backup-logs</code>	The command to back up the system and application logs to a repository.
<i>backup-name</i>	Name of one or more files to back up. Supports up to 100 alphanumeric characters.
<code>repository</code>	Repository command.
<i>repository-name</i>	Location where files should be backed up to. Supports up to 80 alphanumeric characters.

Defaults

No default behavior or values.

Command Modes EXEC

Usage Guidelines Backs up system logs with an encrypted (hashed) or unencrypted plaintext password.

Examples

```
/admin# backup-logs mybackup repository myrepository encryption-key plain Lab12345
% Creating log backup with timestamped filename: mybackup-111125-1117.tar.gpg
/admin#
```

Related Commands	Command	Description
	backup	Performs a backup (Cisco CDA and Cisco ADE OS) and places the backup in a repository.
	restore	Restores from backup the file contents of a specific repository.
	repository	Enters the repository submode for configuration of backups.
	show backup history	Shows the backup history of the system.
	show repository	Shows the available backup files located on a specific repository.

clock

To set the system clock, use the **clock** command in the EXEC mode.

clock set [*month day hh:min:ss yyyy*]

Syntax Description	Command	Description
	clock set	The command that sets the system clock.
	<i>month</i>	Current month of the year by name. Supports up to three alphabetic characters. For example, Jan for January.
	<i>day</i>	Current day (by date) of the month. Value = 0 to 31. Supports up to two numbers.
	<i>hh:mm:ss</i>	Current time in hours (24-hour format), minutes, and seconds.
	<i>yyyy</i>	Current year (no abbreviation).

Defaults No default behavior or values.

Command Modes EXEC

Usage Guidelines Sets the system clock. You must restart the Cisco CDA server after you reset the clock for the change to take effect. Under normal circumstances (with NTP configured), there is no reason to manually set the system clock using this command.

**Warning**

Changing the system time on a Cisco CDA appliance causes the Cisco CDA application to be unusable in the deployment.

**Note**

To ensure that you have the correct system time set at the time of installation, the setup wizard prompts for an NTP server and tries to sync with it. You must ensure that the configured NTP server during setup is always reachable so that the system time is always kept accurate, especially in rare situations where the BIOS time can get corrupted because of power failure or CMOS battery failure and this in turn can corrupt the ADE-OS system time during reboot.

Examples

```
/admin# clock set May 5 18:07:20 2010
/admin# show clock
Thu May 5 18:07:26 UTC 2010
/admin#
```

Related Commands

Command	Description
show clock	Displays the time and date set on the system software clock.

configure

To enter the Configuration mode, use the **configure** command in the EXEC mode. If the **replace** option is used with this command, copies a remote configuration to the system which overwrites the existing configuration.

configure terminal**Syntax Description**

configure	The command that allows you to enter the Configuration mode.
terminal	Executes configuration commands from the terminal.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

Use this command to enter the Configuration mode. Note that commands in this mode write to the running configuration file as soon as you enter them (press **Enter**).

To exit the Configuration mode and return to the EXEC mode, enter **end**, **exit**, or **Ctrl-z**.

To view the changes that you have made to the configuration, use the **show running-config** command in the EXEC mode.

Examples**Example 1**

```
/admin# configure
Enter configuration commands, one per line. End with CNTL/Z.
/admin(config)#
```

Example 2

```
/admin# configure terminal
Enter configuration commands, one per lineAug.nd with CNTL/Z.
/admin(config)#
```

Related Commands

Command	Description
show running-config	Displays the contents of the currently running configuration file or the configuration.
show startup-config	Displays the contents of the startup configuration file or the configuration.

copy

To copy any file from a source to a destination, use the **copy** command in the EXEC mode. The **copy** command in the Cisco CDA copies a configuration (running or startup).

Running Configuration

The Cisco CDA active configuration stores itself in the Cisco CDA RAM. Every configuration command you enter resides in the running configuration. If you reboot your Cisco CDA server, you lose the running configuration. If you make changes that you want to save, you must copy the running configuration to a safe location, such as a network server, or save it as the Cisco CDA server startup configuration.

Startup Configuration

You cannot edit a startup configuration directly. All commands that you enter store themselves in the running configuration, which you can copy into the startup configuration.

In other words, when you boot a Cisco CDA server, the startup configuration becomes the initial running configuration. As you modify the configuration, the two diverge: the startup configuration remains the same; the running configuration reflects the changes that you have made. If you want to make your changes permanent, you must copy the running configuration to the startup configuration.

The following command lines show some of the **copy** command scenarios available:

copy running-config startup-config—Copies the running configuration to the startup configuration.

copy run start—Replaces the startup configuration with the running configuration.



Note If you do not save the running configuration, you will lose all your configuration changes during the next reboot of the Cisco CDA server. When you are satisfied that the current configuration is correct, copy your configuration to the startup configuration with the **copy run start** command.

copy startup-config running-config—Copies the startup configuration to the running configuration.

copy start run—Merges the startup configuration on top of the running configuration.

copy [protocol://hostname/location] startup-config—Copies but does not merge a remote file to the startup configuration.

copy [protocol://hostname/location] running-config—Copies and merges a remote file to the running configuration.

copy startup-config [protocol://hostname/location]—Copies the startup configuration to a remote system.

copy running-config [protocol://hostname/location]—Copies the running configuration to a remote system.

copy logs [protocol://hostname/location]—Copies log files from the system to another location.

**Note**

The **copy** command is supported only for the local disk and not for a repository.

Syntax Description

copy	The command that copies items.
running-config	Represents the current running configuration file.
startup-config	Represents the configuration file used during initialization (startup).
<i>protocol</i>	See Table 4-2 for protocol keyword options.
<i>hostname</i>	Hostname of destination.
<i>location</i>	Location of destination.
logs	The system log files.
all	Copies all Cisco CDA log files from the system to another location. All logs are packaged as cdalogs.tar.gz and transferred to the specified directory on the remote host.
filename	Allows you to copy a single Cisco CDA log file and transfer it to the specified directory on the remote host, with its original name.
<i>log_filename</i>	Name of the Cisco CDA log file, as displayed by the show logs command (up to 255 characters).
mgmt	Copies the Cisco CDA management debug logs and Tomcat logs from the system, bundles them as mgmtlogs.tar.gz , and transfers them to the specified directory on the remote host.
runtime	Copies the Cisco CDA runtime debug logs from the system, bundles them as runtimelogs.tar.gz , and transfers them to the specified directory on the remote host.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

The fundamental function of the **copy** command allows you to copy a file (such as a system image or configuration file) from one location to another location. The source and destination for the file specified uses the Cisco CDA file system, through which you can specify any supported local or remote file location. The file system being used (a local memory source or a remote system) dictates the syntax used in the command.

You can enter on the command line all the necessary source and destination information and the username and password to use; or, you can enter the **copy** command and have the server prompt you for any missing information.

**Timesaver**

Aliases reduce the amount of typing that you need to do. For example, type **copy run start** (the abbreviated form of the **copy running-config startup-config** command).

The entire copying process might take several minutes and differs from protocol to protocol and from network to network.

Use the filename relative to the directory for file transfers.

Possible errors are standard FTP or SCP error messages.

Table 4-2 Protocol Prefix Keywords

Keyword	Source of Destination
ftp	Source or destination URL for FTP network server. The syntax for this alias: ftp:[[/username [:password]@]location]/directory]/filename
scp	Source or destination URL for SCP network server. The syntax for this alias: scp:[[/username [:password]@]location]/directory]/filename
sftp	Source or destination URL for an SFTP network server. The syntax for this alias: sftp:[[/location]/directory]/filename
tftp	Source or destination URL for a TFTP network server. The syntax for this alias: tftp:[[/location]/directory]/filename

Examples**Example 1**

```
/admin# copy run start
Generating configuration...
/admin#
```

Example 2

```
/admin# copy running-config startup-config
Generating configuration...
/admin#
```

Example 3

```
/admin# copy start run
/admin#
```

Example 4

```
/admin# copy startup-config running-config
/admin#
```

Example 5

```
/admin# copy logs disk:/
Collecting logs...
/admin#
```

Example 6

```
/admin# copy disk://mybackup-100805-1910.tar.gz ftp://myftpserver/mydir
Username:
Password:
/admin#
```

Related Commands

Command	Description
application install	Starts or stops a Cisco CDA instance.
backup	Performs a backup (Cisco CDA and Cisco ADE OS) and places the backup in a repository.
delete	Deletes a file from the Cisco CDA server.
dir	Lists a file from the Cisco CDA server.
reload	Reboots the system.
restore	Restores from backup the file contents of a specific repository.
show application	Shows application status and version information.
show version	Displays information about the software version of the system.

debug

To display errors or events for command situations, use the **debug** command in the EXEC mode.

```
debug {all | application | backup-restore | cdp | config | icmp | copy | locks | logging | snmp |
system | transfer | user | utils}
```

Syntax Description

debug	The command to identify various failures with the Cisco CDA server.
all	Enables all debugging.
application	Application files. <ul style="list-style-type: none"> <i>all</i>—Enables all application debug output. Set level between 0 and 7, with 0 being severe and 7 being all. <i>install</i>—Enables application install debug output. Set level between 0 and 7, with 0 being severe and 7 being all. <i>operation</i>—Enables application operation debug output. Set level between 0 and 7, with 0 being severe and 7 being all. <i>uninstall</i>—Enables application uninstall debug output. Set level between 0 and 7, with 0 being severe and 7 being all.

backup-restore	<p>Backs up and restores files.</p> <ul style="list-style-type: none"> • <i>all</i>—Enables all debug output for backup-restore. Set level between 0 and 7, with 0 being severe and 7 being all. • <i>backup</i>—Enables backup debug output for backup-restore. Set level between 0 and 7, with 0 being severe and 7 being all. • <i>backup-logs</i>—Enables backup-logs debug output for backup-restore. Set level between 0 and 7, with 0 being severe and 7 being all. • <i>history</i>—Enables history debug output for backup-restore. Set level between 0 and 7, with 0 being severe and 7 being all. • <i>restore</i>—Enables restore debug output for backup-restore. Set level between 0 and 7, with 0 being severe and 7 being all.
cdp	<p>Cisco Discovery Protocol configuration files.</p> <ul style="list-style-type: none"> • <i>all</i>—Enables all Cisco Discovery Protocol configuration debug output. Set level between 0 and 7, with 0 being severe and 7 being all. • <i>config</i>—Enables configuration debug output for Cisco Discovery Protocol. Set level between 0 and 7, with 0 being severe and 7 being all. • <i>infra</i>—Enables infrastructure debug output for Cisco Discovery Protocol. Set level between 0 and 7, with 0 being severe and 7 being all.
config	<p>Configuration files.</p> <ul style="list-style-type: none"> • <i>all</i>—Enables all configuration debug output. Set level between 0 and 7, with 0 being severe and 7 being all. • <i>backup</i>—Enables backup configuration debug output. Set level between 0 and 7, with 0 being severe and 7 being all. • <i>clock</i>—Enables clock configuration debug output. Set level between 0 and 7, with 0 being severe and 7 being all. • <i>infra</i>—Enables configuration infrastructure debug output. Set level between 0 and 7, with 0 being severe and 7 being all. • <i>kron</i>—Enables command scheduler configuration debug output. Set level between 0 and 7, with 0 being severe and 7 being all. • <i>network</i>—Enables network configuration debug output. Set level between 0 and 7, with 0 being severe and 7 being all. • <i>repository</i>—Enables repository configuration debug output. Set level between 0 and 7, with 0 being severe and 7 being all. • <i>service</i>—Enables service configuration debug output. Set level between 0 and 7, with 0 being severe and 7 being all.
icmp	<p>Internet Control Message Protocol (ICMP) echo response configuration.</p> <p><i>all</i>—Enable all debug output for ICMP echo response configuration. Set level between 0 and 7, with 0 being severe and 7 being all.</p>
copy	<p>Copy commands. Set level between 0 and 7, with 0 being severe and 7 being all.</p>

locks	Resource locking. <ul style="list-style-type: none"> <i>all</i>—Enables all resource locking debug output. Set level between 0 and 7, with 0 being severe and 7 being all. <i>file</i>—Enables file locking debug output. Set level between 0 and 7, with 0 being severe and 7 being all.
logging	Logging configuration files. <i>all</i> —Enables all logging configuration debug output. Set level between 0 and 7, with 0 being severe and 7 being all.
snmp	SNMP configuration files. <i>all</i> —Enables all SNMP configuration debug output. Set level between 0 and 7, with 0 being severe and 7 being all.
system	System files. <ul style="list-style-type: none"> <i>all</i>—Enables all system files debug output. Set level between 0 and 7, with 0 being severe and 7 being all. <i>id</i>—Enables system ID debug output. Set level between 0 and 7, with 0 being severe and 7 being all. <i>info</i>—Enables system info debug output. Set level between 0 and 7, with 0 being severe and 7 being all. <i>init</i>—Enables system init debug output. Set level between 0 and 7, with 0 being severe and 7 being all.
transfer	File transfer. Set level between 0 and 7, with 0 being severe and 7 being all.
user	User management. <ul style="list-style-type: none"> <i>all</i>—Enables all user management debug output. Set level between 0 and 7, with 0 being severe and 7 being all. <i>password-policy</i>—Enables user management debug output for password-policy. Set level between 0 and 7, with 0 being severe and 7 being all.
utils	Utilities configuration files. <i>all</i> —Enables all utilities configuration debug output. Set level between 0 and 7, with 0 being severe and 7 being all.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage GuidelinesUse the **debug** command to identify various failures within the Cisco CDA server; for example, setup failures or configuration failures.**Examples**

```

/admin# debug all
/admin# mkdir disk:/1
/admin# 6 [15347]: utils: vsh_root_stubs.c[2742] [admin]: mkdir operation success

```

```
/admin# rmdir disk:/1
6 [15351]: utils: vsh_root_stubs.c[2601] [admin]: Invoked Remove Directory disk:/1 command
6 [15351]: utils: vsh_root_stubs.c[2663] [admin]: Remove Directory operation success
/admin#
```

```
/admin# undebg all
/admin#
```

Related Commands

Command	Description
undebg	Disables the output (display of errors or events) of the debug command for various command situations.

delete

To delete a file from the Cisco CDA server, use the **delete** command in the EXEC mode. To remove this function, use the **no** form of this command.

delete *filename* [*disk:/path*]

Syntax Description

<code>delete</code>	The command to delete a file from the Cisco CDA server.
<i>filename</i>	Filename. Supports up to 80 alphanumeric characters.
<i>disk:/path</i>	Location.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

If you attempt to delete the configuration file or image, the system prompts you to confirm the deletion. Also, if you attempt to delete the last valid system image, the system prompts you to confirm the deletion.

Examples

```
/admin# delete disk:/hs_err_pid19962.log
/admin#
```

Related Commands

Command	Description
dir	Lists all the files on the Cisco CDA server.

dir

To list a file from the Cisco CDA server, use the **dir** command in the EXEC mode. To remove this function, use the **no** form of this command.

dir [*word*] [**recursive**]

Syntax Description	
dir	The command to list files on a local system.
<i>word</i>	Directory name. Supports up to 80 alphanumeric characters. Requires disk:/ preceding the directory name.
recursive	Lists a local directory or filename recursively.

Defaults No default behavior or values.

Command Modes EXEC

Usage Guidelines None.

Examples

Example 1

```
/admin# dir

Directory of disk:/

 2034113 Aug 05 2010 19:58:39 ADElogs.tar.gz
   4096 Jun 10 2010 02:34:03 activemq-data/
   4096 Aug 04 2010 23:14:53 logs/
  16384 Jun 09 2010 02:59:34 lost+found/
2996022 Aug 05 2010 19:11:16 mybackup-100805-1910.tar.gz
   4096 Aug 04 2010 23:15:20 target/
   4096 Aug 05 2010 12:25:55 temp/

Usage for disk: filesystem
      8076189696 bytes total used
      6371618816 bytes free
      15234142208 bytes available

/admin#
```

Example 2

```
/admin# dir disk:/logs

0 Aug 05 2010 11:53:52 usermgmt.log

Usage for disk: filesystem
      8076189696 bytes total used
      6371618816 bytes free
      15234142208 bytes available

/admin#
```

Example 3

```
/admin# dir recursive
```

```
Directory of disk:/
```

```
2034113 Aug 05 2010 19:58:39 ADElogs.tar.gz
2996022 Aug 05 2010 19:11:16 mybackup-100805-1910.tar.gz
4096 Aug 04 2010 23:14:53 logs/
4096 Aug 05 2010 12:25:55 temp/
4096 Jun 10 2010 02:34:03 activemq-data/
4096 Aug 04 2010 23:15:20 target/
16384 Jun 09 2010 02:59:34 lost+found/
```

```
Directory of disk:/logs
```

```
0 Aug 05 2010 11:53:52 usermgmt.log
```

```
Directory of disk:/temp
```

```
281 Aug 05 2010 19:12:45 RoleBundles.xml
6631 Aug 05 2010 19:12:34 PipDetails.xml
69 Aug 05 2010 19:12:45 GroupRoles.xml
231 Aug 05 2010 19:12:34 ApplicationGroupTypes.xml
544145 Aug 05 2010 19:12:35 ResourceTypes.xml
45231 Aug 05 2010 19:12:45 UserTypes.xml
715 Aug 05 2010 19:12:34 ApplicationGroups.xml
261 Aug 05 2010 19:12:34 ApplicationTypes.xml
1010 Aug 05 2010 19:12:34 Pdps.xml
1043657 Aug 05 2010 19:12:44 Groups.xml
281003 Aug 05 2010 19:12:38 Resources.xml
69 Aug 05 2010 19:12:45 GroupUsers.xml
2662 Aug 05 2010 19:12:44 RoleTypes.xml
79 Aug 05 2010 19:12:34 UserStores.xml
4032 Aug 05 2010 19:12:38 GroupTypes.xml
1043 Aug 05 2010 19:12:34 Organization.xml
58377 Aug 05 2010 19:12:46 UserRoles.xml
300 Aug 05 2010 19:12:45 Contexts.xml
958 Aug 05 2010 19:12:34 Applications.xml
28010 Aug 05 2010 19:12:45 Roles.xml
122761 Aug 05 2010 19:12:45 Users.xml
```

```
Directory of disk:/activemq-data
```

```
4096 Jun 10 2010 02:34:03 localhost/
```

```
Directory of disk:/activemq-data/localhost
```

```
0 Jun 10 2010 02:34:03 lock
4096 Jun 10 2010 02:34:03 journal/
4096 Jun 10 2010 02:34:03 kr-store/
4096 Jun 10 2010 02:34:03 tmp_storage/
```

```
Directory of disk:/activemq-data/localhost/journal
```

```
33030144 Aug 06 2010 03:40:26 data-1
2088 Aug 06 2010 03:40:26 data-control
```

```
Directory of disk:/activemq-data/localhost/kr-store
```

```
4096 Aug 06 2010 03:40:27 data/
4096 Aug 06 2010 03:40:26 state/
```

```
Directory of disk:/activemq-data/localhost/kr-store/data
```

```

102 Aug 06 2010 03:40:27 index-container-roots
 0 Aug 06 2010 03:40:27 lock

Directory of disk:/activemq-data/localhost/kr-store/state

 3073 Aug 06 2010 03:40:26 hash-index-store-state_state
   51 Jul 20 2010 21:33:33 index-transactions-state
 204 Aug 06 2010 03:40:26 index-store-state
 306 Jun 10 2010 02:34:03 index-kaha
 290 Jun 10 2010 02:34:03 data-kaha-1
71673 Aug 06 2010 03:40:26 data-store-state-1
   0 Jun 10 2010 02:34:03 lock

Directory of disk:/activemq-data/localhost/tmp_storage

No files in directory

Directory of disk:/target

 4096 Aug 04 2010 23:15:20 logs/

Directory of disk:/target/logs

   0 Aug 04 2010 23:15:20 ProfilerPDP.log
 2208 Aug 05 2010 11:54:26 ProfilerSensor.log

Directory of disk:/lost+found

No files in directory

Usage for disk: filesystem
      8076189696 bytes total used
      6371618816 bytes free
      15234142208 bytes available

/admin#

```

Related Commands

Command	Description
delete	Deletes a file from the Cisco CDA server.

exit

To close an active terminal session by logging out of the Cisco CDA server or to move up one mode level from the Configuration mode, use the **exit** command in the EXEC mode.

exit

Syntax Description

No arguments or keywords.

Defaults

No default behavior or values.

Command Modes EXEC

Usage Guidelines Use the **exit** command in EXEC mode to exit an active session (log out of the Cisco CDA server) or to move up from the Configuration mode.

Examples

```
/admin# exit
/admin#
```

Related Commands	Command	Description
	end	Exits the Configuration mode.
	exit	Exits the Configuration mode or EXEC mode.
	Ctrl-z	Exits the Configuration mode.

forceout

To force users out of an active terminal session by logging them out of the Cisco CDA server, use the **forceout** command in the EXEC mode.

forceout *username*

Syntax Description	forceout	The command that enforces logout of all the sessions of a specific system user.
	<i>username</i>	The name of the user. Supports up to 31 alphanumeric characters.

Defaults No default behavior or values.

Command Modes EXEC

Usage Guidelines Use the **forceout** command in EXEC mode to force a user from an active session.

Examples

```
/admin# forceout user1
/admin#
```

halt

To shut down and power off the system, use the **halt** command in EXEC mode.

halt

Syntax Description No arguments or keywords.

Defaults No default behavior or values.

Command Modes EXEC

Usage Guidelines Before you issue the **halt** command, ensure that the Cisco CDA is not performing any backup, restore, installation, upgrade, or remove operation. If you issue the halt command while the Cisco CDA is performing any of these operations, you will get one of the following warning messages:

```
WARNING: A backup or restore is currently in progress! Continue with halt?
```

```
WARNING: An install/upgrade/remove is currently in progress! Continue with halt?
```

If you get any of these warnings, enter **Yes** to halt the operation, or enter **No** to cancel the halt.

If no processes are running when you use the **halt** command or if you enter **Yes** in response to the warning message displayed, the Cisco CDA asks you to respond to the following option:

```
Do you want to save the current configuration?
```

Enter **Yes** to save the existing Cisco CDA configuration. The Cisco CDA displays the following message:

```
Saved the running configuration to startup successfully
```

Examples

```
/admin# halt
/admin#
```

Related Commands

Command	Description
reload	Reboots the system.

help

To describe the interactive help system for the Cisco CDA server, use the **help** command in the EXEC mode.

help

Syntax Description No arguments or keywords.

Defaults No default behavior or values.

Command Modes

EXEC

All configuration modes.

Usage Guidelines

The **help** command provides a brief description of the context-sensitive help system.

- To list all commands available for a particular command mode, enter a question mark (?) at the system prompt.
- To obtain a list of commands that begin with a particular character string, enter the abbreviated command entry immediately followed by a question mark (?). This form of help is called word help, because it lists only the keywords or arguments that begin with the abbreviation that you entered.
- To list the keywords and arguments associated with a command, enter a question mark (?) in place of a keyword or argument on the command line. This form of help is called command syntax help, because it lists the keywords or arguments that apply based on the command, keywords, and arguments that you have already entered.

Examples

```
/admin# help
```

Help may be requested at any point in a command by entering a question mark '?'. If nothing matches, the help list will be empty and you must backup until entering a '?' shows the available options.

Two styles of help are provided:

1. Full help is available when you are ready to enter a command argument (e.g. 'show?') and describes each possible argument.
2. Partial help is provided when an abbreviated argument is entered and you want to know what arguments match the input (e.g. 'show pr?').

```
/admin#
```

mkdir

To create a new directory on the Cisco CDA server, use the **mkdir** command in the EXEC mode.

```
mkdir directory-name [disk:/path]
```

Syntax Description

<code>mk dir</code>	The command to create directory.
<i>directory-name</i>	The name of the directory to create. Supports up to 80 alphanumeric characters.
<i>disk:/path</i>	Use <i>disk:/path</i> with the directory name.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

Use *disk:/path* with the directory name; otherwise, an error appears that indicates that the *disk:/path* must be included.

Examples

```
/admin# mkdir disk:/test
/admin# dir

Directory of disk:/

 4096 May 06 2010 13:34:49 activemq-data/
 4096 May 06 2010 13:40:59 logs/
16384 Mar 01 2010 16:07:27 lost+found/
 4096 May 06 2010 13:42:53 target/
 4096 May 07 2010 12:26:04 test/

Usage for disk: filesystem
      181067776 bytes total used
      19084521472 bytes free
      20314165248 bytes available

/admin#
```

Related Commands

Command	Description
dir	Displays a list of files on the CDA server.
rmdir	Removes an existing directory.

nslookup

To look up the hostname of a remote system on the Cisco CDA server, use the **nslookup** command in the EXEC mode.

nslookup *word*

Syntax Description

nslookup	The command to search the IP address or hostname of a remote system.
<i>word</i>	IPv4 address or hostname of a remote system. Supports up to 64 alphanumeric characters.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

None.

Examples**Example 1**

```

/admin# nslookup 1.2.3.4
Trying "4.3.2.1.in-addr.arpa"
Received 127 bytes from 171.70.168.183#53 in 1 ms
Trying "4.3.2.1.in-addr.arpa"
Host 4.3.2.1.in-addr.arpa. not found: 3(NXDOMAIN)
Received 127 bytes from 171.70.168.183#53 in 1 ms

/admin#

```

Example 2

```

/admin# nslookup 209.165.200.225
Trying "225.200.165.209.in-addr.arpa"
;; ->HEADER<- opcode: QUERY, status: NOERROR, id: 65283
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 2, ADDITIONAL: 0

;; QUESTION SECTION:
;225.200.165.209.in-addr.arpa. IN PTR

;; ANSWER SECTION:
225.200.165.209.in-addr.arpa. 86400 IN PTR 209-165-200-225.got.net.

;; AUTHORITY SECTION:
200.165.209.in-addr.arpa. 86400 IN NS ns1.got.net.
200.165.209.in-addr.arpa. 86400 IN NS ns2.got.net.

Received 119 bytes from 171.70.168.183#53 in 28 ms

/admin#

```

patch install

The **patch install** command installs a patch bundle of the application only on a specific node where you run the **patch install** command from the CLI.

To install a patch bundle of the application, use the **patch** command in the EXEC mode.

patch install *patch-bundle* **repository**

Syntax Description

patch	The command to install System or Application patch.
install	The command that installs a specific patch bundle of the application.
<i>patch-bundle</i>	The patch bundle file name. Supports up to 255 alphanumeric characters.
repository	Repository name. Supports up to 255 alphanumeric characters.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

Installs a specific patch bundle of the application.

If you attempt to install a patch that is an older version of the existing patch, then you receive the following error message:

```
% Patch to be installed is an older version than currently installed version.
```

**Note**

Before attempting to use this patch install command to install a patch, you must read the patch installation instructions in the release notes supplied with that patch. The release notes contains important instructions updated for installing that patch, which must be followed.

Example 1

```
/admin# patch install cda-patchbundle-1.0.0.010.i386.tar.gz myrepository
Do you want to save the current configuration? (yes/no) [yes]? yes
Generating configuration...
Saved the ADE-OS running configuration to startup successfully
Initiating Application Patch installation...

Patch successfully installed
/admin#
```

Example 2

```
/admin# patch install cda-patchbundle-1.0.0.010.i386.tar.gz myrepository
Do you want to save the current configuration? (yes/no) [yes]? no
Initiating Application Patch installation...

Patch successfully installed
/admin#
```

Example 3

```
/admin# patch install cda-patchbundle-1.0.0.010.i386.tar.gz disk
Do you want to save the current configuration? (yes/no) [yes]? yes
Generating configuration...
Saved the running configuration to startup successfully
Initiating Application Patch installation...
% Patch to be installed is an older version than currently installed version.
/admin#
```

Related Commands

Command	Description
patch remove	The command that removes a specific patch bundle version of the application.
show version	Displays information about the currently loaded software version, along with hardware and device information.

patch remove

To remove a specific patch bundle version of the application, use the **patch** command in the EXEC mode.

```
patch remove word word
```

Syntax Description

patch	The command to install System or Application patch.
remove	The command that removes a specific patch bundle version of the application.

<i>word</i>	The name of the application for which the patch is to be removed. Supports up to 255 alphanumeric characters.
<i>word</i>	The patch version number to be removed. Supports up to 255 alphanumeric characters.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

Removes a specific patch bundle of the application.

If you attempt to remove a patch that is not installed, then you receive the following error message:

```
% Patch is not installed
```

**Note**

Before attempting to use this patch remove command to rollback a patch, you must read the rollback instructions of the patch in the release notes supplied with that patch. The release notes contains important instructions updated for rolling back the previously installed patch, which must be followed.

Examples**Example 1**

```
/admin# patch remove cda 3
Continue with application patch uninstall? [y/n] y
Application patch successfully uninstalled
/admin#
```

Example 2

```
/admin# patch remove cda 3
Continue with application patch uninstall? [y/n] y
% Patch is not installed
/admin#
```

Related Commands

Command	Description
patch install	The command that installs a specific patch bundle of the application.
show version	Displays information about the currently loaded software version, along with hardware and device information.

ping

To diagnose the basic IPv4 network connectivity to a remote system, use the **ping** command in the EXEC mode.

```
ping {ip-address | hostname} [df df] [packetsize packetsize] [pingcount pingcount]
```

Syntax Description

<code>ping</code>	The command to ping a remote IP address.
<code>ip-address</code>	IP address of the system to ping. Supports up to 32 alphanumeric characters.
<code>hostname</code>	Hostname of the system to ping. Supports up to 32 alphanumeric characters.
<code>df</code>	Specification for packet fragmentation.
<code>df</code>	Specify the value as 1 to prohibit packet fragmentation, or 2 to fragment the packets locally, or 3 to not set df.
<code>packetsize</code>	Size of the ping packet.
<code>packetsize</code>	Specify the size of the ping packet; the value can be between 0 and 65507.
<code>pingcount</code>	Number of ping echo requests.
<code>pingcount</code>	Specify the number of ping echo requests; the value can be between 1 and 10.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

The **ping** command sends an echo request packet to an address, then awaits a reply. The ping output can help you evaluate path-to-host reliability, delays over the path, and whether you can reach a host.

Examples

```
/admin# ping 172.16.0.1 df 2 packetsize 10 pingcount 2
PING 172.16.0.1 (172.16.0.1) 10(38) bytes of data.
18 bytes from 172.16.0.1: icmp_seq=0 ttl=40 time=306 ms
18 bytes from 172.16.0.1: icmp_seq=1 ttl=40 time=300 ms

--- 172.16.0.1 ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1001ms
rtt min/avg/max/mdev = 300.302/303.557/306.812/3.255 ms, pipe 2
/admin#
```

Related Commands

Command	Description
ping6	Ping a remote IPv6 address.

ping6

Similar to the IPv4 **ping**, use the IPv6 **ping6** command in the EXEC mode.

```
ping6 {ip-address | hostname} [GigabitEthernet 0-3][packetsize packetsize] [pingcount pingcount]
```

Syntax Description

<code>ping</code>	The command to ping a remote IPv6 address.
<code>ip-address</code>	IP address of the system to ping. Supports up to 64 alphanumeric characters.

<i>hostname</i>	Hostname of the system to ping. Supports up to 64 alphanumeric characters.
GigabitEthernet	Ethernet interface.
0-3	Select an Ethernet interface.
packetize	Size of the ping packet.
<i>packetize</i>	Specify the size of the ping packet; the value can be between 0 and 65507.
pingcount	Number of ping echo requests.
<i>pingcount</i>	Specify the number of ping echo requests; the value can be between 1 and 10.

Command Default No default behavior or values.

Command Modes EXEC

Usage Guidelines The IPv6 **ping6** command sends an echo request packet to an address, then awaits a reply. The ping output can help you evaluate path-to-host reliability, delays over the path, and whether you can reach a host.

The IPv6 **ping6** command is similar to the existing IPv4 ping command. The ping 6 command does not support the IPv4 ping fragmentation (df in IPv4) options, but it allows an optional specification of an interface. The interface option is primarily useful for pinning with link-local addresses that are interface-specific. The packetize and pingcount options work the same as they do with the IPv4 command.

Examples

Example 1

```
/admin# ping6 3ffe:302:11:2:20c:29ff:feaf:da05
PING 3ffe:302:11:2:20c:29ff:feaf:da05(3ffe:302:11:2:20c:29ff:feaf:da05) from
3ffe:302:11:2:20c:29ff:feaf:da05 eth0: 56 data bytes
64 bytes from 3ffe:302:11:2:20c:29ff:feaf:da05: icmp_seq=0 ttl=64 time=0.599 ms
64 bytes from 3ffe:302:11:2:20c:29ff:feaf:da05: icmp_seq=1 ttl=64 time=0.150 ms
64 bytes from 3ffe:302:11:2:20c:29ff:feaf:da05: icmp_seq=2 ttl=64 time=0.070 ms
64 bytes from 3ffe:302:11:2:20c:29ff:feaf:da05: icmp_seq=3 ttl=64 time=0.065 ms

--- 3ffe:302:11:2:20c:29ff:feaf:da05 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3118ms
rtt min/avg/max/mdev = 0.065/0.221/0.599/0.220 ms, pipe 2

/admin#
```

Example 2

```
/admin# ping6 3ffe:302:11:2:20c:29ff:feaf:da05 GigabitEthernet 0 packetize 10 pingcount 2
PING 3ffe:302:11:2:20c:29ff:feaf:da05(3ffe:302:11:2:20c:29ff:feaf:da05) from
3ffe:302:11:2:20c:29ff:feaf:da05 eth0: 10 data bytes
18 bytes from 3ffe:302:11:2:20c:29ff:feaf:da05: icmp_seq=0 ttl=64 time=0.073 ms
18 bytes from 3ffe:302:11:2:20c:29ff:feaf:da05: icmp_seq=1 ttl=64 time=0.073 ms

--- 3ffe:302:11:2:20c:29ff:feaf:da05 ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1040ms
rtt min/avg/max/mdev = 0.073/0.073/0.073/0.000 ms, pipe 2

/admin#
```

Related Commands	Command	Description
	ping	Ping a remote ip address.

reload

To reload the Cisco CDA operating system, use the **reload** command in the EXEC mode.

reload

Syntax Description No arguments or keywords.

Defaults No default behavior or values.

Command Modes EXEC

Usage Guidelines The **reload** command reboots the system. Use the **reload** command after you enter configuration information into a file and save the running-configuration to the persistent startup-configuration on the CLI and save any settings in the web Administration user interface session.

Before you issue the **reload** command, ensure that the Cisco CDA is not performing any backup, restore, installation, upgrade, or remove operation. If the Cisco CDA performs any of these operations and you issue the **reload** command, you will notice any of the following warning messages:

```
WARNING: A backup or restore is currently in progress! Continue with reload?
```

```
WARNING: An install/upgrade/remove is currently in progress! Continue with reload?
```

If you get any of these warnings, enter **Yes** to halt the operation, or enter **No** to cancel the halt.

If no processes are running when you use the **reload** command or you enter **Yes** in response to the warning message displayed, the Cisco CDA asks you to respond to the following option:

```
Do you want to save the current configuration?
```

Enter **Yes** to save the existing Cisco CDA configuration. The Cisco CDA displays the following message:

```
Saved the running configuration to startup successfully
```

Examples

```
/admin# reload
Do you want to save the current configuration? (yes/no) [yes]? yes
Generating configuration...
Saved the running configuration to startup successfully
Continue with reboot? [y/n] y

Broadcast message from root (pts/0) (Fri Aug 7 13:26:46 2010):

The system is going down for reboot NOW!

/admin#
```

Related Commands	Command	Description
	<code>halt</code>	Disables the system.

restore

To perform a restore of a previous backup, use the **restore** command in the EXEC mode. A restore operation restores data related to the Cisco CDA as well as the Cisco ADE OS. To perform a restore of a previous backup of the application data of the Cisco CDA only, add the **application** command to the **restore** command in the EXEC mode. To remove this function, use the **no** form of this command.

Use the following command to restore data related to the Cisco CDA application and Cisco ADE OS:

```
restore filename repository repository-name
```

Use the following command to restore data related only to the Cisco CDA application:

```
restore filename repository repository-name application application-name
```

Syntax Description		
<code>restore</code>		The command to restore the system.
<i>filename</i>		Name of the backed-up file that resides in the repository. Supports up to 120 alphanumeric characters. Note You must add the .tar.gpg extension after the filename (for example, myfile.tar.gpg).
<code>repository</code>		The repository command.
<i>repository-name</i>		Name of the repository you want to restore from backup.
<code>application</code>		The application command.
<i>application name</i>		The name of the application data to be restored. Supports up to 255 alphanumeric characters.

Defaults No default behavior or values.

Command Modes EXEC

Usage Guidelines When you use restore commands in Cisco CDA, the Cisco CDA server restarts automatically. The encryption key is optional while restoring data. To support restoring earlier backups where you have not provided encryption keys, you can use the **restore** command without the encryption key.

Examples

```
/admin# restore mybackup-100818-1502.tar.gpg repository myrepository application cda
Restore may require a restart of application services. Continue? (yes/no) [yes] ? yes
Initiating restore. Please wait...
CDA application restore is in progress.
This process could take several minutes. Please wait...
Stopping CDA Watchdog...
```

```

Stopping CDA Application Server...
Stopping AD Context Manager...
Stopping AD Context Observer...
Stopping CDA Logger...
Starting CDA Watchdog...
Starting CDA Application Server...
Starting AD Context Manager...
Starting AD Context Observer...
Starting CDA Logger...
Note: CDA Processes are initializing. Use 'show application status cda'
      CLI to verify all processes are in running state.
/admin#

```

Related Commands	Command	Description
	backup	Performs a backup (Cisco CDA and Cisco ADE OS) and places the backup in a repository.
	backup-logs	Backs up system logs.
	repository	Enters the repository submode for configuration of backups.
	show repository	Displays the available backup files located on a specific repository.
	show backup history	Displays the backup history of the system.

rmdir

To remove an existing directory, use the **rmdir** command in the EXEC mode.

```
rmdir word
```

Syntax Description	Command	Description
	<code>rmdir</code>	The command to remove an existing directory.
	<i>word</i>	Directory name. Supports up to 80 alphanumeric characters.

Defaults No default behavior or values.

Command Modes EXEC

Usage Guidelines None.

Examples

```

/admin# mkdir disk:/test
/admin# dir

```

```

Directory of disk:/

 4096 May 06 2010 13:34:49 activemq-data/
 4096 May 06 2010 13:40:59 logs/

```

```

16384 Mar 01 2010 16:07:27 lost+found/
4096 May 06 2010 13:42:53 target/
4096 May 07 2010 12:26:04 test/

Usage for disk: filesystem
    181067776 bytes total used
    19084521472 bytes free
    20314165248 bytes available

/admin#

/admin# rmdir disk:/test
/admin# dir

Directory of disk:/

    4096 May 06 2010 13:34:49 activemq-data/
    4096 May 06 2010 13:40:59 logs/
16384 Mar 01 2010 16:07:27 lost+found/
    4096 May 06 2010 13:42:53 target/

Usage for disk: filesystem
    181063680 bytes total used
    19084525568 bytes free
    20314165248 bytes available

/admin#

```

Related Commands

Command	Description
dir	Displays a list of files on the Cisco CDA server.
mkdir	Creates a new directory.

show

To show the running system information, use the **show** command in the EXEC mode. The **show** commands are used to display the Cisco CDA settings and are among the most useful commands.

The commands in [Table 4-3](#) require the **show** command to be followed by a keyword; for example, **show application status**. Some **show** commands require an argument or variable after the keyword to function; for example, **show application version**.

For detailed information on all the Cisco CDA **show** commands, see [Show Commands, page 4-48](#).

show *keyword*

Syntax Description

[Table 4-3](#) provides a summary of the **show** commands.

Table 4-3 Summary of show Commands

Command ¹	Description
application (requires keyword) ²	Displays information about the installed application; for example, status or version.
backup (requires keyword)	Displays information about the backup.

Table 4-3 Summary of show Commands (continued)

Command ¹	Description
cdp (requires keyword)	Displays information about the enabled Cisco Discovery Protocol interfaces.
clock	Displays the day, date, time, time zone, and year of the system clock.
cpu	Displays CPU information.
disks	Displays file-system information of the disks.
interface	Displays statistics for all the interfaces configured on the Cisco ADE OS.
logging (requires keyword)	Displays system logging information.
logins (requires keyword)	Displays login history.
memory	Displays memory usage by all running processes.
ntp	Displays the status of the Network Time Protocol (NTP).
ports	Displays all the processes listening on the active ports.
process	Displays information about the active processes of the Cisco CDA server.
repository (requires keyword)	Displays the file contents of a specific repository.
restore (requires keyword)	Displays restore history on the Cisco CDA server.
running-config	Displays the contents of the currently running configuration file on the Cisco CDA server.
startup-config	Displays the contents of the startup configuration on the Cisco CDA server.
tech-support	Displays system and configuration information that you can provide to the TAC when you report a problem.
terminal	Displays information about the terminal configuration parameter settings for the current terminal line.
timezone	Displays the time zone of the Cisco CDA server.
timezones	Displays all the time zones available for use on the Cisco CDA server.
udi	Displays information about the unique device identifier (UDI) of the Cisco CDA.
uptime	Displays how long the system you are logged in to has been up and running.
users	Displays information for currently logged in users.
version	Displays information about the installed application version.

1. The commands in this table require that the **show** command precedes a keyword; for example, **show application**.
2. Some **show** commands require an argument or variable after the keyword to function; for example, **show application version**. This **show** command displays the version of the application installed on the system (see [show application](#), page 4-48).

Defaults

No default behavior or values.

Command Modes EXEC

Usage Guidelines All **show** commands require at least one keyword to function.

Examples

```
/admin# show application
<name>          <Description>
CDA             Cisco Context Directory Agent
/admin#
```

ssh

To start an encrypted session with a remote system, use the **ssh** command in the EXEC mode.

ssh [*ip-address* | *hostname*] *username* **port** [*number*] **version** [1 | 2] **delete hostkey** *word*

Syntax Description	
ssh	The command to start an encrypted session with a remote system.
<i>ip-address</i>	IP address of the remote system. Supports up to 64 alphanumeric characters.
<i>hostname</i>	Hostname of the remote system. Supports up to 64 alphanumeric characters.
<i>username</i>	Username of the user logging in through SSH.
port [<i>number</i>]	(Optional) Indicates the port number of the remote host. From 0 to 65,535. Default 22.
version [1 2]	(Optional) Indicates the version number. Default 2.
delete hostkey	Deletes the SSH fingerprint of a specific host.
<i>word</i>	IPv4 address or hostname of a remote system. Supports up to 64 alphanumeric characters.

Defaults Disabled.

Command Modes EXEC (Admin or Operator)

Usage Guidelines The **ssh** command enables a system to make a secure, encrypted connection to another remote system or server. This connection provides functionality similar to that of an outbound Telnet connection except that the connection is encrypted. With authentication and encryption, the SSH client allows for secure communication over an insecure network.

Examples

Example 1

```
/admin# ssh cda1 admin
admin@cda1's password:
Last login: Wed Jul 11 05:53:20 2008 from cda.cisco.com
```

```
cda1/admin#
```

Example 2

```
/admin# ssh delete host cda
/admin#
```

tech

To dump traffic on a selected network interface, use the **tech** command in the EXEC mode.

```
tech dumptcp <0-3> count <package count>
```

Syntax Description

tech	TAC commands.
dumptcp	The command to dump a TCP package to the console.
<i>0-3</i>	Gigabit Ethernet interface number (0 to 3).
<i>count</i>	Specifies a maximum package count, and default is continuous (no limit).
<i>package count</i>	Supports 1–10000.

Defaults

Disabled.

Command Modes

EXEC

Usage Guidelines

If you see bad udp cksum warnings in the tech dumptcp output, it may not be a cause for concern. The **tech dumptcp** command examines outgoing packets before they exit through the Ethernet microprocessor. Most modern Ethernet chips calculate checksums on outgoing packets, and so the operating system software stack does not. Hence, it is normal to see outgoing packets declared as bad udp cksum.

Examples

```
cd-pos-dev17/admin# tech dumptcp 0 count 30
Invoking tcpdump. Press Control-C to interrupt.
tcpdump: listening on eth0, link-type EN10MB (Ethernet), capture size 96 bytes
10:27:32.923319 IP (tos 0x10, ttl 64, id 1377, offset 0, flags [DF], proto: TCP (6),
length: 92) 10.77.122.201.22 > 10.77.204.132.3142: P 165
9025089:1659025141(52) ack 793752673 win 12144
10:27:32.923613 IP (tos 0x10, ttl 64, id 1378, offset 0, flags [DF], proto: TCP (6),
length: 156) 10.77.122.201.22 > 10.77.204.132.3142: P 52
:168(116) ack 1 win 12144
10:27:32.940203 IP (tos 0x0, ttl 55, id 12075, offset 0, flags [none], proto: UDP (17),
length: 123) 72.163.128.140.53 > 10.77.122.201.43876:
 13150 NXDomain* q: AAAA? cda-201.cisco.com. 0/1/0 ns: cisco.com. SOA[|domain]
10:27:32.952693 IP (tos 0x0, ttl 119, id 52324, offset 0, flags [DF], proto: TCP (6),
length: 40) 10.77.204.132.3142 > 10.77.122.201.22: ., ck
sum 0x4ed3 (correct), 1:1(0) ack 168 win 64192
10:27:33.201646 IP (tos 0x0, ttl 64, id 39209, offset 0, flags [DF], proto: UDP (17),
length: 63) 10.77.122.201.50340 > 72.163.128.140.53: [b
ad udp cksum b8a2!] 49140+ AAAA? cda-201.cisco.com. (35)
```

```

10:27:33.226571 IP (tos 0x0, ttl 55, id 26568, offset 0, flags [none], proto: UDP (17),
length: 123) 72.163.128.140.53 > 10.77.122.201.50340:
 49140 NXDomain* q: AAAA? cda-201.cisco.com. 0/1/0 ns: cisco.com. SOA[domain]
10:27:33.415173 IP (tos 0x0, ttl 64, id 39423, offset 0, flags [DF], proto: UDP (17),
length: 63) 10.77.122.201.56578 > 72.163.128.140.53: [b
ad udp cksum 8854!] 62918+ AAAA? cda-201.cisco.com. (35)
10:27:33.453429 IP (tos 0x0, ttl 55, id 12076, offset 0, flags [none], proto: UDP (17),
length: 123) 72.163.128.140.53 > 10.77.122.201.56578:
 62918 NXDomain* q: AAAA? cda-201.cisco.com. 0/1/0 ns: cisco.com. SOA[domain]
10:27:33.579551 arp who-has 10.77.122.120 tell 10.77.122.250
10:27:33.741303 IP (tos 0x0, ttl 128, id 21433, offset 0, flags [DF], proto: UDP (17),
length: 306) 0.0.0.0.68 > 255.255.255.255.67: BOOTP/DHC
P, Request from e4:1f:13:77:13:34, length: 278, xid:0x1377f72b, flags: [Broadcast]
(0x8000)
  Client Ethernet Address: e4:1f:13:77:13:34 [|bootp]
10:27:33.788119 IP (tos 0x0, ttl 64, id 39796, offset 0, flags [DF], proto: UDP (17),
length: 63) 10.77.122.201.43779 > 72.163.128.140.53: [b
ad udp cksum 2ffc!] 32798+ AAAA? cda-201.cisco.com. (35)
10:27:33.812961 IP (tos 0x0, ttl 55, id 26569, offset 0, flags [none], proto: UDP (17),
length: 123) 72.163.128.140.53 > 10.77.122.201.43779:
 32798 NXDomain* q: AAAA? cda-201.cisco.com. 0/1/0 ns: cisco.com. SOA[domain]
10:27:34.003769 IP (tos 0x0, ttl 64, id 40011, offset 0, flags [DF], proto: UDP (17),
length: 63) 10.77.122.201.23267 > 72.163.128.140.53: [b
ad udp cksum 2e85!] 18240+ AAAA? cda-201.cisco.com. (35)
10:27:34.038636 IP (tos 0x0, ttl 55, id 26570, offset 0, flags [none], proto: UDP (17),
length: 123) 72.163.128.140.53 > 10.77.122.201.23267:
 18240 NXDomain* q: AAAA? cda-201.cisco.com. 0/1/0 ns: cisco.com. SOA[domain]
10:27:34.579054 arp who-has 10.77.122.120 tell 10.77.122.250
10:27:34.927369 arp who-has 10.77.122.42 tell 10.77.122.40
10:27:35.727151 IP (tos 0x0, ttl 255, id 64860, offset 0, flags [none], proto: UDP (17),
length: 317) 0.0.0.0.68 > 255.255.255.255.67: BOOTP/D
HCP, Request from 3c:df:1e:58:0f:c0, length: 289, xid:0x161504, flags: [Broadcast]
(0x8000)
  Client Ethernet Address: 3c:df:1e:58:0f:c0 [|bootp]
10:27:36.190658 CDPv2, ttl: 180s, checksum: 692 (unverified), length 384
  Device-ID (0x01), length: 12 bytes: 'hyd04-lab-SW' [|cdp]
30 packets captured
30 packets received by filter
0 packets dropped by kernel
cda-201/admin#

```

telnet

To log in to a host that supports Telnet, use the **telnet** command in Operator (user) or EXEC mode.

telnet [*ip-address* | *hostname*] *port number*

Syntax Description

telnet	The command to log in to a host that supports Telnet.
<i>ip-address</i>	IP address of the remote system. Supports up to 64 alphanumeric characters.
<i>hostname</i>	Hostname of the remote system. Supports up to 64 alphanumeric characters.
<i>port number</i>	(Optional) Indicates the port number of the remote host. From 0 to 65,535.

Defaults

No default behavior or values.

Command Modes Operator
EXEC

Usage Guidelines None.

Examples

```
/admin# telnet 172.16.0.11 port 23
cda.cisco.com login: admin
password:
Last login: Mon Jul 2 08:45:24 on ttyS0
/admin#
```

terminal length

To set the number of lines on the current terminal screen for the current session, use the **terminal length** command in the EXEC mode.

terminal length *integer*

Syntax Description	terminal	The command to set the terminal line parameters.
	length	The command that sets the number of lines on the current terminal screen for the current session.
	<i>integer</i>	Number of lines on the screen. Contains between 0 to 511 lines, inclusive. A value of zero (0) disables pausing between screens of output.

Defaults 24 lines

Command Modes EXEC

Usage Guidelines The system uses the length value to determine when to pause during multiple-screen output.

Examples

```
/admin# terminal length 0
/admin#
```

terminal session-timeout

To set the inactivity timeout for all sessions, use the **terminal session-timeout** command in the EXEC mode.

terminal session-timeout *minutes*

Syntax Description		
terminal		The command to set the terminal line parameters.
session-timeout		The command that sets the inactivity time out of all the sessions.
<i>minutes</i>		Sets the number of minutes for the inactivity timeout. From 0 to 525,600. Zero (0) disables the timeout.

Defaults 30 minutes

Command Modes EXEC

Usage Guidelines Setting the **terminal session-timeout** command to zero (0) results in no timeout being set.

Examples

```
/admin# terminal session-timeout 40
/admin#
```

Related Commands	Command	Description
	terminal session-welcome	Sets a welcome message on the system for all users who log in to the system.

terminal session-welcome

To set a welcome message on the system for all users who log in to the system, use the **terminal session-welcome** command in EXEC mode.

terminal session-welcome *string*

Syntax Description		
terminal		The command to set the terminal line parameters.
session-welcome		The command that sets a welcome message on the system for all users who log in to the system.
<i>string</i>		Welcome message. Supports up to 2,048 alphanumeric characters.

Defaults No default behavior or values.

Command Modes EXEC

Usage Guidelines Specify a message using up to 2,048 characters.

Examples

```
/admin# terminal session-welcome Welcome
/admin#
```

Related Commands	Command	Description
	terminal session-timeout	Sets the inactivity timeout for all sessions.

terminal terminal-type

To specify the type of terminal connected to the current line for the current session, use the **terminal terminal-type** command in EXEC mode.

terminal terminal-type *type*

Syntax Description	terminal	The command to set the terminal line parameters.
	terminal-type	The command that specifies the type of terminal connected. The default terminal type is VT100.
	<i>type</i>	Defines the terminal name and type, and permits terminal negotiation by hosts that provide that type of service. Supports up to 80 alphanumeric characters.

Defaults VT100

Command Modes EXEC

Usage Guidelines Indicate the terminal type if it is different from the default of VT100.

Examples

```
/admin# terminal terminal-type vt220
/admin#
```

traceroute

To discover the routes that packets take when traveling to their destination address, use the **traceroute** command in EXEC mode.

traceroute [*ip-address* | *hostname*]

Syntax Description		
	traceroute	The command to discover the routes of the packets to their destination address.
	<i>ip-address</i>	IP address of the remote system. Supports up to 32 alphanumeric characters.
	<i>hostname</i>	Hostname of the remote system. Supports up to 32 alphanumeric characters.

Defaults No default behavior or values.

Command Modes EXEC

Usage Guidelines None.

Examples

```
/admin# traceroute 172.16.0.11
traceroute to 172.16.0.11 (172.16.0.11), 30 hops max, 38 byte packets
 1 172.16.0.11 0.067 ms 0.036 ms 0.032 ms

/admin#
```

undebug

To disable debugging functions, use the undebug command in EXEC mode.

undebug {**all** | **application** | **backup-restore** | **cdp** | **config** | **copy** | **icmp** | **locks** | **logging** | **snmp** | **system** | **transfer** | **user** | **utils**}

Syntax Description		
	undebug	The command to disable identifying various failures with the Cisco CDA server.
	all	Disables all debugging.
	application	Application files. <ul style="list-style-type: none"> <i>all</i>—Disables all application debug output. <i>install</i>—Disables application install debug output. <i>operation</i>—Disables application operation debug output. <i>uninstall</i>—Disables application uninstall debug output.

backup-restore	<p>Backs up and restores files.</p> <ul style="list-style-type: none"> • <i>all</i>—Disables all debug output for backup-restore. • <i>backup</i>—Disables backup debug output for backup-restore. • <i>backup-logs</i>—Disables backup-logs debug output for backup-restore. • <i>history</i>—Disables history debug output for backup-restore. • <i>restore</i>—Disables restore debug output for backup-restore.
cdp	<p>Cisco Discovery Protocol configuration files.</p> <ul style="list-style-type: none"> • <i>all</i>—Disables all Cisco Discovery Protocol configuration debug output. • <i>config</i>—Disables configuration debug output for Cisco Discovery Protocol. • <i>infra</i>—Disables infrastructure debug output for Cisco Discovery Protocol.
config	<p>Configuration files.</p> <ul style="list-style-type: none"> • <i>all</i>—Disables all configuration debug output. • <i>backup</i>—Disables backup configuration debug output. • <i>clock</i>—Disables clock configuration debug output. • <i>infra</i>—Disables configuration infrastructure debug output. • <i>kron</i>—Disables command scheduler configuration debug output. • <i>network</i>—Disables network configuration debug output. • <i>repository</i>—Disables repository configuration debug output. • <i>service</i>—Disables service configuration debug output.
copy	Copy commands.
icmp	<p>ICMP echo response configuration.</p> <p><i>all</i>—Disable all debug output for ICMP echo response configuration. Set level between 0 and 7, with 0 being severe and 7 being all.</p>
locks	<p>Resource locking.</p> <ul style="list-style-type: none"> • <i>all</i>—Disables all resource locking debug output. • <i>file</i>—Disables file locking debug output.
logging	<p>Logging configuration files.</p> <p><i>all</i>—Disables all debug output for logging configuration.</p>
snmp	<p>SNMP configuration files.</p> <p><i>all</i>—Disables all debug output for SNMP configuration.</p>
system	<p>System files.</p> <ul style="list-style-type: none"> • <i>all</i>—Disables all system files debug output. • <i>id</i>—Disables system ID debug output. • <i>info</i>—Disables system info debug output. • <i>init</i>—Disables system init debug output.
transfer	File transfer.

EXEC Commands

user	User management. <ul style="list-style-type: none"> <i>all</i>—Disables all user management debug output. <i>password-policy</i>—Disables user management debug output for password-policy.
utils	Utilities configuration files. <i>all</i> —Disables all utilities configuration debug output.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

None.

Examples

```
/admin# undebug all
/admin#
```

Related Commands

Command	Description
debug	Displays errors or events for command situations.

write

To copy, display, or erase Cisco CDA server configurations, use the **write** command with the appropriate argument in the EXEC mode.

write {erase | memory | terminal}

Syntax Description

write	The command to write running system information.
erase	Erases the startup configuration. This option is disabled in Cisco CDA.
memory	Copies the running configuration to the startup configuration.
terminal	Copies the running configuration to console.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

Using this write command with the erase option is disabled in Cisco CDA.

If you use the write command with the erase option, Cisco CDA displays the following error message:

```
% Warning: 'write erase' functionality has been disabled by application: cda
```

Examples**Example 1**

```
/admin# write memory
Generating configuration...
/admin#
```

Example 2

```
/admin# write terminal

Generating configuration...
!
hostname cda
!
ip domain-name cisco.com
!
interface GigabitEthernet 0
  ip address 10.201.2.121 255.255.255.0
  ipv6 address autoconfig
!
interface GigabitEthernet 1
  shutdown
!
interface GigabitEthernet 2
  shutdown
!
interface GigabitEthernet 3
  shutdown
!
ip name-server 171.68.226.120
!
ip default-gateway 10.201.2.1
!
clock timezone UTC
!
ntp server clock.cisco.com
!
username admin password hash $1$6yQQaFXM$UBgbp7ggD1bG3kpExywwZ0 role admin
!
service sshd
!
repository myrepository
  url disk:
  user admin password hash 2b50ca94445f240f491e077b5f49fa0375942f38
!
password-policy
  lower-case-required
  upper-case-required
  digit-required
  no-username
  disable-cisco-passwords
  min-password-length 6
!
logging localhost
logging loglevel 6
!
cdp timer 60
```

```

cdp holdtime 180
cdp run GigabitEthernet 0
!
icmp echo on
!

/admin#

```

Show Commands

This section lists each **show** command and includes a brief description of its use, command syntax, usage guidelines, and sample output.

Table 4-4 lists the show commands in the EXEC mode that this section describes.

Table 4-4 List of EXEC show Commands

• show application	• show logins	• show tech-support
• show backup history	• show memory	• show terminal
• show cdp	• show ntp	• show timezone
• show clock	• show ports	• show timezones
• show cpu	• show process	• show udi
• show disks	• show repository	• show uptime
• show icmp-status	• show restore	• show users
• show interface	• show running-config	• show version
• show inventory	• show startup-config	
• show logging		

show application

To show application information of the installed application packages on the system, use the **show application** command in the EXEC mode.

```
show application [status | version [app_name]]
```

Syntax Description

show application	The command to display the Cisco CDA application information.
status	Displays the status of the installed application.
version	Displays the application version for an installed application—the Cisco CDA.
<i>app_name</i>	Name of the installed application.

	<p>Output modifier variables:</p> <ul style="list-style-type: none"> • <i>begin</i>—Matched pattern. Supports up to 80 alphanumeric characters. • <i>count</i>—Count the number of lines in the output. Add number after the word <i>count</i>. <ul style="list-style-type: none"> —Output modifier variables (see Table 4-5). • <i>end</i>—End with line that matches. Supports up to 80 alphanumeric characters. • <i>exclude</i>—Exclude lines that match. Supports up to 80 alphanumeric characters. • <i>include</i>—Include lines that match. Supports up to 80 alphanumeric characters. • <i>last</i>—Display last few lines of output. Add number after the word <i>last</i>. Supports up to 80 lines to display. Default 10. <ul style="list-style-type: none"> —Output modifier variables (see Table 4-5).
--	--

Table 4-5 Output Modifier Variables for Count or Last

	<p>Output modifier variables:</p> <ul style="list-style-type: none"> • <i>begin</i>—Matched pattern. Supports up to 80 alphanumeric characters. • <i>count</i>—Count the number of lines in the output. Add number after the word <i>count</i>. <ul style="list-style-type: none"> —Output modifier variables. • <i>end</i>—End with line that matches. Supports up to 80 alphanumeric characters. • <i>exclude</i>—Exclude lines that match. Supports up to 80 alphanumeric characters. • <i>include</i>—Include lines that match. Supports up to 80 alphanumeric characters. • <i>last</i>—Display last few lines of output. Add number after the word <i>last</i>. Supports up to 80 lines to display. Default 10. <ul style="list-style-type: none"> —Output modifier variables.
--	--

Defaults No default behavior or values.

Command Modes EXEC

Usage Guidelines None.

Examples**Example 1**

```
/admin# show application
<name>          <Description>
cda             Cisco Context Directory Agent

/admin#
```

Example 2

```
/admin# show application version cda

Cisco Context Directory Agent
-----
Version       : 1.0.0.11
Build Date    : Sun Apr  8 14:04:41 2012
Install Date  : Sun Apr  8 14:11:45 2012

/admin#
```

Example 3

```
/admin# show application status cda

CDA application server is running PID:2840

/admin#
```

Related Commands

Command	Description
application install	Configures an application.
application install	Installs an application bundle.
application reset-config	Resets an application configuration to factory defaults.
application reset-passwd	Resets an application password for a specified user.
application remove	Removes or uninstalls an application.
application start	Starts or enables an application.
application stop	Stops or disables an application.
application upgrade	Upgrades an application bundle.

show backup history

To display the backup history of the system, use the **show backup history** command in the EXEC mode.

```
show backup history
```

Syntax Description

show backup	The command to display the Cisco CDA backup information.
history	Displays history information about any backups on the system.

Defaults

No default behavior or values.

Command Modes EXEC

Usage Guidelines None.

Examples

Example 1

```
/admin# show backup history
Wed Aug 18 12:55:21 UTC 2010: backup logs logs-0718.tar.gz to repository fileserver007:
success
Wed Aug 18 12:55:53 UTC 2010: backup full-0718.tar.gpg to repository fileserver007:
success
/admin#
```

Example 2

```
/admin# show backup history
backup history is empty
/admin#
```

Related Commands

Command	Description
backup	Performs a backup (Cisco CDA and Cisco ADE OS) and places the backup in a repository.
restore	Restores from backup the file contents of a specific repository.
repository	Enters the repository submode for configuration of backups.
show repository	Displays the available backup files located on a specific repository.

show cdp

To display information about the enabled Cisco Discovery Protocol interfaces, use the **show cdp** command in the EXEC mode.

```
show cdp {all | neighbors}
```

Syntax Description

show cdp	The command to display Cisco Discovery Protocol show commands.
all	Shows all the enabled Cisco Discovery Protocol interfaces.
neighbors	Shows the Cisco Discovery Protocol neighbors.

Defaults

No default behavior or values.

Command Modes EXEC

Usage Guidelines None.

Examples

Example 1

```
/admin# show cdp all
CDP protocol is enabled...
    broadcasting interval is every 60 seconds.
    time-to-live of cdp packets is 180 seconds.

    CDP is enabled on port GigabitEthernet0.
/admin#
```

Example 2

```
/admin# show cdp neighbors
CDP Neighbor : pmbu-ibf-sw-ins
    Local Interface      : GigabitEthernet0
    Device Type         : E-24TDWS-C3750
    Port                : GigabitEthernet1/0/17
    Address              : 192.168.100.254

/admin#
```

Related Commands

Command	Description
cdp holdtime	Specifies the length of time that the receiving device should hold a Cisco Discovery Protocol packet from your router before discarding it.
cdp run	Enables the Cisco Discovery Protocol.
cdp timer	Specifies how often the Cisco CDA server sends Cisco Discovery Protocol updates.

show clock

To display the day, month, date, time, time zone, and year of the system software clock, use the **show clock** command in the EXEC mode.

```
show clock
```

Syntax Description No arguments or keywords.

Defaults No default behavior or values.

Command Modes EXEC

Usage Guidelines None.

Examples

```
/admin# show clock
Tue May 8 08:33:50 IDT 2012
/admin#
```



Note The **show clock** output in the previous example includes Coordinated Universal Time (UTC) or Greenwich Mean Time (GMT), Great Britain, or Zulu time (see Tables 4-13, 4-14, and 4-15 on pages A-84 and A-85 for sample time zones).

Related Commands

Command	Description
clock	Sets the system clock for display purposes.

show cpu

To display CPU information, use the **show cpu** command in the EXEC mode.

```
show cpu [statistics] [[]] [[]]
```

Syntax Description

show cpu	The command to display CPU information.
statistics	Displays CPU statistics.
	Output modifier variables: <ul style="list-style-type: none"> • <i>begin</i>—Matched pattern. Supports up to 80 alphanumeric characters. • <i>count</i>—Count the number of lines in the output. Add number after the word <i>count</i>. <ul style="list-style-type: none"> —Output modifier variables (see Table 4-6). • <i>end</i>—End with line that matches. Supports up to 80 alphanumeric characters. • <i>exclude</i>—Exclude lines that match. Supports up to 80 alphanumeric characters. • <i>include</i>—Include lines that match. Supports up to 80 alphanumeric characters. • <i>last</i>—Display last few lines of output. Add number after the word <i>last</i>. Supports up to 80 lines to display. Default 10. <ul style="list-style-type: none"> —Output modifier variables (see Table 4-6).

Table 4-6 Output Modifier Variables for Count or Last

	<p>Output modifier variables:</p> <ul style="list-style-type: none"> • <i>begin</i>—Matched pattern. Supports up to 80 alphanumeric characters. • <i>count</i>—Count the number of lines in the output. Add number after the word <i>count</i>. <ul style="list-style-type: none"> —Output modifier variables. • <i>end</i>—End with line that matches. Supports up to 80 alphanumeric characters. • <i>exclude</i>—Exclude lines that match. Supports up to 80 alphanumeric characters. • <i>include</i>—Include lines that match. Supports up to 80 alphanumeric characters. • <i>last</i>—Display last few lines of output. Add number after the word <i>last</i>. Supports up to 80 lines to display. Default 10. <ul style="list-style-type: none"> —Output modifier variables.
--	--

Defaults No default behavior or values.

Command Modes EXEC

Usage Guidelines None.

Examples **Example 1**

```

/admin# show cpu

processor : 0
model      : Intel(R) Core(TM)2 CPU           6400 @ 2.13GHz
speed(MHz): 1596.000
cache size: 2048 KB

processor : 1
model      : Intel(R) Core(TM)2 CPU           6400 @ 2.13GHz
speed(MHz): 1596.000
cache size: 2048 KB

/admin#

```

Example 2

```

/admin# show cpu statistics
user time:          265175
kernel time:       166835
idle time:         5356204
i/o wait time:     162676
irq time:          4055

```

/admin#

Related Commands	Command	Description
	show disks	Displays the system information of all disks.
	show memory	Displays the amount of system memory that each system process uses.

show disks

To display the disks file-system information, use the **show disks** command in the EXEC mode.

```
show disks [!] [!]
```

Syntax Description	show disks	The command to display the disks and the file-system information
		Output modifier variables: <ul style="list-style-type: none"> • <i>begin</i>—Matched pattern. Supports up to 80 alphanumeric characters. • <i>count</i>—Count the number of lines in the output. Add number after the word <i>count</i>. <ul style="list-style-type: none"> —Output modifier variables (see Table 4-7). • <i>end</i>—End with line that matches. Supports up to 80 alphanumeric characters. • <i>exclude</i>—Exclude lines that match. Supports up to 80 alphanumeric characters. • <i>include</i>—Include lines that match. Supports up to 80 alphanumeric characters. • <i>last</i>—Display last few lines of output. Add number after the word <i>last</i>. Supports up to 80 lines to display. Default 10. <ul style="list-style-type: none"> —Output modifier variables (see Table 4-7).

Table 4-7 Output Modifier Variables for Count or Last

	<p>Output modifier variables:</p> <ul style="list-style-type: none"> • <i>begin</i>—Matched pattern. Supports up to 80 alphanumeric characters. • <i>count</i>—Count the number of lines in the output. Add number after the word <i>count</i>. <ul style="list-style-type: none"> —Output modifier variables. • <i>end</i>—End with line that matches. Supports up to 80 alphanumeric characters. • <i>exclude</i>—Exclude lines that match. Supports up to 80 alphanumeric characters. • <i>include</i>—Include lines that match. Supports up to 80 alphanumeric characters. • <i>last</i>—Display last few lines of output. Add number after the word <i>last</i>. Supports up to 80 lines to display. Default 10. <ul style="list-style-type: none"> —Output modifier variables.
--	--

Defaults

No default behavior or values.

Command Modes

EXEC

Usage GuidelinesOnly platforms that have a disk file system support the **show disks** command.**Examples**

```

/admin# show disks

temp. space 2% used (36460 of 1984044)
disk: 2% used (208816 of 14877060)

Internal filesystems:
  all internal filesystems have sufficient free space

/admin#

```

Related Commands

Command	Description
show cpu	Displays CPU information.
show memory	Displays the amount of system memory that each system process uses.

show icmp-status

To display the Internet Control Message Protocol echo response configuration information, use the **show icmp_status** command in EXEC mode.

```
show icmp_status {> file |}
```

Syntax Description	
show icmp_status	The command to display the Internet Control Message Protocol echo response configuration information.
>	Output direction.
file	Name of file to redirect standard output (stdout).
	Output modifier commands: <ul style="list-style-type: none"> • <i>begin</i>—Matched pattern. Supports up to 80 alphanumeric characters. • <i>count</i>—Count the number of lines in the output. Add number after the word count. <ul style="list-style-type: none"> – —Output modifier commands (see Table 4-8). • <i>end</i>—End with line that matches. Supports up to 80 alphanumeric characters. • <i>exclude</i>—Exclude lines that match. Supports up to 80 alphanumeric characters. • <i>include</i>—Include lines that match. Supports up to 80 alphanumeric characters. • <i>last</i>—Display last few lines of output. Add number after the word last. Supports up to 80 lines to display. Default 10. <ul style="list-style-type: none"> – —Output modifier commands (see Table 4-8).

Table 4-8 Output Modifier Variables for Count or Last

	Output modifier variables: <ul style="list-style-type: none"> • <i>begin</i>—Matched pattern. Supports up to 80 alphanumeric characters. • <i>count</i>—Count the number of lines in the output. Add number after the word <i>count</i>. <ul style="list-style-type: none"> —Output modifier variables. • <i>end</i>—End with line that matches. Supports up to 80 alphanumeric characters. • <i>exclude</i>—Exclude lines that match. Supports up to 80 alphanumeric characters. • <i>include</i>—Include lines that match. Supports up to 80 alphanumeric characters. • <i>last</i>—Display last few lines of output. Add number after the word <i>last</i>. Supports up to 80 lines to display. Default 10. <ul style="list-style-type: none"> —Output modifier variables.
--	---

Show Commands

Defaults No default behavior or values.

Command Modes EXEC

Usage Guidelines None.

Examples

Example 1

```
/admin# show icmp_status
icmp echo response is turned on
/admin#
```

Example 2

```
/admin# show icmp_status
icmp echo response is turned off
/admin#
```

Related Commands

Command	Description
icmp echo	Configures the Internet Control Message Protocol (ICMP) echo requests.

show interface

To display the usability status of interfaces configured for IP, use the **show interface** command in the EXEC mode.

```
show interface [GigabitEthernet] |
```

Syntax Description

show interface	The command to display interface information.
<i>GigabitEthernet</i>	Shows the Gigabit Ethernet interface. Enter <0-3>.
	Output modifier variables: <ul style="list-style-type: none"> <i>begin</i>—Matched pattern. Supports up to 80 alphanumeric characters. <i>count</i>—Count the number of lines in the output. Add number after the word <i>count</i>. <i>end</i>—End with line that matches. Supports up to 80 alphanumeric characters. <i>exclude</i>—Exclude lines that match. Supports up to 80 alphanumeric characters. <i>include</i>—Include lines that match. Supports up to 80 alphanumeric characters. <i>last</i>—Display last few lines of output. Add number after the word <i>last</i>. Supports up to 80 lines to display. Default 10.

Defaults No default behavior or values.

Command Modes EXEC

Usage Guidelines In the **show interface GigabitEthernet 0** output, you can find that the interface has three IPv6 addresses. The first internet address (starting with 3ffe) is the result of using stateless autoconfiguration. For this to work, you need to have IPv6 route advertisement enabled on that subnet. The next address (starting with fe80) is a link local address that does not have any scope outside the host. You always see a link local address regardless of the IPv6 autoconfiguration or DHCPv6 configuration. The last address (starting with 2001) is the result obtained from a IPv6 DHCP server.

Examples

Example 1

```
/admin# show interface
eth0    Link encap:Ethernet  HWaddr 00:0C:29:6A:88:C4
        inet addr:172.23.90.113  Bcast:172.23.90.255  Mask:255.255.255.0
        inet6 addr: fe80::20c:29ff:fe6a:88c4/64 Scope:Link
        UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
        RX packets:48536 errors:0 dropped:0 overruns:0 frame:0
        TX packets:14152 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:1000
        RX bytes:6507290 (6.2 MiB)  TX bytes:12443568 (11.8 MiB)
        Interrupt:59 Base address:0x2000

lo      Link encap:Local Loopback
        inet addr:127.0.0.1  Mask:255.0.0.0
        inet6 addr: ::1/128 Scope:Host
        UP LOOPBACK RUNNING  MTU:16436  Metric:1
        RX packets:1195025 errors:0 dropped:0 overruns:0 frame:0
        TX packets:1195025 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:0
        RX bytes:649425800 (619.3 MiB)  TX bytes:649425800 (619.3 MiB)

sit0    Link encap:IPv6-in-IPv4
        NOARP  MTU:1480  Metric:1
        RX packets:0 errors:0 dropped:0 overruns:0 frame:0
        TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:0
        RX bytes:0 (0.0 b)  TX bytes:0 (0.0 b)

/admin#
```

Example 2

```
/admin# show interface GigabitEthernet 0
eth0    Link encap:Ethernet  HWaddr 00:0C:29:AF:DA:05
        inet addr:172.23.90.116  Bcast:172.23.90.255  Mask:255.255.255.0
        inet6 addr: 3ffe:302:11:2:20c:29ff:feaf:da05/64 Scope:Global
        inet6 addr: fe80::20c:29ff:feaf:da05/64 Scope:Link
        inet6 addr: 2001:558:ff10:870:8000:29ff:fe36:200/64 Scope:Global
        UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
        RX packets:77848 errors:0 dropped:0 overruns:0 frame:0
        TX packets:23131 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:1000
        RX bytes:10699801 (10.2 MiB)  TX bytes:3448374 (3.2 MiB)
        Interrupt:59 Base address:0x2000

/admin#
```

Related Commands	Command	Description
	interface	Configures an interface type and enters the interface configuration submode.
	ipv6 address autoconfig	Enables IPv6 stateless autoconfiguration on an interface.
	ipv6 address dhcp	Enables IPv6 address DHCP on an interface.

show inventory

To display information about the hardware inventory, including the Cisco CDA appliance model and serial number, use the **show inventory** command in the EXEC mode.

```
show inventory |
```

Syntax Description	
show inventory	The command to display hardware inventory information.
	Output modifier variables: <ul style="list-style-type: none"> • <i>begin</i>—Matched pattern. Supports up to 80 alphanumeric characters. • <i>count</i>—Count the number of lines in the output. Add number after the word <i>count</i>. • <i>end</i>—End with line that matches. Supports up to 80 alphanumeric characters. • <i>exclude</i>—Exclude lines that match. Supports up to 80 alphanumeric characters. • <i>include</i>—Include lines that match. Supports up to 80 alphanumeric characters. • <i>last</i>—Display last few lines of output. Add number after the word <i>last</i>. Supports up to 80 lines to display. Default 10.

Defaults No default behavior or values.

Command Modes EXEC

Usage Guidelines None.

```

/admin# show inventory

NAME: "CSACS-1121-K9      chassis", DESCR: "CSACS-1121-K9      chassis"
PID: CSACS-1121-K9      , VID: V01 , SN: LAB11122278
Total RAM Memory: 4017680 kB
CPU Core Count: 2
CPU 0: Model Info: Intel(R) Core(TM)2 CPU          6400 @ 2.13GHz
CPU 1: Model Info: Intel(R) Core(TM)2 CPU          6400 @ 2.13GHz
Hard Disk Count(*): 2

```

```

Disk 0: Device Name: /dev/sda
Disk 0: Capacity: 250.00 GB
Disk 0: Geometry: 255 heads 63 sectors/track 30401 cylinders
Disk 1: Device Name: /dev/sdb
Disk 1: Capacity: 250.00 GB
Disk 1: Geometry: 255 heads 63 sectors/track 30401 cylinders
NIC Count: 2
NIC 0: Device Name: eth0
NIC 0: HW Address: 00:15:17:29:68:A2
NIC 0: Driver Descr: Intel(R) PRO/1000 Network Driver
NIC 1: Device Name: eth1
NIC 1: HW Address: 00:15:17:29:68:A3
NIC 1: Driver Descr: Intel(R) PRO/1000 Network Driver

(*) Hard Disk Count may be Logical.

/admin#

```

show logging

To display the state of system logging (syslog) and the contents of the standard system logging buffer, use the **show logging** command in the EXEC mode.

```
show logging { application [application-name] } { internal } { system } |
```

Syntax Description

show logging	The command to display system logging information.
application	Displays application logs. <i>application-name</i> —Application name. Supports up to 255 alphanumeric characters. <ul style="list-style-type: none"> – <i>tail</i>—Tail system syslog messages. – <i>count</i>—Tail last count messages. From 0 to 4,294,967,295. —Output modifier variables (see below).
internal	Displays the syslogs configuration.
system	Displays the system syslogs.
	Output modifier variables: <ul style="list-style-type: none"> • <i>begin</i>—Matched pattern. Supports up to 80 alphanumeric characters. • <i>count</i>—Count the number of lines in the output. Add number after the word <i>count</i>. • <i>end</i>—End with line that matches. Supports up to 80 alphanumeric characters. • <i>exclude</i>—Exclude lines that match. Supports up to 80 alphanumeric characters. • <i>include</i>—Include lines that match. Supports up to 80 alphanumeric characters. • <i>last</i>—Display last few lines of output. Add number after the word <i>last</i>. Supports up to 80 lines to display. Default 10.

Defaults	No default behavior or values.
Command Modes	EXEC
Usage Guidelines	This command displays the state of syslog error and event logging, including host addresses, and for which, logging destinations (console, monitor, buffer, or host) logging is enabled.

Examples**Example 1**

```

/admin# show logging system
ADEOS Platform log:
-----

Apr 18 11:03:57 localhost debugd[1756]: [2170]: config:network: main.c[252] [setup]: Setup
is complete
Apr 18 14:04:13 localhost debugd[1756]: [3005]: application:install cars_install.c[245]
[setup]: Install initiated with bundle - cda.tar.gz, r
epo - SystemDefaultPkgRepos
Apr 18 14:04:13 localhost debugd[1756]: [3005]: application:install cars_install.c[259]
[setup]: Stage area - /storeddata/Installing/.13347470
53
Apr 18 14:04:13 localhost debugd[1756]: [3005]: application:install cars_install.c[263]
[setup]: Getting bundle to local machine
Apr 18 14:04:13 localhost debugd[1756]: [3005]: transfer: cars_xfer.c[58] [setup]: local
copy in of cda.tar.gz requested
Apr 18 14:04:15 localhost debugd[1756]: [3005]: application:install cars_install.c[272]
[setup]: Got bundle at - /storeddata/Installing/.13347
47053/cda.tar.gz
Apr 18 14:04:15 localhost debugd[1756]: [3005]: application:install cars_install.c[282]
[setup]: Unbundling package cda.tar.gz
Apr 18 14:04:22 localhost debugd[1756]: [3005]: application:install cars_install.c[294]
[setup]: Unbundling done. Verifying input parameters..
.
Apr 18 14:04:22 localhost debugd[1756]: [3005]: application:install cars_install.c[316]
[setup]: Manifest file is at - /storeddata/Installing/
.1334747053/manifest.xml
Apr 18 14:04:22 localhost debugd[1756]: [3005]: application:install cars_install.c[326]
[setup]: Manifest file appname - cda
Apr 18 14:04:22 localhost debugd[1756]: [3005]: application:install cars_install.c[389]
[setup]: Manifest file pkgtype - CARS
Apr 18 14:04:22 localhost debugd[1756]: [3005]: application:install cars_install.c[401]
[setup]: Verify dependency list -
Apr 18 14:04:22 localhost debugd[1756]: [3005]: application:install cars_install.c[413]
[setup]: Verify app license -
Apr 18 14:04:22 localhost debugd[1756]: [3005]: application:install cars_install.c[423]
[setup]: Verify app RPM's
Apr 18 14:04:22 localhost debugd[1756]: [3005]: application:install cars_install.c[431]
[setup]: No of RPM's - 1
Apr 18 14:04:22 localhost debugd[1756]: [3005]: application:install cars_install.c[442]
[setup]: Disk - 50
Apr 18 14:04:22 localhost debugd[1756]: [3005]: application:install ci_util.c[325]
[setup]: Disk requested = 51200 KB
Apr 18 14:04:22 localhost debugd[1756]: [3005]: application:install ci_util.c[345]
[setup]: More disk found Free = 211595264, req_disk = 51200
Apr 18 14:04:22 localhost debugd[1756]: [3005]: application:install cars_install.c[453]
[setup]: Mem requested by app - 100

```

```

Apr 18 14:04:22 localhost debugd[1756]: [3005]: application:install ci_util.c[369]
[setup]: Mem requested = 102400
Apr 18 14:04:22 localhost debugd[1756]: [3005]: application:install ci_util.c[384]
[setup]: Found MemFree = MemFree:      1284664 kB
Apr 18 14:04:22 localhost debugd[1756]: [3005]: application:install ci_util.c[390]
[setup]: Found MemFree value = 1284664
Apr 18 14:04:22 localhost debugd[1756]: [3005]: application:install ci_util.c[393]
[setup]: Found Inactive = Inactive:     1361456 kB
Apr 18 14:04:22 localhost debugd[1756]: [3005]: application:install ci_util.c[399]
[setup]: Found Inactive MemFree value = 1361456
Apr 18 14:04:22 localhost debugd[1756]: [3005]: application:install ci_util.c[409]
[setup]: Sufficient mem found
Apr 18 14:04:22 localhost debugd[1756]: [3005]: application:install ci_util.c[415]
[setup]: Done checking memory...
Apr 18 14:04:22 localhost debugd[1756]: [3005]: application:install cars_install.c[475]
[setup]: Verifying RPM's...
--More--
(press Spacebar to continue)

```

```
/admin#
```

Example 2

```

/admin# show logging internal

log server:      localhost
Global loglevel: 6
Status:         Enabled
/admin#

```

Example 3

```

/admin# show logging internal

log server:      localhost
Global loglevel: 6
Status:         Disabled
/admin#

```

show logins

To display the state of system logins, use the **show logins** command in the EXEC mode.

show logins cli

Syntax Description

show logins	The command to display system login history.
cli	Lists the cli login history.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines Requires the **cli** keyword; otherwise, an error occurs.

Examples

```
/admin# show logins cli
admin pts/1 10.77.203.182 Tue May 8 08:32 still logged in
admin pts/1 10.77.203.182 Mon May 7 14:05 - 14:58 (00:53)
admin pts/1 10.77.203.182 Mon May 7 12:23 - 13:29 (01:06)
root pts/0 64.103.124.254 Mon Apr 23 11:54 still logged in
root ttyS0 Thu Apr 19 17:57 still logged in
admin ttyS0 Thu Apr 19 17:57 - 17:57 (00:00)
admin ttyS0 Thu Apr 19 17:23 - 17:56 (00:32)
admin ttyS0 Thu Apr 19 18:28 - 15:59 (-2:-29)
admin ttyS0 Wed Apr 18 20:43 - 21:16 (00:32)
admin ttyS0 Wed Apr 18 14:58 - 15:28 (00:30)

wtmp begins Wed Apr 18 13:59:32 2012

/admin#
```

show memory

To display the memory usage of all the running processes, use the **show memory** command in the EXEC mode.

show memory

Syntax Description No arguments or keywords.

Defaults No default behavior or values.

Command Modes EXEC

Usage Guidelines None.

Examples

```
/admin# show memory
total memory: 1035164 kB
free memory: 27128 kB
cached: 358888 kB
swap-cached: 142164 kB

/admin#
```

show ntp

To show the status of the NTP associations, use the **show ntp** command in the EXEC mode.

```
show ntp
```

Syntax Description No arguments or keywords.

Defaults No default behavior or values.

Command Modes EXEC

Usage Guidelines None.

Examples

Example:1

```
/admin# show ntp
Primary NTP : cd-acis-ntp.cisco.com

synchronised to NTP server (10.56.60.29) at stratum 3
  time correct to within 64 ms
  polling server every 1024 s

      remote          refid          st t when poll reach  delay  offset  jitter
=====
  127.127.1.0        .LOCL.           10 1   5   64  377   0.000   0.000   0.001
 *10.56.60.29       64.103.34.15    2  u  98 1024 377   0.001   0.205   0.054
```

Warning: Output results may conflict during periods of changing synchronization.
/admin#

Example:2

```
/admin# show ntp
% no NTP servers configured
/admin#
```

Related Commands

Command	Description
ntp	Allows you to configure NTP configuration up to three NTP servers.
ntp server	Allows synchronization of the software clock by the NTP server for the system.

show ports

To display information about all the processes listening on active ports, use the **show ports** command in the EXEC mode.

show ports [*l*] [*n*]

Syntax Description

show ports	The command to display all the processes listening on open ports in the Cisco CDA.
	<p>Output modifier variables:</p> <ul style="list-style-type: none"> • <i>begin</i>—Matched pattern. Supports up to 80 alphanumeric characters. • <i>count</i>—Count the number of lines in the output. Add number after the word <i>count</i>. —Output modifier variables (see Table 4-9). • <i>end</i>—End with line that matches. Supports up to 80 alphanumeric characters. • <i>exclude</i>—Exclude lines that match. Supports up to 80 alphanumeric characters. • <i>include</i>—Include lines that match. Supports up to 80 alphanumeric characters. • <i>last</i>—Display last few lines of output. Add number after the word <i>last</i>. Supports up to 80 lines to display. Default 10. —Output modifier variables (see Table 4-9).

Table 4-9 Output Modifier Variables for Count or Last

	<p>Output modifier variables:</p> <ul style="list-style-type: none"> • <i>begin</i>—Matched pattern. Supports up to 80 alphanumeric characters. • <i>count</i>—Count the number of lines in the output. Add number after the word <i>count</i>. —Output modifier variables. • <i>end</i>—End with line that matches. Supports up to 80 alphanumeric characters. • <i>exclude</i>—Exclude lines that match. Supports up to 80 alphanumeric characters. • <i>include</i>—Include lines that match. Supports up to 80 alphanumeric characters. • <i>last</i>—Display last few lines of output. Add number after the word <i>last</i>. Supports up to 80 lines to display. Default 10. —Output modifier variables.
--	--

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

When you run the **show ports** command, the port must have an associated active session.

Examples

```

/adminin# show ports
Process : portmap (2560)
    tcp: 0.0.0.0:111
    udp: 0.0.0.0:111
Process : sshd (3312)
    tcp: 0.0.0.0:22, :::22
Process : rpc.statd (2600)
    tcp: 0.0.0.0:662
    udp: 0.0.0.0:656, 0.0.0.0:659
Process : java (18838)
    tcp: ::ffff:127.0.0.1:8005, :::8009, :::80, :::443, :::8092
Process : java (18811)
    tcp: :::54826, :::8091
Process : java (18849)
    tcp: :::8020, :::8090
    udp: :::1812, :::1813, :::1645, :::1646, :::50672
Process : java (18787)
    tcp: :::8093
Process : ntpd (4213)
    udp: 192.168.100.156:123, 10.56.14.156:123, 127.0.0.1:123, 0.0.0.0:123,
fe80::215:17ff:fe29:123, fd00:1234:5678:abcd:123, 2001:420:44ff:1
4:21:123, fe80::215:17ff:fe29:123, ::1:123, :::123
/adminin#

```

show process

To display information about active processes, use the **show process** command in the EXEC mode.

```
show process |
```

Syntax Description

show process	The command to display system processes.
	(Optional) Output modifier variables: <ul style="list-style-type: none"> <i>begin</i>—Matched pattern. Supports up to 80 alphanumeric characters. <i>count</i>—Count the number of lines in the output. Add number after the word <i>count</i>. <i>end</i>—End with line that matches. Supports up to 80 alphanumeric characters. <i>exclude</i>—Exclude lines that match. Supports up to 80 alphanumeric characters. <i>include</i>—Include lines that match. Supports up to 80 alphanumeric characters. <i>last</i>—Display last few lines of output. Add number after the word <i>last</i>. Supports up to 80 lines to display. Default 10.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines None.

Examples See [Table 4-10](#) for process field descriptions.

```

/adminin# show process
USER          PID      TIME TT      COMMAND
root          1 00:00:00 ?      init
root          2 00:00:00 ?      migration/0
root          3 00:00:00 ?      ksoftirqd/0
root          4 00:00:00 ?      watchdog/0
root          5 00:00:00 ?      migration/1
root          6 00:00:01 ?      ksoftirqd/1
root          7 00:00:00 ?      watchdog/1
root          8 00:00:00 ?      events/0
root          9 00:00:00 ?      events/1
root         10 00:00:00 ?      khelper
root         11 00:00:00 ?      kthread
root         15 00:00:00 ?      kblockd/0
root         16 00:00:01 ?      kblockd/1
root         17 00:00:00 ?      kacpid
root        113 00:00:00 ?      cqueue/0
root        114 00:00:00 ?      cqueue/1
root        117 00:00:00 ?      khubd
root        119 00:00:00 ?      kseriod
root        186 00:00:00 ?      pdflush
root        187 00:00:02 ?      pdflush
root        188 00:00:02 ?      kswapd0
root        189 00:00:00 ?      aio/0
root        190 00:00:00 ?      aio/1
root        351 00:00:00 ?      kpsmoused
root        382 00:00:00 ?      ata/0
root        383 00:00:00 ?      ata/1
root        384 00:00:00 ?      ata_aux
root        388 00:00:00 ?      scsi_eh_0
root        389 00:00:00 ?      scsi_eh_1
root        396 00:00:00 ?      kstriped
root        409 00:00:36 ?      kjournald
root        436 00:00:00 ?      kauditd
root        469 00:00:00 ?      udevd
root       1011 00:00:00 ?      kedac

--More--
/adminin#

```

Table 4-10 Show Process Field Descriptions

Field	Description
USER	Logged-in user
PID	Process ID
TIME	The time the command was last used
TT	Terminal that controls the process
COMMAND	Type of process or command used

show repository

To display the file contents of the repository, use the **show repository** command in the EXEC mode.

show repository *repository-name*

Syntax Description

show repository	The command to display the repository contents.
<i>repository-name</i>	Name of the repository whose contents you want to view. Supports up to 30 alphanumeric characters.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

None.

Examples

```
/admin# show repository myrepository
back1.tar.gpg
back2.tar.gpg
/admin#
```

Related Commands

Command	Description
backup	Performs a backup (Cisco CDA and Cisco ADE OS) and places the backup in a repository.
restore	Restores from backup the file contents of a specific repository.
repository	Enters the repository submode for configuration of backups.
show backup history	Displays the backup history of the system.

show restore

To display the restore history, use the **show restore** command in the EXEC mode.

```
show restore {history}
```

Syntax Description	show restore	The command to display the restore information.
	history	Displays the restore history.

Defaults No default behavior or values.

Command Modes EXEC

Usage Guidelines None.

Examples

Example 1

```
/admin# show restore history
```

```
/admin#
```

Example 2

```
/admin# show restore history
```

```
restore history is empty
```

```
/admin#
```

Related Commands	Command	Description
	backup	Performs a backup (Cisco CDA and Cisco ADE OS) and places the backup in a repository.
	restore	Restores from backup the file contents of a specific repository.
	repository	Enters the repository submode for configuration of backups.
	show backup history	Displays the backup history of the system.

show running-config

To display the contents of the currently running configuration file or the configuration, use the **show running-config** command in the EXEC mode.

```
show running-config
```

Syntax Description	No arguments or keywords.
Defaults	The show running-config command displays all of the configuration information.
Command Modes	EXEC
Usage Guidelines	None.

Examples

```

/adminin# show running-config
Generating configuration...
!
hostname pmbu-ibf-pip06
!
ip domain-name cisco.com
!
interface GigabitEthernet 0
 ip address 192.168.100.156 255.255.255.0
 ipv6 address autoconfig
!
interface GigabitEthernet 1
 ip address 10.56.14.156 255.255.255.0
 ipv6 address autoconfig
!
ip name-server 192.168.100.100 10.56.60.150
!
ip default-gateway 10.56.14.1
!
ip route 192.168.209.0 255.255.255.0 gateway 192.168.100.1
ip route 192.180.209.0 255.255.255.0 gateway 192.168.100.1
ip route 192.168.218.0 255.255.255.0 gateway 192.168.100.1
ip route 192.168.204.0 255.255.255.0 gateway 192.168.100.1
!
clock timezone Asia/Jerusalem
!
ntp server cd-acis-ntp.cisco.com
!
username admin password hash $1$00jG7EQh$gDjDJK1SZWx5ImaUEqZA01 role admin
!
service sshd
!
repository rp
 url ftp://10.56.61.75/ACS_AUTO_VMS/OLD-ACS.5.0.FCS/
 user anonymous password hash 37f90f7eb86fb8e00895b133c6de3278ff545c54
repository tftp
 url tftp://192.168.100.153
!
password-policy
 lower-case-required
 upper-case-required
 digit-required
 no-username
 disable-cisco-passwords
 min-password-length 6
!

```

```

logging localhost
logging loglevel 6
!
cdp timer 60
cdp holdtime 180
cdp run GigabitEthernet 0
!
icmp echo on
!
/admin#

```

Related Commands	Command	Description
	configure	Enters the Configuration mode.
	show startup-config	Displays the contents of the startup configuration file or the configuration.

show startup-config

To display the contents of the startup configuration file or the configuration, use the **show startup-config** command in the EXEC mode.

show startup-config

Syntax Description

No arguments or keywords.

Defaults

The **show startup-config** command displays all of the startup configuration information.

Command Modes

EXEC

Usage Guidelines

None.

Examples

```

/admin# show startup-config
!
hostname pmbu-ibf-pip06
!
ip domain-name cisco.com
!
interface GigabitEthernet 0
 ip address 192.168.100.156 255.255.255.0
 ipv6 address autoconfig
!
interface GigabitEthernet 1
 ip address 10.56.14.156 255.255.255.0
 ipv6 address autoconfig
!
ip name-server 192.168.100.100 10.56.60.150
!

```

```

ip default-gateway 10.56.14.1
!
ip route 192.168.209.0 255.255.255.0 gateway 192.168.100.1
ip route 192.180.209.0 255.255.255.0 gateway 192.168.100.1
ip route 192.168.218.0 255.255.255.0 gateway 192.168.100.1
ip route 192.168.204.0 255.255.255.0 gateway 192.168.100.1
!
clock timezone Asia/Jerusalem
!
ntp server cd-acis-ntp.cisco.com
!
username admin password hash $1$00jG7EQh$gDjDJK1SZWx5ImaUEqZA01 role admin
!
service sshd
!
repository rp
  url ftp://10.56.61.75/ACS_AUTO_VMS/OLD-ACS.5.0.FCS/
  user anonymous password hash 37f90f7eb86fb8e00895b133c6de3278ff545c54
repository tftp
  url tftp://192.168.100.153
!
password-policy
  lower-case-required
  upper-case-required
  digit-required
  no-username
  disable-cisco-passwords
  min-password-length 6
!
logging localhost
logging loglevel 6
!
cdp timer 60
cdp holdtime 180
cdp run GigabitEthernet 0
!
icmp echo on
!
/admin#

```

Related Commands	Command	Description
	configure	Enters the Configuration mode.
	show running-config	Displays the contents of the currently running configuration file or the configuration.

show tech-support

To display technical support information, including email, use the **show tech-support** command in the EXEC mode.

show tech-support file [*word*]

Syntax Description	show tech-support	The command to display the technical support information.

<code>file</code>	Save any technical support data as a file in the local disk.
<code>word</code>	Filename to save. Supports up to 80 alphanumeric characters.

Defaults

Passwords and other security information do not appear in the output.

Command Modes

EXEC

Usage Guidelines

The **show tech-support** command is useful for collecting a large amount of information about your Cisco CDA server for troubleshooting purposes. You can then provide output to technical support representatives when reporting a problem.

Examples

```
/admin# show tech-support

#####
Application Deployment Engine(ADE) - 2.0.2.057
Technical Support Debug Info follows..
#####

*****
Checking dmidecode Serial Number(s)
*****
None
VMware-56 4d 14 cb 54 3d 44 5d-49 ee c4 ad a5 6a 88 c4

*****
Displaying System Uptime...
*****
12:54:34 up 18:37, 1 user, load average: 0.14, 0.13, 0.12

*****
Display Memory Usage(KB)
*****
          total      used      free   shared   buffers   cached
Mem:      1035164    1006180    28984         0     10784    345464
-/+ buffers/cache:    649932    385232
Swap:     2040244     572700    1467544

*****
Displaying Processes(ax --forest)...
*****
  PID TTY          STAT       TIME COMMAND
    1 ?           Ss          0:02 init [3]
    2 ?           S<          0:00 [migration/0]
    3 ?           SN          0:00 [ksoftirqd/0]
    4 ?           S<          0:00 [watchdog/0]
    5 ?           S<          0:00 [events/0]
--More--
(press Spacebar to continue)

/admin#
```

Related Commands	Command	Description
	show interface	Displays the usability status of the interfaces.
	show process	Displays information about active processes.
	show running-config	Displays the contents of the current running configuration.

show terminal

To obtain information about the terminal configuration parameter settings, use the **show terminal** command in the EXEC mode.

show terminal

Syntax Description No arguments or keywords.

Defaults No default behavior or values.

Command Modes EXEC

Usage Guidelines None.

Examples

```
/admin# show terminal
TTY: /dev/pts/0 Type: "vt100"
Length: 27 lines, Width: 80 columns
Session Timeout: 30 minutes
/admin#
```

[Table 4-11](#) describes the fields of the **show terminal** output.

Table 4-11 Show Terminal Field Descriptions

Field	Description
TTY: /dev/pts/0	Displays standard output to type of terminal.
Type: "vt100"	Type of current terminal used.
Length: 24 lines	Length of the terminal display.
Width: 80 columns	Width of the terminal display, in character columns.
Session Timeout: 30 minutes	Length of time, in minutes, for a session, after which the connection closes.

show timezone

To display the time zone as set on the system, use the **show timezone** command in the EXEC mode.

show timezone

Syntax Description No arguments or keywords.

Defaults No default behavior or values.

Command Modes EXEC

Usage Guidelines None.

Examples

```
/admin# show timezone
UTC
/admin#
```

Related Commands	Command	Description
	clock timezone	Sets the time zone on the system.
	show timezones	Displays the time zones available on the system.

show timezones

To obtain a list of time zones from which you can select, use the **show timezones** command in the EXEC mode.

show timezones

Syntax Description No arguments or keywords.

Defaults No default behavior or values.

Command Modes EXEC

Usage Guidelines

See the “[clock timezone](#)” section on page 4-85, for examples of the time zones available for the CDA server.

Examples

```
/admin# show timezones
Africa/Blantyre
Africa/Dar_es_Salaam
Africa/Dakar
Africa/Asmara
Africa/Timbuktu
Africa/Maputo
Africa/Accra
Africa/Kigali
Africa/Tunis
Africa/Nouakchott
Africa/Ouagadougou
Africa/Windhoek
Africa/Douala
Africa/Johannesburg
Africa/Luanda
Africa/Lagos
Africa/Djibouti
Africa/Khartoum
Africa/Monrovia
Africa/Bujumbura
Africa/Porto-Novo
Africa/Malabo
Africa/Ceuta
Africa/Banjul
Africa/Cairo
Africa/Mogadishu
Africa/Brazzaville
Africa/Kampala
Africa/Sao_Tome
Africa/Algiers
Africa/Addis_Ababa
Africa/Ndjamena
Africa/Gaborone
Africa/Bamako
Africa/Freetown
--More--
(press Spacebar to continue)

/admin#
```

Related Commands

Command	Description
show timezone	Displays the time zone set on the system.
clock timezone	Sets the time zone on the system.

show udi

To display information about the UDI of the Cisco CDA appliance, use the **show udi** command in the EXEC mode.

```
show udi
```

Syntax Description No arguments or keywords.

Defaults No default behavior or values.

Command Modes EXEC

Usage Guidelines None.

Examples

Example 1

```
/admin# show udi

SPID: CSACS-1121-K9
VPID: V01
Serial: LAB11122278

/admin#
```

The following output appears when you run the **show udi** command on VMware servers.

Example 2

```
/admin# show udi

SPID: CDA-VM-K9
VPID: V01
Serial: 5C79C84ML9H

/admin#
```

show uptime

To display the length of time that you have been logged in to the Cisco CDA server, use the **show uptime** command in the EXEC mode.

```
show uptime |
```

Syntax Description	show uptime	The command to display the period that you have been logged into the Cisco CDA server.
		<p>Output modifier variables:</p> <ul style="list-style-type: none"> • <i>begin</i>—Matched pattern. Supports up to 80 alphanumeric characters. • <i>count</i>—Count the number of lines in the output. Add number after the word <i>count</i>. • <i>end</i>—End with line that matches. Supports up to 80 alphanumeric characters. • <i>exclude</i>—Exclude lines that match. Supports up to 80 alphanumeric characters. • <i>include</i>—Include lines that match. Supports up to 80 alphanumeric characters. • <i>last</i>—Display last few lines of output. Add number after the word <i>last</i>. Supports up to 80 lines to display. Default 10.

Defaults No default behavior or values.

Command Modes EXEC

Usage Guidelines None.

Examples

```
/admin# show uptime
3 day(s) , 18:55:02
/admin#
```

show users

To display the list of users logged in to the Cisco CDA server, use the **show users** command in the EXEC mode.

```
show users
```

Syntax Description No arguments or keywords.

Defaults No default behavior or values.

Command Modes EXEC

Usage Guidelines None.

Examples

```
/admin# show users
USERNAME          ROLE    HOST                TY          LOGIN DATETIME
-----
admin             Admin  10.77.137.60       pts/0       Fri Aug  6 09:45:47 2010

/admin#
```

show version

To display information about the software version of the system, use the **show version** command in the EXEC mode.

show version

Syntax Description No arguments or keywords.

Defaults No default behavior or values.

Command Modes EXEC

Usage Guidelines This command displays version information about the Cisco ADE-OS software running on the Cisco CDA server, and displays the Cisco CDA version.

Examples

```
/admin# show version

Cisco Application Deployment Engine OS Release: 2.0
ADE-OS Build Version: 2.0.2.057
ADE-OS System Architecture: i386

Copyright (c) 2005-2011 by Cisco Systems, Inc.
All rights reserved.
Hostname: pmbu-ibf-pip06

Version information of installed applications
-----

Cisco Context Directory Agent
-----
Version      : 3.0.0.11
Build Date   : Tue Apr 10 13:05:05 2012
Install Date : Mon May  7 12:06:23 2012

/admin#
```

Configuration Commands

This section lists each Configuration command and includes a brief description of its use, command syntax, usage guidelines, and sample output.

Configuration commands include **interface** and **repository**.



Note

Some of the Configuration commands require you to enter the configuration submode to complete the command configuration.

To access the Configuration mode, you must use the **configure** command in the EXEC mode.

Table 4-12 lists the Configuration commands that this section describes.

Table 4-12 List of Configuration Commands

• backup-staging-url	• kron occurrence
• cdp holdtime	• kron policy-list
• cdp run	• logging
• cdp timer	• ntp
• clock timezone	• ntp authenticate
• do	• ntp authentication-key
• end	• ntp server
• exit	• ntp trusted-key
• hostname	• password-policy
• icmp echo	• repository
• interface	• service
• ipv6 address autoconfig	• shutdown
• ipv6 address dhcp	• snmp-server community
• ip address	• snmp-server contact
• ip default-gateway	• snmp-server host
• ip domain-name	• snmp-server location
• ip name-server	• username
• ip route	

backup-staging-url

To allow you to configure a Network File System (NFS) location that the backup and restore operations will use as a staging area to package and unpackage backup files, use the **backup-staging-url** command in Configuration mode.

backup-staging-url *word*

Syntax Description

backup-staging-url	The command to configure a Network File System (NFS) location as a staging area that the backup and restore operations use.
<i>word</i>	NFS URL for staging area. Supports up to 2048 alphanumeric characters. Use nfs://server:path¹ .

1. Server is the server name and path refers to /subdir/subsubdir. Remember that a colon (:) is required after the server.

Defaults

No default behavior or values.

Command Modes

Configuration

Usage Guidelines

The URL is NFS only. The format of the command is **backup-staging-url nfs://server:path**.



Warning

Ensure that you secure your NFS server in such a way that the directory can be accessed only by the IP address of the Cisco CDA server.

Examples

```
/admin(config)# backup-staging-url nfs://loc-filer02a:/vol/local1/private1/jdoe
/admin(config)#
```

cdp holdtime

To specify the amount of time for which the receiving device should hold a Cisco Discovery Protocol packet from the Cisco CDA server before discarding it, use the **cdp holdtime** command in the Configuration mode. To revert to the default setting, use the **no** form of this command.

cdp holdtime *seconds*

Syntax Description

cdp	The command to configure the Cisco Discovery Protocol parameters.
holdtime	The Cisco Discovery Protocol hold time specified.
<i>seconds</i>	Specifies the hold time, in seconds. Value from 10 to 255 seconds.

Defaults

180 seconds

Command Modes Configuration

Usage Guidelines Cisco Discovery Protocol packets transmit with a time to live, or hold time, value. The receiving device will discard the Cisco Discovery Protocol information in the Cisco Discovery Protocol packet after the hold time has elapsed.

The **cdp holdtime** command takes only one argument; otherwise, an error occurs.

Examples

```
/admin(config)# cdp holdtime 60
/admin(config)#
```

Related Commands

Command	Description
cdp timer	Specifies how often the Cisco CDA server sends Cisco Discovery Protocol updates.
cdp run	Enables the Cisco Discovery Protocol.

cdp run

To enable the Cisco Discovery Protocol, use the **cdp run** command in Configuration mode. To disable the Cisco Discovery Protocol, use the **no** form of this command.

cdp run [*GigabitEthernet*]

Syntax Description

cdp	The command to configure the Cisco Discovery Protocol parameters.
run	The command to enable or disable the Cisco Discovery Protocol.
GigabitEthernet	Specifies the GigabitEthernet interface on which to enable the Cisco Discovery Protocol.

Defaults

No default behavior or values.

Command Modes Configuration

Usage Guidelines The command has one optional argument, which is an interface name. Without an optional interface name, the command enables the Cisco Discovery Protocol on all interfaces.



Note The default for this command is on interfaces that are already up and running. When you are bringing up an interface, stop the Cisco Discovery Protocol first; then, start the Cisco Discovery Protocol again.

Examples

```
/admin(config)# cdp run GigabitEthernet 0
/admin(config)#
```

Related Commands

Command	Description
cdp holdtime	Specifies the length of time that the receiving device should hold a Cisco Discovery Protocol packet from the Cisco CDA server before discarding it.
cdp timer	Specifies how often the Cisco CDA server sends Cisco Discovery Protocol updates.

cdp timer

To specify how often the Cisco CDA server sends Cisco Discovery Protocol updates, use the **cdp timer** command in Configuration mode. To revert to the default setting, use the **no** form of this command.

cdp timer *seconds*

Syntax Description

cdp	The command to configure the Cisco Discovery Protocol parameters.
timer	The command that refreshes the time interval of the Cisco Discovery Protocol.
<i>seconds</i>	Specifies how often, in seconds, the Cisco CDA server sends Cisco Discovery Protocol updates. Value from 5 to 254 seconds.

Defaults

60 seconds

Command Modes

Configuration

Usage Guidelines

Cisco Discovery Protocol packets transmit with a time to live, or hold time, value. The receiving device will discard the Cisco Discovery Protocol information in the Cisco Discovery Protocol packet after the hold time has elapsed.

The **cdp timer** command takes only one argument; otherwise, an error occurs.

Examples

```
/admin(config)# cdp timer 60
/admin(config)#
```

Related Commands	Command	Description
	<code>cdp holdtime</code>	Specifies the amount of time that the receiving device should hold a Cisco Discovery Protocol packet from the Cisco CDA server before discarding it.
	<code>cdp run</code>	Enables the Cisco Discovery Protocol.

clock timezone

To set the time zone, use the **clock timezone** command in Configuration mode. To disable this function, use the **no** form of this command.

clock timezone *timezone*

Syntax Description	Command	Description
	<code>clock</code>	The command to configure time zone.
	<code>timezone</code>	The command to configure system timezone.
	<i>timezone</i>	Name of the time zone visible when in standard time. Supports up to 64 alphanumeric characters.

Defaults UTC

Command Modes Configuration

Usage Guidelines The system internally keeps time in UTC. If you do not know your specific time zone, you can enter the region, country, and city (see Tables 4-13, 4-14, and 4-15 for sample time zones to enter on your system).

Table 4-13 Common Time Zones

Acronym or name	Time Zone Name
Europe	
GMT, GMT0, GMT-0, GMT+0, UTC, Greenwich, Universal, Zulu	Greenwich Mean Time, as UTC
GB	British
GB-Eire, Eire	Irish
WET	Western Europe Time, as UTC
CET	Central Europe Time, as UTC + 1 hour
EET	Eastern Europe Time, as UTC + 2 hours
United States and Canada	
EST, EST5EDT	Eastern Standard Time, as UTC -5 hours

Table 4-13 Common Time Zones (continued)

Acronym or name	Time Zone Name
CST, CST6CDT	Central Standard Time, as UTC -6 hours
MST, MST7MDT	Mountain Standard Time, as UTC -7 hours
PST, PST8PDT	Pacific Standard Time, as UTC -8 hours
HST	Hawaiian Standard Time, as UTC -10 hours

Table 4-14 Australia Time Zones

Australia ¹			
ACT ²	Adelaide	Brisbane	Broken_Hill
Canberra	Currie	Darwin	Hobart
Lord_Howe	Lindeman	LHI ³	Melbourne
North	NSW ⁴	Perth	Queensland
South	Sydney	Tasmania	Victoria
West	Yancowinna		

1. Enter the country and city together with a forward slash (/) between them; for example, Australia/Currie.
2. ACT = Australian Capital Territory
3. LHI = Lord Howe Island
4. NSW = New South Wales

Table 4-15 Asia Time Zones

Asia ¹			
Aden ²	Almaty	Amman	Anadyr
Aqtau	Aqtobe	Ashgabat	Ashkhabad
Baghdad	Bahrain	Baku	Bangkok
Beirut	Bishkek	Brunei	Calcutta
Choibalsan	Chongqing	Columbo	Damascus
Dhakar	Dili	Dubai	Dushanbe
Gaza	Harbin	Hong_Kong	Hovd
Irkutsk	Istanbul	Jakarta	Jayapura
Jerusalem	Kabul	Kamchatka	Karachi
Kashgar	Katmandu	Kuala_Lumpur	Kuching
Kuwait	Krasnoyarsk		

1. The Asia time zone includes cities from East Asia, Southern Southeast Asia, West Asia, and Central Asia.
2. Enter the region and city or country together separated by a forward slash (/); for example, Asia/Aden.

**Note**

Several more time zones are available to you. On your Cisco CDA server, enter **show timezones**. A list of all the time zones available in the Cisco CDA server appears. Choose the most appropriate one for your time zone.

**Warning**

Changing the time zone on a Cisco CDA appliance after installation causes the Cisco CDA application on that node to be unusable. However, the preferred time zone (default UTC) can be configured during the installation when the initial setup wizard prompts you for the time zone.

Examples

```
/admin(config)# clock timezone EST
/admin(config)# exit
/admin# show timezone
EST
/admin#
```

Related Commands

Command	Description
show timezones	Displays a list of available time zones on the system.
show timezone	Displays the current time zone set on the system.

do

To execute an EXEC-level command from Configuration mode or any configuration submode, use the **do** command in any configuration mode.

do *arguments*

Syntax Description

do	The EXEC command to execute an EXEC-level command from Configuration mode or any configuration submode
<i>arguments</i>	The EXEC command to execute an EXEC-level command (see Table 4-16).

Table 4-16 Command Options for Do Command

Command	Description
application configure	Configures a specific application.
application install	Installs a specific application.
application remove	Removes a specific application.
application start	Starts or enables a specific application
application stop	Stops or disables a specific application.
application upgrade	Upgrades a specific application.

Table 4-16 Command Options for Do Command (continued)

Command	Description
backup	Performs a backup (Cisco CDA and Cisco ADE OS) and places the backup in a repository.
backup-logs	Performs a backup of all the logs on the Cisco CDA server to a remote location.
clock	Sets the system clock on the Cisco CDA server.
configure	Enters Configuration mode.
copy	Copies any file from a source to a destination.
debug	Displays any errors or events for various command situations; for example, backup and restore, configuration, copy, resource locking, file transfer, and user management.
delete	Deletes a file on the Cisco CDA server.
dir	Lists files on the Cisco CDA server.
forceout	Forces the logout of all the sessions of a specific Cisco CDA node user.
halt	Disables or shuts down the Cisco CDA server.
mkdir	Creates a new directory.
nslookup	Queries the IPv4 address or hostname of a remote system.
patch	Installs System or Application patch.
pep	Configures the Inline Posture node.
ping	Determines the IPv4 network activity on a remote system.
ping6	Determines the IPv6 network activity on a IPv6 remote system.
reload	Reboots the Cisco CDA server.
restore	Performs a restore and retrieves the backup out of a repository.
rmdir	Removes an existing directory.
show	Provides information about the Cisco CDA server.
ssh	Starts an encrypted session with a remote system.
tech	Provides Technical Assistance Center (TAC) commands.
telnet	Establishes a Telnet connection to a remote system.
terminal length	Sets terminal line parameters.
terminal session-timeout	Sets the inactivity timeout for all terminal sessions.
terminal session-welcome	Sets the welcome message on the system for all terminal sessions.
terminal terminal-type	Specifies the type of terminal connected to the current line of the current session.
traceroute	Traces the route of a remote IP address.
undebug	Disables the output (display of errors or events) of the debug command for various command situations; for example, backup and restore, configuration, copy, resource locking, file transfer, and user management.
write	Erases the startup configuration that forces to run the setup utility and prompt the network configuration, copies the running configuration to the startup configuration, displays the running configuration on the console.

Command Default No default behavior or values.

Command Modes Configuration or any configuration submode

Usage Guidelines Use this command to execute EXEC commands (such as **show**, **clear**, and **debug** commands) while configuring your server. After the EXEC command executes, the system will return to the configuration mode you were using.

Examples

```
/admin(config)# do show run
Generating configuration...
!
hostname cda
!
ip domain-name cisco.com
!
interface GigabitEthernet 0
  ip address 172.23.90.113 255.255.255.0
  ipv6 address autoconfig
!
ip name-server 171.70.168.183
!
ip default-gateway 172.23.90.1
!
clock timezone EST
!
ntp server time.nist.gov
!
username admin password hash $1$JbbHvKVG$xMZ/XL4tH15Knf.FfcZzr. role admin
!
service sshd
!
backup-staging-url nfs://loc-filer02a:/vol/local1/private1/jdoe
!
password-policy
  lower-case-required
  upper-case-required
  digit-required
  no-username
  disable-cisco-passwords
  min-password-length 6
!
logging localhost
logging loglevel 6
!
--More--

/admin(config)#
```

end

To end the current configuration session and return to the EXEC mode, use the **end** command in Configuration mode.

end

Syntax Description No arguments or keywords.

Defaults No default behavior or values.

Command Modes Configuration

Usage Guidelines This command brings you back to EXEC mode regardless of what configuration mode or submode you are in.

Use this command when you finish configuring the system and you want to return to EXEC mode to perform verification steps.

Examples

```
/admin(config)# end
/admin#
```

Related Commands	Command	Description
	exit	Exits Configuration mode.
	exit (EXEC)	Closes the active terminal session by logging out of the Cisco CDA server.

exit

To exit any configuration mode to the next-highest mode in the CLI mode hierarchy, use the **exit** command in Configuration mode.

exit

Syntax Description No arguments or keywords.

Defaults No default behavior or values.

Command Modes Configuration

Usage Guidelines The **exit** command is used in the Cisco CDA server to exit the current command mode to the next highest command mode in the CLI mode hierarchy.

For example, use the **exit** command in Configuration mode to return to the EXEC mode. Use the **exit** command in the configuration submodes to return to Configuration mode. At the highest level, EXEC mode, the **exit** command exits the EXEC mode and disconnects from the Cisco CDA server (see the “[exit](#)” section on page 4-23, for a description of the **exit** (EXEC) command).

Examples

```
/admin(config)# exit
/admin#
```

Related Commands

Command	Description
end	Exits Configuration mode.
exit (EXEC)	Closes the active terminal session by logging out of the Cisco CDA server.

hostname

To set the hostname of the system, use the **hostname** command in Configuration mode. To delete the hostname from the system, use the **no** form of this command, which resets the system to localhost.

hostname *word*

Syntax Description

<code>hostname</code>	The command to configure the hostname.
<i>word</i>	Name of the host. Contains at least 2 to 64 alphanumeric characters and an underscore (_). The hostname must begin with a character that is not a space.

Defaults

No default behavior or values.

Command Modes Configuration

Usage Guidelines A single instance type of command, **hostname** only occurs once in the configuration of the system. The hostname must contain one argument; otherwise, an error occurs.

Examples

```
/admin(config)# hostname cda-1
Changing the hostname or IP may result in undesired side effects,
such as installed application(s) being restarted.
Are you sure you want to proceed? [y/n] y
```

```

.
.
.
cda-1/admin#

```

icmp echo

To configure the Internet Control Message Protocol (ICMP) echo responses, use the **icmp echo** command in Configuration mode.

icmp echo {*off* | *on*}

Syntax Description

icmp	The command to configure Internet Control Message Protocol echo requests.
echo	Configures ICMP echo response.
<i>off</i>	Disables ICMP echo response
<i>on</i>	Enables ICMP echo response.

Defaults

The system behaves as if the ICMP echo response is on (enabled).

Command Modes

Configuration

Usage Guidelines

None.

Examples

```

/admin(config)# icmp echo off
/admin(config)#

```

Related Commands

Command	Description
show icmp-status	Display ICMP echo response configuration information.

interface

To configure an interface type and enter the interface configuration mode, use the **interface** command in Configuration mode. This command does not have a **no** form.



Note

VMware virtual machine may have a number of interfaces available that depends on how many network interfaces (NIC) are added to the virtual machine.

interface GigabitEthernet [*0* | *1* | *2* | *3*]

Syntax Description

interface	The command to configure an interface.
GigabitEthernet	Configures the Gigabit Ethernet interface.
0 - 3	Number of the Gigabit Ethernet port to configure.

**Note**

After you enter the Gigabit Ethernet port number in the **interface** command, you enter the config-GigabitEthernet configuration submode (see the following Syntax Description).

do	EXEC command. Allows you to perform any EXEC commands in this mode (see the “do” section on page 4-87).
end	Exits the config-GigabitEthernet submode and returns you to the EXEC mode.
exit	Exits the config-GigabitEthernet configuration submode.
ip	Sets the IP address and netmask for the Ethernet interface (see the “ip address” section on page 4-97).
ipv6	Configures IPv6 autoconfiguration address and IPv6 address from DHCPv6 server. (see the “ipv6 address autoconfig” section on page 4-94 and the “ipv6 address dhcp” section on page 4-96)
no	Negates the command in this mode. Two keywords are available: <ul style="list-style-type: none"> ip—Sets the IP address and netmask for the interface. shutdown—Shuts down the interface.
shutdown	Shuts down the interface (see the “shutdown” section on page 4-115).

Defaults

No default behavior or values.

Command Modes

Configuration

Usage Guidelines

You can use the **interface** command to configure subinterfaces to support various requirements.

Examples

```
/admin(config)# interface GigabitEthernet 0
/admin(config-GigabitEthernet)#
```

Related Commands

Command	Description
show interface	Displays information about the system interfaces.
ip address (interface configuration mode)	Sets the IP address and netmask for the interface.
shutdown (interface configuration mode)	Shuts down the interface (see “shutdown” section on page 4-115).

ipv6 address autoconfig

To enable IPv6 stateless autoconfiguration, use the **interface GigabitEthernet 0** command in Configuration mode. This command does not have a **no** form.

IPv6 address autoconfiguration is enabled by default in Linux. Cisco ADE 2.0 shows the IPv6 address autoconfiguration in the running configuration for any interface that is enabled.

interface GigabitEthernet 0

Syntax Description

interface	The command to configure an interface.
GigabitEthernet	Configures the Gigabit Ethernet interface.
<0 - 3>	Number of the Gigabit Ethernet port to configure.

Defaults

No default behavior or values.

Command Modes

Configuration

Usage Guidelines

IPv6 stateless autoconfiguration has the security downfall of having predictable IP addresses. This downfall is resolved with privacy extensions. You can verify that the privacy extensions feature is enabled using the **show** command.

Example 1

```
/admin# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
/admin(config)# interface GigabitEthernet 0
/admin(config)# (config-GigabitEthernet)# ipv6 address autoconfig
/admin(config)# (config-GigabitEthernet)# end
/admin#
```

When IPv6 autoconfiguration is enabled, the running configuration shows the interface settings similar to the following:

```
!
interface GigabitEthernet 0
 ip address 172.23.90.116 255.255.255.0
 ipv6 address autoconfig
!
```

You can use the **show interface GigabitEthernet 0** command to display the interface settings. In example 2, you can see that the interface has three IPv6 addresses. The first address (starting with 3ffe) is obtained using the stateless autoconfiguration. For the stateless autoconfiguration to work, you must have IPv6 route advertisement enabled on that subnet. The next address (starting with fe80) is a link-local address that does not have any scope outside the host. You will always see a link local address regardless of the IPv6 autoconfiguration or DHCPv6 configuration. The last address (starting with 2001) is obtained from a IPv6 DHCP server.

Example 2

```
/admin# show interface GigabitEthernet 0
```

```
eth0      Link encap:Ethernet  HWaddr 00:0C:29:AF:DA:05
          inet addr:172.23.90.116  Bcast:172.23.90.255  Mask:255.255.255.0
          inet6 addr: 3ffe:302:11:2:20c:29ff:feaf:da05/64 Scope:Global
          inet6 addr: fe80::20c:29ff:feaf:da05/64 Scope:Link
          inet6 addr: 2001:558:ff10:870:8000:29ff:fe36:200/64 Scope:Global
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:77848 errors:0 dropped:0 overruns:0 frame:0
          TX packets:23131 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:10699801 (10.2 MiB)  TX bytes:3448374 (3.2 MiB)
          Interrupt:59 Base address:0x2000
```

/admin#

The following RFC provides the IPv6 stateless autoconfiguration privacy extensions:

<http://www.ietf.org/rfc/rfc3041.txt>

To verify that the privacy extensions feature is enabled, you can use the **show interface GigabitEthernet 0** command. You can see two autoconfiguration addresses: one address is without the privacy extensions, and the other is with the privacy extensions.

In the example 3 below, the MAC is 3ffe:302:11:2:20c:29ff:feaf:da05/64 and the non-RFC3041 address contains the MAC, and the privacy-extension address is 302:11:2:9d65:e608:59a9:d4b9/64.

The output appears similar to the following:

Example 3

```
/admin# show interface GigabitEthernet 0
eth0      Link encap:Ethernet  HWaddr 00:0C:29:AF:DA:05
          inet addr:172.23.90.116  Bcast:172.23.90.255  Mask:255.255.255.0
          inet6 addr: 3ffe:302:11:2:9d65:e608:59a9:d4b9/64 Scope:Global
          inet6 addr: 3ffe:302:11:2:20c:29ff:feaf:da05/64 Scope:Global
          inet6 addr: fe80::20c:29ff:feaf:da05/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:60606 errors:0 dropped:0 overruns:0 frame:0
          TX packets:2771 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:9430102 (8.9 MiB)  TX bytes:466204 (455.2 KiB)
          Interrupt:59 Base address:0x2000
```

/admin#

Related Commands

Command	Description
show interface	Displays information about the system interfaces.
ip address (interface configuration mode)	Sets the IP address and netmask for the interface.
shutdown (interface configuration mode)	Shuts down the interface (see “ shutdown ” section on page 4-115).
ipv6 address dhcp	Enables IPv6 address DHCP on an interface.
show running-config	Displays the contents of the currently running configuration file or the configuration.

ipv6 address dhcp

To enable IPv6 address DHCP, use the **interface GigabitEthernet 0** command in Configuration mode. This command does not have a **no** form.

interface GigabitEthernet 0

Syntax Description		
	interface	The command to configure an interface.
	GigabitEthernet	Configures the Gigabit Ethernet interface.
	0	Gigabit Ethernet port number to be configured.

Defaults No default behavior or values.

Command Modes Configuration

Usage Guidelines None.

Examples

```
/admin# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
/admin(config)# interface GigabitEthernet 0
/admin(config-GigabitEthernet)# ipv6 address dhcp
/admin(config-GigabitEthernet)# end
/admin#
```

When IPv6 DHCPv6 is enabled, the running configuration shows the interface settings similar to the following:

```
!
interface GigabitEthernet 0
 ip address 172.23.90.116 255.255.255.0
 ipv6 address dhcp
!
```



Note

The IPv6 stateless autoconfiguration and IPv6 address DHCP are not mutually exclusive. It is possible to have both IPv6 stateless autoconfiguration and IPv6 address DHCP on the same interface. You can use the **show interface** to display what IPv6 addresses are in use for a particular interface.

When both the IPv6 stateless autoconfiguration and IPv6 address DHCP are enabled, the running configuration shows the interface settings similar to the following:

```
!
interface GigabitEthernet 0
 ip address 172.23.90.116 255.255.255.0
 ipv6 address dhcp
!
```

Related Commands	Command	Description
	<code>show interface</code>	Displays information about the system interfaces.
	<code>ip address</code> (interface configuration mode)	Sets the IP address and netmask for the interface.
	<code>shutdown</code> (interface configuration mode)	Shuts down the interface (see “shutdown” section on page 4-115).
	<code>ipv6 address autoconfig</code>	Enables IPv6 stateless autoconfiguration on an interface.
	<code>show running-config</code>	Displays the contents of the currently running configuration file or the configuration.

ip address

To set the IP address and netmask for the Ethernet interface, use the **ip address** command in interface Configuration mode. To remove an IP address or disable IP processing, use the **no** form of this command.

ip address *ip-address network mask*



Note

You can configure the same IP address on multiple interfaces. You might want to do this to limit the configuration steps that are needed to switch from using one interface to another.

Syntax Description	Command	Description
	<code>ip address</code>	The command to configure IP address and netmask for the GigabitEthernet interface.
	<i>ip-address</i>	IPv4 version IP address.
	<i>network mask</i>	Mask of the associated IP subnet.

Defaults Enabled.

Command Modes Interface configuration

Usage Guidelines Requires exactly one address and one netmask; otherwise, an error occurs.

Examples

```
/admin(config)# interface GigabitEthernet 1
/admin(config-GigabitEthernet)# ip address 209.165.200.227 255.255.255.224
Changing the hostname or IP may result in undesired side effects,
such as installed application(s) being restarted.
.....
To verify that CDA processes are running, use the
'show application status cda' command.
/admin(config-GigabitEthernet)#
```

Related Commands	Command	Description
	shutdown (interface configuration mode)	Disables an interface (see “ shutdown ” section on page 4-115).
	ip default-gateway	Sets the IP address of the default gateway of an interface.
	show interface	Displays information about the system IP interfaces.
	interface	Configures an interface type and enters the interface mode.

ip default-gateway

To define or set a default gateway with an IP address, use the **ip default-gateway** command in Configuration mode. To disable this function, use the **no** form of this command.

ip default-gateway *ip-address*

Syntax Description	Command	Description
	<code>ip default-gateway</code>	The command to define a default gateway with an IP address.
	<code>ip-address</code>	IP address of the default gateway.

Defaults Disabled.

Command Modes Configuration

Usage Guidelines If you enter more than one argument or no arguments at all, an error occurs.

Examples

```
/admin(config)# ip default-gateway 209.165.202.129
/admin(config)#
```

Related Commands	Command	Description
	ip address (interface configuration mode)	Sets the IP address and netmask for the Ethernet interface.

ip domain-name

To define a default domain name that the Cisco CDA server uses to complete hostnames, use the **ip domain-name** command in Configuration mode. To disable this function, use the **no** form of this command.

ip domain-name *word*

Syntax Description	ip domain-name	The command to define a default domain name.
	<i>word</i>	Default domain name used to complete the hostnames. Contains at least 2 to 64 alphanumeric characters.

Defaults Enabled.

Command Modes Configuration

Usage Guidelines If you enter more or fewer arguments, an error occurs.

Examples

```
/admin(config)# ip domain-name cisco.com
/admin(config)#
```

Related Commands	Command	Description
	ip name-server	Sets the DNS servers for use during a DNS query.

ip name-server

To set the Domain Name Server (DNS) servers for use during a DNS query, use the **ip name-server** command in Configuration mode. You can configure one to three DNS servers. To disable this function, use the **no** form of this command.



Note

Using the **no** form of this command removes all the name servers from the configuration. Using the **no** form of this command and one of the IP names removes only that name server.

ip name-server *ip-address* [*ip-address**

Syntax Description	ip name-server	The command to configure IP addresses of name server(s) to use.
	<i>ip-address</i>	Address of a name server.
	<i>ip-address</i> *	(Optional) IP addresses of additional name servers.
		Note You can configure a maximum of three name servers.

Defaults No default behavior or values.

Command Modes Configuration

Usage Guidelines

The first name server that is added with the **ip name-server** command occupies the first position and the system uses that server first to resolve the IP addresses.

You can add name servers to the system one at a time or all at once, until you reach the maximum (3). If you already configured the system with three name servers, you must remove at least one server to add additional name servers.

To place a name server in the first position so that the subsystem uses it first, you must remove all name servers with the **no** form of this command before you proceed.

Examples

```
/admin(config)# ip name-server 209.165.201.1
```

To verify that CDA processes are running, use the 'show application status cda' command.

```
/admin(config)#
```

You can choose not to restart the Cisco CDA server; nevertheless, the changes will take effect.

Related Commands

Command	Description
ip domain-name	Defines a default domain name that the server uses to complete hostnames.

ip route

To configure the static routes, use the **ip route** command in Configuration mode. To remove static routes, use the **no** form of this command.

Static routes are manually configured, which makes them inflexible (they cannot dynamically adapt to network topology changes), but extremely stable. Static routes optimize bandwidth utilization, because no routing updates need to be sent to maintain them. They also make it easy to enforce routing policy.

ip route *prefix mask gateway ip-address*

no ip route *prefix mask*

Syntax Description

<code>ip route</code>	The command to configure IP routes.
<i>prefix</i>	IP route prefix for the destination.
<i>mask</i>	Prefix mask for the destination.
<i>ip-address</i>	IP address of the next hop that can be used to reach that network.

Defaults

No default behavior or values.

Command Modes

Configuration

Examples

```
/admin(config)# ip route 192.168.0.0 255.255.0.0 gateway 172.23.90.2
/admin(config)#
```

kron occurrence

To schedule one or more Command Scheduler commands to run at a specific date and time or a recurring level, use the **kron occurrence** command in Configuration mode. To delete this schedule, use the **no** form of this command.

kron {occurrence} occurrence-name

Syntax Description

kron	The command to schedule the Command Scheduler commands.
occurrence	Schedules Command Scheduler commands.
<i>occurrence-name</i>	Name of the occurrence. Supports up to 80 alphanumeric characters. (See the following note and Syntax Description.)

**Note**

After you enter the *occurrence-name* in the **kron occurrence** command, you enter the config-occurrence configuration submode (see the following Syntax Description).

at	Identifies that the occurrence is to run at a specified calendar date and time. Usage: at [<i>hh:mm</i>] [<i>day-of-week</i> <i>day-of-month</i> <i>month day-of-month</i>].
do	EXEC command. Allows you to perform any EXEC commands in this mode (see the “do” section on page 4-87).
end	Exits the kron-occurrence configuration submode and returns you to the EXEC mode.
exit	Exits the kron-occurrence configuration mode.
no	Negates the command in this mode. Three keywords are available: <ul style="list-style-type: none"> at—Usage: at [<i>hh:mm</i>] [<i>day-of-week</i> <i>day-of-month</i> <i>month day-of-month</i>]. policy-list—Specifies a policy list to be run by the occurrence. Supports up to 80 alphanumeric characters. recurring—Execution of the policy lists should be repeated.
policy-list	Specifies a Command Scheduler policy list to be run by the occurrence.
recurring	Identifies that the occurrences run on a recurring basis.
	 Note If kron occurrence is not recurring, then the kron occurrence configuration for the scheduled backup is removed after it has run.

Defaults

No default behavior or values.

Command Modes Configuration

Usage Guidelines Use the **kron occurrence** and **policy-list** commands to schedule one or more policy lists to run at the same time or interval.

Use the **kron policy-list** command in conjunction with the **cli** command to create a Command Scheduler policy that contains the EXEC CLI commands to be scheduled to run on the Cisco CDA server at a specified time. See the “[kron policy-list](#)” section on page 4-102.



Examples **Note** When you run the **kron** command, backup bundles are created with a unique name (by adding a time stamp) to ensure that the files do not overwrite each other.

Example 1: Weekly Backup

```
/admin(config)# kron occurrence WeeklyBackup
/admin(config-Occurrence)# at 14:35 Monday
/admin(config-Occurrence)# policy-list SchedBackupPolicy
/admin(config-Occurrence)# recurring
/admin(config-Occurrence)# exit
/admin(config)#
```

Example 2: Daily Backup

```
/admin(config)# kron occurrence DailyBackup
/admin(config-Occurrence)# at 02:00
/admin(config-Occurrence)# exit
/admin(config)#
```

Example 3: Weekly Backup

```
/admin(config)# kron occurrence WeeklyBackup
/admin(config-Occurrence)# at 14:35 Monday
/admin(config-Occurrence)# policy-list SchedBackupPolicy
/admin(config-Occurrence)# no recurring
/admin(config-Occurrence)# exit
/admin(config)#
```

Related Commands

Command	Description
kron policy-list	Specifies a name for a Command Scheduler policy.

kron policy-list

To specify a name for a Command Scheduler policy and enter the kron-Policy List configuration submode, use the **kron policy-list** command in Configuration mode. To delete a Command Scheduler policy, use the **no** form of this command.

kron {**policy-list**} *list-name*

Syntax Description

kron	The command to schedule the Command Scheduler commands.
------	---

<code>policy-list</code>	Specifies a name for Command Scheduler policies.
<code>list-name</code>	Name of the policy list. Supports up to 80 alphanumeric characters.

**Note**

After you enter the `list-name` in the **kron policy-list** command, you enter the config-Policy List configuration submode (see the following Syntax Description).

<code>cli</code>	Command to be executed by the scheduler. Supports up to 80 alphanumeric characters.
<code>do</code>	EXEC command. Allows you to perform any EXEC commands in this mode (see “do” section on page 4-87).
<code>end</code>	Exits from the config-Policy List configuration submode and returns you to the EXEC mode.
<code>exit</code>	Exits this submode.
<code>no</code>	Negates the command in this mode. One keyword is available: <ul style="list-style-type: none"> <code>cli</code>—Command to be executed by the scheduler.

Defaults

No default behavior or values.

Command Modes

Configuration

Usage Guidelines

Use the **kron policy-list** command in conjunction with the **cli** command to create a Command Scheduler policy that contains the EXEC CLI commands to be scheduled to run on the CDA server at a specified time. Use the **kron occurrence** and **policy list** commands to schedule one or more policy lists to run at the same time or interval. See the “ip route” section on page 4-100.

Examples

```
/admin(config)# kron policy-list SchedBackupMonday
/admin(config-Policy List)# cli backup SchedBackupMonday repository SchedBackupRepo
/admin(config-Policy List)# exit
/admin(config)#
```

Related Commands

Command	Description
ip route	Specifies schedule parameters for a Command Scheduler occurrence and enters the config-Occurrence configuration mode.

logging

To enable the system to forward logs to a remote system or to configure the log level, use the **logging** command in Configuration mode. To disable this function, use the **no** form of this command.

logging {*ip-address* | *hostname*} {**loglevel** *level*}

Syntax Description	
logging	The command to configure system logging.
<i>ip-address</i>	IP address of remote system to which you forward logs. Supports up to 32 alphanumeric characters.
<i>hostname</i>	Hostname of remote system to which you forward logs. Supports up to 32 alphanumeric characters.
loglevel	The command to configure the log level for the logging command.
<i>level</i>	Number of the desired priority level at which you set the log messages. Priority levels are (enter the number for the keyword): <ul style="list-style-type: none"> • 0-emerg—Emergencies: System unusable. • 1-alert—Alerts: Immediate action needed. • 2-crit—Critical: Critical conditions. • 3-err—Error: Error conditions. • 4-warn—Warning: Warning conditions. • 5-notif—Notifications: Normal but significant conditions. • 6-inform—(Default) Informational messages. • 7-debug—Debugging messages.

Defaults No default behavior or values.

Command Modes Configuration

Usage Guidelines This command requires an IP address or hostname or the **loglevel** keyword; an error occurs if you enter two or more of these arguments.

Examples

Example 1

```
/admin(config)# logging 209.165.200.225
/admin(config)#
```

Example 2

```
/admin(config)# logging loglevel 0
/admin(config)#
```

Related Commands	Command	Description
	show logging	Displays list of logs for the system.

ntp

To specify an NTP configuration, use the **ntp** command in configuration mode with **authenticate**, **authentication-key**, **server**, and **trusted-key** commands.

ntp authenticate

ntp authentication-key <key id> *md5 hash* | *plain* <key value>

ntp server {*ip-address* | *hostname*} *key* <peer key number>

ntp trusted-key <key>

Syntax Description	ntp	The command to specify an NTP configuration.
---------------------------	-----	--

Defaults	None
-----------------	------

Command Modes	Configuration.
----------------------	----------------

Usage Guidelines Use the **ntp** command to specify an NTP configuration.

To terminate NTP service on a device, you must enter the **no ntp** command with keywords or arguments such as **authenticate**, **authentication-key**, **server**, and **trusted-key**. For example, if you previously issued the **ntp server** command, use the **no ntp** command with **server**.

For more information on how to configure an NTP server, see [ntp server, page 4-108](#).

Examples

```

/admin(config)# ntp ?
  authenticate      Authenticate time sources
  authentication-key Authentication key for trusted time sources
  server            Specify NTP server to use
  trusted-key       Key numbers for trusted time sources
/admin(config)#
/admin(config)# no ntp server
/admin(config)# do show ntp
% no NTP servers configured
/admin(config)#

```

Related Commands	Command	Description
	ntp authenticate	Enables authentication of all time sources.
	ntp authentication-key	Configures authentication keys for trusted time sources.
	ntp server	Allows synchronization of the software clock by the NTP server for the system.

Command	Description
ntp trusted-key	Specifies key numbers for trusted time sources that needs to be defined as NTP authentication keys.
show ntp	Displays the status information about the NTP associations.

ntp authenticate

To enable authentication of all time sources, use the **ntp authenticate** command. Time sources without the NTP authentication keys will not be synchronized.

To disable this capability, use the **no** form of this command.

ntp authenticate

Syntax Description

ntp	The command to specify NTP configuration.
authenticate	Enables authentication of all time sources.

Defaults

None

Command Modes

Configuration.

Usage Guidelines

Use the **ntp authenticate** command to enable authentication of all time sources. This command is optional and authentication will work even without this command.

If you want to authenticate in a mixed mode where only some servers require authentication, that is, only some servers need to have keys configured for authentication, then this command should not be executed.

Examples

```
/admin(config)# ntp ?
  authenticate      Authenticate time sources
  authentication-key Authentication key for trusted time sources
  server            Specify NTP server to use
  trusted-key       Key numbers for trusted time sources
/admin(config)#

/admin(config)# ntp authenticate
/admin(config)#
```

Related Commands

Command	Description
ntp	The command to specify NTP configuration.
ntp authentication-key	Configures authentication keys for trusted time sources.
ntp server	Allows synchronization of the software clock by the NTP server for the system.

Command	Description
<code>ntp trusted-key</code>	Specifies key numbers for trusted time sources that needs to be defined as NTP authentication keys.
<code>show ntp</code>	Displays the status information about the NTP associations.

ntp authentication-key

To specify an authentication key for a time source, use the **ntp authentication-key** command in configuration command with a unique identifier and a key value.

To disable this capability, use the **no** form of this command.

```
ntp authentication-key <key id> md5 hash | plain <key value>
```

Syntax Description

<code>ntp</code>	The command to specify NTP configuration.
<code>authentication-key</code>	Configures authentication keys for trusted time sources.
<code>key id</code>	The identifier that you want to assign to this key. Supports numeric values from 1–65535.
<code>md5</code>	The encryption type for the authentication key.
<code>hash <word></code>	Hashed key for authentication. Specifies an <i>encrypted</i> (hashed) key that follows the encryption type. Supports up to 40 characters.
<code>plain <word></code>	Plaintext key for authentication. Specifies an <i>unencrypted</i> plaintext key that follows the encryption type. Supports up to 15 characters.
<code><key value></code>	The key value in the format matching either md5 plain hash , above.

Defaults

None

Command Modes

Configuration.

Usage Guidelines

Use the **ntp authentication-key** command to set up a time source with an authentication key for NTP authentication and specify its pertinent key identifier, key encryption type, and key value settings. Add this key to the trusted list before you add this key to the **ntp server** command.

Time sources without the NTP authentication keys that are added to the trusted list will not be synchronized.

Examples

```
/admin# configure
/admin(config)#
/admin(config)# ntp authentication-key 1 md5 plain SharedWithServe
/admin(config)# ntp authentication-key 2 md5 plain SharedWithServ
/admin(config)# ntp authentication-key 3 md5 plain SharedWithSer
```



Note The **show running-config** command will always show keys that are entered in Message Digest 5 (MD5) plain format converted into hash format for security. For example, **ntp authentication-key 1 md5 hash ee18afc7608ac7ecdbeefc5351ad118bc9ce1ef3**.

```
/admin(config)# no ntp authentication-key 3
(Removes authentication key 3.)
```

```
/admin(config)# no ntp authentication-key
(Removes all authentication keys.)
```

Related Commands

Command	Description
ntp	The command to specify NTP configuration.
ntp authenticate	Enables authentication of all time sources.
ntp server	Allows synchronization of the software clock by the NTP server for the system.
ntp trusted-key	Specifies key numbers for trusted time sources that needs to be defined as NTP authentication keys.
show ntp	Displays the status information about the NTP associations.

ntp server

To allow for software clock synchronization by the NTP server for the system, use the **ntp server** command in Configuration mode. Allows up to three servers each with a key in a separate line. The key is an optional parameter but the key is required for NTP authentication. The Cisco CDA always requires a valid and reachable NTP server.

Although key is an optional parameter, it must be configured if you need to authenticate an NTP server.

To disable this capability, use the **no** form of this command only when you want to remove an NTP server and add another one.

```
ntp server {ip-address | hostname} key <peer key number>
```

Syntax Description

<code>ntp</code>	The command to specify NTP configuration.
<code>server</code>	Allows the system to synchronize with a specified server.
<code><i>ip-address</i> <i>hostname</i></code>	IP address or hostname of the server providing the clock synchronization. Arguments are limited to 255 alphanumeric characters.
<code><i>key</i></code>	(Optional) Peer key number. Supports up to 65535 numeric characters. This key needs to be defined with a key value, by using the ntp authentication-key command, and also needs to be added as a trusted-key by using the ntp trusted-key command. For authentication to work, the key and the key value should be the same as that which is defined on the actual NTP server.

Defaults

No servers are configured by default.

Command Modes Configuration.

Usage Guidelines Use this **ntp server** command with a trusted key if you want to allow the system to synchronize with a specified server.

The key is optional, but it is required for NTP authentication. Define this key in the **ntp authentication-key** command first and add this key to the **ntp trusted-key** command before you can add it to the **ntp server** command.

The **show ntp** command displays the status of synchronization. If none of the configured NTP servers are reachable or not authenticated (if NTP authentication is configured), then this command displays synchronization to local with the least stratum. If an NTP server is not reachable or is not properly authenticated, then its reach as per this command statistics will be 0.

To define an NTP server configuration and authentication in the Cisco CDA admin user interface, see the System Time and NTP Server Settings section in the *Cisco Identity Services Engine User Guide, Release 1.1.1*.



Note

This command gives conflicting information during the synchronization process. The synchronization process can take up to 20 minutes to complete.

Examples

Example 1

```
/admin(config)# ntp server ntp.esl.cisco.com key 1
% WARNING: Key 1 needs to be defined as a ntp trusted-key.
/admin(config)#
/admin(config)# ntp trusted-key 1
% WARNING: Key 1 needs to be defined as a ntp authentication-key.
/admin(config)#
/admin(config)# ntp authentication-key 1 md5 plain SharedWithServe
/admin(config)#

/admin(config)# ntp server ntp.esl.cisco.com 1
/admin(config)# ntp server 171.68.10.80 2
/admin(config)# ntp server 171.68.10.150 3
/admin(config)#
/admin(config)# do show running-config
Generating configuration...
!
hostname cda
!
ip domain-name cisco.com
!
interface GigabitEthernet 0
  ip address 172.21.79.246 255.255.255.0
  ipv6 address autoconfig
!
ip name-server 171.70.168.183
!
ip default-gateway 172.21.79.1
!
clock timezone UTC
!
ntp authentication-key 1 md5 hash ee18afc7608ac7ecdbefc5351ad118bc9ce1ef3
ntp authentication-key 2 md5 hash f1ef7b05c0d1cd4c18c8b70e8c76f37f33c33b59
ntp authentication-key 3 md5 hash ee18afc7608ac7ec2d7ac6d09226111dce07da37
ntp trusted-key 1
```

```

ntp trusted-key 2
ntp trusted-key 3
ntp authenticate
ntp server ntp.esl.cisco.com key 1
ntp server 171.68.10.80 key 2
ntp server 171.68.10.150 key 3
!
--More--
/admin# show ntp
Primary NTP   : cd-acs-ntp.cisco.com

synchronised to local net at stratum 11
  time correct to within 448 ms
  polling server every 64 s

      remote          refid          st t when poll reach  delay  offset  jitter
=====
*127.127.1.0        .LOCL.             10 l  46  64  37  0.000  0.000  0.001
171.68.10.80        .RMOT.             16 u  46  64   0  0.000  0.000  0.000
171.68.10.150       .INIT.             16 u  47  64   0  0.000  0.000  0.000

```

Warning: Output results may conflict during periods of changing synchronization.

```
/admin#
```

Related Commands

Command	Description
ntp	The command to specify NTP configuration.
ntp authenticate	Enables authentication of all time sources.
ntp authentication-key	Configures authentication keys for trusted time sources.
ntp trusted-key	Specifies key numbers for trusted time sources that needs to be defined as NTP authentication keys.
show ntp	Displays the status information about the NTP associations.

ntp trusted-key

To add a time source to the trusted list, use the **ntp trusted-key** command with a unique identifier. To disable this capability, use the **no** form of this command.

```
ntp trusted-key <key>
```

Syntax Description

<code>ntp</code>	The command to specify NTP configuration.
<code>trusted-key</code>	The identifier that you want to assign to this key.
<code>key</code>	Specifies key numbers for trusted time sources that needs to be defined as NTP authentication keys. Supports up to 65535 numeric characters.

Defaults

None

Command Modes

Configuration.

Usage Guidelines

Define this key as an NTP authentication key and then add this key to the trusted list before you add this key to an NTP server. Keys that are added to the trusted list can only be used that allows synchronization by the NTP server with the system.

Examples

```
/admin# configure
/admin(config)#
/admin(config)# ntp trusted-key 1
/admin(config)# ntp trusted-key 2
/admin(config)# ntp trusted-key 3

/admin(config)# no ntp trusted-key 2
(Removes key 2 from the trusted list.)

/admin(config)# no ntp trusted-key
(Removes all keys from the trusted list.)
```

Related Commands

Command	Description
ntp	The command to specify NTP configuration.
ntp authenticate	Enables authentication of all time sources.
ntp authentication-key	Configures authentication keys for trusted time sources.
ntp server	Allows synchronization of the software clock by the NTP server for the system.
show ntp	Displays the status information about the NTP associations.

password-policy

To enable or configure the passwords on the system, use the **password-policy** command in Configuration mode. To disable this function, use the **no** form of this command.

password-policy *option*

**Note**

The **password-policy** command requires a policy option (see Syntax Description). You must enter the **password-expiration-enabled** command before the other password-expiration commands.

Syntax Description

password-policy	The command to configure the password policy.
-----------------	---

**Note**

After you enter the **password-policy** command, you can enter the config-password-policy configuration submenu.

digit-required	Requires a digit in the password.
disable-repeat-characters	Disables the ability of the password to contain more than four identical characters.

disable-cisco-password	Disables the ability to use the word Cisco or any combination as the password.
do	Exec command.
end	Exit from configure mode.
exit	Exit from this submode.
lower-case-required	Requires a lowercase letter in the password.
min-password-length	Specifies a minimum number of characters for a valid password. Integer length from 0 to 4,294,967,295.
no	Negate a command or set its defaults.
no-previous-password	Prevents users from reusing a part of their previous password.
no-username	Prohibits users from reusing their username as a part of a password.
password-expiration-days	Number of days until a password expires. Integer length from 0 to 80.
password-expiration-enabled	Enables password expiration. Note You must enter the password-expiration-enabled command before the other password-expiration commands.
password-expiration-warning	Number of days before expiration that warnings of impending expiration begin. Integer length from 0 to 4,294,967,295.
password-lock-enabled	Locks a password after several failures.
password-lock-retry-count	Number of failed attempts before password locks. Integer length from 0 to 4,294,967,295.
upper-case-required	Requires an uppercase letter in the password.
special-required	Requires a special character in the password.

Defaults No default behavior or values.

Command Modes Configuration

Usage Guidelines None.

Examples

```

/admin(config)# password-policy
/admin(config-password-policy)# password-expiration-days 30
/admin(config-password-policy)# exit
/admin(config)#

```

repository

To enter the repository submode for configuration of backups, use the **repository** command in Configuration mode.

repository *repository-name*

Syntax Description

repository	The command to configure the repository.
<i>repository-name</i>	Name of repository. Supports up to 80 alphanumeric characters.

**Note**

After you enter the name of the repository in the **repository** command, you enter the config-Repository configuration submode (see the Syntax Description).

do	EXEC command. Allows you to perform any of the EXEC commands in this mode (see the “do” section on page 4-87).
end	Exits the config-Repository submode and returns you to the EXEC mode.
exit	Exits this mode.
no	Negates the command in this mode. Two keywords are available: <ul style="list-style-type: none"> url—Repository URL. user—Repository username and password for access.
url	URL of the repository. Supports up to 80 alphanumeric characters (see Table 4-17).
user	Configure the username and password for access. Supports up to 30 alphanumeric characters.

Table 4-17 URL Keywords

Keyword	Source of Destination
<i>word</i>	Enter the repository URL, including server and path information. Supports up to 80 alphanumeric characters.
cdrom:	Local CD-ROM drive (read only).
disk:	Local storage. You can run the show repository repository_name to view all the files in the local repository. Note All local repositories are created on the /localdisk partition. When you specify disk:// in the repository URL, the system creates directories in a path that is relative to /localdisk. For example, if you entered disk://backup , the directory is created at /localdisk/backup.
ftp:	Source or destination URL for an FTP network server. Use url ftp://server/path ¹ .
nfs:	Source or destination URL for an NFS network server. Use url nfs://server:path ¹ .
sftp:	Source or destination URL for an SFTP network server. Use url sftp://server/path ¹ .
tftp:	Source or destination URL for a TFTP network server. Use url tftp://server/path ¹ . Note You cannot use a TFTP repository for performing a Cisco CDA upgrade.

1. Server is the server name and path refers to /subdir/subsubdir. Remember that a colon (:) is required after the server for an NFS network server.

Defaults No default behavior or values.

Command Modes Configuration

Usage Guidelines When configuring **url sftp:** in the submode, you must provide the host-key under repository configuration through CLI and the RSA fingerprint is added to the list of SSH known hosts.

To disable this function, use the **no** form of **host-key host** command in the submode.

Cisco CDA displays the following warning when you configure a secure ftp repository in the administration user interface in Administration > System > Maintenance > Repository > Add Repository.

The host key of the SFTP server must be added through the CLI by using the host-key option before this repository can be used.

A corresponding error is thrown in the Cisco ADE logs when you try to back up into a secure FTP repository without configuring the host-key.

Example 1

```
/admin# configure terminal
/admin(config)# repository myrepository
/admin(config-Repository)# url sftp://cda
/admin(config-Repository)# host-key host cda
host key fingerprint added
# Host cda found: line 1 type RSA
2048 f2:e0:95:d7:58:f2:02:ba:d0:b8:cf:d5:42:76:1f:c6 cda (RSA)

/admin(config-Repository)# exit
/admin(config)# exit
/admin#
```

Related Commands

Command	Description
backup	Performs a backup (Cisco CDA and Cisco ADE OS) and places the backup in a repository.
restore	Performs a restore and takes the backup out of a repository.
show backup history	Displays the backup history of the system.
show repository	Displays the available backup files located on a specific repository.

service

To specify a service to manage, use the **service** command in Configuration mode. To disable this function, use the **no** form of this command.

service *sshd*

Syntax Description

service	The command to specify a service to be managed.
sshd	Secure Shell Daemon. The daemon program for SSH.

Defaults No default behavior or values.

Command Modes Configuration

Usage Guidelines None.

Examples

```
/admin(config)# service sshd
/admin(config)#
```

shutdown

To shut down an interface, use the **shutdown** command in the interface configuration mode. To disable this function, use the **no** form of this command.

Syntax Description No arguments or keywords.

Defaults No default behavior or values.

Command Modes Interface Configuration

Usage Guidelines When you shut down an interface using this command, you lose connectivity to the Cisco CDA appliance through that interface (even though the appliance is still powered on). However, if you have configured the second interface on the appliance with a different IP and have not shut down that interface, you can access the appliance through that second interface.

To shut down an interface, you can also modify the `ifcfg-eth[0,1]` file, which is located at `/etc/sysconfig/network-scripts`, using the `ONBOOT` parameter:

- Disable an interface: set `ONBOOT="no"`
- Enable an interface: set `ONBOOT="yes"`

You can also use the **no shutdown** command to enable an interface.

Examples

```
/admin(config)# interface GigabitEthernet 0
/admin(config-GigabitEthernet)# shutdown
```

Related Commands	Command	Description
	interface	Configures an interface type and enters the interface mode.

<code>ip address</code> (interface configuration mode)	Sets the IP address and netmask for the Ethernet interface.
<code>show interface</code>	Displays information about the system IP interfaces.
<code>ip default-gateway</code>	Sets the IP address of the default gateway of an interface.

snmp-server community

To set up the community access string to permit access to the Simple Network Management Protocol (SNMP), use the **snmp-server community** command in Configuration mode. To disable this function, use the **no** form of this command.

snmp-server community *word* **ro**

Syntax Description

<code>snmp-server community</code>	The command to configure the SNMP server.
<i>word</i>	Accessing string that functions much like a password and allows access to SNMP. No blank spaces allowed. Supports up to 255 alphanumeric characters.
<code>ro</code>	Specifies read-only access.

Defaults

No default behavior or values.

Command Modes

Configuration

Usage Guidelines

The **snmp-server community** command requires a community string and the **ro** argument; otherwise, an error occurs.

The SNMP Agent on the Cisco CDA provides read-only SNMP v1 and SNMP v2c access to the following MIBs:

- SNMPv2-MIB
- RFC1213-MIB
- IF-MIB
- IP-MIB
- IP-FORWARD-MIB
- TCP-MIB
- UDP-MIB
- HOST-RESOURCES-MIB
- ENTITY-MIB—Only 3 MIB variables are supported on the ENTITY-MIB:
 - Product ID: entPhysicalModelName
 - Version ID: entPhysicalHardwareRev
 - Serial Number: entPhysicalSerialNumber

- DISMAN-EVENT-MIB
- NOTIFICATION-LOG-MIB
- CISCO-CDP-MIB

Examples

```
/admin(config)# snmp-server community new ro
/admin(config)#
```

Related Commands

Command	Description
snmp-server host	Sends traps to a remote system.
snmp-server location	Configures the SNMP location MIB value on the system.
snmp-server contact	Configures the SNMP contact MIB value on the system.

snmp-server contact

To configure the SNMP contact Management Information Base (MIB) value on the system, use the **snmp-server contact** command in Configuration mode. To remove the system contact information, use the **no** form of this command.

snmp-server contact *word*

Syntax Description

<code>snmp-server contact</code>	The command to identify the contact person for this managed node. Supports up to 255 alphanumeric characters.
<i>word</i>	String that describes the system contact information of the node. Supports up to 255 alphanumeric characters.

Defaults

No default behavior or values.

Command Modes

Configuration

Usage Guidelines

None.

Examples

```
/admin(config)# snmp-server contact Luke
/admin(config)#
```

Related Commands

Command	Description
snmp-server host	Sends traps to a remote system.

Command	Description
snmp-server community	Sets up the community access string to permit access to the SNMP.
snmp-server location	Configures the SNMP location MIB value on the system.

snmp-server host

To send SNMP traps to a remote user, use the **snmp-server host** command in Configuration mode. To remove trap forwarding, use the **no** form of this command.

snmp-server host {*ip-address* | *hostname*} **version** {*1* | *2c*} *community*

Syntax Description		
snmp-server host		The command to configure hosts to receive SNMP notifications.
<i>ip-address</i>		IP address of the SNMP notification host. Supports up to 32 alphanumeric characters.
<i>hostname</i>		Name of the SNMP notification host. Supports up to 32 alphanumeric characters.
version { <i>1</i> <i>2c</i> }		(Optional) Version of the SNMP used to send the traps. Default = 1. If you use the version keyword, specify one of the following keywords: <ul style="list-style-type: none"> • <i>1</i>—SNMPv1. • <i>2c</i>—SNMPv2C.
<i>community</i>		Password-like community string that is sent with the notification operation.

Defaults Disabled.

Command Modes Configuration

Usage Guidelines The command takes arguments as listed; otherwise, an error occurs. SNMP traps are not supported.

Examples

```
/admin(config)# snmp-server community new ro
/admin(config)# snmp-server host 209.165.202.129 version 1 password
/admin(config)#
```

Related Commands	Command	Description
	snmp-server community	Sets up the community access string to permit access to SNMP.
	snmp-server location	Configures the SNMP location MIB value on the system.
	snmp-server contact	Configures the SNMP contact MIB value on the system.

snmp-server location

To configure the SNMP location MIB value on the system, use the **snmp-server location** command in Configuration mode. To remove the system location information, use the **no** form of this command.

snmp-server location *word*

Syntax Description	Command	Description
	<code>snmp-server location</code>	The command to configure the physical location of this managed node. Supports up to 255 alphanumeric characters.
	<i>word</i>	String that describes the physical location information of the system. Supports up to 255 alphanumeric characters.

Defaults No default behavior or values.

Command Modes Configuration

Usage Guidelines Cisco recommends that you use underscores (_) or hyphens (-) between the terms within the *word* string. If you use spaces between terms within the *word* string, you must enclose the string in quotation marks (“”).

Examples

Example 1

```
/admin(config)# snmp-server location Building_3/Room_214
/admin(config)#
```

Example 2

```
/admin(config)# snmp-server location "Building 3/Room 214"
/admin(config)#
```

Related Commands	Command	Description
	snmp-server host	Sends traps to a remote system.
	snmp-server community	Sets up the community access string to permit access to SNMP.
	snmp-server contact	Configures the SNMP location MIB value on the system.

username

To add a user who can access the Cisco CDA appliance using SSH, use the **username** command in Configuration mode. If the user already exists, the password, the privilege level, or both change with this command. To delete the user from the system, use the **no** form of this command.

username *username* **password** {**hash** | **plain**} *password* **role** {**admin** | **user**} [**disabled** [**email** *email-address*]] [**email** *email-address*]

For an existing user, use the following command option:

```
username username password role {admin | user} password
```

Syntax Description		
<code>username</code>		The command to create a user to access the Cisco CDA appliance using SSH.
<code><i>username</i></code>		Only one word for the username argument. Blank spaces and quotation marks (“”) are not allowed. Supports up to 31 alphanumeric characters.
<code>password</code>		The command to use specify password and user role.
<code><i>password</i></code>		Password character length up to 40 alphanumeric characters. You must specify the password for all new users.
<code>hash plain</code>		Type of password. Supports up to 34 alphanumeric characters.
<code>role admin user</code>		Sets the privilege level for the user.
<code>disabled</code>		Disables the user according to the user’s email address.
<code>email <i>email-address</i></code>		The user’s email address. For example, <i>user1@mydomain.com</i> .

Defaults The initial user during setup.

Command Modes Configuration

Usage Guidelines The **username** command requires that the username and password keywords precede the hash | plain and the admin | user options.

Examples

Example 1

```
/admin(config)# username admin password hash ##### role admin
/admin(config)#
```

Example 2

```
/admin(config)# username admin password plain Secr3tp@swd role admin
/admin(config)#
```

Example 3

```
/admin(config)# username admin password plain Secr3tp@swd role admin email
admin123@mydomain.com
/admin(config)#
```

Related Commands	Command	Description
	password-policy	Enables and configures the password policy.
	show users	Displays a list of users and their privilege level. It also displays a list of logged-in users.



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