



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

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# Preface

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**Revised: February 5, 2014, 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 CDA application. In addition, it describes how to install the CDA application, including the requirement on Active Directory to allow a successful connection with CDA.

The 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 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 latest patch for CDA 1.0.

CDA patches introduce new functionality and it is recommended to install the latest patch. If you do not install the latest patch for CDA, the functional aspects described in [What's New in Cisco CDA](#) section of this guide will not be applicable.

## 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
<a href="#">Chapter 1, “Context Directory Agent Overview”</a>	Provides an overview of the Cisco Context Directory Agent.
<a href="#">Chapter 2, “Installing the Cisco Context Directory Agent”</a>	Provides details about how to install your Cisco Context directory Agent software, how to migrate from Cisco AD Agent to CDA.
<a href="#">Chapter 3, “Working with Context Directory Agent”</a>	Provides step-by-step procedure on how to work with and use the Cisco Context Directory Agent.
<a href="#">Chapter 4, “CDA Command Reference”</a>	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 15, 2014	Added and updated the following sections: <ul style="list-style-type: none"><li>• <a href="#">Domain Controller Log Forwarding</a>, page 4</li><li>• <a href="#">Receiving Network Login Information from ISE and ACS</a>, page 4</li><li>• <a href="#">List of Open Ports</a>, page 3</li><li>• <a href="#">Importing Active Directory Servers</a>, page 8</li><li>• <a href="#">Adding and Editing Syslog Servers/Clients</a>, page 11</li><li>• <a href="#">Sending and Receiving Syslog Messages</a>, page 11</li><li>• <a href="#">Configuring ISE to Forward User Login Events to CDA</a>, page 13</li></ul>
Feb, 2013	Updated the following sections: <ul style="list-style-type: none"><li>• <a href="#">Scope</a>, page ix</li><li>• <a href="#">Active Directory Domain Controller Machines</a>, page 4</li><li>• <a href="#">Supported Active Directory Versions</a>, page 2</li><li>• <a href="#">Active Directory Requirements for Successful Connection with CDA</a>, page 4</li><li>• <a href="#">Adding and Editing Active Directory Servers</a>, page 6</li><li>• <a href="#">Active Directory General Settings</a>, page 10</li></ul>
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](http://Cisco.com) for any updates.

## Release-Specific Documentation

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

**Table 2**      **Product Documentation for Cisco Context Directory Agent, 1.0,**

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

## 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](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](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](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.



# What's New in Cisco CDA

**Revised: February 5, 2014, OL-26299-01**

This section describes new features, updates, and changes that have been added to the Cisco Context Directory Agent (CDA).

**Table 1** *New in CDA 1.0, Patch 1*

Feature	Location
Windows 2012 support	<a href="#">Supported Active Directory Versions, page 2</a>
NTLMv2 support	<a href="#">Table 2-4, “Supported Authentication Types Based on CDA and AD NTLM Version Settings”</a>
Configuration of permissions required when an Active Directory user is not a member of the domain admin group	<ul style="list-style-type: none"><li>• <a href="#">Permissions Required when an Active Directory User is a Member of the Domain Admin Group, page 7</a></li><li>• <a href="#">Permissions Required when an Active Directory User is Not a Member of the Domain Admin Group, page 8.</a></li></ul>

**Table 2** *New in CDA 1.0, Patch 2*

Feature	Location
Connect to Cisco ISE or Cisco Secure ACS	<ul style="list-style-type: none"><li>• <a href="#">Receiving Network Login Information from ISE and ACS, page 4</a></li><li>• <a href="#">Sending and Receiving Syslog Messages, page 11</a></li><li>• <a href="#">Configuring ISE to Forward User Login Events to CDA, page 13</a></li></ul>
Import Active Directory server from the user interface	<a href="#">Importing Active Directory Servers, page 8</a>





# Context Directory Agent Overview

Unlike traditional security mechanisms, Cisco's security gateways such as ASA-CX, WSA, ASA and the Cloud-based CWS service, provide security to networks based on the context of the entity requiring access. While traditional network and content security gateways used to rely on the entity's IP Address only to determine if it should pass the security gateway or not, today's Cisco products allow to take into account much additional information, and make decisions based on the complete context of the network entity, such as the user currently using it, what operating system it uses, what location is it in, and so on. Security administrators write policies using reference to this context, and when network traffic hits the security gateway, it needs to check what is the context of the originating (and sometimes, also the destined) IP Address.

Cisco Context Directory Agent (CDA) is a mechanism that maps IP Addresses to usernames in order to allow security gateways to understand which user is using which IP Address in the network, so those security gateways can now make decisions based on those users (or the groups to which the users belong to).

CDA 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 consumer devices.

Starting with patch 2, CDA can now receive information from Cisco Identity Services Engine (ISE) and Cisco Secure Access Control Server (ACS) machines about 802.1x network logins, in order to map users that do not directly login into Active Directory. CDA acts as a syslog server, receiving syslog messages from ISE and ACS, and populates the mapping table using network login information derived from ISE and ACS.

Consumer devices, such as the Cisco Adaptive Security Appliance (ASA) and the Cisco IronPort Web Security Appliance (WSA), interact with the 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**—CDA can respond to an on-demand query from the consumer device for a specific mapping.
- **Full Download**—CDA can respond to a request from the consumer device for the entire set of mappings currently in its cache.

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

For example, when a consumer device requests a basic on-demand query, 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 CDA is the same as before and if, at a later point in time, that specific mapping undergoes a change, then CDA proactively notifies the requesting consumer device (as well as any other consumer devices that have registered for notification) about the change in that specific mapping.

Similarly, when a consumer device requests a basic full download, 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 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 CDA proactively notifies the requesting consumer device (as well as any other consumer 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 CDA can include not only IPv4 addresses, but also IPv6 addresses.

CDA can send logs to one or more syslog servers.

CDA continues to function if any of the Active Directory domain controllers or the consumer devices have failed. It obtains information from other domain controllers. However, there is no failover for CDA. 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](#)

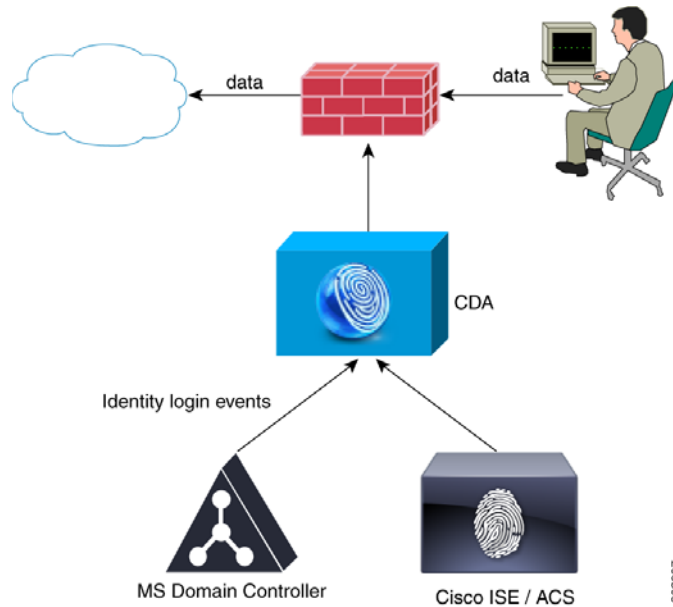
## Functional Overview

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

In this example, CDA learns about the user either from the authentication that occurred in the domain controller, or by the authentication performed by ISE that grants network access to the user. The advantage of integrating CDA with ISE is to allow CDA to provide user information from authentication identity servers, which are different than Active Directory servers.

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



**Figure 1-1 CDA Architecture**

The CDA is responsible for:

- Providing (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 (CDA and domain controllers).
- Maintaining a session directory of IP-to-user-identity mappings.
- Caching the session information.
- Learning the mappings at real time from Microsoft domain controllers, ISE/ACS or ASA VPN. CDA notifies the consumer devices upon user changes.
- Reading historical log data from domain controller to learn about existing IP-to-user-identity mappings.
- Providing configuration mechanism using the user interface to configure CDA, viewing the concurrent mapping list and log events.
- Cleaning expired mappings periodically. Expiration is defined by user logon TTL.

CDA interacts with the following components in a network:

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

## Consumer Device

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

- Retrieving the IP-to-user-identity mappings from CDA.

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

These updates are sent as RADIUS Accounting-Request messages.

**Related Topics:**

- [Active Directory Domain Controller Machines, page 1-4](#)
- [Syslog Servers and Clients, page 1-6](#)

## Active Directory Domain Controller Machines

CDA 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 the latest CDA patch (any future CDA patches would include this functionality as well).

The connection between CDA and the Active Directory domain controller is also authenticated using MS NTLM protocol. CDA patch 2 supports NTLMv1 and NTLMv2.

## Domain Controller Log Forwarding

CDA can receive logs from a domain controller that aggregates logs from other domain controllers. Refer to the Microsoft documentation or contact your system administrator on how to set up log forwarding in your domain.

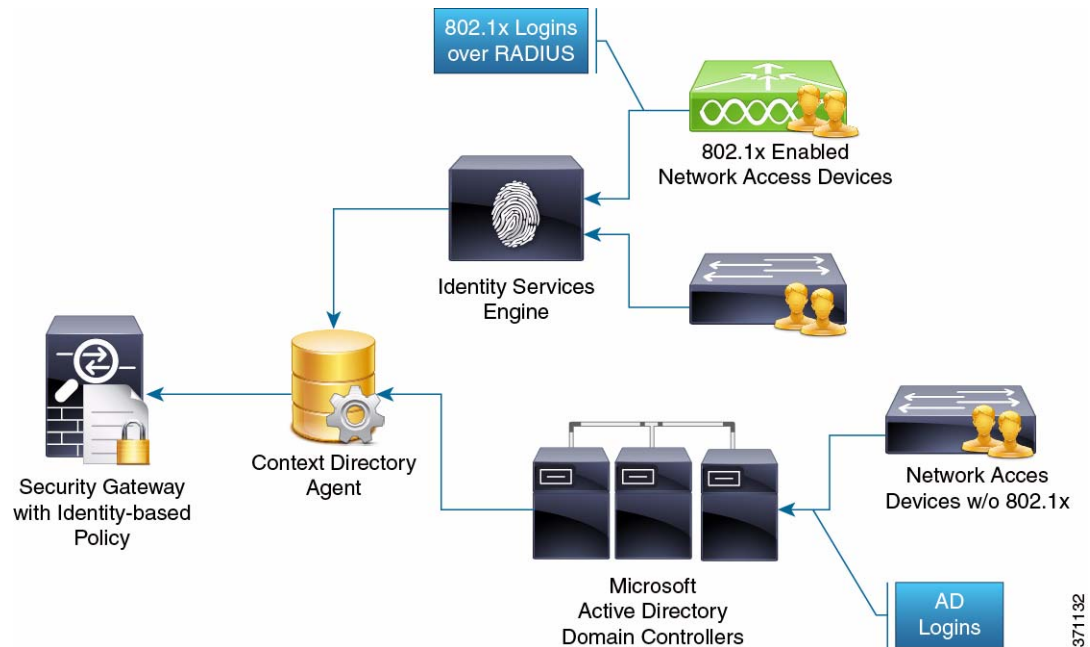
## Receiving Network Login Information from ISE and ACS

Most wireless networks and a large portion of wired network employees today use 802.1x to control who and what can access the network. When a non-AD workstation (such an Apple MacBook or iMac, Android or iOS phone or tablet, or anything that is not running off a domain member) accesses the network, as it does not login to Active Directory, the domain controllers have no trace of its identity. In such cases CDA cannot build an IP to identity map.

Through the interaction with ISE and ACS, CDA can now be aware of the network logins, be it of a domain member or not, and can build an IP Address to identity map of a much larger portion of the network. CDA receives syslog messages from ISE and/or ACS in order to derive which users have logged in to the network, analyzes those messages to extract the username and the IP Address it is using, and inserts this information into the Identity Mapping table.

Figure 1-2 explains how CDA maps both 802.1x login events and non-802.1x AD login events (AD and non-AD.)

**Figure 1-2 Mapping Both AD and Non-AD Events**



This integration allows consumer devices such as ASA-CX and WSA to make security decisions for a large portion of network endpoints, including those that are not domain members. CDA passes the information to the consumer devices in the same format whether the user/domain information was received from a Windows domain controller event log or through integration with ISE/ACS.



**Note**

WSA currently supports deriving user information only about authentications performed by ISE/ACS against an Active Directory domain. WSA does not provide permission to users authenticated against other databases within ISE such as the local user database.

**Related Topics**

- [Sending and Receiving Syslog Messages, page 3-11](#)
- [Adding and Editing Syslog Servers/Clients, page 3-11](#)

## Syslog Servers and Clients

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 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.

CDA can also act as a syslog server when one or more syslog clients are added. It can connect to Cisco Identity Services Engine (ISE) and Cisco Secure Access Control System (ACS) and receive syslog messages.

### Related Topics:

- [Consumer Device, page 1-3](#)
- [Active Directory Domain Controller Machines, page 1-4](#)
- [Adding and Editing Syslog Servers/Clients, page 3-11](#)

## CDA Performance and Scalability

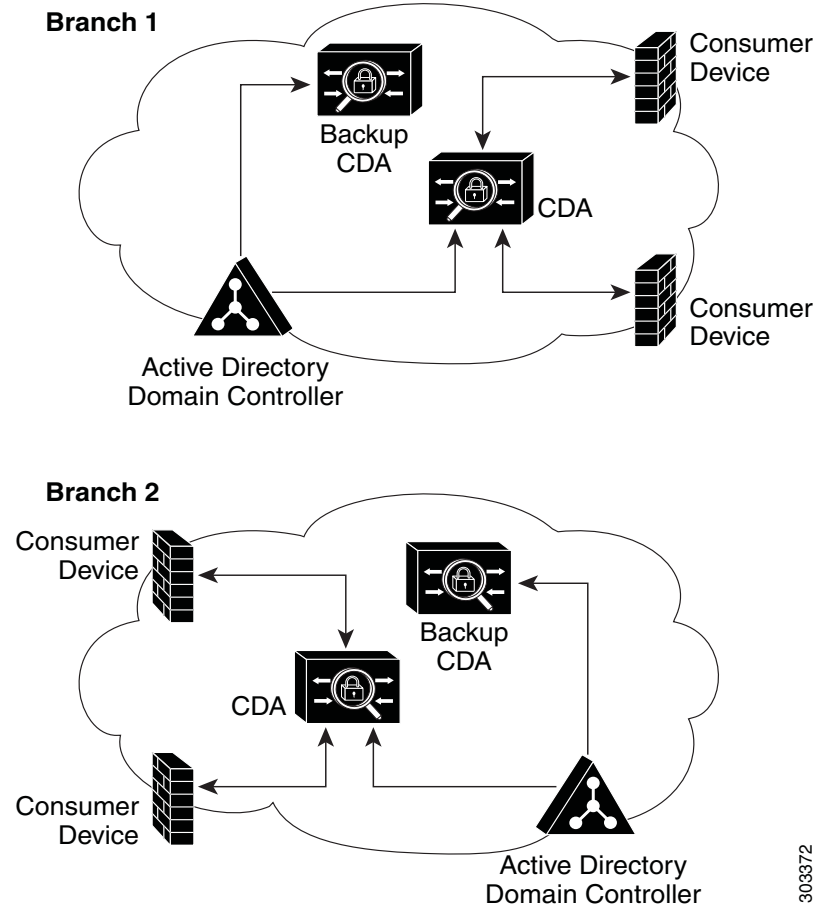
CDA can support up to 80 domain controller machines, and can internally cache up to 64,000 IP-to-user-identity mappings. It supports up to 100 Identity consumer devices. CDA processes 1000 IP-to-user-identity mappings per second (input and output).

CDA is tested to support three Syslog clients (when it acts as a syslog server), twenty administrators, and five concurrent admin user interface sessions.

## CDA Deployment Recommendations

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

- 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 1-3 The Recommended CDA Deployment Type**





## Installing the Cisco Context Directory Agent

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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 consumer devices and Active Directory domain controllers.

This chapter contains the following:

- [Requirements, page 2-1](#)
- [Installing Context Directory Agent, page 2-13](#)
- [Migrating from AD Agent to 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 CDA, page 2-4](#)
- [Active Directory Requirements for Successful Connection with CDA, page 2-4](#)

## Supported Operating Systems

CDA is installed on the Cisco Linux OS it is bundled with. When installing the CDA ISO image on a standalone machine or on a VMWare server, Linux is installed as the OS and 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 CDA, page 2-4](#)

# Supported Active Directory Versions

CDA supports the following Active Directory versions:

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

# Hardware Requirements

The CDA machine must be a separate, dedicated appliance or VMWare.  
 In all cases, a 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 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 CDA, page 2-4](#)



## Connectivity Requirements

For CDA to function properly, it must be able to communicate freely with all the consumer devices, Active Directory domain controller machines from which it should receive logs, and target syslog servers that are configured with it. If log forwarding is being employed, then connectivity is required only between CDA and the aggregating domain controller machines, there is no need to provide connectivity between all domain controller machines and CDA in a centralized log forwarding deployment.

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 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 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 CDA uses for communication with consumer devices. These ports are open by default on CDA.

**Table 2-3** List of Default Open Ports on CDA

Port No.	Protocol	Service	Purpose
22	TCP	The Secure Shell (SSH) Protocol	CDA SSH CLI Administration
80	TCP	HTTP (Web GUI, redirected to HTTPS)	CDA GUI Administration interface (for redirect only)

**Table 2-3** *List of Default Open Ports on CDA*

Port No.	Protocol	Service	Purpose
123	UDP	NTP	Time server
443	TCP	HTTPS (Secure web GUI)	CDA GUI Administration interface
1645	UDP	RADIUS	CDA and device consumer (ASA/WSA) interface
1646	UDP	RADIUS	CDA and device consumer (ASA/WSA) interface
1812	UDP	RADIUS	CDA and device consumer (ASA/WSA) interface
1813	UDP	RADIUS Accounting	CDA and device consumer (ASA/WSA) interface
514	UDP	Syslog	CDA and ISE/ACS interface
1468	TCP	Syslog	CDA and ISE/ACS interface
6514	SSL	SSL Syslog	CDA and ISE/ACS interface

The ports mentioned in [Table 2-3](#) should be open to establish proper communication between CDA and ASA or WSA.

The following ports are open for internal communication between 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 CDA

CDA leverages Active Directory login audit events generated by the Active Directory domain controller to gather user logins information. In order for CDA to work appropriately, CDA needs to be able to connect to Active Directory and fetch the user logins information.

The following steps should be performed 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 runs 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 to establish successful connection with the domain controller (CDA administrator can experience it in CDA Active Directory domain controller GUI page, where the status need to be "up" once the connection establishes successfully).

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

This patch fixes 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 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. In CDA patch 2, 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:
  - [Permissions Required when an Active Directory User is a Member of the Domain Admin Group, page 2-7](#)
  - [Permissions Required when an Active Directory User is Not a Member of the Domain Admin Group, page 2-8](#)
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](#).

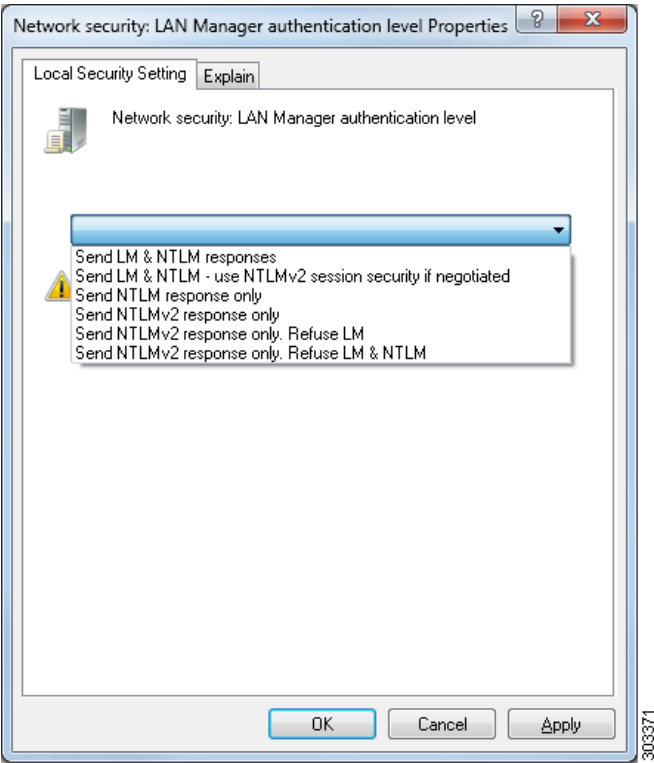
**Table 2-4 Supported Authentication Types Based on CDA and AD NTLM Version Settings**

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

**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 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



- Make sure that you have created a firewall rule to allow traffic to `dllhost.exe` on Active Directory domain controllers.

**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 and expand the navigation tree.
- Step 3** Choose **Default Domain Controller Policy**, right click and choose **Edit**.  
The Group Policy Management Editor appears.
- Step 4** Choose **Default Domain Controllers 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 5** If any **Audit Policy** item settings have been changed, you should then run “**gpupdate /force**” to force the new settings to take effect.
- 

## Permissions 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 keys:

- HKEY\_CLASSES\_ROOT\CLSID\{76A64158-CB41-11D1-8B02-00600806D9B6}
- HKLM\Software\Classes\Wow6432Node\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**.
-

## Permissions 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 CDA to work with a Domain User, certain registry keys should be added manually. These registry changes are required to establish a valid connection between CDA and domain controllers to retrieve the users login authentication events. CDA does not require installation of an agent on the domain controllers or on a machine in the domain.

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.

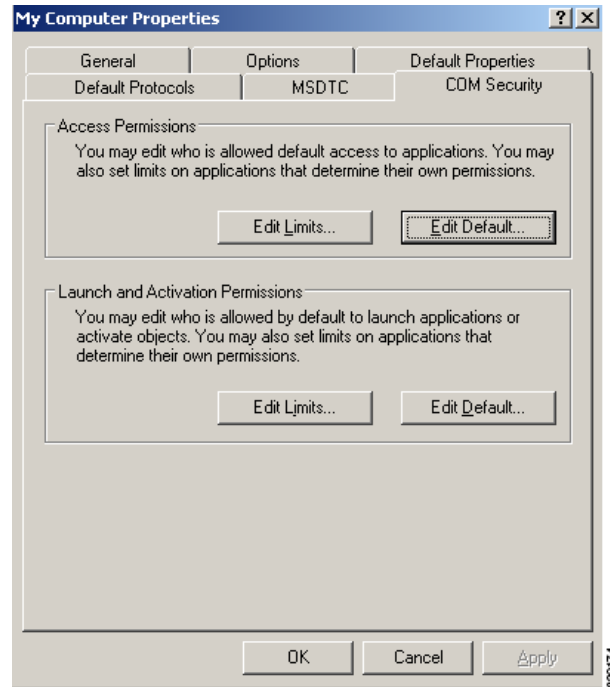
### Permissions to Use DCOM on the Domain Controller

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.

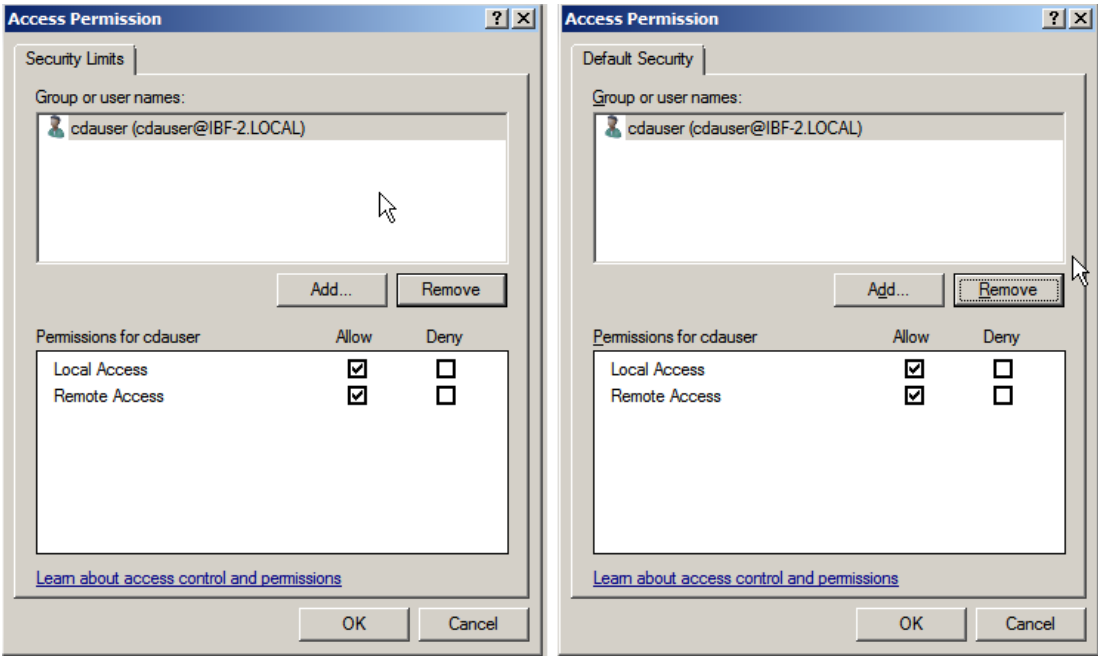
- 
- Step 1** Run the **dcomcnfg** tool from the command line.
  - Step 2** Expand Component Services.
  - Step 3** Expand Computers and click on My Computer.

- 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*

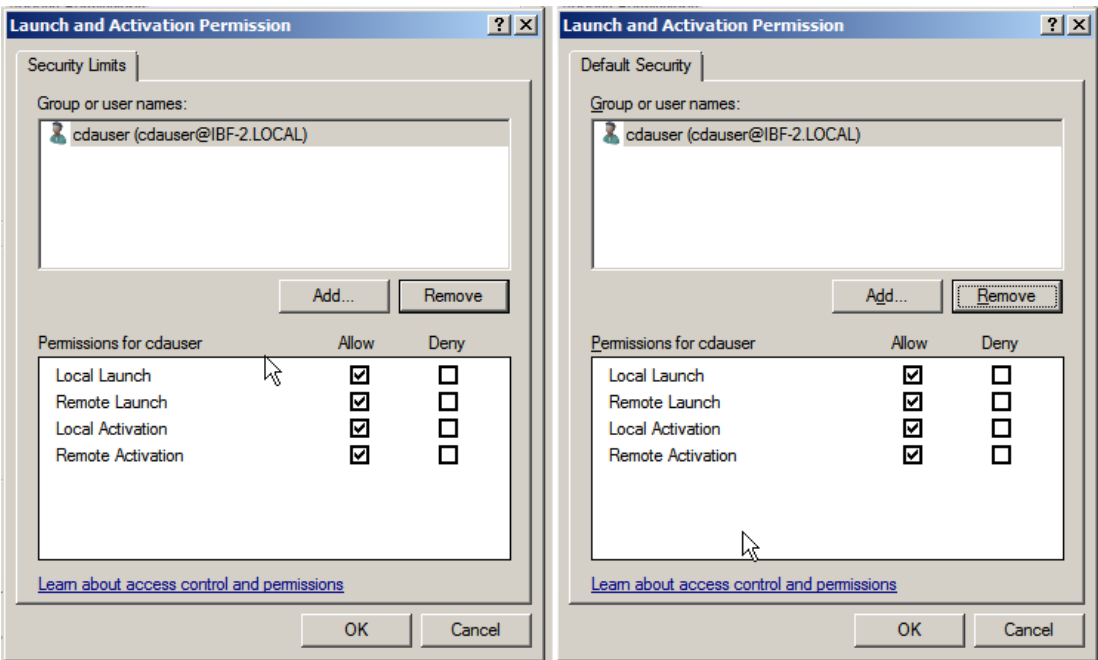


**Figure 2-3** Local and Remote Access for Access Permissions



320182

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



320183

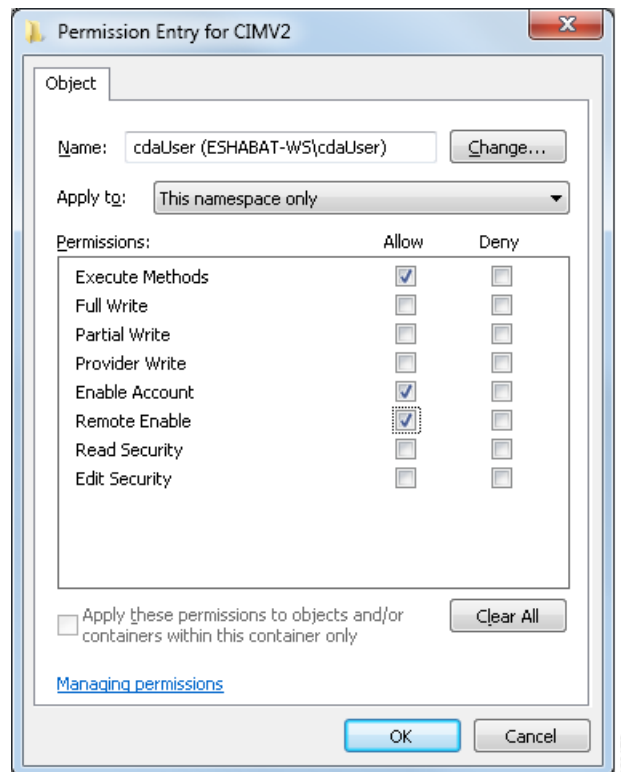
### Permissions to the WMI Root\CIMv2 Name Space

The Active Directory users do not have the Execute Methods and Remote Enable permissions by default. These can be granted by using the wmicmt.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:

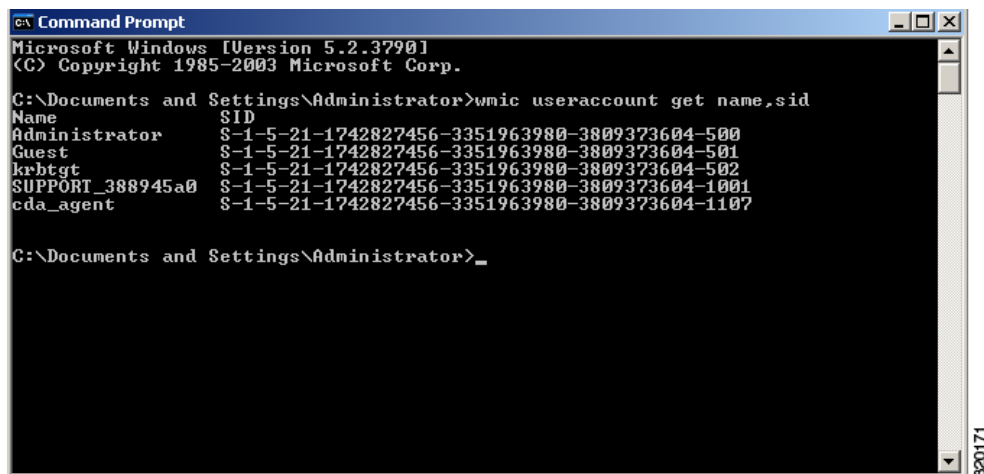
a. Run the following command from the CLI,

```
net stop winmgmt
net start winmgmt.
```

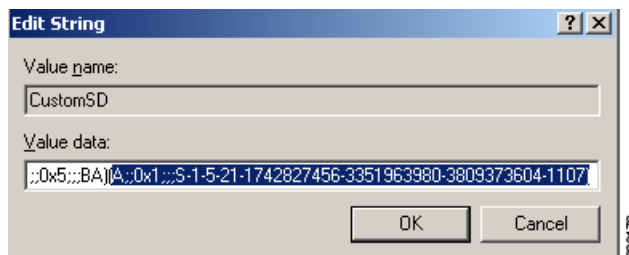
b. Run Services.msc (This opens the Windows Services Management window)

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

**Figure 2-6** List All the SID Accounts



**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.

CDA supports VMWare ESX versions 4.0, 4.1, and 5.0.

If you are installing CDA on a VMWare:

- You must select **Use Guest OS as Linux CentOS 4/5 32 bit**. Misconfiguration of the guest OS might result in very low performance.
- You must select LSI Logic Parallel as the SCSI controller.
- VMWare tools are automatically installed.

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

---

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

**Step 6** You can log in to the 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 CDA user interface and start configuring your 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 CDA, page 2-4](#)

## Installing Context Directory Agent 1.0, Patch 2

You can download and install CDA 1.0, patch 2 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 CDA patch 2 to the repository created.

**Step 3** Install the CDA patch 2, 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 Application Deployment Engine OS Release:
ADE-OS Build Version:
ADE-OS System Architecture: i368

Copyright (c) 2005-2011 by Cisco Systems, Inc.
All right reserved.
Hostname: pmbu-ibf--pip08

Version information of installed applications
-----

Cisco Context Directory Agent
-----
Version      : 1.0.0.011
Build Date   : Tue May  8 15:34:26 2012
Install Date : Tue Jan 17 08:53:18 2014

Cisco Context Directory Agent
-----
Version      : 2
Build number  : NA
Install Date  : Mon Feb  3 09:35:09 2014
```

## Migrating from AD Agent to CDA

CDA is compatible with AD agent. If AD Agent is already deployed in the network, you can replace it by 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 AD Agent to 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 CDA to correspond to your existing AD Agent application.

- Optionally configure the [Active Directory General Settings](#). AD monitoring in the CDA is the equivalent of **dcStatusTime** in AD agent (note that the 10 seconds default in CDA is different from the 60 seconds default in AD agent.)

History in 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 AD agent and CDA with respect to Active Directory security policy setting is applicable only for Windows 2008R2 servers. For 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 6.
- Optionally, configure the Log Level setting in CDA to correspond to **logLevel** in AD Agent.
- Optionally, add any syslog servers from **adacfg syslog list** to CDA.
- Add all Active Directory Servers from **adacfg dc list** to CDA.
- Add all Identity Consumers from **adacfg client list** to CDA.

If you are replacing the AD agent server with the 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 CDA to retrieve identify mapping information.

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



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

## Understanding the CDA User Interface

This section contains:

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

## Supported Browsers

The following browsers are supported with CDA:

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

| Operating System | Supported Browsers                                                                                                              |
|------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Linux            | Firefox versions 9 and 10                                                                                                       |
| Win 7            | Microsoft Internet Explorer versions 8, 9 (in compatibility mode), 10, Firefox versions 9, 11, and 26, Google Chrome version 31 |
| Win XP           | Microsoft Internet Explorer versions 8, Firefox versions 9 and 11                                                               |
| Mac OSX          | Safari version 5.1.5                                                                                                            |

**Related Topics:**

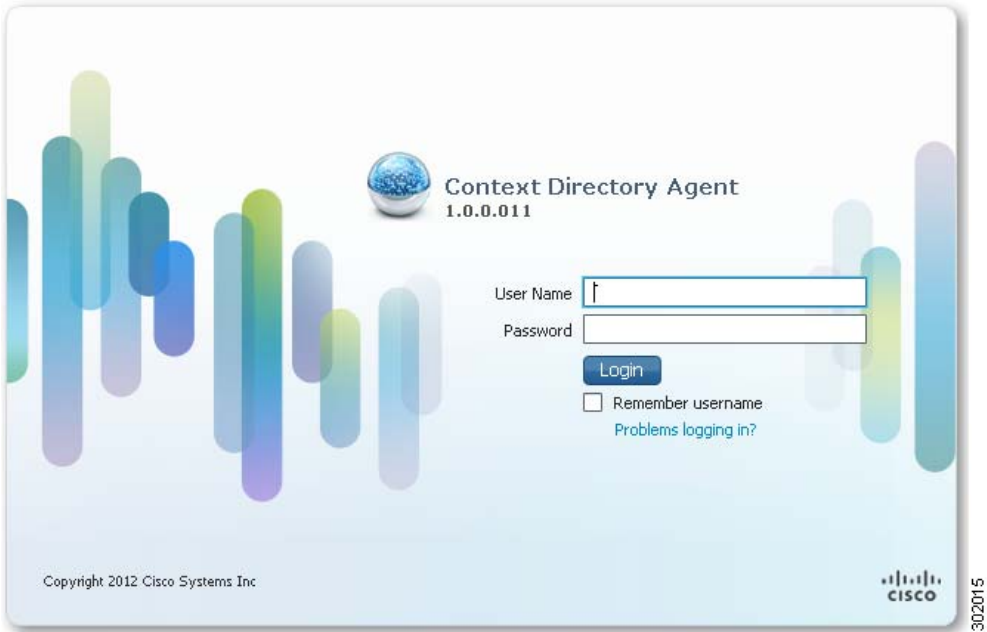
- [Logging into the CDA User Interface, page 3-2](#)
- [CDA Dashboard, page 3-3](#)

# Logging into the CDA User Interface

You can open a web browser and get connected to CDA through the web interface.  
To log in to the CDA user interface, complete the following steps:

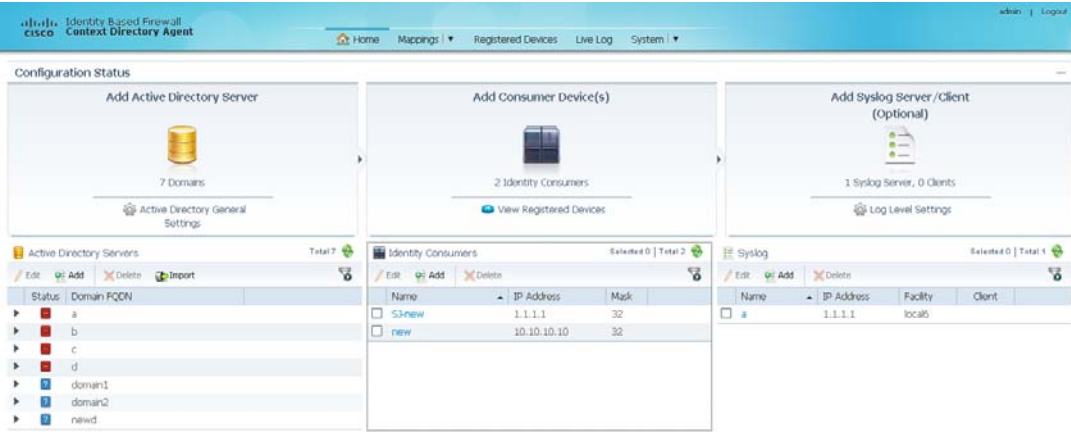
- Step 1** Enter the CDA machine URL in the web browser, https://<ip\_address/hostname>/cda
- Step 2** Enter your user name and password in the CDA login page (Figure 3-1), and click **Login**.

Figure 3-1 CDA Login Page



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

Figure 3-2 CDA Dashboard





## ***REVIEW DRAFT - Cisco Confidential***

### **Related Topics:**

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

## **CDA Dashboard**

The 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 CDA User Interface, page 3-2](#)

## **Working in the CDA User Interface**

This section contains:

- [Consumer Devices, page 3-3](#)
- [Active Directory Servers, page 3-6](#)
- [Sending and Receiving Syslog Messages, page 3-11](#)
- [IP-to-User-Identity Mappings, page 3-16](#)
- [Mapping Filters, page 3-18](#)
- [Registered Devices, page 3-18](#)
- [Administrators, page 3-19](#)
- [Password Policy, page 3-20](#)
- [Session Timeout, page 3-21](#)
- [Live Logs, page 3-21](#)

## **Consumer Devices**

Consumer devices are responsible for actively retrieving (and/or passively receiving) the latest IP-to-user-identity mappings from CDA. You can add, edit or delete network devices. 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 3-5](#)
- [Filtering Consumer Devices, page 3-5](#)

## 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 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 that allows the consumer device to communicate with CDA over RADIUS. 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 CDA. First add the consumer device IP Address or range in CDA, and then configure the device itself to contact 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

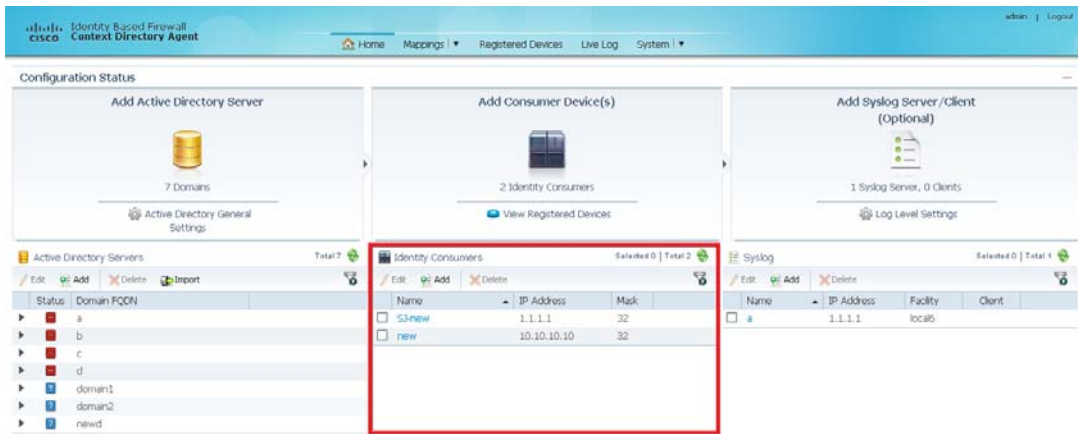
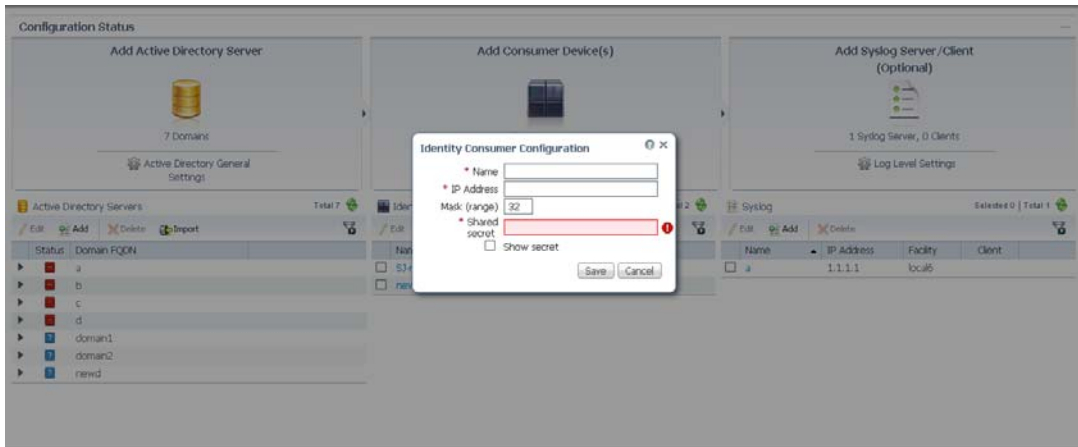


Figure 3-4 Consumer Device Configuration Dialog Box



## ***REVIEW DRAFT - Cisco Confidential***

**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 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 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 3-5](#)
- [Filtering Consumer Devices, page 3-5](#)

## **Deleting Consumer Devices**

It is advised to first configure the consumer device to stop querying CDA before deleting it as a consumer device in CDA. Deleting a consumer device also disallows this device to communicate with CDA as it deletes the security rule that allowed this communication.

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**.

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 3-5](#)

## **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 3-5](#)

## Active Directory Servers

The Active Directory maintains the organization identities and their information. 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 3-6](#)
- [Deleting Active Directory Servers, page 3-9](#)
- [Filtering Active Directory Servers, page 3-10](#)
- [Active Directory General Settings, page 3-10](#)

## Adding and Editing Active Directory Servers

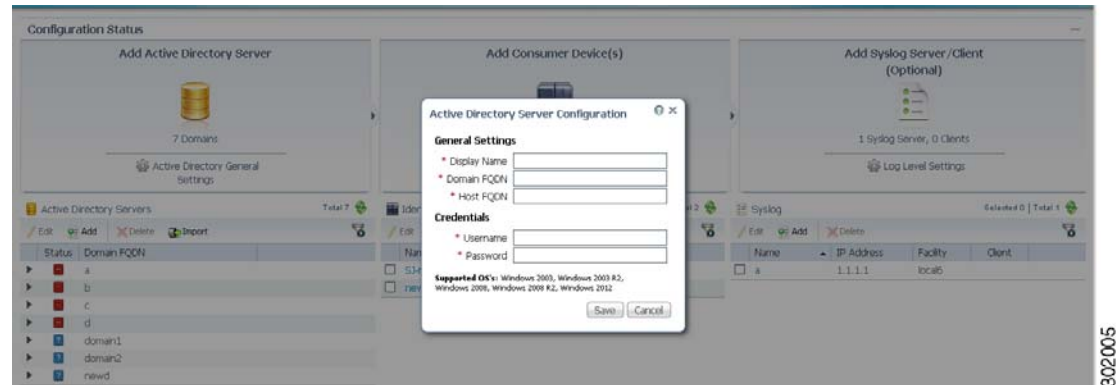
**Prerequisite**

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

**REVIEW DRAFT - Cisco Confidential****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 CDA will use to communicate with the Active Directory server.
  - Password—Password that 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 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:

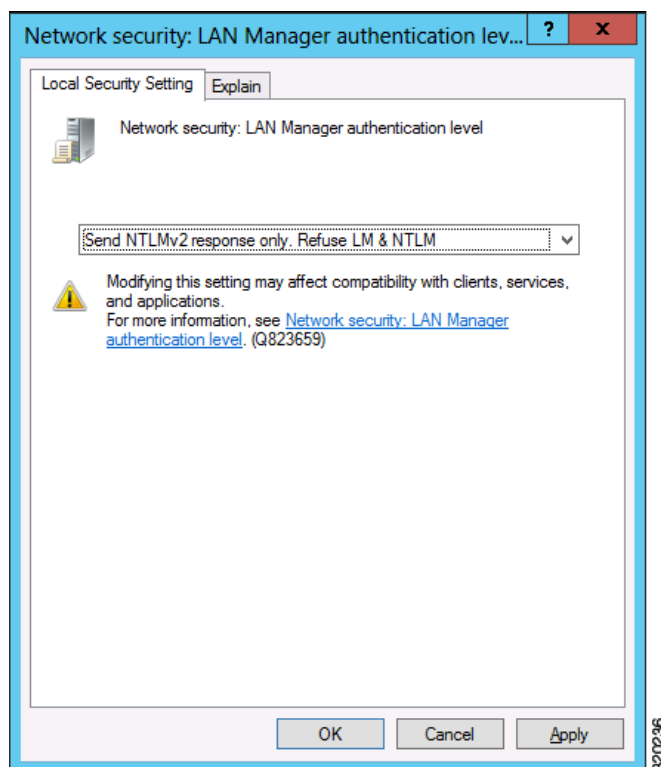
**Step 1** Go to **Start > Administrative Tools > Group Policy Management**

**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 CDA, page 2-4](#)
- [Connectivity Requirements, page 2-3](#)
- [Deleting Active Directory Servers, page 3-9](#)
- [Filtering Active Directory Servers, page 3-10](#)
- [Active Directory General Settings, page 3-10](#)

## Importing Active Directory Servers

You can import Active Directory servers from a .txt or a .csv file.

- 
- Step 1** Click **Import** on the Active Directory Servers dashlet.
- Step 2** Click **Browse** and select the .txt or .csv file from your local system. See [Figure 3-7](#) for a sample .csv import file. You can also right-click the **Generate Template** link on the top right corner to save a sample import file.
- Step 3** Click **Import**. All the active directory servers in the file will be imported. You can see the import result in the Results area ([Figure 3-8](#).) Errors, if any, are also listed in the same area.

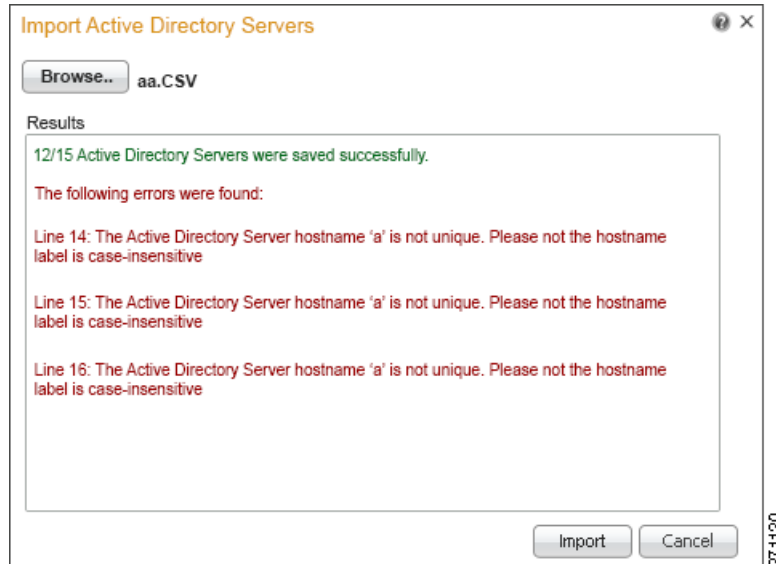
**Note**

The passwords within the import file (.csv or .txt) should be kept unencrypted, and this file should be treated as a sensitive file. Upon import, CDA would store those passwords internally hashed.

**REVIEW DRAFT - Cisco Confidential****Figure 3-7 Sample Import File**

|   | A            | B           | C         | D        | E        | F |
|---|--------------|-------------|-----------|----------|----------|---|
| 1 | Display Name | Domain FQDN | Host FQDN | Username | Password |   |
| 2 | name1        | domain1     | host1     | user1    | pass1    |   |
| 3 | name2        | domain2     | host2     | user2    | pass2    |   |
| 4 |              |             |           |          |          |   |
| 5 |              |             |           |          |          |   |

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**Figure 3-8 Import Result**

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**Related Topics:**

- [Adding and Editing Active Directory Servers, page 3-6](#)
- [Filtering Active Directory Servers, page 3-10](#)
- [Deleting Active Directory Servers, page 3-9](#)
- [Active Directory General Settings, page 3-10](#)

**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**.
- 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 3-6](#)
- [Filtering Active Directory Servers, page 3-10](#)
- [Active Directory General Settings, page 3-10](#)

## 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:

- 
- |               |                                                                                                                                                  |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | Click the filter  icon in the Active Directory Servers dashlet. |
| <b>Step 2</b> | Enter the Domain FQDN of the server.                                                                                                             |
| <b>Step 3</b> | Press <b>Enter</b> .                                                                                                                             |
- 

**Related Topics:**

- [Adding and Editing Active Directory Servers, page 3-6](#)
- [Deleting Active Directory Servers, page 3-9](#)
- [Active Directory General Settings, page 3-10](#)

## Active Directory General Settings

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

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

- 
- |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | Click the <b>Active Directory General Settings</b> link on the Dashboard.<br><br>The Active Directory General Settings dialog box is displayed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Step 2</b> | Fill in the following details: <ul style="list-style-type: none"><li>• <b>AD Monitoring</b>—Time span between consecutive monitoring of the DC machine's up/down status.</li><li>• <b>History</b>—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 <i>10</i>.</li><li>• <b>User Logon Expiration Period</b>—Time duration after which logged-in user is marked as logged-out.</li><li>• <b>Use NTLMv2</b>—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 CDA, patch 2.</li></ul> |

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



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

---

**Related Topics:**

- [Adding and Editing Active Directory Servers, page 3-6](#)
- [Deleting Active Directory Servers, page 3-9](#)
- [Filtering Active Directory Servers, page 3-10](#)

## **Sending and Receiving Syslog Messages**

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 CDA machine.

CDA can also act as a syslog server when one or more syslog clients are added. It can connect to Cisco Identity Services Engine (ISE) and Cisco Secure Access Control System (ACS) and receive syslog messages. You can check live logs to see the syslog messages received. The advantage is to integrate CDA with 802.1x deployment and support other devices that are not necessarily authenticated by Microsoft domain controller.

CDA supports ISE 1.1.x and 1.2 and ACS 5.3, and 5.4 only.

You can add, edit or delete syslog servers or clients.

CDA supports the following three type of syslog messages:

- UDP syslog, where CDA listens for incoming UDP messages from ISE on port 514.
- TCP syslog, where CDA listens for incoming TCP messages from ISE on port 1468.
- Semisecure TCP syslog, where CDA listens for incoming TCP messages from ISE on port 6514. In this case, you should import CDA certificate into ISE certificate store. CDA does not authenticate ISE by its certificate, the certificate is required by ISE to authenticate CDA and for encrypting the syslog content over the TCP connection.

This section contains:

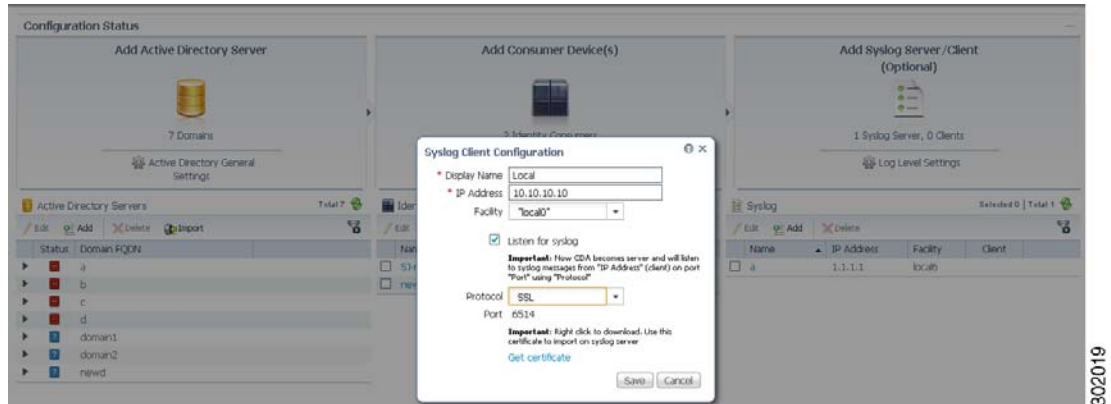
- [Adding and Editing Syslog Servers/Clients, page 3-11](#)
- [Configuring ISE to Forward User Login Events to CDA, page 3-13](#)
- [Deleting Syslog Servers, page 3-14](#)
- [Filtering Syslog Servers, page 3-15](#)
- [Log Level Settings, page 3-15](#)

## **Adding and Editing Syslog Servers/Clients**

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

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

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

**Figure 3-9 Syslog Server/Client Configuration Dialog Box****Step 2** Fill in the following details:

- **Display Name**—Display name of the syslog server/client.
- **IP Address**—IP Address of the syslog server/client.
- **Facility**—Syslog facility.
- **Listen for Syslog**—Check this check box to enable CDA to receive syslog messages from Cisco ISE/ACS.
- **Protocol**—Select the protocol that you want to use. CDA can connect to ISE 1.2 and ACS 5.5 via UDP, TCP and SSL. It can connect to ISE 1.1.x and ACS 5.3/5.4 via UDP only.



**Note** Currently, secure syslog over SSL is used for encryption only and does not authenticate ISE/ACS as certified sender of syslog messages.

- **Port**—This is a display-only field. The port number changes according to the protocol you select.
- **Get Certificate**—Click this to download the security certificate and send it to the ISE server. When you connect CDA with ISE using SSL, you need to be authenticated before the connection is established. To do this, you have to send this security certificate to the ISE server and then import it in to the ISE certificate store, in order to establish a connection.

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

The new sever/client is listed in the Syslog Server/Client dashlet.

For users who are authenticated through ISE against AD, the domain that ISE is joined to is used as the domain name. For users who are authenticated through ISE but not against AD, do not have a domain and “LOCAL” is used as the domain name.

**Related Topics:**

- [Sending and Receiving Syslog Messages, page 3-11](#)
- [Configuring ISE to Forward User Login Events to CDA, page 3-13](#)
- [Deleting Syslog Servers, page 3-14](#)
- [Filtering Syslog Servers, page 3-15](#)

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- [Log Level Settings, page 3-15](#)

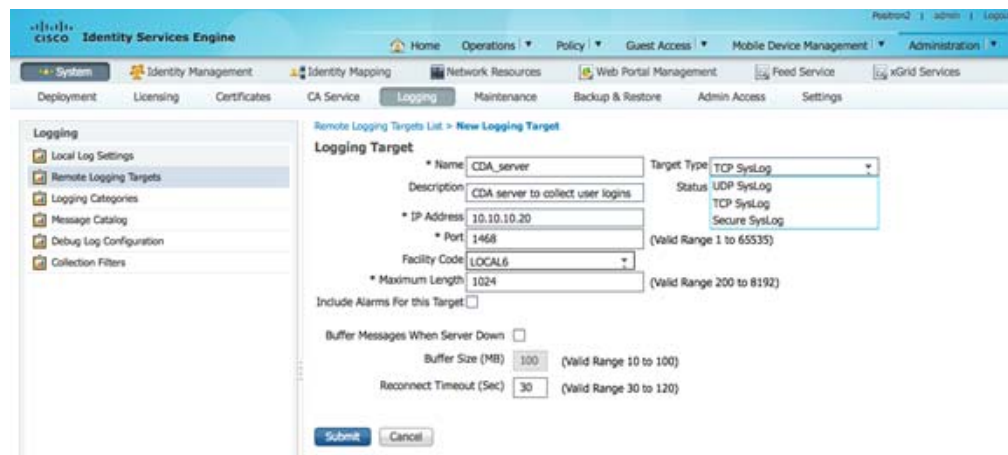
**Configuring ISE to Forward User Login Events to CDA**

In order to setup CDA to receive syslog messages from ISE, you have to set remote log target in ISE, which will forward passed authentication and RADIUS accounting syslog messages to CDA. In CDA you have to setup syslog server that will receive syslog messages from ISE.

The following steps describe the required configuration in ISE and CDA.

- Step 1** Configure a new remote log target in ISE. This log target should be the CDA machine that will receive syslog messages originated by ISE (Figure 3-10.) For more information on how to configure remote log target, see the *Cisco Identity Services Engine User Guide, Release 1.2*.

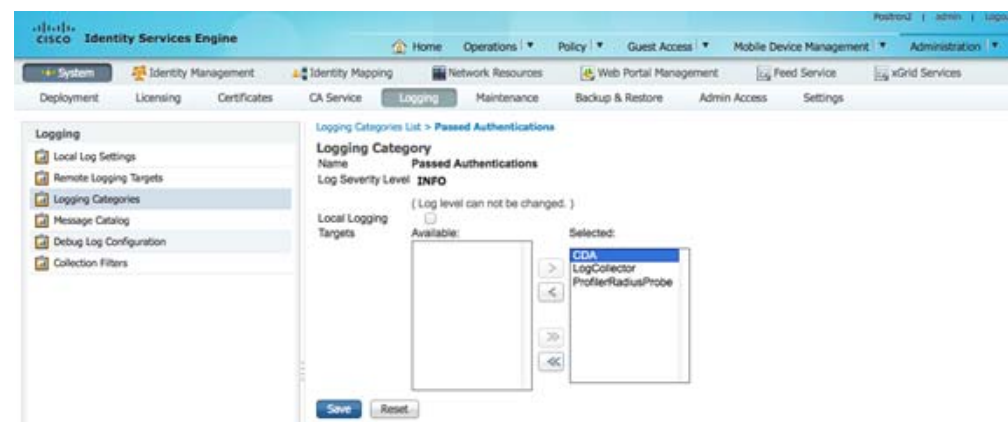
**Figure 3-10** *Configuring Remote Log Target in ISE*



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- Step 2** Configure ISE to forward Passed Authentication syslog messages to CDA (Figure 3-11.) For more information, see *Cisco Identity Services Engine User Guide, Release 1.2*.

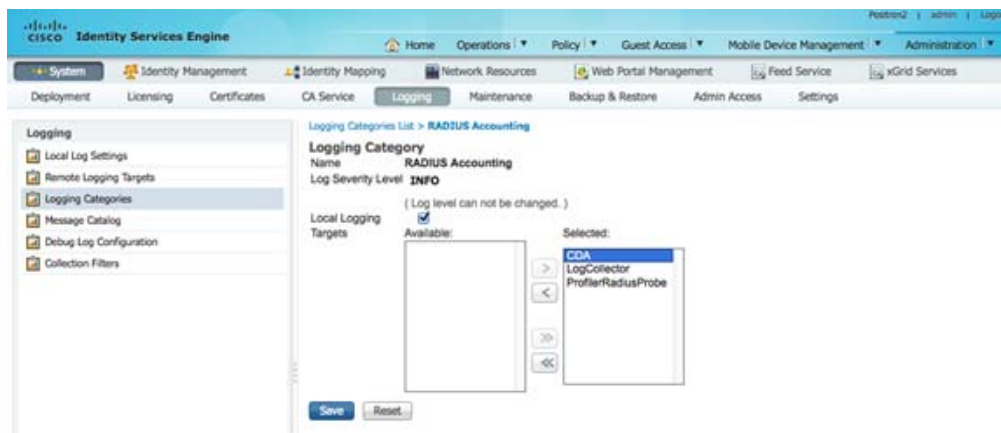
**Figure 3-11** *Configuring ISE to Forward Passed Authentication Syslog Messages*



37-1122

- Step 3** Configure ISE to forward RADIUS Accounting syslog messages to CDA (Figure 3-12.) For more information, see [Cisco Identity Services Engine User Guide, Release 1.2](#).

**Figure 3-12** Configuring ISE to Forward RADIUS Accounting Syslog Messages



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See “Adding and Editing Syslog Servers/Clients” section on page 3-11 for information on how to configure syslog servers in CDA with ISE details. Ensure that when configuring CDA, you check the Listen for Syslog checkbox so messages from ISE are parsed.

#### Related Topic

- [Receiving Network Login Information from ISE and ACS, page 1-4](#)
- [Sending and Receiving Syslog Messages, page 3-11](#)

## 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**.
- CDA will prompt for a confirmation.
- Step 2** Click **OK**.
- The Syslog server is deleted.

#### Related Topics:

- [Adding and Editing Syslog Servers/Clients, page 3-11](#)
- [Filtering Syslog Servers, page 3-15](#)
- [Log Level Settings, page 3-15](#)


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### 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/Clients, page 3-11](#)
- [Deleting Syslog Servers, page 3-14](#)
- [Log Level Settings, page 3-15](#)

### 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 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. CDA provides the following log levels:
- Fatal
  - Error
  - Warning
  - Notice
  - Info
  - Debug
- Step 3** Click **Save**.
- 

#### Related Topics:

- [Adding and Editing Syslog Servers/Clients, page 3-11](#)
- [Deleting Syslog Servers, page 3-14](#)
- [Filtering Syslog Servers, page 3-15](#)

## IP-to-User-Identity Mappings

CDA lists all the currently cached IP-to-user-identity mappings and allows the administrator to refresh, filter and delete the mappings. Figure 3-13 shows the IP-to-user-identity mappings page.

**Figure 3-13** 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.

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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 CDA.

You can create filters and specify user names, IP Addresses or both. 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 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. 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.



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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 CDA. The other fields display information that was provided when the device was configured.

## **Administrators**

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

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

An administrator with both user and admin privileges has access to all the CDA user interface 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**.

- 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 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.
-

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### Session Timeout

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

To configure the session timeout, complete the following steps:

- 
- |               |                                             |
|---------------|---------------------------------------------|
| <b>Step 1</b> | Choose <b>System &gt; Session Timeout</b>   |
|               | The Session Timeout page appears.           |
| <b>Step 2</b> | Enter the Session timeout value in minutes. |
| <b>Step 3</b> | Click <b>Save</b> .                         |
- 

### Live Logs

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

CDA live logs list the following messages:

- syslog Server Messages (when CDA is connected as a syslog server)
- 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

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 CDA:

|                                                                                   |         |
|-----------------------------------------------------------------------------------|---------|
|  | Debug   |
|  | Info    |
|  | Notice  |
|  | Warning |
|  | Error   |
|  | Fatal   |

### Verbosity Levels

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.
-

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### **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.





## CDA Command Reference

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This chapter contains an alphabetical listing of the commands specific to the Cisco Context Directory Agent (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 CDA server uses the name *CDA* in place of the 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"> <li>• <a href="#">application install</a></li> <li>• <a href="#">application remove</a></li> <li>• <a href="#">application reset-config</a></li> <li>• <a href="#">application reset-passwd</a></li> <li>• <a href="#">application start</a></li> <li>• <a href="#">application stop</a></li> <li>• <a href="#">application upgrade</a></li> <li>• <a href="#">backup</a></li> <li>• <a href="#">backup-logs</a></li> <li>• <a href="#">clock</a></li> <li>• <a href="#">configure</a></li> <li>• <a href="#">copy</a></li> <li>• <a href="#">debug</a></li> </ul> | <ul style="list-style-type: none"> <li>• <a href="#">delete</a></li> <li>• <a href="#">dir</a></li> <li>• <a href="#">exit</a></li> <li>• <a href="#">forceout</a></li> <li>• <a href="#">halt</a></li> <li>• <a href="#">help</a></li> <li>• <a href="#">mkdir</a></li> <li>• <a href="#">nslookup</a></li> <li>• <a href="#">patch install</a></li> <li>• <a href="#">patch remove</a></li> <li>• <a href="#">ping</a></li> <li>• <a href="#">ping6</a></li> <li>• <a href="#">reload</a></li> </ul> | <ul style="list-style-type: none"> <li>• <a href="#">restore</a></li> <li>• <a href="#">rmdir</a></li> <li>• <a href="#">show</a> (see <a href="#">Show Commands</a>)</li> <li>• <a href="#">ssh</a></li> <li>• <a href="#">tech</a></li> <li>• <a href="#">telnet</a></li> <li>• <a href="#">terminal length</a></li> <li>• <a href="#">terminal session-timeout</a></li> <li>• <a href="#">terminal session-welcome</a></li> <li>• <a href="#">terminal terminal-type</a></li> <li>• <a href="#">traceroute</a></li> <li>• <a href="#">undebug</a></li> <li>• <a href="#">write</a></li> </ul> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## application install



### Note

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

To install a specific application other than the 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

|                               |                                                                          |
|-------------------------------|--------------------------------------------------------------------------|
| <i>application</i>            | The application command for an application install and administration.   |
| <i>install</i>                | 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                                                                         |
|------------------------------------------|-------------------------------------------------------------------------------------|
| <a href="#">application install</a>      | Configures an application.                                                          |
| <a href="#">application remove</a>       | Removes or uninstalls an application.                                               |
| <a href="#">application reset-config</a> | Resets an application configuration to factory defaults.                            |
| <a href="#">application reset-passwd</a> | Resets an application password for a specified user.                                |
| <a href="#">application start</a>        | Starts or enables an application.                                                   |
| <a href="#">application stop</a>         | Stops or disables an application.                                                   |
| <a href="#">application upgrade</a>      | Upgrades an application bundle.                                                     |
| <a href="#">show application</a>         | 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 CDA application unless you are explicitly instructed for an upgrade.

To remove a specific application other than the 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**

|                         |                                                                        |
|-------------------------|------------------------------------------------------------------------|
| <i>application</i>      | The application command for an application install and administration. |
| <i>remove</i>           | 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                                                                         |
|------------------|------------------------------------------|-------------------------------------------------------------------------------------|
|                  | <a href="#">application install</a>      | Configures an application.                                                          |
|                  | <a href="#">application install</a>      | Installs an application bundle.                                                     |
|                  | <a href="#">application reset-config</a> | Resets an application configuration to factory defaults.                            |
|                  | <a href="#">application reset-passwd</a> | Resets an application password for a specified user.                                |
|                  | <a href="#">application start</a>        | Starts or enables an application.                                                   |
|                  | <a href="#">application stop</a>         | Stops or disables an application.                                                   |
|                  | <a href="#">application upgrade</a>      | Upgrades an application bundle.                                                     |
|                  | <a href="#">show application</a>         | Shows application information for the installed application packages on the system. |

## application reset-config

To reset the CDA application configuration and clear the 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 CDA administrator name and passwords.

**application reset-config** *application-name*

| Syntax Description | application             | The application command for an application install and administration.                               |
|--------------------|-------------------------|------------------------------------------------------------------------------------------------------|
|                    | reset-config            | Resets the CDA application configuration and clears the 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 CDA configuration and clear the CDA database without reimaging the CDA appliance or VMware, and reset the CDA username and passwords.



**Note** Although the **application reset-config** command resets the 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                                                                         |
|------------------------------------------|-------------------------------------------------------------------------------------|
| <a href="#">application install</a>      | Configures an application.                                                          |
| <a href="#">application install</a>      | Installs an application bundle.                                                     |
| <a href="#">application remove</a>       | Removes or uninstalls an application.                                               |
| <a href="#">application reset-passwd</a> | Resets an application password for a specified user.                                |
| <a href="#">application start</a>        | Starts or enables an application.                                                   |
| <a href="#">application stop</a>         | Stops or disables an application.                                                   |
| <a href="#">application upgrade</a>      | Upgrades an application bundle.                                                     |
| <a href="#">show application</a>         | 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 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                                                                         |
|------------------|------------------------------------------|-------------------------------------------------------------------------------------|
|                  | <a href="#">application install</a>      | Configures an application.                                                          |
|                  | <a href="#">application installs</a>     | Installs an application bundle.                                                     |
|                  | <a href="#">application remove</a>       | Removes or uninstalls an application.                                               |
|                  | <a href="#">application reset-config</a> | Resets an application configuration to factory defaults.                            |
|                  | <a href="#">application start</a>        | Starts or enables an application.                                                   |
|                  | <a href="#">application stop</a>         | Stops or disables an application.                                                   |
|                  | <a href="#">application upgrade</a>      | Upgrades an application bundle.                                                     |
|                  | <a href="#">show application</a>         | 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

|                          |                                                                                                         |
|--------------------------|---------------------------------------------------------------------------------------------------------|
| <code>application</code> | The application command for an application install and administration.                                  |
| <code>start</code>       | 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 CDA application. If you use this command to start the application, you can see that the CDA is already running.

### Examples

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

You can check the status of CDA using the **show application status cda** command. If you are checking the status right after starting 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                                              |
|------------------------------------------|----------------------------------------------------------|
| <a href="#">application install</a>      | Configures an application.                               |
| <a href="#">application install</a>      | Installs an application bundle.                          |
| <a href="#">application remove</a>       | Removes or uninstalls an application.                    |
| <a href="#">application reset-config</a> | Resets an application configuration to factory defaults. |
| <a href="#">application reset-passwd</a> | Resets an application password for a specified user.     |
| <a href="#">application stop</a>         | Stops or disables an application.                        |

| Command                             | Description                                                                         |
|-------------------------------------|-------------------------------------------------------------------------------------|
| <a href="#">application upgrade</a> | Upgrades an application bundle.                                                     |
| <a href="#">show application</a>    | 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

|                         |                                                                                                          |
|-------------------------|----------------------------------------------------------------------------------------------------------|
| <i>application</i>      | The application command for application install and administration.                                      |
| <i>stop</i>             | 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                                              |
|------------------------------------------|----------------------------------------------------------|
| <a href="#">application install</a>      | Configures an application.                               |
| <a href="#">application install</a>      | Installs an application bundle.                          |
| <a href="#">application remove</a>       | Removes or uninstalls an application.                    |
| <a href="#">application reset-config</a> | Resets an application configuration to factory defaults. |
| <a href="#">application reset-passwd</a> | Resets an application password for a specified user.     |
| <a href="#">application start</a>        | Starts or enables an application.                        |

| Command                          | Description                                                                         |
|----------------------------------|-------------------------------------------------------------------------------------|
| <code>application upgrade</code> | Upgrades an application bundle.                                                     |
| <code>show application</code>    | 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

|                                     |                                                                     |
|-------------------------------------|---------------------------------------------------------------------|
| <code>application</code>            | The application command for application install and administration. |
| <code>upgrade</code>                | Upgrades a specific application bundle in the remote repository.    |
| <code>application-bundle</code>     | Application name. Supports up to 255 alphanumeric characters.       |
| <code>remote-repository-name</code> | 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                                                                         |
|------------------------------------------|-------------------------------------------------------------------------------------|
| <a href="#">application install</a>      | Configures an application.                                                          |
| <a href="#">application install</a>      | Installs an application bundle.                                                     |
| <a href="#">application remove</a>       | Removes or uninstalls an application.                                               |
| <a href="#">application reset-config</a> | Resets an application configuration to factory defaults.                            |
| <a href="#">application reset-passwd</a> | Resets an application password for a specified user.                                |
| <a href="#">application start</a>        | Starts or enables an application.                                                   |
| <a href="#">application stop</a>         | Stops or disables an application.                                                   |
| <a href="#">show application</a>         | Shows application information for the installed application packages on the system. |

## backup

To perform a backup of the 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 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 CDA server startup configuration. You can use this startup configuration when you restore or troubleshoot your 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**

|                         |                                                                                                |
|-------------------------|------------------------------------------------------------------------------------------------|
| <b>backup</b>           | The command to perform a backup the 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.                               |
| <b>repository</b>       | Repository command.                                                                            |
| <i>repository-name</i>  | Location where the files should be backed up to. Supports up to 80 alphanumeric characters.    |
| <b>application</b>      | 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 CDA and Cisco ADE OS data and places the backup in a repository. To perform a backup of only the 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.gz.gpg
/admin#
```

**Example 2**

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

**Related Commands**

| Command                             | Description                                                           |
|-------------------------------------|-----------------------------------------------------------------------|
| <a href="#">backup-logs</a>         | Backs up system logs.                                                 |
| <a href="#">delete</a>              | Deletes a file from the CDA server.                                   |
| <a href="#">dir</a>                 | Lists a file from the CDA server.                                     |
| <a href="#">reload</a>              | Reboots the system.                                                   |
| <a href="#">repository</a>          | Enters the repository submode for configuration of backups.           |
| <a href="#">restore</a>             | Restores from backup the file contents of a specific repository.      |
| <a href="#">show backup history</a> | Displays the backup history of the system.                            |
| <a href="#">show repository</a>     | 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**

|                        |                                                                                         |
|------------------------|-----------------------------------------------------------------------------------------|
| <b>backup-logs</b>     | 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.       |
| <b>repository</b>      | 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 password plain Lab12345
% Creating log backup with timestamped filename: mybackup-111125-1117.tar.gz.gpg
/admin#
```

| Related Commands | Command                             | Description                                                                     |
|------------------|-------------------------------------|---------------------------------------------------------------------------------|
|                  | <a href="#">backup</a>              | Performs a backup (CDA and Cisco ADE OS) and places the backup in a repository. |
|                  | <a href="#">restore</a>             | Restores from backup the file contents of a specific repository.                |
|                  | <a href="#">repository</a>          | Enters the repository submode for configuration of backups.                     |
|                  | <a href="#">show backup history</a> | Shows the backup history of the system.                                         |
|                  | <a href="#">show repository</a>     | 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 | 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 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 CDA appliance causes the 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                                                  |
|----------------------------|--------------------------------------------------------------|
| <a href="#">show clock</a> | 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                                                                             |
|-------------------------------------|-----------------------------------------------------------------------------------------|
| <a href="#">show running-config</a> | Displays the contents of the currently running configuration file or the configuration. |
| <a href="#">show startup-config</a> | 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 CDA copies a configuration (running or startup).

**Running Configuration**

The CDA active configuration stores itself in the CDA RAM. Every configuration command you enter resides in the running configuration. If you reboot your 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 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 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 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**

|                       |                                                                                                                                                                                  |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>copy</b>           | The command that copies items.                                                                                                                                                   |
| <b>running-config</b> | Represents the current running configuration file.                                                                                                                               |
| <b>startup-config</b> | Represents the configuration file used during initialization (startup).                                                                                                          |
| <i>protocol</i>       | See <a href="#">Table 4-2</a> for protocol keyword options.                                                                                                                      |
| <i>hostname</i>       | Hostname of destination.                                                                                                                                                         |
| <i>location</i>       | Location of destination.                                                                                                                                                         |
| <b>logs</b>           | The system log files.                                                                                                                                                            |
| <b>all</b>            | Copies all CDA log files from the system to another location. All logs are packaged as <b>cdalogs.tar.gz</b> and transferred to the specified directory on the remote host.      |
| <b>filename</b>       | Allows you to copy a single 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 CDA log file, as displayed by the <b>show logs</b> command (up to 255 characters).                                                                                   |
| <b>mgmt</b>           | Copies the CDA management debug logs and Tomcat logs from the system, bundles them as <b>mgmtlogs.tar.gz</b> , and transfers them to the specified directory on the remote host. |
| <b>runtime</b>        | Copies the CDA runtime debug logs from the system, bundles them as <b>runtimelogs.tar.gz</b> , 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 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                                                                                                                             |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ftp</b>  | Source or destination URL for FTP network server. The syntax for this alias:<br><b>ftp:[[/username [:password]@]location]/directory]/filename</b> |
| <b>scp</b>  | Source or destination URL for SCP network server. The syntax for this alias:<br><b>scp:[[/username [:password]@]location]/directory]/filename</b> |
| <b>sftp</b> | Source or destination URL for an SFTP network server. The syntax for this alias:<br><b>sftp:[[/location]/directory]/filename</b>                  |
| <b>tftp</b> | Source or destination URL for a TFTP network server. The syntax for this alias:<br><b>tftp:[[/location]/directory]/filename</b>                   |

**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                                                                     |
|-------------------------------------|---------------------------------------------------------------------------------|
| <a href="#">application install</a> | Starts or stops a CDA instance.                                                 |
| <a href="#">backup</a>              | Performs a backup (CDA and Cisco ADE OS) and places the backup in a repository. |
| <a href="#">delete</a>              | Deletes a file from the CDA server.                                             |
| <a href="#">dir</a>                 | Lists a file from the CDA server.                                               |
| <a href="#">reload</a>              | Reboots the system.                                                             |
| <a href="#">restore</a>             | Restores from backup the file contents of a specific repository.                |
| <a href="#">show application</a>    | Shows application status and version information.                               |
| <a href="#">show version</a>        | 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 CDA server.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| all         | Enables all debugging.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| application | Application files. <ul style="list-style-type: none"> <li><i>all</i>—Enables all application debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li> <li><i>install</i>—Enables application install debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li> <li><i>operation</i>—Enables application operation debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li> <li><i>uninstall</i>—Enables application uninstall debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li> </ul> |

|                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| backup-restore | <p>Backs up and restores files.</p> <ul style="list-style-type: none"> <li>• <i>all</i>—Enables all debug output for backup-restore. Set level between 0 and 7, with 0 being severe and 7 being all.</li> <li>• <i>backup</i>—Enables backup debug output for backup-restore. Set level between 0 and 7, with 0 being severe and 7 being all.</li> <li>• <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.</li> <li>• <i>history</i>—Enables history debug output for backup-restore. Set level between 0 and 7, with 0 being severe and 7 being all.</li> <li>• <i>restore</i>—Enables restore debug output for backup-restore. Set level between 0 and 7, with 0 being severe and 7 being all.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                        |
| cdp            | <p>Cisco Discovery Protocol configuration files.</p> <ul style="list-style-type: none"> <li>• <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.</li> <li>• <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.</li> <li>• <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.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| config         | <p>Configuration files.</p> <ul style="list-style-type: none"> <li>• <i>all</i>—Enables all configuration debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li> <li>• <i>backup</i>—Enables backup configuration debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li> <li>• <i>clock</i>—Enables clock configuration debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li> <li>• <i>infra</i>—Enables configuration infrastructure debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li> <li>• <i>kron</i>—Enables command scheduler configuration debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li> <li>• <i>network</i>—Enables network configuration debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li> <li>• <i>repository</i>—Enables repository configuration debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li> <li>• <i>service</i>—Enables service configuration debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li> </ul> |
| 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    | <p>Resource locking.</p> <ul style="list-style-type: none"> <li><i>all</i>—Enables all resource locking debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li> <li><i>file</i>—Enables file locking debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li> </ul>                                                                                                                                                                                                                                  |
| logging  | <p>Logging configuration files.</p> <p><i>all</i>—Enables all logging configuration debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</p>                                                                                                                                                                                                                                                                                                                                                                                     |
| snmp     | <p>SNMP configuration files.</p> <p><i>all</i>—Enables all SNMP configuration debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</p>                                                                                                                                                                                                                                                                                                                                                                                           |
| system   | <p>System files.</p> <ul style="list-style-type: none"> <li><i>all</i>—Enables all system files debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li> <li><i>id</i>—Enables system ID debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li> <li><i>info</i>—Enables system info debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li> <li><i>init</i>—Enables system init debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li> </ul> |
| transfer | File transfer. Set level between 0 and 7, with 0 being severe and 7 being all.                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| user     | <p>User management.</p> <ul style="list-style-type: none"> <li><i>all</i>—Enables all user management debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li> <li><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.</li> </ul>                                                                                                                                                                                                  |
| utils    | <p>Utilities configuration files.</p> <p><i>all</i>—Enables all utilities configuration debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</p>                                                                                                                                                                                                                                                                                                                                                                                 |

**Defaults**

No default behavior or values.

**Command Modes**

EXEC

**Usage Guidelines**

Use the **debug** command to identify various failures within the 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# undebug all
/admin#

```

**Related Commands**

| Command                 | Description                                                                                                   |
|-------------------------|---------------------------------------------------------------------------------------------------------------|
| <a href="#">undebug</a> | Disables the output (display of errors or events) of the <b>debug</b> command for various command situations. |

## delete

To delete a file from the 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**

|                   |                                                      |
|-------------------|------------------------------------------------------|
| <b>delete</b>     | The command to delete a file from the 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                            |
|---------------------|----------------------------------------|
| <a href="#">dir</a> | Lists all the files on the CDA server. |

# dir

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

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

|                           |                  |                                                                                                                 |
|---------------------------|------------------|-----------------------------------------------------------------------------------------------------------------|
| <b>Syntax Description</b> | <b>dir</b>       | The command to list files on a local system.                                                                    |
|                           | <i>word</i>      | Directory name. Supports up to 80 alphanumeric characters. Requires <b>disk:/</b> preceding the directory name. |
|                           | <b>recursive</b> | 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                         |
|------------------------|-------------------------------------|
| <a href="#">delete</a> | Deletes a file from the CDA server. |

## exit

To close an active terminal session by logging out of the 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 CDA server) or to move up from the Configuration mode.

**Examples**

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

| Related Commands | Command              | Description                                |
|------------------|----------------------|--------------------------------------------|
|                  | <a href="#">end</a>  | Exits the Configuration mode.              |
|                  | <a href="#">exit</a> | Exits the Configuration mode or EXEC mode. |
|                  | <b>Ctrl-z</b>        | Exits the Configuration mode.              |

## forceout

To force users out of an active terminal session by logging them out of the 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**

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax Description</b> | No arguments or keywords.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Defaults</b>           | No default behavior or values.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Command Modes</b>      | EXEC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Usage Guidelines</b>   | <p>Before you issue the <b>halt</b> command, ensure that the CDA is not performing any backup, restore, installation, upgrade, or remove operation. If you issue the halt command while the CDA is performing any of these operations, you will get one of the following warning messages:</p> <pre>WARNING: A backup or restore is currently in progress! Continue with halt?</pre> <pre>WARNING: An install/upgrade/remove is currently in progress! Continue with halt?</pre> <p>If you get any of these warnings, enter <b>Yes</b> to halt the operation, or enter <b>No</b> to cancel the halt.</p> <p>If no processes are running when you use the <b>halt</b> command or if you enter <b>Yes</b> in response to the warning message displayed, the CDA asks you to respond to the following option:</p> <pre>Do you want to save the current configuration?</pre> <p>Enter <b>Yes</b> to save the existing CDA configuration. The CDA displays the following message:</p> <pre>Saved the running configuration to startup successfully</pre> |
| <b>Examples</b>           | <pre>/admin# halt /admin#</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

| Related Commands | Command                | Description         |
|------------------|------------------------|---------------------|
|                  | <a href="#">reload</a> | Reboots the system. |

## help

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

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

Syntax Description

|                |                                                                                 |
|----------------|---------------------------------------------------------------------------------|
| mk dir         | The command to create directory.                                                |
| directory-name | The name of the directory to create. Supports up to 80 alphanumeric characters. |
| disk:/path     | 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                                 |
|-----------------------|---------------------------------------------|
| <a href="#">dir</a>   | Displays a list of files on the CDA server. |
| <a href="#">rmdir</a> | Removes an existing directory.              |

## nslookup

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

**nslookup** *word*

**Syntax Description**

|                 |                                                                                         |
|-----------------|-----------------------------------------------------------------------------------------|
| <b>nslookup</b> | 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.   |
| patch-bundle | 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-1.0.0.011-2.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-1.0.0.011-2.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-1.0.0.011-2.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                                                                                                   |
|------------------------------|---------------------------------------------------------------------------------------------------------------|
| <a href="#">patch remove</a> | The command that removes a specific patch bundle version of the application.                                  |
| <a href="#">show version</a> | 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 2
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                                                                                                   |
|-------------------------------|---------------------------------------------------------------------------------------------------------------|
| <a href="#">patch install</a> | The command that installs a specific patch bundle of the application.                                         |
| <a href="#">show version</a>  | 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 <b>1</b> to prohibit packet fragmentation, or <b>2</b> to fragment the packets locally, or <b>3</b> 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                 |
|-----------------------|-----------------------------|
| <a href="#">ping6</a> | 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.                                                |
| packetsize        | Size of the ping packet.                                                     |
| <i>packetsize</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 packetsize 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 packetsize 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               |
|----------------------|---------------------------|
| <a href="#">ping</a> | Ping a remote ip address. |

## reload

To reload the 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 CDA is not performing any backup, restore, installation, upgrade, or remove operation. If the 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 CDA asks you to respond to the following option:

Do you want to save the current configuration?

Enter **Yes** to save the existing CDA configuration. The 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 CDA as well as the Cisco ADE OS. To perform a restore of a previous backup of the application data of the 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 CDA application and Cisco ADE OS:

**restore** *filename* **repository** *repository-name*

Use the following command to restore data related only to the 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.<br><br><b>Note</b> 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 CDA, the 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                                                                     |
|-------------------------------------|---------------------------------------------------------------------------------|
| <a href="#">backup</a>              | Performs a backup (CDA and Cisco ADE OS) and places the backup in a repository. |
| <a href="#">backup-logs</a>         | Backs up system logs.                                                           |
| <a href="#">repository</a>          | Enters the repository submode for configuration of backups.                     |
| <a href="#">show repository</a>     | Displays the available backup files located on a specific repository.           |
| <a href="#">show backup history</a> | 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**

|              |                                                            |
|--------------|------------------------------------------------------------|
| <b>rmdir</b> | 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                                 |
|-----------------------|---------------------------------------------|
| <a href="#">dir</a>   | Displays a list of files on the CDA server. |
| <a href="#">mkdir</a> | 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 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 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 <sup>1</sup>                                  | Description                                                                           |
|-------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>application</b><br>(requires keyword) <sup>2</sup> | Displays information about the installed application; for example, status or version. |
| <b>backup</b><br>(requires keyword)                   | Displays information about the backup.                                                |

**Table 4-3 Summary of show Commands (continued)**

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

|                           |                               |                                                                                         |
|---------------------------|-------------------------------|-----------------------------------------------------------------------------------------|
| <b>Syntax Description</b> | <b>ssh</b>                    | 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.                                            |
|                           | <b>port</b> [ <i>number</i> ] | (Optional) Indicates the port number of the remote host. From 0 to 65,535. Default 22.  |
|                           | <b>version</b> [1   2]        | (Optional) Indicates the version number. Default 2.                                     |
|                           | <b>delete hostkey</b>         | 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.                        |
| 0-3           | Gigabit Ethernet interface number (0 to 3).                              |
| count         | Specifies a maximum package count, and default is continuous (no limit). |
| package count | 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

|                    |                                                                             |
|--------------------|-----------------------------------------------------------------------------|
| <b>telnet</b>      | 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.

---

|                      |                  |
|----------------------|------------------|
| <b>Command Modes</b> | Operator<br>EXEC |
|----------------------|------------------|

---

|                         |       |
|-------------------------|-------|
| <b>Usage Guidelines</b> | None. |
|-------------------------|-------|

---

|                 |                                                                                                                                    |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------|
| <b>Examples</b> | <pre>/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#</pre> |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------|

## 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*

---

|                           |                |                                                                                                                                            |
|---------------------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax Description</b> | 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. |

---

|                 |          |
|-----------------|----------|
| <b>Defaults</b> | 24 lines |
|-----------------|----------|

---

|                      |      |
|----------------------|------|
| <b>Command Modes</b> | EXEC |
|----------------------|------|

---

|                         |                                                                                            |
|-------------------------|--------------------------------------------------------------------------------------------|
| <b>Usage Guidelines</b> | The system uses the length value to determine when to pause during multiple-screen output. |
|-------------------------|--------------------------------------------------------------------------------------------|

---

|                 |                                              |
|-----------------|----------------------------------------------|
| <b>Examples</b> | <pre>/admin# terminal length 0 /admin#</pre> |
|-----------------|----------------------------------------------|

## 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*

|                           |                        |                                                                                                          |
|---------------------------|------------------------|----------------------------------------------------------------------------------------------------------|
| <b>Syntax Description</b> | <b>terminal</b>        | The command to set the terminal line parameters.                                                         |
|                           | <b>session-timeout</b> | 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#
```

|                         |                                          |                                                                              |
|-------------------------|------------------------------------------|------------------------------------------------------------------------------|
| <b>Related Commands</b> | <b>Command</b>                           | <b>Description</b>                                                           |
|                         | <a href="#">terminal session-welcome</a> | 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*

|                           |                        |                                                                                               |
|---------------------------|------------------------|-----------------------------------------------------------------------------------------------|
| <b>Syntax Description</b> | <b>terminal</b>        | The command to set the terminal line parameters.                                              |
|                           | <b>session-welcome</b> | 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                                   |
|------------------|------------------------------------------|-----------------------------------------------|
|                  | <a href="#">terminal session-timeout</a> | 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 CDA server.                                                                                                                                                                                                                                                                |
| <i>all</i>         | Disables all debugging.                                                                                                                                                                                                                                                                                                                 |
| <i>application</i> | Application files. <ul style="list-style-type: none"> <li><i>all</i>—Disables all application debug output.</li> <li><i>install</i>—Disables application install debug output.</li> <li><i>operation</i>—Disables application operation debug output.</li> <li><i>uninstall</i>—Disables application uninstall debug output.</li> </ul> |

|                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| backup-restore | <p>Backs up and restores files.</p> <ul style="list-style-type: none"> <li>• <i>all</i>—Disables all debug output for backup-restore.</li> <li>• <i>backup</i>—Disables backup debug output for backup-restore.</li> <li>• <i>backup-logs</i>—Disables backup-logs debug output for backup-restore.</li> <li>• <i>history</i>—Disables history debug output for backup-restore.</li> <li>• <i>restore</i>—Disables restore debug output for backup-restore.</li> </ul>                                                                                                                                                                                           |
| cdp            | <p>Cisco Discovery Protocol configuration files.</p> <ul style="list-style-type: none"> <li>• <i>all</i>—Disables all Cisco Discovery Protocol configuration debug output.</li> <li>• <i>config</i>—Disables configuration debug output for Cisco Discovery Protocol.</li> <li>• <i>infra</i>—Disables infrastructure debug output for Cisco Discovery Protocol.</li> </ul>                                                                                                                                                                                                                                                                                      |
| config         | <p>Configuration files.</p> <ul style="list-style-type: none"> <li>• <i>all</i>—Disables all configuration debug output.</li> <li>• <i>backup</i>—Disables backup configuration debug output.</li> <li>• <i>clock</i>—Disables clock configuration debug output.</li> <li>• <i>infra</i>—Disables configuration infrastructure debug output.</li> <li>• <i>kron</i>—Disables command scheduler configuration debug output.</li> <li>• <i>network</i>—Disables network configuration debug output.</li> <li>• <i>repository</i>—Disables repository configuration debug output.</li> <li>• <i>service</i>—Disables service configuration debug output.</li> </ul> |
| 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"> <li>• <i>all</i>—Disables all resource locking debug output.</li> <li>• <i>file</i>—Disables file locking debug output.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 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"> <li>• <i>all</i>—Disables all system files debug output.</li> <li>• <i>id</i>—Disables system ID debug output.</li> <li>• <i>info</i>—Disables system info debug output.</li> <li>• <i>init</i>—Disables system init debug output.</li> </ul>                                                                                                                                                                                                                                                                                                                                                            |
| transfer       | File transfer.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

## EXEC Commands

|       |                                                                                                                                                                                                                     |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| user  | User management. <ul style="list-style-type: none"> <li><i>all</i>—Disables all user management debug output.</li> <li><i>password-policy</i>—Disables user management debug output for password-policy.</li> </ul> |
| utils | Utilities configuration files.<br><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                                       |
|-----------------------|---------------------------------------------------|
| <a href="#">debug</a> | Displays errors or events for command situations. |

## write

To copy, display, or erase 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 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 CDA.

If you use the write command with the erase option, 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

|                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• <a href="#">show application</a></li><li>• <a href="#">show backup history</a></li><li>• <a href="#">show cdp</a></li><li>• <a href="#">show clock</a></li><li>• <a href="#">show cpu</a></li><li>• <a href="#">show disks</a></li><li>• <a href="#">show icmp-status</a></li><li>• <a href="#">show interface</a></li><li>• <a href="#">show inventory</a></li><li>• <a href="#">show logging</a></li></ul> | <ul style="list-style-type: none"><li>• <a href="#">show logins</a></li><li>• <a href="#">show memory</a></li><li>• <a href="#">show ntp</a></li><li>• <a href="#">show ports</a></li><li>• <a href="#">show process</a></li><li>• <a href="#">show repository</a></li><li>• <a href="#">show restore</a></li><li>• <a href="#">show running-config</a></li><li>• <a href="#">show startup-config</a></li></ul> | <ul style="list-style-type: none"><li>• <a href="#">show tech-support</a></li><li>• <a href="#">show terminal</a></li><li>• <a href="#">show timezone</a></li><li>• <a href="#">show timezones</a></li><li>• <a href="#">show udi</a></li><li>• <a href="#">show uptime</a></li><li>• <a href="#">show users</a></li><li>• <a href="#">show version</a></li></ul> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## 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 CDA application information.                |
| status           | Displays the status of the installed application.                      |
| version          | Displays the application version for an installed application—the CDA. |
| app_name         | Name of the installed application.                                     |

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

**Table 4-5**      **Output Modifier Variables for Count or Last**

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

**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                                              |
|------------------------------------------|----------------------------------------------------------|
| <a href="#">application install</a>      | Configures an application.                               |
| <a href="#">application install</a>      | Installs an application bundle.                          |
| <a href="#">application reset-config</a> | Resets an application configuration to factory defaults. |
| <a href="#">application reset-passwd</a> | Resets an application password for a specified user.     |
| <a href="#">application remove</a>       | Removes or uninstalls an application.                    |
| <a href="#">application start</a>        | Starts or enables an application.                        |
| <a href="#">application stop</a>         | Stops or disables an application.                        |
| <a href="#">application upgrade</a>      | 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 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                                                                     |
|---------------------------------|---------------------------------------------------------------------------------|
| <a href="#">backup</a>          | Performs a backup (CDA and Cisco ADE OS) and places the backup in a repository. |
| <a href="#">restore</a>         | Restores from backup the file contents of a specific repository.                |
| <a href="#">repository</a>      | Enters the repository submode for configuration of backups.                     |
| <a href="#">show repository</a> | 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                                                                                                                                 |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| <a href="#">cdp holdtime</a> | Specifies the length of time that the receiving device should hold a Cisco Discovery Protocol packet from your router before discarding it. |
| <a href="#">cdp run</a>      | Enables the Cisco Discovery Protocol.                                                                                                       |
| <a href="#">cdp timer</a>    | Specifies how often the 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                                 |
|-----------------------|---------------------------------------------|
| <a href="#">clock</a> | 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*] [*l*] [*l*]

**Syntax Description**

|            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| show cpu   | The command to display CPU information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| statistics | Displays CPU statistics.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <i>l</i>   | <p>Output modifier variables:</p> <ul style="list-style-type: none"> <li><i>begin</i>—Matched pattern. Supports up to 80 alphanumeric characters.</li> <li><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"> <li>—Output modifier variables (see Table 4-6).</li> </ul> </li> <li><i>end</i>—End with line that matches. Supports up to 80 alphanumeric characters.</li> <li><i>exclude</i>—Exclude lines that match. Supports up to 80 alphanumeric characters.</li> <li><i>include</i>—Include lines that match. Supports up to 80 alphanumeric characters.</li> <li><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"> <li>—Output modifier variables (see Table 4-6).</li> </ul> </li> </ul> |

**Table 4-6**      **Output Modifier Variables for Count or Last**

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

**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                                                         |
|------------------|-----------------------------|---------------------------------------------------------------------|
|                  | <a href="#">show disks</a>  | Displays the system information of all disks.                       |
|                  | <a href="#">show memory</a> | 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"><li>• <i>begin</i>—Matched pattern. Supports up to 80 alphanumeric characters.</li><li>• <i>count</i>—Count the number of lines in the output. Add number after the word <i>count</i>.<br/> —Output modifier variables (see <a href="#">Table 4-7</a>).</li><li>• <i>end</i>—End with line that matches. Supports up to 80 alphanumeric characters.</li><li>• <i>exclude</i>—Exclude lines that match. Supports up to 80 alphanumeric characters.</li><li>• <i>include</i>—Include lines that match. Supports up to 80 alphanumeric characters.</li><li>• <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.<br/> —Output modifier variables (see <a href="#">Table 4-7</a>).</li></ul> |

**Table 4-7 Output Modifier Variables for Count or Last**

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

**Defaults**

No default behavior or values.

**Command Modes**

EXEC

**Usage Guidelines**Only 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                                                         |
|-----------------------------|---------------------------------------------------------------------|
| <a href="#">show cpu</a>    | Displays CPU information.                                           |
| <a href="#">show memory</a> | 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"> <li>• <i>begin</i>—Matched pattern. Supports up to 80 alphanumeric characters.</li> <li>• <i>count</i>—Count the number of lines in the output. Add number after the word count. <ul style="list-style-type: none"> <li>–  —Output modifier commands (see <a href="#">Table 4-8</a>).</li> </ul> </li> <li>• <i>end</i>—End with line that matches. Supports up to 80 alphanumeric characters.</li> <li>• <i>exclude</i>—Exclude lines that match. Supports up to 80 alphanumeric characters.</li> <li>• <i>include</i>—Include lines that match. Supports up to 80 alphanumeric characters.</li> <li>• <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"> <li>–  —Output modifier commands (see <a href="#">Table 4-8</a>).</li> </ul> </li> </ul> |

**Table 4-8 Output Modifier Variables for Count or Last**

|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Output modifier variables: <ul style="list-style-type: none"> <li>• <i>begin</i>—Matched pattern. Supports up to 80 alphanumeric characters.</li> <li>• <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"> <li> —Output modifier variables.</li> </ul> </li> <li>• <i>end</i>—End with line that matches. Supports up to 80 alphanumeric characters.</li> <li>• <i>exclude</i>—Exclude lines that match. Supports up to 80 alphanumeric characters.</li> <li>• <i>include</i>—Include lines that match. Supports up to 80 alphanumeric characters.</li> <li>• <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"> <li> —Output modifier variables.</li> </ul> </li> </ul> |
|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**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                                                            |
|------------------|---------------------------|------------------------------------------------------------------------|
|                  | <a href="#">icmp echo</a> | 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"> <li><i>begin</i>—Matched pattern. Supports up to 80 alphanumeric characters.</li> <li><i>count</i>—Count the number of lines in the output. Add number after the word <i>count</i>.</li> <li><i>end</i>—End with line that matches. Supports up to 80 alphanumeric characters.</li> <li><i>exclude</i>—Exclude lines that match. Supports up to 80 alphanumeric characters.</li> <li><i>include</i>—Include lines that match. Supports up to 80 alphanumeric characters.</li> <li><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.</li> </ul> |



**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                                                                  |
|------------------|-----------------------------------------|------------------------------------------------------------------------------|
|                  | <a href="#">interface</a>               | Configures an interface type and enters the interface configuration submode. |
|                  | <a href="#">ipv6 address autoconfig</a> | Enables IPv6 stateless autoconfiguration on an interface.                    |
|                  | <a href="#">ipv6 address dhcp</a>       | Enables IPv6 address DHCP on an interface.                                   |

## show inventory

To display information about the hardware inventory, including the 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"> <li><i>begin</i>—Matched pattern. Supports up to 80 alphanumeric characters.</li> <li><i>count</i>—Count the number of lines in the output. Add number after the word <i>count</i>.</li> <li><i>end</i>—End with line that matches. Supports up to 80 alphanumeric characters.</li> <li><i>exclude</i>—Exclude lines that match. Supports up to 80 alphanumeric characters.</li> <li><i>include</i>—Include lines that match. Supports up to 80 alphanumeric characters.</li> <li><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.</li> </ul> |

**Defaults** No default behavior or values.

**Command Modes** EXEC

**Usage Guidelines** None.

**Examples**

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

**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-acs-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                                                                    |
|----------------------------|--------------------------------------------------------------------------------|
| <a href="#">ntp</a>        | Allows you to configure NTP configuration up to three NTP servers.             |
| <a href="#">ntp server</a> | 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*] [*l*]

Syntax Description

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

Table 4-9 Output Modifier Variables for Count or Last

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

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**

```

/admin# 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, ::1:123
/admin#

```

**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"> <li>• <i>begin</i>—Matched pattern. Supports up to 80 alphanumeric characters.</li> <li>• <i>count</i>—Count the number of lines in the output. Add number after the word <i>count</i>.</li> <li>• <i>end</i>—End with line that matches. Supports up to 80 alphanumeric characters.</li> <li>• <i>exclude</i>—Exclude lines that match. Supports up to 80 alphanumeric characters.</li> <li>• <i>include</i>—Include lines that match. Supports up to 80 alphanumeric characters.</li> <li>• <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.</li> </ul> |

**Defaults**

No default behavior or values.

**Command Modes**

EXEC

**Usage Guidelines** None.

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

```
/admin# 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--
/admin#
```

**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                                                                     |
|-------------------------------------|---------------------------------------------------------------------------------|
| <a href="#">backup</a>              | Performs a backup (CDA and Cisco ADE OS) and places the backup in a repository. |
| <a href="#">restore</a>             | Restores from backup the file contents of a specific repository.                |
| <a href="#">repository</a>          | Enters the repository submode for configuration of backups.                     |
| <a href="#">show backup history</a> | 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}**

|                           |              |                                                 |
|---------------------------|--------------|-------------------------------------------------|
| <b>Syntax Description</b> | 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#
```

| <b>Related Commands</b> | <b>Command</b>                      | <b>Description</b>                                                              |
|-------------------------|-------------------------------------|---------------------------------------------------------------------------------|
|                         | <a href="#">backup</a>              | Performs a backup (CDA and Cisco ADE OS) and places the backup in a repository. |
|                         | <a href="#">restore</a>             | Restores from backup the file contents of a specific repository.                |
|                         | <a href="#">repository</a>          | Enters the repository submode for configuration of backups.                     |
|                         | <a href="#">show backup history</a> | 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**

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

**Examples**

```

/admin# 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$00jG7EQh$gDjDJKlSZWx5ImaUEqZA01 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                                                                   |
|------------------|-------------------------------------|-------------------------------------------------------------------------------|
|                  | <a href="#">configure</a>           | Enters the Configuration mode.                                                |
|                  | <a href="#">show startup-config</a> | 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                                                                             |
|-------------------------------------|-----------------------------------------------------------------------------------------|
| <a href="#">configure</a>           | Enters the Configuration mode.                                                          |
| <a href="#">show running-config</a> | 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. |
|-------------------|-----------------------------------------------------------|

|             |                                                              |
|-------------|--------------------------------------------------------------|
| <i>file</i> | Save any technical support data as a file in the local disk. |
| <i>word</i> | 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 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                                                 |
|------------------|-------------------------------------|-------------------------------------------------------------|
|                  | <a href="#">show interface</a>      | Displays the usability status of the interfaces.            |
|                  | <a href="#">show process</a>        | Displays information about active processes.                |
|                  | <a href="#">show running-config</a> | 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**

|                           |                           |
|---------------------------|---------------------------|
| <b>Syntax Description</b> | No arguments or keywords. |
|---------------------------|---------------------------|

|                 |                                |
|-----------------|--------------------------------|
| <b>Defaults</b> | No default behavior or values. |
|-----------------|--------------------------------|

|                      |      |
|----------------------|------|
| <b>Command Modes</b> | EXEC |
|----------------------|------|

|                         |       |
|-------------------------|-------|
| <b>Usage Guidelines</b> | None. |
|-------------------------|-------|

|                 |                                              |
|-----------------|----------------------------------------------|
| <b>Examples</b> | <pre>/admin# show timezone UTC /admin#</pre> |
|-----------------|----------------------------------------------|

|                         |                                |                                                  |
|-------------------------|--------------------------------|--------------------------------------------------|
| <b>Related Commands</b> | <b>Command</b>                 | <b>Description</b>                               |
|                         | <a href="#">clock timezone</a> | Sets the time zone on the system.                |
|                         | <a href="#">show timezones</a> | 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**

|                           |                           |
|---------------------------|---------------------------|
| <b>Syntax Description</b> | No arguments or keywords. |
|---------------------------|---------------------------|

|                 |                                |
|-----------------|--------------------------------|
| <b>Defaults</b> | No default behavior or values. |
|-----------------|--------------------------------|

|                      |      |
|----------------------|------|
| <b>Command Modes</b> | 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                               |
|--------------------------------|-------------------------------------------|
| <a href="#">show timezone</a>  | Displays the time zone set on the system. |
| <a href="#">clock timezone</a> | Sets the time zone on the system.         |

## show udi

To display information about the UDI of the 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 CDA server, use the **show uptime** command in the EXEC mode.

**show uptime |**

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

**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 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          TTY    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 CDA server, and displays the 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*

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• <a href="#">backup-staging-url</a></li> <li>• <a href="#">cdp holdtime</a></li> <li>• <a href="#">cdp run</a></li> <li>• <a href="#">cdp timer</a></li> <li>• <a href="#">clock timezone</a></li> <li>• <a href="#">do</a></li> <li>• <a href="#">end</a></li> <li>• <a href="#">exit</a></li> <li>• <a href="#">hostname</a></li> <li>• <a href="#">icmp echo</a></li> <li>• <a href="#">interface</a></li> <li>• <a href="#">ipv6 address autoconfig</a></li> <li>• <a href="#">ipv6 address dhcp</a></li> <li>• <a href="#">ip address</a></li> <li>• <a href="#">ip default-gateway</a></li> <li>• <a href="#">ip domain-name</a></li> <li>• <a href="#">ip name-server</a></li> <li>• <a href="#">ip route</a></li> </ul> | <ul style="list-style-type: none"> <li>• <a href="#">kron occurrence</a></li> <li>• <a href="#">kron policy-list</a></li> <li>• <a href="#">logging</a></li> <li>• <a href="#">ntp</a></li> <li>• <a href="#">ntp authenticate</a></li> <li>• <a href="#">ntp authentication-key</a></li> <li>• <a href="#">ntp server</a></li> <li>• <a href="#">ntp trusted-key</a></li> <li>• <a href="#">password-policy</a></li> <li>• <a href="#">repository</a></li> <li>• <a href="#">service</a></li> <li>• <a href="#">shutdown</a></li> <li>• <a href="#">snmp-server community</a></li> <li>• <a href="#">snmp-server contact</a></li> <li>• <a href="#">snmp-server host</a></li> <li>• <a href="#">snmp-server location</a></li> <li>• <a href="#">username</a></li> </ul> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## 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 unpack 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 <b>nfs://server:path</b> <sup>1</sup> .          |

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 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 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                                                                |
|------------------|---------------------------|----------------------------------------------------------------------------|
|                  | <a href="#">cdp timer</a> | Specifies how often the CDA server sends Cisco Discovery Protocol updates. |
|                  | <a href="#">cdp run</a>   | 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                                                                                                                                    |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <a href="#">cdp holdtime</a> | Specifies the length of time that the receiving device should hold a Cisco Discovery Protocol packet from the CDA server before discarding it. |
| <a href="#">cdp timer</a>    | Specifies how often the CDA server sends Cisco Discovery Protocol updates.                                                                     |

**cdp timer**

To specify how often the 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 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                                                                                                                                    |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <a href="#">cdp holdtime</a> | Specifies the amount of time that the receiving device should hold a Cisco Discovery Protocol packet from the CDA server before discarding it. |
| <a href="#">cdp run</a>      | 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**

|                 |                                                                                                 |
|-----------------|-------------------------------------------------------------------------------------------------|
| clock           | The command to configure time zone.                                                             |
| timezone        | 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                         |
|----------------------------------------------------------|----------------------------------------|
| <b>Europe</b>                                            |                                        |
| 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  |
| <b>United States and Canada</b>                          |                                        |
| 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 <sup>1</sup> |                  |                  |             |
|------------------------|------------------|------------------|-------------|
| ACT <sup>2</sup>       | Adelaide         | Brisbane         | Broken_Hill |
| Canberra               | Currie           | Darwin           | Hobart      |
| Lord_Howe              | Lindeman         | LHI <sup>3</sup> | Melbourne   |
| North                  | NSW <sup>4</sup> | 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 <sup>1</sup> |             |              |           |
|-------------------|-------------|--------------|-----------|
| Aden <sup>2</sup> | 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 CDA server, enter **show timezones**. A list of all the time zones available in the CDA server appears. Choose the most appropriate one for your time zone.



**Warning**

**Changing the time zone on a CDA appliance after installation causes the 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                                            |
|--------------------------------|--------------------------------------------------------|
| <a href="#">show timezones</a> | Displays a list of available time zones on the system. |
| <a href="#">show timezone</a>  | 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**

|                  |                                                                                                        |
|------------------|--------------------------------------------------------------------------------------------------------|
| <b>do</b>        | 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 <a href="#">Table 4-16</a> ).                   |

**Table 4-16 Command Options for Do Command**

| Command                      | Description                                                                     |
|------------------------------|---------------------------------------------------------------------------------|
| <b>application configure</b> | Configures a specific application.                                              |
| <b>application install</b>   | Installs a specific application.                                                |
| <b>application remove</b>    | Removes a specific application.                                                 |
| <b>application start</b>     | Starts or enables a specific application                                        |
| <b>application stop</b>      | Stops or disables a specific application.                                       |
| <b>application upgrade</b>   | Upgrades a specific application.                                                |
| <b>backup</b>                | Performs a backup (CDA and Cisco ADE OS) and places the backup in a repository. |

**Table 4-16** *Command Options for Do Command (continued)*

| Command                         | Description                                                                                                                                                                                                                   |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>backup-logs</b>              | Performs a backup of all the logs on the CDA server to a remote location.                                                                                                                                                     |
| <b>clock</b>                    | Sets the system clock on the CDA server.                                                                                                                                                                                      |
| <b>configure</b>                | Enters Configuration mode.                                                                                                                                                                                                    |
| <b>copy</b>                     | Copies any file from a source to a destination.                                                                                                                                                                               |
| <b>debug</b>                    | Displays any errors or events for various command situations; for example, backup and restore, configuration, copy, resource locking, file transfer, and user management.                                                     |
| <b>delete</b>                   | Deletes a file on the CDA server.                                                                                                                                                                                             |
| <b>dir</b>                      | Lists files on the CDA server.                                                                                                                                                                                                |
| <b>forceout</b>                 | Forces the logout of all the sessions of a specific CDA node user.                                                                                                                                                            |
| <b>halt</b>                     | Disables or shuts down the CDA server.                                                                                                                                                                                        |
| <b>mkdir</b>                    | Creates a new directory.                                                                                                                                                                                                      |
| <b>nslookup</b>                 | Queries the IPv4 address or hostname of a remote system.                                                                                                                                                                      |
| <b>patch</b>                    | Installs System or Application patch.                                                                                                                                                                                         |
| <b>pep</b>                      | Configures the Inline Posture node.                                                                                                                                                                                           |
| <b>ping</b>                     | Determines the IPv4 network activity on a remote system.                                                                                                                                                                      |
| <b>ping6</b>                    | Determines the IPv6 network activity on a IPv6 remote system.                                                                                                                                                                 |
| <b>reload</b>                   | Reboots the CDA server.                                                                                                                                                                                                       |
| <b>restore</b>                  | Performs a restore and retrieves the backup out of a repository.                                                                                                                                                              |
| <b>rmdir</b>                    | Removes an existing directory.                                                                                                                                                                                                |
| <b>show</b>                     | Provides information about the CDA server.                                                                                                                                                                                    |
| <b>ssh</b>                      | Starts an encrypted session with a remote system.                                                                                                                                                                             |
| <b>tech</b>                     | Provides Technical Assistance Center (TAC) commands.                                                                                                                                                                          |
| <b>telnet</b>                   | Establishes a Telnet connection to a remote system.                                                                                                                                                                           |
| <b>terminal length</b>          | Sets terminal line parameters.                                                                                                                                                                                                |
| <b>terminal session-timeout</b> | Sets the inactivity timeout for all terminal sessions.                                                                                                                                                                        |
| <b>terminal session-welcome</b> | Sets the welcome message on the system for all terminal sessions.                                                                                                                                                             |
| <b>terminal terminal-type</b>   | Specifies the type of terminal connected to the current line of the current session.                                                                                                                                          |
| <b>tracert</b>                  | Traces the route of a remote IP Address.                                                                                                                                                                                      |
| <b>undebg</b>                   | Disables the output (display of errors or events) of the <b>debug</b> command for various command situations; for example, backup and restore, configuration, copy, resource locking, file transfer, and user management.     |
| <b>write</b>                    | 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. |

|                         |                                                                                                                                                                                                                                             |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Command Default</b>  | No default behavior or values.                                                                                                                                                                                                              |
| <b>Command Modes</b>    | Configuration or any configuration submode                                                                                                                                                                                                  |
| <b>Usage Guidelines</b> | Use this command to execute EXEC commands (such as <b>show</b> , <b>clear</b> , and <b>debug</b> 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                                                          |
|------------------|-----------------------------|----------------------------------------------------------------------|
|                  | <a href="#">exit</a>        | Exits Configuration mode.                                            |
|                  | <a href="#">exit</a> (EXEC) | Closes the active terminal session by logging out of the 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 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 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                                                          |
|-----------------------------|----------------------------------------------------------------------|
| <a href="#">end</a>         | Exits Configuration mode.                                            |
| <a href="#">exit</a> (EXEC) | Closes the active terminal session by logging out of the 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**

|                 |                                                                                                                                                            |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>hostname</b> | 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                                           |
|----------------------------------|-------------------------------------------------------|
| <a href="#">show icmp-status</a> | 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.        |
| <i>0 - 3</i>    | 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 4-93 and the “ipv6 address dhcp” section on page 4-95)                          |
| no       | Negates the command in this mode. Two keywords are available: <ul style="list-style-type: none"> <li>ip—Sets the IP Address and netmask for the interface.</li> <li>shutdown—Shuts down the interface.</li> </ul> |
| 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                                                      |
|-----------------------------------------------------------|------------------------------------------------------------------|
| <a href="#">show interface</a>                            | Displays information about the system interfaces.                |
| <a href="#">ip address</a> (interface configuration mode) | Sets the IP Address and netmask for the interface.               |
| <a href="#">shutdown</a> (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                                                                             |
|-----------------------------------------------------------|-----------------------------------------------------------------------------------------|
| <a href="#">show interface</a>                            | Displays information about the system interfaces.                                       |
| <a href="#">ip address</a> (interface configuration mode) | Sets the IP Address and netmask for the interface.                                      |
| <a href="#">shutdown</a> (interface configuration mode)   | Shuts down the interface (see “ <a href="#">shutdown</a> ” section on page 4-115).      |
| <a href="#">ipv6 address dhcp</a>                         | Enables IPv6 address DHCP on an interface.                                              |
| <a href="#">show running-config</a>                       | 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                                                                      |
|-----------------------------------------------------------|----------------------------------------------------------------------------------|
| <a href="#">show interface</a>                            | Displays information about the system interfaces.                                |
| <a href="#">ip address</a> (interface configuration mode) | Sets the IP Address and netmask for the interface.                               |
| <a href="#">shutdown</a> (interface configuration mode)   | Shuts down the interface (see <a href="#">“shutdown”</a> section on page 4-115). |

| Command                                 | Description                                                                             |
|-----------------------------------------|-----------------------------------------------------------------------------------------|
| <a href="#">ipv6 address autoconfig</a> | Enables IPv6 stateless autoconfiguration on an interface.                               |
| <a href="#">show running-config</a>     | 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

|                     |                                                                                    |
|---------------------|------------------------------------------------------------------------------------|
| <i>ip address</i>   | 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                                                                     |
|------------------|---------------------------------------------------------|---------------------------------------------------------------------------------|
|                  | <a href="#">shutdown</a> (interface configuration mode) | Disables an interface (see “ <a href="#">shutdown</a> ” section on page 4-115). |
|                  | <a href="#">ip default-gateway</a>                      | Sets the IP Address of the default gateway of an interface.                     |
|                  | <a href="#">show interface</a>                          | Displays information about the system IP interfaces.                            |
|                  | <a href="#">interface</a>                               | 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 |                                 |                                                             |
|--------------------|---------------------------------|-------------------------------------------------------------|
|                    | <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 | <pre>/admin(config)# ip default-gateway 209.165.202.129 /admin(config)#</pre> |
|----------|-------------------------------------------------------------------------------|
|----------|-------------------------------------------------------------------------------|

| Related Commands | Command                                                   | Description                                                 |
|------------------|-----------------------------------------------------------|-------------------------------------------------------------|
|                  | <a href="#">ip address</a> (interface configuration mode) | Sets the IP Address and netmask for the Ethernet interface. |

## ip domain-name

To define a default domain name that the 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*



|                           |                             |                                                                                                        |
|---------------------------|-----------------------------|--------------------------------------------------------------------------------------------------------|
| <b>Syntax Description</b> | <code>ip domain-name</code> | 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)#
```

|                         |                                |                                                  |
|-------------------------|--------------------------------|--------------------------------------------------|
| <b>Related Commands</b> | <b>Command</b>                 | <b>Description</b>                               |
|                         | <a href="#">ip name-server</a> | 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*\*

|                           |                                                                |                                                                 |
|---------------------------|----------------------------------------------------------------|-----------------------------------------------------------------|
| <b>Syntax Description</b> | <code>ip name-server</code>                                    | 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.             |
|                           | <b>Note</b> 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 CDA server; nevertheless, the changes will take effect.

**Related Commands**

| Command                        | Description                                                               |
|--------------------------------|---------------------------------------------------------------------------|
| <a href="#">ip domain-name</a> | 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**

|                   |                                                                    |
|-------------------|--------------------------------------------------------------------|
| <b>ip route</b>   | 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.                                                                               |
| occurrence-name | 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.<br><br>Three keywords are available: <ul style="list-style-type: none"> <li>at—Usage: at [<i>hh:mm</i>] [<i>day-of-week</i>   <i>day-of-month</i>   <i>month day-of-month</i>].</li> <li>policy-list—Specifies a policy list to be run by the occurrence. Supports up to 80 alphanumeric characters.</li> <li>recurring—Execution of the policy lists should be repeated.</li> </ul> |
| 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 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                                      |
|------------------|----------------------------------|--------------------------------------------------|
|                  | <a href="#">kron policy-list</a> | 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"> <li><code>cli</code>—Command to be executed by the scheduler.</li> </ul> |

**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                                                                                                           |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------|
| <a href="#">ip route</a> | 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

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>logging</b>    | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>loglevel</b>   | The command to configure the log level for the <b>logging</b> 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"> <li>• 0-emerg—Emergencies: System unusable.</li> <li>• 1-alert—Alerts: Immediate action needed.</li> <li>• 2-crit—Critical: Critical conditions.</li> <li>• 3-err—Error: Error conditions.</li> <li>• 4-warn—Warning: Warning conditions.</li> <li>• 5-notif—Notifications: Normal but significant conditions.</li> <li>• 6-inform—(Default) Informational messages.</li> <li>• 7-debug—Debugging messages.</li> </ul> |

### 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                           |
|------------------------------|---------------------------------------|
| <a href="#">show logging</a> | 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>

|                           |     |                                              |
|---------------------------|-----|----------------------------------------------|
| <b>Syntax Description</b> | ntp | The command to specify an NTP configuration. |
|---------------------------|-----|----------------------------------------------|

|                 |      |
|-----------------|------|
| <b>Defaults</b> | None |
|-----------------|------|

|                      |                |
|----------------------|----------------|
| <b>Command Modes</b> | Configuration. |
|----------------------|----------------|

|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Usage Guidelines</b> | <p>Use the <b>ntp</b> command to specify an NTP configuration.</p> <p>To terminate NTP service on a device, you must enter the <b>no ntp</b> command with keywords or arguments such as <b>authenticate</b>, <b>authentication-key</b>, <b>server</b>, and <b>trusted-key</b>. For example, if you previously issued the <b>ntp server</b> command, use the <b>no ntp</b> command with <b>server</b>.</p> <p>For more information on how to configure an NTP server, see <a href="#">ntp server</a>, page 4-108.</p> |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                 |                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Examples</b> | <pre> /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)# </pre> |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| <b>Related Commands</b> | Command                                | Description                                                                    |
|-------------------------|----------------------------------------|--------------------------------------------------------------------------------|
|                         | <a href="#">ntp authenticate</a>       | Enables authentication of all time sources.                                    |
|                         | <a href="#">ntp authentication-key</a> | Configures authentication keys for trusted time sources.                       |
|                         | <a href="#">ntp server</a>             | Allows synchronization of the software clock by the NTP server for the system. |

| Command                         | Description                                                                                         |
|---------------------------------|-----------------------------------------------------------------------------------------------------|
| <a href="#">ntp trusted-key</a> | Specifies key numbers for trusted time sources that needs to be defined as NTP authentication keys. |
| <a href="#">show ntp</a>        | 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                                                                    |
|----------------------------------------|--------------------------------------------------------------------------------|
| <a href="#">ntp</a>                    | The command to specify NTP configuration.                                      |
| <a href="#">ntp authentication-key</a> | Configures authentication keys for trusted time sources.                       |
| <a href="#">ntp server</a>             | Allows synchronization of the software clock by the NTP server for the system. |



| Command                         | Description                                                                                         |
|---------------------------------|-----------------------------------------------------------------------------------------------------|
| <a href="#">ntp trusted-key</a> | Specifies key numbers for trusted time sources that needs to be defined as NTP authentication keys. |
| <a href="#">show ntp</a>        | 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

|                    |                                                                                                                                                 |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| ntp                | The command to specify NTP configuration.                                                                                                       |
| authentication-key | Configures authentication keys for trusted time sources.                                                                                        |
| key id             | The identifier that you want to assign to this key. Supports numeric values from 1–65535.                                                       |
| md5                | The encryption type for the authentication key.                                                                                                 |
| hash <word>        | Hashed key for authentication. Specifies an <i>encrypted</i> (hashed) key that follows the encryption type. Supports up to 40 characters.       |
| plain <word>       | Plaintext key for authentication. Specifies an <i>unencrypted</i> plaintext key that follows the encryption type. Supports up to 15 characters. |
| <key value>        | The key value in the format matching either <b>md5 plain   hash</b> , 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                                                                                         |
|----------------------------------|-----------------------------------------------------------------------------------------------------|
| <a href="#">ntp</a>              | The command to specify NTP configuration.                                                           |
| <a href="#">ntp authenticate</a> | Enables authentication of all time sources.                                                         |
| <a href="#">ntp server</a>       | Allows synchronization of the software clock by the NTP server for the system.                      |
| <a href="#">ntp trusted-key</a>  | Specifies key numbers for trusted time sources that needs to be defined as NTP authentication keys. |
| <a href="#">show ntp</a>         | 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 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**

|                                     |                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>ntp</i>                          | The command to specify NTP configuration.                                                                                                                                                                                                                                                                                                                                                    |
| <i>server</i>                       | Allows the system to synchronize with a specified server.                                                                                                                                                                                                                                                                                                                                    |
| <i>ip-address</i>   <i>hostname</i> | IP Address or hostname of the server providing the clock synchronization. Arguments are limited to 255 alphanumeric characters.                                                                                                                                                                                                                                                              |
| <i>key</i>                          | (Optional) Peer key number. Supports up to 65535 numeric characters. This key needs to be defined with a key value, by using the <b>ntp authentication-key</b> command, and also needs to be added as a trusted-key by using the <b>ntp trusted-key</b> 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 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.es1.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.es1.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 ee18afc7608ac7ecdbbeefc5351ad118bc9ce1ef3
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                                                                                         |
|----------------------------------------|-----------------------------------------------------------------------------------------------------|
| <a href="#">ntp</a>                    | The command to specify NTP configuration.                                                           |
| <a href="#">ntp authenticate</a>       | Enables authentication of all time sources.                                                         |
| <a href="#">ntp authentication-key</a> | Configures authentication keys for trusted time sources.                                            |
| <a href="#">ntp trusted-key</a>        | Specifies key numbers for trusted time sources that needs to be defined as NTP authentication keys. |
| <a href="#">show ntp</a>               | 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**

|                    |                                                                                                                                              |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ntp</b>         | The command to specify NTP configuration.                                                                                                    |
| <b>trusted-key</b> | The identifier that you want to assign to this key.                                                                                          |
| <b>key</b>         | 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                                                                    |
|----------------------------------------|--------------------------------------------------------------------------------|
| <a href="#">ntp</a>                    | The command to specify NTP configuration.                                      |
| <a href="#">ntp authenticate</a>       | Enables authentication of all time sources.                                    |
| <a href="#">ntp authentication-key</a> | Configures authentication keys for trusted time sources.                       |
| <a href="#">ntp server</a>             | Allows synchronization of the software clock by the NTP server for the system. |
| <a href="#">show ntp</a>               | 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.<br><b>Note</b> You must enter the <b>password-expiration-enabled</b> 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**

|                         |                                                                |
|-------------------------|----------------------------------------------------------------|
| <code>repository</code> | 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).

|                   |                                                                                                                                                                                                                                 |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>do</code>   | EXEC command. Allows you to perform any of the EXEC commands in this mode (see the “do” section on page 4-87).                                                                                                                  |
| <code>end</code>  | Exits the config-Repository submode and returns you to the EXEC mode.                                                                                                                                                           |
| <code>exit</code> | Exits this mode.                                                                                                                                                                                                                |
| <code>no</code>   | Negates the command in this mode.<br><br>Two keywords are available: <ul style="list-style-type: none"> <li><code>url</code>—Repository URL.</li> <li><code>user</code>—Repository username and password for access.</li> </ul> |
| <code>url</code>  | URL of the repository. Supports up to 80 alphanumeric characters (see Table 4-17).                                                                                                                                              |
| <code>user</code> | Configure the username and password for access. Supports up to 30 alphanumeric characters.                                                                                                                                      |

**Table 4-17 URL Keywords**

| <b>Keyword</b> | <b>Source of Destination</b>                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>word</i>    | Enter the repository URL, including server and path information. Supports up to 80 alphanumeric characters.                                                                                                                                                                                                                                                                                                                                            |
| <b>cdrom:</b>  | Local CD-ROM drive (read only).                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>disk:</b>   | Local storage.<br><br>You can run the <b>show repository repository_name</b> to view all the files in the local repository.<br><br><b>Note</b> All local repositories are created on the /localdisk partition. When you specify <code>disk://</code> in the repository URL, the system creates directories in a path that is relative to /localdisk. For example, if you entered <b>disk://backup</b> , the directory is created at /localdisk/backup. |
| <b>ftp:</b>    | Source or destination URL for an FTP network server. Use <code>url ftp://server/path<sup>1</sup></code> .                                                                                                                                                                                                                                                                                                                                              |
| <b>nfs:</b>    | Source or destination URL for an NFS network server. Use <code>url nfs://server:path<sup>1</sup></code> .                                                                                                                                                                                                                                                                                                                                              |
| <b>tftp:</b>   | Source or destination URL for an TFTP network server. Use <code>url tftp://server:path<sup>1</sup></code> .<br><br><b>Note</b> You cannot use a TFTP repository for performing 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.

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                                                                     |
|-------------------------------------|---------------------------------------------------------------------------------|
| <a href="#">backup</a>              | Performs a backup (CDA and Cisco ADE OS) and places the backup in a repository. |
| <a href="#">restore</a>             | Performs a restore and takes the backup out of a repository.                    |
| <a href="#">show backup history</a> | Displays the backup history of the system.                                      |
| <a href="#">show repository</a>     | 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 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                                                 |
|------------------|-----------------------------------------------------------|-------------------------------------------------------------|
|                  | <a href="#">interface</a>                                 | Configures an interface type and enters the interface mode. |
|                  | <a href="#">ip address</a> (interface configuration mode) | Sets the IP Address and netmask for the Ethernet interface. |
|                  | <a href="#">show interface</a>                            | Displays information about the system IP interfaces.        |
|                  | <a href="#">ip default-gateway</a>                        | 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

|                       |                                                                                                                                                      |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| snmp-server community | 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. |
| ro                    | 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 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                                           |
|--------------------------------------|-------------------------------------------------------|
| <a href="#">snmp-server host</a>     | Sends traps to a remote system.                       |
| <a href="#">snmp-server location</a> | Configures the SNMP location MIB value on the system. |
| <a href="#">snmp-server contact</a>  | 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                                                       |
|---------------------------------------|-------------------------------------------------------------------|
| <a href="#">snmp-server host</a>      | Sends traps to a remote system.                                   |
| <a href="#">snmp-server community</a> | Sets up the community access string to permit access to the SNMP. |
| <a href="#">snmp-server location</a>  | 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

|                                         |                                                                                                                                                                                                                                              |
|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>snmp-server host</b>                 | 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.                                                                                                                                                               |
| <b>version</b> { <i>1</i>   <i>2c</i> } | (Optional) Version of the SNMP used to send the traps. Default = 1.<br>If you use the version keyword, specify one of the following keywords: <ul style="list-style-type: none"> <li><i>1</i>—SNMPv1.</li> <li><i>2c</i>—SNMPv2C.</li> </ul> |
| <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                                                   |
|---------------------------------------|---------------------------------------------------------------|
| <a href="#">snmp-server community</a> | Sets up the community access string to permit access to SNMP. |
| <a href="#">snmp-server location</a>  | Configures the SNMP location MIB value on the system.         |
| <a href="#">snmp-server contact</a>   | 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

|                                   |                                                                                                                    |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------|
| <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                                                   |
|---------------------------------------|---------------------------------------------------------------|
| <a href="#">snmp-server host</a>      | Sends traps to a remote system.                               |
| <a href="#">snmp-server community</a> | Sets up the community access string to permit access to SNMP. |
| <a href="#">snmp-server contact</a>   | Configures the SNMP location MIB value on the system.         |

## username

To add a user who can access the 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**

|                                   |                                                                                                                                           |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| <b>username</b>                   | The command to create a user to access the CDA appliance using SSH.                                                                       |
| <i>username</i>                   | Only one word for the username argument. Blank spaces and quotation marks (") are not allowed. Supports up to 31 alphanumeric characters. |
| <b>password</b>                   | The command to use specify password and user role.                                                                                        |
| <i>password</i>                   | Password character length up to 40 alphanumeric characters. You must specify the password for all new users.                              |
| <b>hash   plain</b>               | Type of password. Supports up to 34 alphanumeric characters.                                                                              |
| <b>role admin   user</b>          | Sets the privilege level for the user.                                                                                                    |
| <b>disabled</b>                   | Disables the user according to the user's email address.                                                                                  |
| <b>email <i>email-address</i></b> | 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                                                                                     |
|---------------------------------|-------------------------------------------------------------------------------------------------|
| <a href="#">password-policy</a> | Enables and configures the password policy.                                                     |
| <a href="#">show users</a>      | Displays a list of users and their privilege level. It also displays a list of logged-in users. |



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