



# **Cisco Application Networking Manager Overview**

## Date: 4/10/09

The Cisco Application Networking Manager (ANM) is a networking management application that manages Cisco Application Control Engine (ACE) modules or appliances in your networking environment.

The following topics introduce you to ANM:

- Logging Into the Cisco Application Networking Manager, page 1-1
- Changing Your Account Password, page 1-3
- Understanding ANM Licenses, page 1-3
- ANM Interface Overview, page 1-5
- Understanding Cisco Application Networking Manager Terminology, page 1-15

# Logging Into the Cisco Application Networking Manager

You access ANM features and functions through a web-based interface. The following sections describe logging in, the interface, and terms used in ANM.

The ANM login screen allows you to:

- Log into the ANM server
- Change the password for your account (See the "Changing Your Account Password" section on page 1-3.)
- Obtain online help by clicking Help

Use this procedure to log into ANM.

## Procedure

**Step 1** Choose one the following:

• To log in after a new install (which uses the default web ports of 443 and 80 and therefore it is unnecessary to explicitly enter them), enter: https://<host>



If you want to log in using HTTP, you will need to change the properties file. See the "Changing Configuration Property Values" section on page 16-1 for details. Remember, if you enable HTTP, you are making your connection to the ANM less secure.

• To log in after an upgrade (which uses the previously non-default web ports of 10443 and 10080 and therefore it is necessary to explicitly enter them), enter: https://<host>:10443 or https://<host>:10080

Note

All browsers require that cookies, Javascript/scripting, and popup windows are enabled. If you reinstall a subsequent ANM release, delete the cookies and clear the browser cache.

For example, enter https://192.168.10.10. The login screen appears.

A new installation comes with predefined credentials; user name and password are both **admin**. Please use it for first time login.

**Step 2** In the User Name field, type **admin**.

**Note** If you are logging in using ACS authentication (TACACS or RADIUS), you *must* add '@<*organization>* to the username (initially admin as shown here) on the login page, or you will not be able to log in.

Once you are logged in using this account, you can create additional user accounts. For information on changing account passwords, see the "Modifying User Accounts" section on page 15-44.

**Step 3** In the Password field, type **admin.** 

This is the default password. We recommend you change the password after you install or upgrade. For information about changing the default password, see the "Changing Your Account Password" section on page 1-3.

## Step 4 Press Enter or click Login.

When you log in, the default window that appears is the **Config > Devices** screen. You can change your default window by editing your user profile. For a description of the user interface, see Figure 1-1. The interface will not contain data until you add devices by one of the methods described in the "Adding Network Devices into ANM" section on page 2-7.

- Changing Your Account Password, page 1-3
- ANM Interface Overview, page 1-5

# **Changing Your Account Password**

Use this procedure to change your account password.

### Procedure

- Step 1Using a web browser, navigate to the ANM login screen by typing the IP address or hostname where<br/>ANM is installed. For example, enter <a href="https://192.168.10.10">https://192.168.10.10</a>. The login screen appears.
- **Step 2** In the User Name field, enter your account user name.
- **Step 3** Click **Change Password**. The Change password configuration screen appears.
- Step 4 In the User Name field, enter the user name of the account you want to modify.
- **Step 5** In the Old Password field, enter the current password for this account.
- **Step 6** In the New Password field, enter the new password for this account.

Password attributes such as minimum and maximum length or accepted characters are defined at the organizational level. For more information on configuring passwords, see the "Configuring User Authentication" section on page 15-33.

- **Step 7** In the Confirm New Password field, reenter the new password for this account.
- Step 8 Click:
  - **OK** to save your entries and to return to the login screen.
  - Cancel to exit this procedure without saving your entries and to return to the login screen.

## **Related Topics**

- Logging Into the Cisco Application Networking Manager, page 1-1
- ANM Interface Overview, page 1-5

# **Understanding ANM Licenses**

In order for ANM to manage all your ACE devices, you must have the appropriate number of ANM licenses for your network devices. An ANM Server license comes with the software and must be uploaded to ANM after the installation in order for your software to work properly. ANM can manage up to two ACE devices with a default set of five virtual contexts each. You will need additional licenses for any devices you plan to manage beyond the standard configuration.

For detailed steps on adding new ANM licenses to expand the number of network devices you can manage, see the "Managing ANM Licenses" section on page 15-60. For details on how to install ACE licenses to increase the number of virtual contexts that you can create and manage on a device, see the "Managing ACE Licenses" section on page 3-27.

The ANM server also requires its own license (which you must install before ANM will work). For step-by-step instructions on uploading your ANM server license, see the *Installation Guide for the Cisco Application Networking Manager 2.1*.

## **Related Topics**

• Viewing ACE Licenses, page 3-28

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- Importing ACE Licenses, page 3-28
- Understanding ANM License Information, page 15-61
- Checking on License Compliance, page 15-64
- Viewing Licenses in License Management, page 15-63

# **ANM Interface Overview**

This section covers the following ANM interface components including:

- Understanding ANM Screens and Menus, page 1-7
- Understanding ANM Buttons, page 1-9
- Conventions in Tables, page 1-11
- ANM Screen Conventions, page 1-14

When you log into ANM, the default window that appears is the **Config > Devices** screen (similar to Figure 1-1 except that a new installation will have no devices or modules). You will need to import devices in order for your data to display in ANM. Table 1-1 describes the numbered fields.

Figure 1-1 ANM Interface Components



Field	Description
1	Navigation pane, which contains:
	• The high-level navigation path within the ANM interface, which includes Config, Monitor, and Admin. You can click an item in the navigation path to view that screen.
	• The Logout button.
	• A Help button for providing context-sensitive help and a PDF version of the ANM user guide.
	• An About button that provides ANM version information.
2	Second-level Navigation pane, which contains another level of navigation. Clicking an option in this pane displays the associated screen in the content area.
3	Content area, which contains the display and input area of the window. It can include tables, configuration screens, buttons, or combinations of these items.
4	Status bar, which indicates the date and time of the ANM server machine and is updated frequently.

Table 1-1 A	NM Interface	Components	Descriptions
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You can change the default window that appears when you log in by modifying user attributes under Admin > Role-Based Access Control > Users (see the "Modifying User Accounts" section on page 15-44).

- Understanding ANM Screens and Menus, page 1-7
- ANM Interface Overview, page 1-5

## **Understanding ANM Screens and Menus**

Figure 1-2 contains many common screen elements found in ANM and described in Table 1-2. Not all screens contain all buttons.

1			2	3
cisco	Application Networkin	g Manager onitor  Admin	Vvelcome ad	min Logout + Help
Devices     Operat     ns     Depl       Piter     Piter     Piter     Piter	y Global Tools Config > Devices > 5y Primary Attributes * Name: * Resource class: Tagged building block to apply: * Allocate-Teterface VI ANK: Description:	Admin Sticky ▼ ● N/A 10, 30, 25 this is a for ff "ccc" #\$% admin.		192.168/55.33:Admin
Virtual Context: 192:163.65.33:Admin System - Primary Attributes - Syslog - SNMP - Global Policy - Licenses - Application Acceleration and Op - Resource Classes Load Balancing - SSL - Security - Context - SSL - Security - Context - Sologia - SSL - Sologia - S	VLAN to use:     Management IP:     Management IP:     Management Netmask:     Protocols to Allow:     Default Gateway IP:     SNMP Community:	Image: Selected Items         Selected Items           Selected Items         Selected Items           Image: Selected Items         Selected It	Deploy Now	Change Pasar (vd ) Out of sync (22-Octs) 208 [14]
6		5		4

Figure 1-2 Example ANM Screen

Number	Description
1	Device tree, which appears when you click Config or Monitor. The device tree includes All Devices and Groups:
	• The All Devices folder expands to show the names of imported Cisco devices and their associated modules or virtual contexts. When you click the plus sign (+) in front of a chassis icon, you can see a list of the modules in the chassis. When you expand an ACE appliance or ACE module, you can see the list of existing virtual contexts for that device. For more information about adding devices, see the "Adding Network Devices into ANM" section on page 2-7.
	• The Groups folder contains the list of user-defined groups. For more information about user-defined groups, see the "Configuring User-Defined Groups" section on page 2-57.
	The Organization tree displays when you click Admin > Role-Based Access Control. The organization tree includes all organizations in ANM. Selecting an organization name displays its details.
	To expand folders in the device tree, click the plus sign (+) to the right of an option. To collapse the structure, click the minus sign (-). Double-clicking on objects results in various actions; for example, displaying the object's configuration screen.
	At the top of the tree are the following buttons:
	• Refresh—Refreshes the device tree after you have imported devices or made changes to the User Groups.
	• Plus sign (+) —Allows you to add an item to the selected option in the device tree.
	• Garbage can—Deletes the selected entry.
	<b>Note</b> Menus are based on device types. Although menu labels are the same for different device types, the actual menu definition is different. For this reason, it is not possible to preserve the menu state while traversing from a module to a virtual context and vice-versa in the device tree.
2	Option menus, which appear in Config screens. Click the icon on the bar to show or hide the options.
3	Object selector. Use this field to choose a device, context, building block, or other object that you want to view information on or configure. This filters what is displayed in the content area.
4	Command buttons. Use these buttons to perform the action identified by the button label.
5	Input fields. Use these fields to make selections and provide information. When there are more than three choices for any field, the field displays as a dropdown list. Otherwise, selections display with radio buttons.
6	Feature panel that contains functions that correspond to what is selected in the device or organization tree. Click on a command to expand the list of options that correspond to that command.

Table 1-2	Example ANM Screen Descriptions
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## **Related Topics**

- Understanding ANM Buttons, page 1-9
- ANM Screen Conventions, page 1-14

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## **Understanding ANM Buttons**

<u>Note</u>

Table 1-3 describes the buttons that appear in some of the Config, Monitor, and Admin screens.

ANM documentation, including online help, uses the names of buttons in all procedures. For example, "Click **Next** to deploy the current entry and add another entry."

Button	Name	Description
¢	ACL table (Expand)	Click to expand all ACL table entries.
¢.	ACL table (Collapse)	Click to collapse all ACL table entries.
¢	ACL table (Resequence)	Click to open the resequence popup window that allows you to reorder the ACL table entries.
+	Add	Lets you add an entry to the displayed table.
>*	Add Another	Saves the current entries and refreshes the screen so you can add another entry.
<b>\$</b>	Advanced Editing Mode	Lets you view or enter advanced arguments for the selected display.
Ð	Auto Refresh (Pause)	Allows you to interrupt the table data autorefresh process.
	Auto Refresh (Resume)	Indicates that the table data autorefresh process is on pause and allows you to resume.
555	Customize	Lets you customize the table to suit your needs. (See the "Customizing Tables" section on page 1-12.)
3	Delete	Deletes the selected entry in the table.

Table 1-3 **Button Descriptions** 

Button	Name	Description
IJ	Duplicate	Duplicates the selected entry in the table.
ď	Edit	Opens the configuration screen of a selected entry in the table.
Y	Filter	Filters the displayed list of items according to the criteria you specify. (See the "Filtering Entries" section on page 1-11.) Also displays a filter text box where strings can be entered.
Go	Go	Appears when filtering is enabled; updates the table with the filtering criteria.
P	Key	Indicates that the associated field is a foreign key field; that is, one that takes its values from another table.
*	Plus	Displays a table with information related to the field where Plus appears. For example, if Plus appears next to the field label <i>VLAN Group</i> , clicking Plus displays a list of all VLAN groups in a separate window.
ę	Refresh	Refreshes the content area.
	Save	Displays the current information in a new window in either raw data or Excel format so you can save it to a file or print it.
	Screen View (Full)	Allows you to adopt a larger (full) screen view for table.
ľ	Screen View (Normal)	Allows you to adopt a smaller (normal) screen view for table.
	Sort	Sorts a column alphabetically up or down.
	Stop	Stops the current process. If a process is only partially complete, it will finish its current operation and exit. For example, when stop is used during the import of two modules, it will complete only the first of two module imports.

Table 1-3Button Descriptions

Button	Name	Description		
54	Switch between Configure and Browse modes	Displays the subtables for those items that have additional sets of parameters that can be configured, such as Config > Devices > Network > VLAN Interfaces.		
		<ul> <li>Note This button is not available on single-row tables such as Config &gt; Devices &gt; System &gt; Syslog or Config &gt; Devices &gt; System &gt; SNMP. To switch between these modes, navigate to another screen where the button appears (for example, Config &gt; Devices &gt; Load Balancing &gt; Server Farms), click the button to enter desired mode, then return to the screen on which the button was missing. You will remain in the mode you selected.</li> </ul>		
×	View Excel	View the raw data in Excel format in a separate browser window.		
	View Raw Data	View the raw data in table format.		

Table 1-3 Button Descriptions

### **Related Topics**

- Understanding ANM Screens and Menus, page 1-7
- ANM Screen Conventions, page 1-14

## **Conventions in Tables**

## **Filtering Entries**

Click **Filter** to view table entries using criteria you select. When filtering is enabled, a filter row appears above the first table entry that allows you to filter entries in the following ways:

- In fields with drop-down lists, choose one of the ANM-identified categories (see Figure 1-3). The table refreshes automatically with the entries that match the selected criterion.
- In fields without drop-down lists, enter the string you want to match, and then click **Go** above the first table entry. The table refreshes with the entries that match your input.
- Enter the string in the filter box. For example, by entering the string *gold* and clicking **Go**, only the gold Resource Class virtual contexts will be displayed (see Figure 1-3).

Virtual Contexts 🛛 🛃 🖬 📾				🛛 🕎 🖬 🛐 Filter		
	Name 🔻	Resource Class	Building Block	Config Status	Management IPs	Polling Status
Ge		gold		*All* 🔽		
1	🔘 ×192.168.65.130:2:Admin	gold		✓ок	192.168.61.22, 192.168.65.131	✓Started
2	🔿 ×192.168.65.130:2:jchlin	gold		✔ок	N/A	🗥 Not Polled
3	×192.168.65.130:2:mpc-test	gold		✔ОК	N/A	🗥 Not Polled
4	🔿 x192.168.65.130:2:Sachin	gold		ᡇ Out of sync	N/A	\Lambda Not Polled
5	🔘 ×192.168.65.130:2:sameer	gold		✔ок	10.10.10.10	A Missing SNMP Credentials
6	×192.168.65.130:2:TD0607	gold		✓ок	N/A	🗥 Not Polled

## Figure 1-3 Example Table with Filtering Enabled

## **Related Topics**

- ANM Interface Overview, page 1-5
- Customizing Tables, page 1-12
- Using the Advanced Editing Option, page 1-14

## **Customizing Tables**

Click **Customize** in a table to configure the table to suit your needs.

When you place the cursor over **Customize**, the following items appear:

- Default—When selected with a check mark, this item indicates that the ANM default table format is being used by the current table.
- Configure—When selected, this item opens a dialog box that allows you to create a new customized table format or to modify the table format currently in use.

Use this procedure to customize tables for your use.

## Procedure

- **Step 1** When viewing a table, choose **Customize > Configure**. The List Configuration dialog box appears.
- **Step 2** In the List Configuration dialog box, enter the information in Table 1-4.



Depending on the table you select, the available fields in the configuration table differ. Table 1-4 includes sample fields that might appear.



You can be as inclusive or as restrictive as you like when setting table configuration options. The criteria are cumulative and greater specificity results in fewer results.

Table 1-4	Table Configuration Attributes
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Field	Description
List Customization Name	Enter a unique name for a new table configuration.
Fields	To include fields in the table, choose the fields from the Available Items list, and then click <b>Add</b> . To remove fields from the table, choose the fields from the Selected Items list, and then click <b>Remove</b> .

Field	Description
Up/Down	To change the location of a column in the table, choose its name in the column on the right, and then click <b>Up</b> or <b>Down</b> to place it in the desired location.
Group By	Choose the field you want to group entries by.
	When you choose a field for grouping, one or more entries appears in the table with + at the beginning of the entry, the name of the field, the grouping criteria, and the number of items in the group. Click + to view all entries in the group.
Descending	Choose the Descending check box to sort the groups in reverse order. Clear the Descending check box to sort the groups in ascending order.
Sort By	Choose field you want to sort entries by.
	When you choose a field for sorting, all entries in the table are sorted according to the values in the selected field.
Name Filter	Where <i>Name</i> represents the name of each field in the table.
	Enter the string or value you want to filter the results by.
	You can enter complete or partial strings or values to be matched. Do not include wildcard characters.
Version Filter	Where Version represents the name of each field in the table.
	Enter the string or value you want to filter the results by.
	You can enter complete or partial strings or values to be matched. Do not include wildcard characters.

#### Table 1-4 Table Configuration Attributes (continued)

#### Step 3 Click:

- Save to save your entries under a new name and to close the List Configuration dialog box. If a table using this format is displayed, the table is updated automatically.
- Cancel to exit the procedure without saving your entries and to close the List Configuration dialog box.
- Apply to apply your current entries to the table you are viewing, save your entries, and to close the List Configuration dialog box.
- **Delete** to delete the currently selected customized table format. It no longer appears as an option when you click Customize.

- ANM Interface Overview, page 1-5
- Conventions in Tables, page 1-11
- Using the Advanced Editing Option, page 1-14

## **Using the Advanced Editing Option**

By default, tables include columns that contain configured attributes, or a subset of columns related to a key field.

To view all configurable attributes in table format, click **Advanced Editing Mode** (the highlighted button in Figure 1-4). When advanced editing mode is enabled, all columns appear for your review (see Figure 1-4).



Ð	Config >Devices >Expert >Class Map cat130:2:Admin 💌						
	Class Map 🛃 🔂 💀 🔂 🕅 🖓 🖬 🔂 🕅 🕬					C	
^	/pe Description	Match Type	Class Map Type	ßName ▼			
	all	Match-all	Layer 3/4 Management Traffic	1	•		
	iny	Match-any	Layer 3/4 Management Traffic	IM_management	0		
	iny	Match-any	Layer 7 Server Load Balancing	IM_management112	0		
	all	Match-all	Layer 3/4 Network Traffic	4 🔾 asafds			
	iny	Match-any	Layer 3/4 Management Traffic	5 🔿 C1			
	all	Match-all	Layer 3/4 Management Traffic	6 🔿 cm1			
	all	Match-all	Layer 3/4 Network Traffic	7 Cm-vip			
	iny	Match-any	Layer 7 Server Load Balancing	8 🔿 cm_bypass			
~	iny	Match-any	Layer 7 HTTP Deep Packet Inspection	9 🔿 cm_http10			
	Match Condition						
	Match Condition @ 111 🛛 🛃 🕅 Filter						
	Protocol Type	Mgmt Pro	Match Condition Type	🍞 Seq Number			
<b>.</b>		TELNET	Management	2	0		
411							
	all ny ny Protocol Type	Mach-all Match-any Match-any t e g Mgmt Pro TELNET	Layer 3/4 Network Traffic Layer 7 Server Load Balancing Layer 7 HTTP Deep Packet Inspection Match Condition Type Management	7         cm-vip           8         cm_bypass           9         cm_http10   Match Condition Match Condition           1         ⊙           2			

## **Related Topics**

- ANM Interface Overview, page 1-5
- Conventions in Tables, page 1-11
- Customizing Tables, page 1-12

## **ANM Screen Conventions**

Table 1-5 describes other conventions used in ANM screens.

Table 1-5

5	ANM	Screen	Conventions
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Convention	Example	Description	
Dimmed field	Dns	If no items are selected, buttons are dimmed. If an item is selected, only viable buttons appear.	
Red asterisk	* Policy Name:	A red asterisk indicates a required field.	
Yellow field with red font 1234 Bad IP Address		Incorrect, invalid, or incomplete entries appear as red font against a yellow background along with the reason for that error. In the example, an IP address cannot begin with four digits, resulting in this display.	

Convention	Example	Description		
Highlighted text and red numerals on device icons	⊡	Selected text is highlighted in yellow in the Devices or Organizations pane. Menu path names are highlighted in green. Table text highlights are yellow until selected, then turn green.		
	← c250 □- <b>63</b> s34	Note that device icons in the device tree may display red numerals indicating the device type:		
		• No number = ACE 1.0 modules		
		• $2 = ACE 2.0$ modules		
		• 3 = ACE appliances		
Dropdown lists	* Policy Name:         255,255,255,224           * VLAN to use:         255,255,255,240           * VLAN to use:         255,255,255,248           * Stage and the stage	When there are more than three choices for any field, the field displays as a dropdown list. Otherwise, selections display with radio buttons.		

	Table 1-5	ANM Screen (	Conventions	(continued)
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## **Related Topics**

- Conventions in Tables, page 1-11
- ANM Interface Overview, page 1-5

# Understanding Cisco Application Networking Manager Terminology

It is useful to understand the following terms when using the ANM:

• ACE

Cisco Application Control Engine, available as a module that resides in a Cisco Catalyst 6500 series chassis, Cisco 7600 series router, or as a standalone appliance. The ACE offers high-performance server load balancing (SLB), routing and bridging configuration, traffic policies, redundancy (high availability), virtualization for resource management, SSL, security features, and application acceleration and optimization.

• Object

A physical entity, service, or resource that can be managed using the ANM

• Organizations

An organization allows you to configure AAA server lookup for your users or set up users who work for a service provider customer. Organizations in the Cisco ANM system are defined by the system administrator.

Resource class

A resource class is a defined set of resources and allocations available for use by a virtual context. Using resource classes prevents a single context from using all available resources.

User contexts

There are two types of user contexts:

Admin context

The Admin context, which contains the basic settings for each virtual device or context, allows a user to configure and manage all contexts. When a user logs into the Admin context, he or she has full system administrator access to the entire ACE and all contexts and objects within it. The Admin context provides access to network-wide resources, for example, a syslog server or context configuration server. All global commands for ACE settings, contexts, resource classes, and so on, are available only in the Admin context.

- User context

A user context has access to the resources in which the context was created. For example, a user context that was created by an administrator while in Admin context, by default, has access to all resources in an ACE device. Any user created by someone in a user-defined context, only has access to the resources within that context. In addition, roles are assigned to users, which determine the commands and resources that are available to that user.

• Virtual context

A virtual context is a concept that allows users to partition an ACE into multiple virtual devices. Each virtual context contains its own set of policies, interfaces, and resources, allowing administrators to more efficiently manage system resources and services.

• Virtual server

In a load-balancing environment, a virtual server is a construct that allows multiple physical servers to appear as one for load-balancing purposes. A virtual server is bound to physical services running on real servers in a server farm and uses IP address and port information to distribute incoming client requests to the servers in the server farm according to a specified load-balancing algorithm.

- ANM Interface Overview, page 1-5
- Conventions in Tables, page 1-11
- Glossary