



# APPENDIX **B**

## Using the ANM Plug-In With Virtual Data Centers

---

**Date:** 7/17/12

This appendix describes how to integrate ANM sever with VMware vCenter Server, which is a third-party product for creating and managing virtual data centers. Using VMware vSphere Client, you can access ANM functionality and manage the ACE real servers that provide load-balancing services for the virtual machines in your virtual data center.



**Note**

---

When naming ACE objects (such as a real server, virtual server, parameter map, class map, health probe, and so on), enter an alphanumeric string of 1 to 64 characters, which can include the following special characters: underscore (\_), hyphen (-), dot (.), and asterisk (\*). Spaces are not allowed.

If you are using ANM with an ACE module or ACE appliance and you configure a named object at the ACE CLI, keep in mind that ANM does not support all of the special characters that the ACE CLI allows you to use when configuring a named object. If you use special characters that ANM does not support, you may not be able to import or manage the ACE using ANM.

---

This appendix includes the following sections:

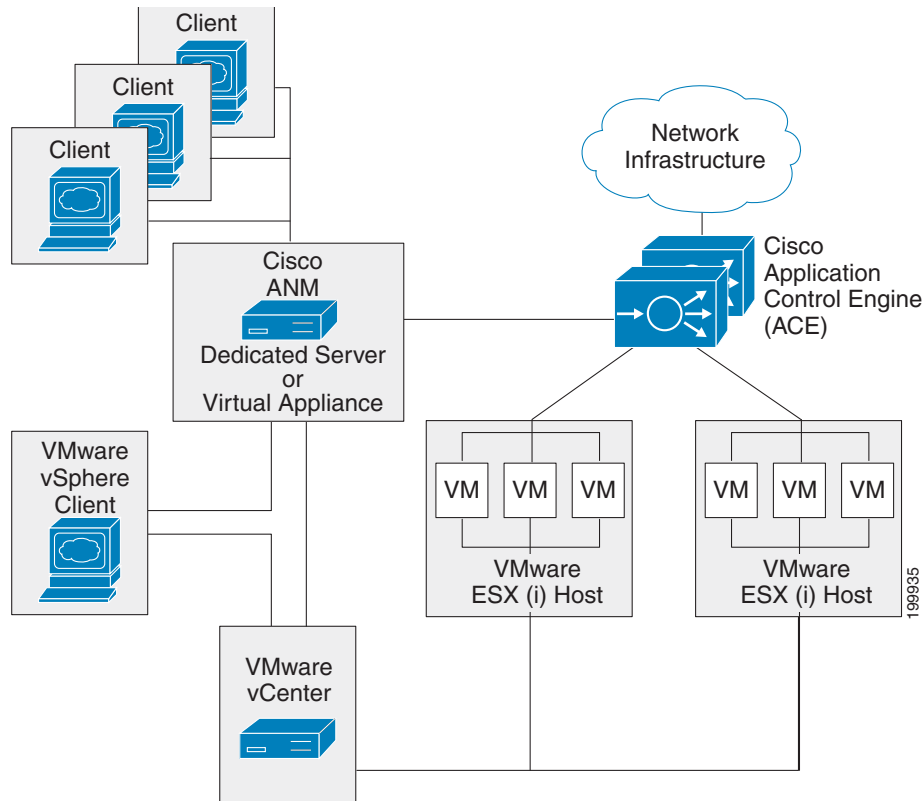
- [Information About Using ANM With VMware vCenter Server, page B-2](#)
- [Information About the Cisco ACE SLB Tab in vSphere Client, page B-3](#)
- [Prerequisites for Using ANM With VMware vSphere Client, page B-4](#)
- [Guidelines and Restrictions, page B-5](#)
- [Registering or Unregistering the ANM Plug-in, page B-5](#)
- [Logging In To ANM from VMware vSphere Client, page B-7](#)
- [Using the Cisco ACE SLB Tab, page B-8](#)
- [Managing ACE Real Servers From vSphere Client, page B-12](#)
- [Using the VMware vSphere Plug-in Manager, page B-22](#)

## Information About Using ANM With VMware vCenter Server

This section describes how you can integrate ANM server into a VMware virtual data center environment. This feature enables you to access ANM functionality from within the VMware environment to provision the application delivery services that the ACE real servers provide.

ANM version 3.1 and later includes the ANM plug-in for vCenter Server that enables the integration of ANM with the VMware environment as shown in [Figure B-1](#).

**Figure B-1 ANM Integrated With VMware vCenter Server and vSphere Client**



From the ANM GUI, you register the ANM plug-in by specifying a VMware vCenter Server and ANM server attributes that enables ANM to communicate with VMware vCenter Server and vSphere Client using HTTPS and default port 443. When the plug-in is registered, the VMware vSphere Client GUI displays the Cisco ACE SLB tab when you select a virtual machine (VM) from the client GUI.

You click on the Cisco ACE SLB tab to log into ANM from the VMware vSphere Client and perform the following tasks:

- Define a virtual machine (VM) as a real server on ANM and associate it with an existing ACE virtual context and server farm.
- Monitor application traffic flow for virtual machines through the ACE.
- Activate and suspend application traffic flows through the ACE for the associated real servers.
- Add or delete real servers from the list of servers associated with a VM.

**Note**

In addition to ACE devices, the Cisco ACE SLB tab also displays services on the Content Services Switch (CSS) and real servers on the Cisco Content Switching Module (CSM) devices associated with a virtual machine. For these device types, from the Cisco ACE SLB tab, you can activate or suspend the services or real servers but you cannot add or delete these items.

For information about how ANM maps real servers to VMware virtual machines, see the “[Mapping Real Servers to VMware Virtual Machines](#)” section on page 5-66.

For more information about the Cisco ACE SLB tab, see the “[Information About the Cisco ACE SLB Tab in vSphere Client](#)” section on page B-3 and “[Using the Cisco ACE SLB Tab](#)” section on page B-8.

## Information About the Cisco ACE SLB Tab in vSphere Client

This section describes the components of the Cisco ACE SLB tab that display in vSphere Client when you choose a VM from the VM tree (see [Figure B-2](#)).

**Figure B-2** Cisco ACE SLB Tab in vSphere Client

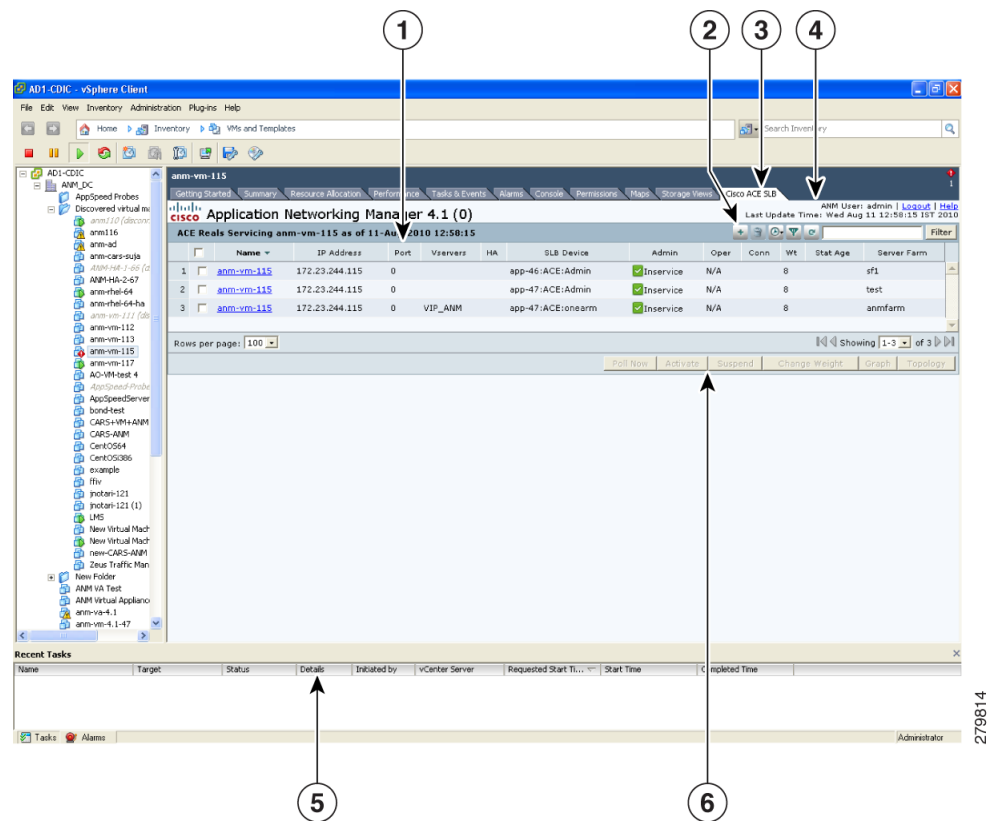


Table B-1 describes the callouts in [Figure B-2](#).

Table B-1 Cisco ACE SLB Tab Components

Item	Description
1	Content area that displays the ACE real servers associated with the VM that you select from the VM tree located on the left (see the <a href="#">“Using the Cisco ACE SLB Tab”</a> section on page B-8).
2	Upper set of function buttons that enable you to add or delete real servers from the content area and manage the displayed information (see the <a href="#">“Using the Cisco ACE SLB Tab”</a> section on page B-8).
3	Cisco ACE SLB tab that you click to display and manage the ACE real servers for the selected VM.
4	Session information that provides the following information and functions: <ul style="list-style-type: none"> <li>• Current user logged into ANM.</li> <li>• Logout link that you click on to close the session.</li> <li>• Help link that you click on to open the ANM online help for the Cisco ACE SLB tab.</li> <li>• ANM server time stamp of when the information displayed in the tab was last updated.</li> </ul>
5	Recent Tasks area that displays VMware tasks.
6	Lower set of function buttons that you use to update the information displayed, activate or suspend a real sever, change the weight assigned to a real server, view real server connection information in graph form, view the topology map associated with a real server.  For more information about these function buttons, see the following sections: <ul style="list-style-type: none"> <li>• <a href="#">“Using the Cisco ACE SLB Tab”</a> section on page B-8</li> <li>• <a href="#">“Managing ACE Real Servers From vSphere Client”</a> section on page B-12).</li> </ul>

## Prerequisites for Using ANM With VMware vSphere Client

The prerequisites for integrating ANM with VMware vCenter Server and vSphere Client are as follows:

- You must use ANM version 3.1 or later with VMware vSphere 4 or vSphere 5.
- You must register the ANM plug-in from within ANM to enable communication between the two applications (see the [“Registering or Unregistering the ANM Plug-in”](#) section on page B-5).
- If you are running VMware vSphere Client on a Windows Server 2003 or 2008 operating system, make sure that the following Internet security options (Internet options > Security setting) are enabled:
  - Allow META REFRESH
  - Allow scripting of Internet Explorer web browser control

These options are not enabled by default. If they are disabled, the ANM plug-in will not allow you to log in to ANM for security reasons or you may encounter refresh problems with the Cisco ACE SLB tab.



### Note

We recommend that you have VMware Tools installed on the guest OS of each VM to allow ANM to match a real server with a VM based on the IP address rather than a server name (see the [“Mapping Real Servers to VMware Virtual Machines”](#) section on page 5-66).

# Guidelines and Restrictions

Follow these guidelines and restrictions when integrating ANM with VMware vCenter Server and vSphere Client:

- There are no shared logins or trust established between ANM and vCenter Server when you open a session between the two servers.
- You can configure both ANM and vCenter Server to use Active Directory for authentication.
- From ANM, you must register the ANM plug-in before you can see the Cisco ACE SLB tab from VMware vSphere Client (see the [“Registering or Unregistering the ANM Plug-in” section on page B-5](#)). When you register the plug-in, the VMware vSphere Client display refreshes and displays the Cisco ACE SLB tab.
- ANM supports one registered ANM plug-in instance only, which means that you can register only one plug-in at any given time.

For example, if you register the plug-in from ANM Server A and then register the plug-in from ANM Server B, the following actions occur:

- The ANM Server A plug-in is unregistered.
- Any VMware vSphere Client that was running when the ANM Server B plug-in was registered will continue to display ANM Server A’s information in the Cisco ACE SLB tab. You must restart VMware vSphere Client to access and display ANM Server B’s information.
- If you are going to uninstall ANM from the ANM server, make sure that you unregister the ANM plug-in before you uninstall ANM. If you do not unregister the plug-in before the uninstall, from VMware vSphere Client, the plug-in will display as registered but will fail to load.

For information about unregistering the ANM plug-in, see the [“Registering or Unregistering the ANM Plug-in” section on page B-5](#). For information about uninstalling ANM, see one of the following guides depending on your ANM application:

- *Installation Guide for Cisco Application Networking Manager 4.3*
- *Installation Guide for the Cisco Application Networking Manager 4.3 Virtual Appliance*

## Registering or Unregistering the ANM Plug-in

**Note**

---

This feature requires the admin role for ANM.

---

This section describes how to register the ANM plug-in from ANM, which allows you to access ANM ACE real server functionality from VMware vSphere Client. Registering the plug-in provides the client with a URL to access ANM and retrieve the required XML definition file. ANM uses HTTPS for communication with VMware vCenter Server.

You can also unregister the ANM plug-in from ANM.

**Note**

---

Unregistering the ANM plug-in does not prevent access to the ANM server or remove the Cisco ACE SLB tab from any VMware vSphere Client display that was running when you unregistered the plug-in. You must restart the client to remove the Cisco ACE SLB tab from the display. A VMware vSphere Client restart is also required when you unregister a ANM plug-in from one ANM server and register another plug-in from a second ANM server.

---

**Guidelines and Restrictions**

When registering the ANM plug-in, you specify the VMware vCenter Server and ANM server. If you specify the servers using server names rather than IP addresses, the names must be in DNS and must be consistent throughout the network. If the server names reside only in local /etc/host files, then use IP addresses in place of the server names; otherwise, the ANM server and vCenter Server may not be able to communicate and errors may occur, including the inability to enable the plug-in or the inability for real server mapping (empty tables).



**Procedure**

**Step 1** From ANM, choose **Admin > ANM Management > Virtual Center Plugin Registration**.

The VMware Virtual Center PlugIn Registration window appears.

**Step 2** Register or unregister the ANM plug-in using the information in [Table B-2](#).

**Table B-2** Virtual Center Plugin Registration

Field	Description
Virtual Center Server	IP address of the VMware vCenter Server.  <b>Note</b> Do not use a DNS name to specify the vCenter Server.
Port	Port number of the VMware vCenter Server.
Virtual Center Server Username	VMware vCenter Server username that has the administrator role or an equivalent role that has privilege on “Extension.”
Virtual Center Server Password	Password that corresponds to the VMware vCenter Server username.
ANM Server	DNS name or IP address of the ANM server that will be used by VMware vSphere Client. By default, ANM populates this field with the virtual IP address or hostname or all of the available IP addresses. If you enter a DNS name, make sure that the name can be resolved on the VMware vSphere Client side of the network.  <b>Note</b> For ANM servers operating in an HA configuration, choose the shared alias IP address or VIP address for the HA pair so that the plug-in can still be used after an HA failover occurs.
Status	Current status of the registration or unregistration operation. Possible status states are as follows: <ul style="list-style-type: none"> <li>• Blank (no status displayed)—The registration operation has not been invoked.</li> <li>• Success in registration—ANM has successfully completed the registration operation.</li> <li>• Failure—ANM is unable to complete the registration operation and displays an error message that indicates the problem encountered (see <a href="#">Table B-3</a>).</li> <li>• Registering—ANM is in the process of registering the ANM plug-in. This state displays when you click the Registration button a second time before the process is complete.</li> <li>• Success in unregistration—ANM has successfully completed the unregistration operation.</li> </ul>

**Step 3** Do one of the following:

- Click **Register** to register the ANM plug-in. ANM can now be accessed through VMware vSphere Client (see the [“Logging In To ANM from VMware vSphere Client”](#) section on page B-7).
- Click **UnRegister** to unregister the ANM plug-in.

Table B-3 describes the error messages that ANM can display when it encounters a problem with registering the plug-in.

**Table B-3** Virtual Center Registration Failure Messages

Error Message	Root Cause
Virtual center is not reachable, please correct value for the virtual center IP address or DNS name.	The ANM server is unable to ping the specified VMware vCenter Server DNS name or IP address.
Cannot access virtual center web service interface, please make sure that the value of the virtual center server is correct or the virtual server is up and running.	The ANM server is able to ping VMware vCenter Server but it cannot connect to the webservice API. Most likely, the specified DNS name or IP address does not have the virtual center server running or the virtual server is not running.
Invalid username or password for virtual center, please make sure that the username and password is correct.	The specified username or password for VMware vCenter Server is not valid.
User does not have permission to register or unregister plugin on virtual center server.	The specified username is not the VMware vCenter Server administrator or does not have privilege on extension (plugin register/unregister/update).

## Logging In To ANM from VMware vSphere Client

This section describes how to log into ANM from VMware vSphere Client and establish a session for accessing ANM functionality. The session remains active unless there is a web timeout, you log out, or there is an ANM or VMware vCenter Server restart. The default web session inactivity timeout is 30 minutes.

### Prerequisites

From ANM, you must have the ANM plug-in registered before you can log into ANM from VMware vSphere Client (see the [“Registering or Unregistering the ANM Plug-in”](#) section on page B-5).

### Guidelines and Restrictions

This topic includes the following guidelines and restrictions:

- When registering the ANM plug-in, you specify the VMware vCenter Server and ANM server. If you specify the servers using server names rather than IP addresses, the names must be in DNS and must be consistent throughout the network. If the server names reside only in local /etc/host files, then use IP addresses in place of the server names; otherwise, the ANM server and vCenter Server may not be able to communicate and errors may occur, including the inability to enable the plug-in and log in to ANM or the inability for real server mapping (empty tables). For information about registering the plug-in, see the [“Registering or Unregistering the ANM Plug-in”](#) section on page B-5.

- When logging into ANM from VMware vSphere Client and you have ANM configured to use remote authentication, such as RADIUS, TACACS+, or LDAPS/AD, use the credentials assigned to you for the specific remote authentication method.

### Procedure

- 
- Step 1** From VMware vSphere Client, do one of the following:
- To access ANM within the VMware vSphere Client window, choose a VM from the VM tree and click the **Cisco ACE SLB** tab.
  - To access ANM in a new browser window, right-click on a VM in the VM tree to open the submenu and choose **Cisco ACE Activate/Suspend**.
- The Security Alert popup window appears. This popup appears because ANM uses a Cisco self-signed certificate.
- Step 2** From the Security Alert popup window, click **Yes** to proceed.
- The popup window closes and the ANM login window appears. By default, the name of the user currently logged into VMware vSphere Client displays in the User Name field.
- Step 3** Enter your username (if it is not already displayed) and password.
- Step 4** Click **Login**.
- The Cisco Application Networking Manager window appears in the Cisco ACE SLB tab. For information about what displays in this window, see the [“Using the Cisco ACE SLB Tab” section on page B-8](#). For information about how to use this window to manage the real servers, see the [“Managing ACE Real Servers From vSphere Client” section on page B-12](#).
- Step 5** (Optional) To log out of ANM, click **Logout**.
- The session closes and the ANM login window appears in the Cisco ACE SLB tab.
- 

## Using the Cisco ACE SLB Tab

This section describes the Cisco device information and management functionality that is available when you click the Cisco ACE SLB tab.



### Note

The ACE real server information displays only after you log into ANM from VMware vSphere Client (see the [“Logging In To ANM from VMware vSphere Client” section on page B-7](#)).

The Cisco ACE SLB tab contains the ACE Reals (real servers) table. [Table B-4](#) describes the real server information available in the table.



**Table B-4**      **ACE Reals Table Fields**


Field	Description
Name	<p>Name of real server on the ACE, CSS, CSM, or CSM-S. Although the Cisco ACE SLB tab is primarily used to monitor and manage ACE real servers, you can also monitor, activate, and suspend CSS, CSM, and CSM-S devices from this tab.</p> <p>The real server name is a link that displays the Real Server Details popup window, which provides operating information about the server (see the <a href="#">“Monitoring Real Server Details Using vSphere Client”</a> section on page B-19).</p>
IP Address	Real server IP address.
Port	Real server port number.
Admin State	<p>Administrative state of the real server as follows:</p> <ul style="list-style-type: none"> <li>• In Service</li> <li>• Out Of Service</li> <li>• In Service Standby.</li> </ul> <p> <b>Note</b> For CSM and CSM-S real servers, ANM infers the admin state based on the operational state that it receives through SNMP rather than the CLI, which may result in an admin state display that is not correct. For example, when you change the operational state of a CSM real server from Out of Service to Inservice, the admin state display should also change to In Service; however, the admin state display may remain set to Out of Service.</p>

Table B-4 ACE Reals Table Fields (continued)

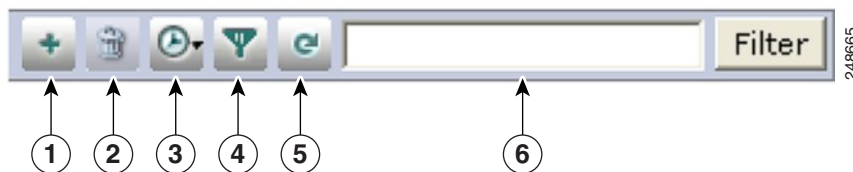
Field	Description
Oper State	<p>Operational state of the real server as follows:</p> <ul style="list-style-type: none"> <li>• ARP Failed—Corresponding VLAN interface is not configured for the real server.</li> <li>• Failed—Server has failed and will not be retried for the amount of time specified by its retry timer.</li> <li>• Inband probe failed—Server has failed the inband Health Probe agent.</li> <li>• Inservice—Server is in use as a destination for server load balancing client connections.</li> <li>• Inservice standby—Server is the backup real server, which remains inactive unless the primary real server fails.</li> <li>• Operation wait—Server is ready to become operational but is waiting for the associated redirect virtual server to be in service.</li> <li>• Out of service—Server is not in use by a server load balancer as a destination for client connections.</li> <li>• Probe failed—Server load-balancing probe to this server has failed. No new connections will be assigned to this server until a probe to this server succeeds.</li> <li>• Probe testing—Server has received a test probe from the server load balancer.</li> <li>• Ready to test—Server has failed and its retry timer has expired; test connections will begin flowing to it soon.</li> <li>• Return code failed—Server has been disabled because it returned an HTTP code that matched a configured value.</li> <li>• Test wait—Server is ready to be tested. This state is applicable only when the server is used for HTTP redirect load balancing.</li> <li>• Testing—Server has failed and has been given another test connection. The success of this connection is not known.</li> <li>• Throttle: DFP—DFP has lowered the weight of the server to throttle level; no new connections will be assigned to the server until DFP raises its weight.</li> <li>• Throttle: max clients—Server has reached its maximum number of allowed clients.</li> <li>• Throttle: max connections—Server has reached its maximum number of connections and is no longer being given connections.</li> <li>• Unknown—State of the server is not known.</li> </ul>
Conns	Number of concurrent connections.
Weight	Weight assigned to the real server.
Server Farm	Server farm that the real server is associated with.
Vserver	Name of the Vserver.

**Table B-4** ACE Reals Table Fields (continued)

Field	Description
Device	ACE, CSS, CSM, or CSM-S on which the real server is configured.
HA	<p>Indicators that display when the real server is part of a high availability pair. The indicators are as follows:</p> <ul style="list-style-type: none"> <li>Asterisk (*)—The real server is associated with an HA pair and the HA configuration is complete.</li> <li>Red dash (-)—The real server is associated with an HA pair; however, the HA configuration is incomplete. Typically, the HA pair are not properly configured for HA or only one of the servers has been imported into ANM. Ensure that both servers are imported into ANM and that they are configured as described in the “<a href="#">Configuring ACE High Availability</a>” section on page 13-13.</li> </ul> <p>The table displays HA pair real servers together in the same row and they remain together no matter how you sort the information.</p>



In the table, N/A indicates that either the information is not available from the database or that it is not being collected through SNMP.

The Cisco ACE SLB tab also contains a number of function buttons that enable you to manage the displayed information and the real servers. [Figure B-3](#) shows the function buttons that are located at the top of the ACE Reals table.

**Figure B-3** Cisco ACE SLB Tab Upper Function Buttons

[Table B-5](#) describes each of the function buttons shown in [Figure B-3](#)

**Table B-5** The Cisco ACE SLB Tab Upper Function Button Descriptions

Number	Function	Description
1	Add	<p>Adds a real server to the list of servers that can service the VM (see the “<a href="#">Adding a Real Server</a>” section on page B-13).</p> <p> <b>Note</b> This feature is available for ACE devices only.</p>
2	Delete	<p>Deletes the selected server from the list of servers that can service the VM (see the “<a href="#">Deleting a Real Server Using vSphere Client</a>” section on page B-14).</p> <p> <b>Note</b> This feature is available for ACE devices only.</p>
3	AutoRefresh	Enables the auto refresh feature and sets the refresh cycle time. Values are Off, 30 seconds, 1 minute, 2 minutes, or 5 minutes.
4	Filter	Enables the column filter and provides access to saved filters.

**Table B-5** The Cisco ACE SLB Tab Upper Function Button Descriptions

Number	Function	Description
5	Refresh	Refreshes the window.
6	Filter tool	Filters over all columns.

Table B-6 describes the function buttons located across the bottom of the Cisco ACE SLB tab.

**Table B-6** Cisco ACE SLB Tab Lower Function Button Descriptions

Function	Description
Poll Now	Polls the device to update the displayed information (see the <a href="#">“Refreshing the Displayed Real Server Information”</a> section on page B-20).
Activate	Activates the services of the selected server (see the <a href="#">“Activating Real Servers Using vSphere Client”</a> section on page B-15).
Suspend	Suspends the services of the selected server (see the <a href="#">“Suspending Real Servers Using vSphere Client”</a> section on page B-16).
Change Weight	Changes the weight of the selected server (see the <a href="#">“Modifying Real Server Weight Value Using vSphere Client”</a> section on page B-18).
Graph	Displays connection information for a selected real server in graph form. To exit a graph view and return to the ACE Real Server table, click <b>Exit Graph</b> .
Topology	Displays a network topology map for a selected real server (see <a href="#">“Displaying Network Topology Maps”</a> section on page 17-67). To exit a topology map and return to the ACE Real Server table, click <b>Exit</b> .

#### Related Topics

- [Information About Using ANM With VMware vCenter Server, page B-2](#)
- [Logging In To ANM from VMware vSphere Client, page B-7](#)
- [Managing ACE Real Servers From vSphere Client, page B-12](#)
- [Using the VMware vSphere Plug-in Manager, page B-22](#)

## Managing ACE Real Servers From vSphere Client

This section describes how to perform real server management tasks from the Cisco ACE SLB tab after you log into ANM from VMware vSphere Client (see the [“Logging In To ANM from VMware vSphere Client”](#) section on page B-7). These tasks include adding a VM as a real server to an existing server farm or suspending and activating the operation of a real server associated with a VM.

This section includes the following topics:

- [Adding a Real Server, page B-13](#)
- [Deleting a Real Server Using vSphere Client, page B-14](#)
- [Activating Real Servers Using vSphere Client, page B-15](#)
- [Suspending Real Servers Using vSphere Client, page B-16](#)
- [Modifying Real Server Weight Value Using vSphere Client, page B-18](#)
- [Monitoring Real Server Details Using vSphere Client, page B-19](#)

- [Refreshing the Displayed Real Server Information, page B-20](#)

## Adding a Real Server

You can add one or more real servers to the list of ACE real servers associated with a VM. The Cisco ACE SLB tab allows you select a VM and define it as a real server on ANM, associating it with an existing ACE virtual context and server farm.

### Guidelines and Limitations

You can add only one real server at a time. Repeat the procedure in this section for each real server that you want to add.

### Procedure

- 
- Step 1** From the VM tree in VMware vSphere Client, do one of the following:
- To display the ACE real server information in the current window, click on a VM and then click the **Cisco ACE SLB** tab.
  - To display the ACE real server information in a new window, right-click on a VM to open the submenu and choose **Cisco ACE Activate/Suspend**.
- The Security Alert popup window appears. This popup window appears because ANM uses a Cisco self-signed certificate.
- Step 2** From the Security Alert popup window, click **Yes** to proceed.
- The popup window closes and the Cisco Application Networking Manager window appears, displaying the ACE Reals table.
- Step 3** From the ACE Reals table, click **Add**.
- The Real Server Configurations dialog box appears.
- Step 4** From the Real Server Configurations dialog window, configure the real server to add using the information in [Table B-7](#).

**Table B-7** Real Server Attributes

Field	Description
Real Server Name	Unique name for this server. By default, the name of the selected VM is displayed. Valid entries are unquoted text strings with no spaces and a maximum of 64 characters.
Real Server IP Address	Unique IP address in dotted-decimal format (such as 192.168.11.1). The drop-down list is populated with the IP address or addresses assigned to the selected VM. If no IP addresses were found for the VM, you can manually enter an IP address in this field.
Real Server Port	Real server port number. Valid entries are from 1 to 65535.
Real Server Weight	Weight to assign to this real server in a server farm. Valid entries are 1 to 100. The default is 8.

Table B-7 Real Server Attributes (continued)

Field	Description
Real Server State	State of the real server: <ul style="list-style-type: none"> <li>In Service—ANM places the real server in the in service state when it is added. This is the default setting.</li> <li>In Service Standby—ANM places the real server in the service standby state when it is added.</li> <li>Out Of Service—ANM places the real server in the out of service state when it is added.</li> </ul>
ACE Virtual Context	ACE virtual context that has the server farm that the real server is to be associated with.
Serverfarm	Server farms associated with the selected ACE virtual context.
Virtual Servers	Virtual server names and VIPs that are associated with the selected server farm.

**Step 5** Do one of the following:

- Click **Deploy Now**. The Real Server Configurations dialog box closes and ANM adds the real server to the list of servers that can service the VM depending on how you set the Real Server State attribute.
- Click **Cancel**. The Real Server Configurations dialog box closes and no real server is added.

#### Related Topics

- [Logging In To ANM from VMware vSphere Client, page B-7](#)
- [Using the Cisco ACE SLB Tab, page B-8](#)
- [Deleting a Real Server Using vSphere Client, page B-14](#)
- [Activating Real Servers Using vSphere Client, page B-15](#)
- [Suspending Real Servers Using vSphere Client, page B-16](#)
- [Modifying Real Server Weight Value Using vSphere Client, page B-18](#)
- [Monitoring Real Server Details Using vSphere Client, page B-19](#)
- [Refreshing the Displayed Real Server Information, page B-20](#)

## Deleting a Real Server Using vSphere Client

You can remove a real server from the list of servers that service the VM.

#### Procedure

**Step 1** From the VM tree in VMware vSphere Client, do one of the following:

- To display the ACE real server information in the current window, click on a VM and then click the **Cisco ACE SLB** tab.
- To display the ACE real server information in a new window, right-click on a VM to open the submenu and choose **Cisco ACE Activate/Suspend**.

The Security Alert popup window appears. This popup window appears because ANM uses a Cisco self-signed certificate.

**Step 2** From the Security Alert popup window, click **Yes** to proceed.

The popup window closes and the Cisco Application Networking Manager window appears, displaying the ACE Reals table.

**Step 3** From the ACE Reals table, check the checkbox of each server that you want to delete from the table.

**Step 4** Click **Delete**.

The confirmation popup window appears requesting you to verify that you want to delete the server.

**Step 5** In the confirmation popup window, click **OK**.

The popup window closes and ANM removes the selected servers from the list of real servers.

---

### Related Topics

- [Logging In To ANM from VMware vSphere Client, page B-7](#)
- [Using the Cisco ACE SLB Tab, page B-8](#)
- [Adding a Real Server, page B-13](#)
- [Activating Real Servers Using vSphere Client, page B-15](#)
- [Suspending Real Servers Using vSphere Client, page B-16](#)
- [Modifying Real Server Weight Value Using vSphere Client, page B-18](#)
- [Monitoring Real Server Details Using vSphere Client, page B-19](#)
- [Refreshing the Displayed Real Server Information, page B-20](#)

## Activating Real Servers Using vSphere Client

You can activate a real server that services a VM.



### Note

If you are not using the ANM plug-in for vCenter Server to access ANM, see the [“Activating Real Servers”](#) section on page 8-14.

---

### Procedure

**Step 1** From the VM tree in VMware vSphere Client, do one of the following:

- To display the ACE real server information in the current window, click on a VM and then click the **Cisco ACE SLB** tab.
- To display the ACE real server information in a new window, right-click on a VM to open the submenu and choose **Cisco ACE Activate/Suspend**.

The Security Alert popup window appears. This popup window appears because ANM uses a Cisco self-signed certificate.

**Step 2** From the Security Alert popup window, click **Yes** to proceed.

The popup window closes and the Cisco Application Networking Manager window appears, displaying the ACE Reals table.

**Step 3** From the ACE Reals table, check the check box of the servers that you want to activate and click **Activate**.

The Activate Server window appears.

**Step 4** In the Reason field of the Activate Server window, enter a reason for this action.

You might enter a trouble ticket, an order ticket, or a user message.




---

**Note** Do not enter a password in this field.

---

**Step 5** Do one of the following:

- Click **OK** to activate the server and to return to the ACE Reals table. The server appears in the table with the status Inservice.
  - Click **Cancel** to exit this procedure without activating the server and to return to the ACE Reals table.
- 

#### Related Topics

- [Logging In To ANM from VMware vSphere Client, page B-7](#)
- [Using the Cisco ACE SLB Tab, page B-8](#)
- [Suspending Real Servers Using vSphere Client, page B-16](#)
- [Modifying Real Server Weight Value Using vSphere Client, page B-18](#)
- [Monitoring Real Server Details Using vSphere Client, page B-19](#)
- [Refreshing the Displayed Real Server Information, page B-20](#)

## Suspending Real Servers Using vSphere Client

You can suspend a real server that services a VM.




---

**Note** If you are not using the ANM plug-in for vCenter Server to access ANM, see the [“Suspending Real Servers” section on page 8-15](#).

---

#### Procedure

---

**Step 1** From the VM tree in VMware vSphere Client, do one of the following:

- To display the ACE real server information in the current window, click on a VM and then click the **Cisco ACE SLB** tab.
- To display the ACE real server information in a new window, right-click on a VM to open the submenu and choose **Cisco ACE Activate/Suspend**.

The Security Alert popup window appears. This popup window appears because ANM uses a Cisco self-signed certificate.

**Step 2** From the Security Alert popup window, click **Yes** to proceed.

The popup window closes and the Cisco Application Networking Manager window appears, displaying the ACE Reals table.



**Step 3** In the ACE Reals table, check the check box of the servers that you want to suspend and click **Suspend**. The Suspend Real Servers window appears.

**Step 4** In the Reason field of the Suspend Real Servers window, enter the reason for this action. You might enter a trouble ticket, an order ticket, or a user message.



---

**Note** Do not enter a password in this field.

---

**Step 5** From the Suspend Real Servers Type drop-down list, choose one of the following:

- **Graceful**—When executed on a primary server, the ACE gracefully shuts down the server with sticky connections as follows:
  - Tears down existing non-TCP connections to the server
  - Allows current TCP connections to complete
  - Allows new sticky connections for existing server connections that match entries in the sticky database
  - Load balances all new connections (other than the matching sticky connections mentioned above) to the other servers in the server farm

When executed on a backup real server, the ACE places the backup server in service standby mode.



---

**Note** For the CSS, when the device is in the In Service admin state and you perform a graceful suspend operation, ANM saves the last known non-zero service (or real server) weight, and then sets the weight to zero. ANM references the saved weight when performing an Activate operation. If the current weight is zero, and a non-zero weight has been saved for that service (or real server), the Activate operation also sets the weight to the saved value.

To allow ANM to save and reset the weight value when gracefully suspending and then activating the CSS, you must have the device configured to permit SNMP traffic. For each device type, see the corresponding configuration guide to configure the device to permit SNMP traffic.

When the CSS is in the In Service Standby admin state and you perform a graceful suspend operation, ANM does not set the weight to zero.

---

- **Suspend**—The ACE resets all non-TCP connections to the server. For TCP connections, existing flows are allowed to complete before the ACE takes the real server out of service. No new connections are allowed. The ACE resets all Secure Sockets Layer (SSL) connections to the real server.
- **Suspend and Clear Connections**—The ACE performs the tasks described for Suspend and clears the existing connections to this server.

**Step 6** Do one of the following:

- Click **Deploy Now** to suspend the server and to return to the ACE Reals table. The server appears in the table with the status Out Of Service.
- Click **Cancel** to exit this procedure without suspending the server and to return to the ACE Reals table.

---

#### Related Topics

- [Logging In To ANM from VMware vSphere Client, page B-7](#)
- [Using the Cisco ACE SLB Tab, page B-8](#)
- [Adding a Real Server, page B-13](#)
- [Deleting a Real Server Using vSphere Client, page B-14](#)
- [Activating Real Servers Using vSphere Client, page B-15](#)
- [Modifying Real Server Weight Value Using vSphere Client, page B-18](#)
- [Monitoring Real Server Details Using vSphere Client, page B-19](#)
- [Refreshing the Displayed Real Server Information, page B-20](#)

## Modifying Real Server Weight Value Using vSphere Client

You can modify the weight value assigned to a real server that defines the connection capacity of the server in relation to the other real servers. The ACE uses the weight value that you specify for a server in the weighted round-robin and least-connections load-balancing predictors. Servers with a higher configured weight value have a higher priority with respect to connections than servers with a lower weight. For example, a server with a weight of 5 would receive five connections for every one connection for a server with a weight of 1.



#### Note

If you are not using the ANM plug-in for vCenter Server to access ANM, see the [“Modifying Real Server Weight Value” section on page 8-17](#).

---

#### Procedure

**Step 1** From the VM tree in VMware vSphere Client, do one of the following:

- To display the ACE real server information in the current window, click on a VM and then click the **Cisco ACE SLB** tab.
- To display the ACE real server information in a new window, right-click on a VM tree to open the submenu and choose **Cisco ACE Activate/Suspend**.

The Security Alert popup window appears. This popup window appears because ANM uses a Cisco self-signed certificate.

**Step 2** From the Security Alert popup window, click **Yes** to proceed.

The popup window closes and the Cisco Application Networking Manager window appears, displaying the ACE Reals table.

**Step 3** In the ACE Reals table, check the check box of the server that you want modify and click **Change Weight**.

The Change Weight Real Servers window appears.

- Step 4** In the Change Weight Real Servers window, enter the following information for the selected server:
- Reason for change such as trouble ticket, order ticket, or user message.



---

**Note** Do not enter a password in this field.

---

- Weight value (for allowable ranges for each device type, see [Table 8-5](#)).
- Step 5** Do one of the following:
- Click **Deploy Now** to accept your entries and to return to the ACE Reals table. The server appears in the table with the updated information.
  - Click **Cancel** to exit this procedure without saving your entries and to return to the ACE Reals table.
- 

#### Related Topics

- [Logging In To ANM from VMware vSphere Client, page B-7](#)
- [Using the Cisco ACE SLB Tab, page B-8](#)
- [Adding a Real Server, page B-13](#)
- [Deleting a Real Server Using vSphere Client, page B-14](#)
- [Activating Real Servers Using vSphere Client, page B-15](#)
- [Monitoring Real Server Details Using vSphere Client, page B-19](#)
- [Refreshing the Displayed Real Server Information, page B-20](#)

## Monitoring Real Server Details Using vSphere Client

You can display detailed operating information about a real server.

#### Procedure

---

- Step 1** From the VM tree in VMware vSphere Client, do one of the following:
- To display the ACE real server information in the current window, click on a VM and then click the **Cisco ACE SLB** tab.
  - To display the ACE real server information in a new window, right-click on a VM to open the submenu and choose **Cisco ACE Activate/Suspend**.

The Security Alert popup window appears. This popup window appears because ANM uses a Cisco self-signed certificate.

- Step 2** From the Security Alert popup window, click **Yes** to proceed.

The popup window closes and the Cisco Application Networking Manager window appears, displaying the ACE Reals table.

- Step 3** In the ACE Reals table, click on the name of the real server whose details you want to view.

The Real Server Details popup window appears and displays the following ACE statistical information:

- Total Connections—Total number of load-balanced connections to this real server in the serverfarm.

- Connections Rate—Connections per second.
- Dropped Connections—Total number of dropped connections because the current connection count exceeds the maximum number of allowed connections.
- Dropped Connections Rate—Dropped connections per second.
- Minimum Connections—Minimum number of connections that need to be supported by the real server in the serverfarm.
- Maximum Connections—Maximum number of connections that can be supported by this real server in the serverfarm.

**Note**

The statistical information that ANM displays for the CSM and CSM-S is different from the ACE information described above. Also, ANM does not display the Real Server Details popup window for the CSS.

**Note**

To close the Real Server Details popup window, you may need to expand the display to access the “X” (close) located in the upper right hand section of the window.

**Related Topics**

- [Logging In To ANM from VMware vSphere Client, page B-7](#)
- [Using the Cisco ACE SLB Tab, page B-8](#)
- [Adding a Real Server, page B-13](#)
- [Deleting a Real Server Using vSphere Client, page B-14](#)
- [Activating Real Servers Using vSphere Client, page B-15](#)
- [Suspending Real Servers Using vSphere Client, page B-16](#)
- [Modifying Real Server Weight Value Using vSphere Client, page B-18](#)
- [Refreshing the Displayed Real Server Information, page B-20](#)

## Refreshing the Displayed Real Server Information

You can refresh the information that ANM displays for a real server.

**Procedure****Step 1**

From the VM tree in VMware vSphere Client, do one of the following:

- To display the ACE real server information in the current window, click on a VM and then click the **Cisco ACE SLB** tab.
- To display the ACE real server information in a new window, right-click on a VM to open the submenu and choose **Cisco ACE Activate/Suspend**.

The Security Alert popup window appears. This popup window appears because ANM uses a Cisco self-signed certificate.

- Step 2** From the Security Alert popup window, click **Yes** to proceed.  
The popup window closes and the Cisco Application Networking Manager window appears, displaying the ACE Reals table.
- Step 3** In the ACE Reals table, check the checkbox next to the name of the real server whose information you want to refresh.
- Step 4** Click **Poll Now**.  
ANM polls the selected device and updates the displayed information.
- 

**Related Topics**

- [Logging In To ANM from VMware vSphere Client, page B-7](#)
- [Using the Cisco ACE SLB Tab, page B-8](#)
- [Adding a Real Server, page B-13](#)
- [Deleting a Real Server Using vSphere Client, page B-14](#)
- [Activating Real Servers Using vSphere Client, page B-15](#)
- [Suspending Real Servers Using vSphere Client, page B-16](#)
- [Modifying Real Server Weight Value Using vSphere Client, page B-18](#)

# Using the VMware vSphere Plug-in Manager

You can use the VMware vSphere Client Plug-in Manager to verify that the ANM plug-in (Cisco ACE) is registered, view error messages, and enable or disable the plug-in.

## Procedure

- Step 1** From the VMware vSphere Client main menu, choose **Plug-ins > Manage Plug-ins**.  
The Plug-in Manager window appears. [Table B-8](#) describes the Cisco plug-in information that displays in the Plug-in Manager window.

**Table B-8** VMware vSphere Client Plug-in Manager

Item	Description
Plug-in Name	Name of the Cisco plug-in, which is Cisco ACE.
Vendor	This field is blank. The vendor name, Cisco, is included in the plug-in name.
Version	Plug-in version number.
Status	Plug-in operating status: Enabled or Disabled.
Description	Plug-in description, which is Cisco ACE.
Progress	N/A
Errors	Errors related to the Cisco ACE plug-in, such as when the VMware vSphere Client cannot find the ANM server because it cannot resolve the server name.

- Step 2** (Optional) To enable or disable the plug-in, from the list of plug-ins, right-click on the Cisco ACE plug-in and do one of the following:
- Choose **Enable**. The Cisco ACE SLB tab appears in the VMware vSphere Client content area. This is the default setting.
  - Choose **Disable**. The Cisco ACE SLB tab is removed from the VMware vSphere Client content area.

## Related Topics

[Registering or Unregistering the ANM Plug-in, page B-5](#)