



# Supported Hardware and System Requirements for Cisco NAC Appliance (Cisco Clean Access)

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## Note

This document is available under:

[http://www.cisco.com/en/US/products/ps6128/products\\_device\\_support\\_tables\\_list.html](http://www.cisco.com/en/US/products/ps6128/products_device_support_tables_list.html)

For the most current Cisco NAC Appliance documentation, refer to:

[http://www.cisco.com/en/US/products/ps6128/tsd\\_products\\_support\\_series\\_home.html](http://www.cisco.com/en/US/products/ps6128/tsd_products_support_series_home.html)

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This document describes the following:

- [Supported Hardware Platforms](#)
- [Troubleshooting Network Card Driver Support Issues](#)
- [System Requirements](#)

## Supported Hardware Platforms

- [Cisco NAC Appliance Hardware Platforms](#)
- [Customer-Supplied Hardware Platforms and Cisco NAC Appliance Software](#)

## Cisco NAC Appliance Hardware Platforms



### Warning

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**Cisco NAC Appliance Release 4.5 only supports and can only be installed on the following Cisco NAC Appliance platforms: Cisco CCA-3140, Cisco NAC-3310, Cisco NAC-3350, Cisco NAC-3390, Cisco NAC Network Module (NME-NAC-K9). You cannot upgrade to or install release 4.5 on any other platform.**

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All Cisco NAC Appliance **hardware** platforms (e.g. Cisco NAC-3350) are supported under Cisco SMARTnet.

- [Cisco NAC Appliance 3300 Series \(Integrated Hardware/Software\), page 2](#)



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- [Cisco NAC Network Module for Integrated Services Routers](#), page 3
- [Cisco NAC Appliance 3100 Series \(Hardware Only\)](#), page 4

For additional details on SMARTnet, refer to the following website:

[http://www.cisco.com/en/US/products/svcs/ps3034/ps2827/ps2978/serv\\_group\\_home.html](http://www.cisco.com/en/US/products/svcs/ps3034/ps2827/ps2978/serv_group_home.html)



**Note**

For details on Cisco NAC Guest Server and Cisco NAC Profiler, refer to the ordering information available under “Cisco NAC Appliance Bulletins” at [http://www.cisco.com/en/US/products/ps6128/prod\\_bulletins\\_list.html](http://www.cisco.com/en/US/products/ps6128/prod_bulletins_list.html)

## Cisco NAC Appliance 3300 Series (Integrated Hardware/Software)



**Warning**

**Cisco NAC Appliance Release 4.5 only supports and can only be installed on the following Cisco NAC Appliance platforms: Cisco CCA-3140, Cisco NAC-3310, Cisco NAC-3350, Cisco NAC-3390, Cisco NAC Network Module (NME-NAC-K9). You cannot upgrade to or install release 4.5 on any other platform.**

With the Cisco NAC Appliance 3300 Series, Cisco introduces three new integrated hardware platforms that are pre-installed with the Cisco NAC Appliance software (release 4.0.3.3 or later). The Cisco NAC Appliance 3300 Series is intended to facilitate ordering and installation of the Cisco NAC Appliance on your network.

Note that NAC 3300 Series platforms are available only as fully integrated appliances containing both hardware and software, and cannot be ordered as hardware-only platforms.



**Note**

You must use identical appliances (e.g. NAC-3350 and NAC-3350) in order to configure High Availability (HA) pairs of Clean Access Managers (CAMs) or Clean Access Servers (CASs).

Table 1 summarizes the Cisco NAC Appliance 3300 Series.

**Table 1 Cisco NAC Appliance 3300 Series**

Cisco NAC Appliance Versions Supported <sup>1, 2</sup>	Model Number <sup>3</sup>	Clean Access Servers Supported	Clean Access Manager Supported
4.5(x) <sup>4</sup> 4.1.2.1 and later <sup>5</sup> 4.0(6) 4.0(5)	NAC Appliance 3310 <sup>6, 7</sup>	CAS for 100 users CAS for 250 users CAS for 500 users	Lite CAM (for 3 CASs)
	NAC Appliance 3350	CAS for 1500 users CAS for 2500 users CAS for 3500 users	Standard CAM (for 20 CASs)
	NAC Appliance 3390 <sup>8</sup>	-	Super CAM (for 40 CASs)

1. You can upgrade NAC 3300 series appliances to the releases listed in the “Cisco NAC Appliance Versions Supported” column only. Release 4.0(5) is the minimum 4.0(x) version and release 4.1.2.1 is the minimum 4.1(x) version supported on NAC 3300 appliances. Releases 4.1(0)/4.1.0.1/4.1.0.2 do not support and cannot be installed on NAC 3300 appliances. If introducing a NAC 3300 appliance to your network, you must upgrade all existing CAM/CAS machines to the same release (e.g. 4.1(8)) for compatibility. Other versions of the Cisco NAC Appliance software cannot be installed on a NAC 3300 appliance and are not supported. Refer to the applicable [Release Notes](#) for details.

2. For details on enhancements in each release, refer to [Release Notes for Cisco NAC Appliance](#) for the applicable version.

3. If you are planning to connect NAC-3300 series appliances for HA (failover) using the serial cable deployment option, make sure you disable BIOS redirection to the serial port. See [Disable BIOS Redirection for Serial HA \(Failover\) Connections](#), page 10 for details.
4. Cisco NAC Appliance Release 4.5 only supports and can only be installed on the following Cisco NAC Appliance platforms: Cisco CCA-3140, Cisco NAC-3310, Cisco NAC-3350, Cisco NAC-3390, Cisco NAC Network Module (NME-NAC-K9). You cannot upgrade to or install release 4.5 on any other platform. Refer to the [Release Notes for Cisco NAC Appliance, Release 4.5](#) for details.
5. Release 4.1.2.1 is the minimum mandatory 4.1(x) version for Cisco NAC 3300 Series Appliances and the Cisco NAC network module, and is required to support HA-CAS pairs. Refer to the applicable [Release Notes for Cisco NAC Appliance](#) for important details specific to each 4.1(x) release (such as 4.1(6) and 4.1(8)). For additional Cisco NAC network module compatibility details, refer to [Cisco NAC Network Module for Integrated Services Routers](#), page 3.
6. For CD software installation of Release 4.1(x)/4.0(x) only on the NAC-3310 only (DL140 G3 based appliance), you must type an installation directive at the “boot:” prompt—either **DL140** if directly connected, or **serial\_DL140** if serially connected to the appliance. See [Required Installation Directives](#), page 12 for details. **Release 4.5 and later no longer require these installation directives for the NAC-3310** (see the [Release Notes for Cisco NAC Appliance, Release 4.5](#) for details.)
7. The NAC-3310 appliance is subject to any BIOS/firmware upgrades required for the HP ProLiant DL140 G3 server. Refer to [DL140 G3 Required BIOS/Firmware Upgrades](#), page 12 for details.
8. Super Manager (Super CAM) software is supported only on the NAC-3390 appliance. A separate ISO file is required if performing CD installation of the Super CAM.

For additional information on the Cisco NAC Appliance 3300 Series, refer to:

- [Cisco NAC Appliance Ordering Guide](#)
- [Cisco NAC Appliance Data Sheet](#)
- [Cisco NAC Appliance Hardware Installation Quick Start Guide](#)
- [Cisco NAC Appliance Service Contract / Licensing Support](#)

## Cisco NAC Network Module for Integrated Services Routers



Warning

**Cisco NAC Appliance Release 4.5 only supports and can only be installed on the following Cisco NAC Appliance platforms: Cisco CCA-3140, Cisco NAC-3310, Cisco NAC-3350, Cisco NAC-3390, Cisco NAC Network Module (NME-NAC-K9). You cannot upgrade to or install release 4.5 on any other platform.**

The Cisco NAC Network Module (NME-NAC-K9) offers the Clean Access Server (CAS) functionality on the next generation service module for the Cisco 2800 and 3800 Series Integrated Services Routers. The Cisco NAC network module is pre-installed with Cisco NAC Appliance software (release 4.1(2) or later). Once initial configuration is complete, the Cisco NAC network module is added to the Clean Access Manager’s managed domain like any other CAS and is managed through the CAM’s web console (GUI) interface.

[Table 2](#) summarizes the Cisco NAC Network Module for Integrated Services Routers.

**Table 2** Cisco NAC Network Module

Model Number	Min. Cisco NAC Appliance Version	Clean Access Servers Supported	Clean Access Manager Supported
NME-NAC-K9	4.1.2.1 and later 1,2	CAS for 50 users CAS for 100 users	Lite CAM (for 3 CASes) Standard CAM (for 20 CASs) Super CAM (for 40 CASs)

1. Release 4.1.2.1 is the minimum mandatory 4.1(x) version for Cisco NAC 3300 Series Appliances and the Cisco NAC network module. Cisco NAC Appliance software versions earlier than 4.1(2) are not supported and cannot be installed on the Cisco NAC network module. If introducing the Cisco NAC network module to your network, you must all upgrade all existing CAM/CAS machines to the same release for compatibility (e.g. 4.5)
2. For compatibility with CAM/CAS appliances running 4.1.2.1, you must use the standard product upgrade file to upgrade the Cisco NAC network module to 4.1.2.1. Refer to the [Release Notes for Cisco NAC Appliance \(Cisco Clean Access\), Version 4.1\(2\)](#) for upgrade instructions.

For additional information on the Cisco NAC Network Module, refer to:

- [Cisco NAC Network Module for Integrated Services Routers Data Sheet](#)
- [Cisco NAC Appliance Ordering Guide](#)
- [Getting Started with Cisco NAC Network Modules in Cisco Access Routers](#)
- [Cisco NAC Appliance Service Contract / Licensing Support](#)

## Cisco NAC Appliance 3100 Series (Hardware Only)

The Cisco NAC Appliance 3100 Series comprises the Cisco CCA-3140-H1 hardware-only platform. The CCA-3140-H1 is not pre-installed with Cisco NAC Appliance software and requires CD installation of either the Clean Access Server or Clean Access Manager software. The CCA-3140 server hardware configuration is supported under Cisco SMARTnet.



### Note

Cisco CCA-3140-H1 cannot be ordered after August 3, 2007 (EOL). For details, refer to the [EOL/EOS for the Cisco Clean Access Hardware](#) end-of-life and end-of-sales notice.

## Customer-Supplied Hardware Platforms and Cisco NAC Appliance Software



### Warning

**Cisco NAC Appliance Release 4.5 only supports and can only be installed on the following Cisco NAC Appliance platforms: Cisco CCA-3140, Cisco NAC-3310, Cisco NAC-3350, Cisco NAC-3390, Cisco NAC Network Module (NME-NAC-K9). You cannot upgrade to or install release 4.5 on any other platform.**

For legacy customers only, the Cisco NAC Appliance software (release 4.1(x) and earlier) can be manually installed on select supported server configurations. In this case, Cisco Clean Access **software** (e.g. CCA version 4.0.x) is supported under Cisco Software Application Support and Cisco Software Application Support Plus Upgrades (SAS/SASU). For details see: [http://www.cisco.com/en/US/partner/products/svcs/ps3034/ps2827/ps2993/serv\\_group\\_home.html](http://www.cisco.com/en/US/partner/products/svcs/ps3034/ps2827/ps2993/serv_group_home.html)



### Note

Cisco Technical Assistance Center (TAC) only supports hardware installation questions on platforms listed in [Table 3 “Current Supported Customer-Supplied Server Hardware Configurations”](#) or [Table 4 “Non-Orderable Supported Customer-Supplied Server Hardware Configurations”](#). New features in new releases may be subject to licensing restrictions.

[Table 3](#) lists the server hardware configurations that are supported for each successive Cisco Clean Access (CCA) software release. The Clean Access Manager (CAM) and Clean Access Server (CAS) software will run on the server configurations listed starting from the minimum CCA version specified.

**Note**

If configuring the CAS in HA mode, also refer to [CAS High Availability \(HA\) Requirements, page 22](#)

## Current Supported Customer-Supplied Server Hardware Configurations

**Warning**

**Cisco NAC Appliance Release 4.5 only supports and can only be installed on the following Cisco NAC Appliance platforms: Cisco CCA-3140, Cisco NAC-3310, Cisco NAC-3350, Cisco NAC-3390, Cisco NAC Network Module (NME-NAC-K9). You cannot upgrade to or install release 4.5 on any other platform.**

**Table 3** *Current Supported Customer-Supplied Server Hardware Configurations*

Server Vendor	Model Number <sup>1</sup>	Controller Type	Controller Model Name/Number	Min. CCA Version <sup>2,3</sup>	Additional Required Steps
Cisco	CCA-3140-H1 <sup>4</sup>	SATA	Intel ICH5 82801EB <sup>5</sup>	4.1(x)+ 4.0(x)+ 3.6(x) +	<ul style="list-style-type: none"> <li>Upgrade <a href="#">BCM5702/5703/5704 NICs</a></li> <li>Notes for 3.6.0/3.6.0.1</li> </ul>
	MCS-7825-I1-CC1/IPC1	SATA	Any <sup>5</sup>	4.1(x)+ 4.0(x)+ 3.6(x) +	-
	MCS-7825-I1-ECS1	-	-	4.1(x)+ 4.0(x)+ 3.6(x) +	Disable SATA RAID
Dell	PowerEdge 1950 <sup>6, 7</sup>	SAS RAID	PERC 5/i, Integrated Controller Card	4.1(6)+ 4.1(3)+ 4.1(2)+ 4.0(6)+	-
				4.1(1)+ 4.0(4)+	<ul style="list-style-type: none"> <li>DL140 G3 Required BIOS Settings</li> <li>DL140 G3 Required BIOS/Firmware Upgrades</li> <li>Disable BIOS Redirection for Serial HA (Failover) Connections</li> <li>Required Installation Directives, page 12</li> </ul>
HP	ProLiant DL140 G3	SATA	-	4.1(1)+ 4.0(4)+	<ul style="list-style-type: none"> <li>DL140 G3 Required BIOS Settings</li> <li>DL140 G3 Required BIOS/Firmware Upgrades</li> <li>Disable BIOS Redirection for Serial HA (Failover) Connections</li> <li>Required Installation Directives, page 12</li> </ul>
	ProLiant DL360 G5	SAS RAID	HP Smart Array P400i Controller for SAS RAID	4.1(1)+ 4.0(4)+	<ul style="list-style-type: none"> <li>Disable BIOS Redirection for Serial HA (Failover) Connections, page 10</li> <li>Upgrade <a href="#">BCM5702/5703/5704 NICs</a></li> </ul>
SATA RAID		HP Smart Array E200i Controller for SATA RAID			

1. Server configurations listed here have been tested with the Cisco Clean Access software and are supported platforms. If a server configuration is not listed, it may not have been tested with the Cisco Clean Access and is not supported. If problems are encountered with installation of CCA software on a particular server model, the customer should contact TAC and provide exact configuration information.
2. The “+” designation in the **Min. CCA Version** column indicates the server configuration is supported for the release branch (e.g. 4.1(x)) or starting from the CCA version specified and for subsequent versions (e.g. 4.0(6) and later).
3. SATA controllers are not supported for CCA 3.5(x) and 3.4(x).
4. Cisco CCA-3140-H1 cannot be ordered after August 3, 2007 (EOL). For details, refer to the [EOL/EOS for the Cisco Clean Access Hardware](#) notice.
5. Cisco MCS-7825-I1-CC1/IPC1 and CCA-3140-H1 support the same controllers as HP ProLiant DL140 G2.
6. Dell PowerEdge 1950 supports only serial connection to appliance for CD installation (direct/KVM connection not supported).
7. Release 4.1(1) is not supported on Dell PowerEdge 1850/1950.

## Non-Orderable Supported Server Configurations



### Warning

**Cisco NAC Appliance Release 4.5 only supports and can only be installed on the following Cisco NAC Appliance platforms: Cisco CCA-3140, Cisco NAC-3310, Cisco NAC-3350, Cisco NAC-3390, Cisco NAC Network Module (NME-NAC-K9). You cannot upgrade to or install release 4.5 on any other platform.**

Table 4 lists the legacy hardware configurations that can **no longer be ordered** from server vendors, but will still be supported for legacy customers. The Clean Access Manager (CAM) and Clean Access Server (CAS) software will run on the server configurations listed starting from the minimum CCA version specified.

**Table 4** Non-Orderable Supported Customer-Supplied Server Hardware Configurations (Sheet 1 of 4)

Server Vendor	Model Number <sup>1,2</sup>	Controller Type	Controller Model Name/Number	Min. CCA Version <sup>3,4</sup>	Additional Required Steps
Broadcom	Niagara 2100A, BCM5820 (VPN accelerator card)	-	-	3.5(0)+ 3.4(0)+ 3.3(0)+ 3.2(0) +	-
Cisco	MCS-7825H-3.0-IPC1	-	-	4.1(x)+ 4.0(x)+ 3.6(1)+ 3.5(0)+ 3.4(0)+ 3.3(0)+ 3.2(0) +	-

**Table 4 Non-Orderable Supported Customer-Supplied Server Hardware Configurations (Sheet 2 of 4)**

Server Vendor	Model Number <sup>1,2</sup>	Controller Type	Controller Model Name/Number	Min. CCA Version <sup>3,4</sup>	Additional Required Steps
Dell	PowerEdge 650	-	-	4.1(x)+ 4.0(x)+ 3.6(x)+ 3.5(0)+ 3.4(0)+ 3.3(0)+ 3.2(0) +	-
	PowerEdge 750 <sup>5,6,7</sup>	-	-	4.1(x)+	-
				4.0(x)+ 3.6(x)+	Disable Serial Port Settings
				3.5(0)+ 3.4(0)+ 3.3(0)+ 3.2(0) +	-
	PowerEdge 850 <sup>7</sup>	SATA	Intel ICH7 82801GB	4.1(x)+	Upgrade BCM5702/5703/5704 NICs
		SATA RAID	Adaptec AAC-RAID	4.0(x)+ 3.6(1)+	
	PowerEdge 1650	-	-	3.5(0)+ 3.4(0)+ 3.3(0)+ 3.2(0) +	-
	PowerEdge 1750 <sup>8</sup>	-	-	3.5(0)+ 3.4(0)+ 3.3(0)+ 3.2(0) +	Custom Installation
	PowerEdge 1850 <sup>9,10,11</sup>	SCSI RAID	LSI Logic SCSI Perc 4e/Si	4.1(6)+ 4.1(3)+ 4.1(2)+ 4.0(x)+ 3.6(1)+	Disable Serial Port Settings
				4.1(6)+ 4.1(3)+ 4.1(2)+ 4.0(x)+	Required Installation Directives
		SCSI	LSI Logic <sup>12</sup>	3.6(x) +	-
				3.5(0)+ 3.4(0)+	Custom Installation

Table 4 Non-Orderable Supported Customer-Supplied Server Hardware Configurations (Sheet 3 of 4)

Server Vendor	Model Number <sup>1,2</sup>	Controller Type	Controller Model Name/Number	Min. CCA Version <sup>3,4</sup>	Additional Required Steps	
HP	ProLiant DL140	-	-	4.1(x)+ 4.0(x)+ 3.6(1)+ 3.5(0)+ 3.4(0)+ 3.3(0)+ 3.2(0) +	-	
	ProLiant DL140 G2	SATA	Any	4.1(x)+ 4.0(x)+ 3.6(x) +	<ul style="list-style-type: none"> <li>Upgrade BCM5702/5703/5704 NICs</li> <li>Notes for 3.6.0/3.6.0.1</li> </ul>	
	ProLiant DL320 G2	IDE only	-	4.1(x)+ 4.0(x)+ 3.6(1)+ 3.5(0)+ 3.4(0)+ 3.3(0)+ 3.2(0) +	-	
	ProLiant DL360		SCSI	SmartArray 5i Controller	4.1(x)+ 4.0(x)+ 3.6(x) +	-
			SCSI RAID	SmartArray 6i SCSI RAID	4.1(x)+ 4.0(x)+ 3.6(x) +	-
					3.5(0)+ 3.4(0)+	Custom Installation
	ProLiant DL380		SCSI RAID	SmartArray 6i SCSI RAID	4.1(x)+ 4.0(x)+ 3.6(x) +	<ul style="list-style-type: none"> <li>Upgrade BCM5702/5703/5704 NICs</li> <li>Notes for 3.6.0/3.6.0.1</li> </ul>
					3.5(0)+ 3.4(0)+	Custom Installation
			IDE only	-	4.1(x)+ 4.0(x)+ 3.6(1)+ 3.5(0)+ 3.4(0)+ 3.3(0)+ 3.2(0) +	-

**Table 4 Non-Orderable Supported Customer-Supplied Server Hardware Configurations (Sheet 4 of 4)**

Server Vendor	Model Number <sup>1,2</sup>	Controller Type	Controller Model Name/Number	Min. CCA Version <sup>3,4</sup>	Additional Required Steps
IBM	eServer xSeries 305	-	-	3.5(0)+ 3.4(0)+ 3.3(0)+ 3.2(0) +	Disable onboard NIC, and use Intel/Broadcom PCI NIC instead.
	eServer xSeries 306	SATA	Any <sup>13</sup>	4.1(x)+ 4.0(x)+ 3.6(x) +	<a href="#">Notes for 3.6.0/3.6.0.1</a>
		SCSI	Adaptec 79xx SCSI	4.1(x)+ 4.0(x)+ 3.6(x) +	-
		SCSI	Adaptec 79xx SCSI	3.5(0)+ 3.4(0)+	<ul style="list-style-type: none"> <li><a href="#">Custom Installation</a></li> <li><a href="#">Disable Onboard NICs</a></li> </ul>
	eServer xSeries 335	-	-	3.5(0)+	-
	eServer xSeries 345	-	-	3.4(0)+ 3.3(0)+ 3.2(0) +	-
	eServer xSeries 336	SCSI	LSI Logic MPT 53c1030 SCSI	4.1(x)+ 4.0(x)+	-
		SCSI RAID	LSI Logic MPT 53c1030 SCSI Raid	3.6(1)+	-
OmniPro Systems	SuperServer 5013C-M	-	-	3.5(0)+ 3.4(0)+ 3.3(0)+ 3.2(0) +	-
Sun	LX50 Server	-	-	3.5(0)+	-
	Sun Fire V60x Server	-	-	3.4(0)+	-
	Sun Fire V65x Server	-	-	3.3(0)+ 3.2(0) +	-

- When connecting high availability (failover) pairs via serial cable, BIOS redirection to the serial port must be disabled for NAC-3300 series appliances, and for any other server hardware platform that supports the BIOS redirection to serial port functionality. See [Disable BIOS Redirection for Serial HA \(Failover\) Connections, page 10](#) for details.
- Server configurations listed here have been tested with the Cisco Clean Access software and are supported platforms. If a server configuration is not listed, it may not have been tested with the Cisco Clean Access and is not supported. If problems are encountered with installation of CCA software on a particular server model, the customer should contact TAC and provide exact configuration information.
- The "+" designation in the **Min. CCA Version** column indicates the server configuration is supported starting from the CCA version listed and for subsequent versions.
- SATA controllers are not supported for CCA 3.5(x) and 3.4(x).
- SATA RAID is not supported for Dell PowerEdge 750.
- For 4.1(x)/4.0(x)/ 3.6(x) on Dell PowerEdge 750, you must [Disable Serial Port Settings, page 13](#).
- CAMs running on non-appliance platforms with 1GB or less memory (e.g. Dell 750/850/860 with standard 512K memory) do not support web upgrade of CAS to 4.1(6) via CAM web console and will display HTTP status 500 error messages.
- Perform a [Custom Installation](#) if installing CCA software on a Dell PowerEdge 1750.
- RAID controllers are not supported for CCA 3.5(x) and 3.4(x) on Dell PowerEdge 1850. Only LSI SCSI controllers supported.
- Dell PowerEdge 1850 supports CD installation of CCA 4.1(3) only; software upgrade is not supported.
- Release 4.1(1) is not supported on Dell PowerEdge 1850/1950.

12. Some hardware with LSI Logic SCSI drives, such as Dell PowerEdge 1850, might require issuing an installation directive (either “DL140” or “serial\_DL140”) at the boot prompt when performing new software installation via CD. Refer to [Required Installation Directives, page 12](#) and caveat [CSCsg98960](#) for details.
13. For IBM x306, SATA controllers are identified by motherboard chipset.

## Additional Required Steps

This section details additional required steps you may need to perform for certain server configurations. Follow the instructions (if any) listed in the **Additional Required Steps** column of [Table 3 “Current Supported Customer-Supplied Server Hardware Configurations”](#) or [Table 4 “Non-Orderable Supported Customer-Supplied Server Hardware Configurations”](#) for the specified server model.

- [Disable BIOS Redirection for Serial HA \(Failover\) Connections](#)
- [Upgrade BCM5702/5703/5704 NICs](#)
- [DL140 G3 Required BIOS Settings](#)
- [DL140 G3 Required BIOS/Firmware Upgrades](#)
- [Required Installation Directives](#)
- [Disable Serial Port Settings](#)
- [Disable Onboard NICs](#)
- [Disable SATA RAID](#)
- [Notes for 3.6.0/3.6.0.1](#)
- [Custom Installation](#)

## Disable BIOS Redirection for Serial HA (Failover) Connections

When connecting high availability (failover) pairs via serial cable, BIOS redirection to the serial port must be disabled for NAC-3300 series appliances, HP ProLiant DL140 G3, HP ProLiant DL360 G5, and any other server hardware platform that supports the BIOS redirection to serial port functionality.

If you are planning to connect an HA pair of NAC-3310, NAC-3350, or NAC-3390 appliances via serial cable, disable the BIOS redirection as follows:

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**Step 1** While the machine is booting up, press [F9] to access the BIOS Setup screen.



**Note**

If you see the `RBSU>` prompt after pressing [F9], perform the steps in [Changing RBSU \(ROM-Based Setup Utility\) from Text Mode to Menu Mode, page 11](#) first before continuing.

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**Step 2** Select the “BIOS Serial Console & EMS” menu option.

**Step 3** Change the “BIOS Serial Console Port” setting to “Disabled.”

**Step 4** Change the “EMS Console” setting to “Disabled.”

**Step 5** Save your settings and reboot the machine.

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## Changing RBSU (ROM-Based Setup Utility) from Text Mode to Menu Mode

To switch RBSU (ROM-Based Setup Utility) from CLI mode to Menu mode, use the following steps:

- 
- Step 1** Enter “SHOW CONFIG BIOS INTERFACE MODE” to see the current setting and available options.
- Step 2** Enter “SET CONFIG BIOS INTERFACE MODE 1” to switch to menu mode.
- Step 3** Enter “EXIT” to exit RBSU.
- 

For additional details on RBSU, see the *HP ROM-Based Setup Utility User Guide*:  
<http://h20000.www2.hp.com/bc/docs/support/SupportManual/c00191707/c00191707.pdf>

## Upgrade BCM5702/5703/5704 NICs

For CCA release 4.1(x)/4.0(x)/3.6(x) only, server models which use the Broadcom 5702/5703/5704 NIC chipset for network interface cards require a firmware upgrade from HP. Affected server models may include Dell PowerEdge 850, CCA-3140-H1, and HP ProLiant DL140 G2/DL360/DL380. If your server machine is affected, perform the steps described below.

### Verify NIC Controller

1. Verify the type of NIC controller being used on your CAM/CAS server machine by looking at the output of the `lspci -v` command.

### Apply Firmware Upgrade

2. If your machine uses the 5702/5703/5704 Broadcom chipset and is running CCA 4.1(x)/4.0(x)/3.6(x), you must apply the firmware upgrade from HP available at:  
<http://h18023.www1.hp.com/support/files/networking/us/download/24056.html>.



#### Note

You can apply the firmware upgrade from HP before or after upgrading to 4.1(x), 4.0(x) or 3.6(3)+.

### CCA 3.6(2) and Below— BCM5702/5703/5704 NIC Cards

If your machine is running CCA release 3.6(2), 3.6(1), or 3.6(0) and uses the 5702/5703/5704 Broadcom chipset, you must:

1. [Apply Firmware Upgrade, page 11](#), and
2. Either apply the CCA 3.6.2.1 patch (see <http://www.cisco.com/univercd/cc/td/doc/product/vpn/ciscosec/cca/cca36/36rn.htm#wp240662>),
3. Or, upgrade to CCA 3.6(3) or above.

### CCA 3.6(2) and Below — BCM57xx NIC Cards

If your server machine is running CCA release 3.6(2) or below and uses other BCM 57xx NIC cards (i.e. other than 5702/5703/5704), you will need to either apply the CCA 3.6.2.1 patch, or upgrade your system to CCA 3.6(3) or above.



#### Note

The fundamental cause of this issue is a firmware bug in the Broadcom chipsets used in HP servers. Refer to caveat CSCsd74376 for additional details:  
[http://www.cisco.com/en/US/products/ps6128/prod\\_release\\_note09186a008053a3ed.html#wp45869](http://www.cisco.com/en/US/products/ps6128/prod_release_note09186a008053a3ed.html#wp45869)

## DL140 G3 Required BIOS Settings

The default BIOS settings for the HP ProLiant DL140 G3 server need to set as follows.

- 
- Step 1** While the machine is booting up, press [F9] to access the BIOS Setup screen.
  - Step 2** Select “Advance Chipset Control”
  - Step 3** Select “Serial ATA: [Enabled]”
  - Step 4** Select “Native Mode Operation: [Auto]”
  - Step 5** Select “SATA Controller Mode Option: [Compatible]”
  - Step 6** Save your settings and reboot the machine.
- 



**Note** These settings are the default BIOS settings shipped with the Cisco NAC-3310 Appliance.

---



**Note** The following BIOS customization is provided on NAC-3310 Appliance:

1. Console Redirection: Enabled
2. Console Type: VT100

---

## DL140 G3 Required BIOS/Firmware Upgrades

The Cisco NAC-3310 appliance is based on the HP ProLiant DL140 G3 server and is subject to any BIOS/firmware upgrades required for the DL140 G3.

[Table 5](#) lists the current supported default system BIOS/Firmware version for NAC-3310. Make sure the BIOS version on your NAC-3310 appliance matches the latest supported version listed in [Table 5](#).

**Table 5** BIOS/Firmware Updates for NAC-3310 (Based on HP DL140 G3)

HP DL140 G3 System BIOS Version	Download Filename	BMC Firmware Version
1.14 (2007.08.13) A	<a href="#">SP36704.exe (3.8 MB)</a>	2.11



**Note** HP external links are subject to change at any time at HP’s discretion. For a list of all HP BIOS versions for the HP DL140 G3, refer to the “Revision History” tab of the *Systems ROMPaq Firmware Upgrade Diskette for HP ProLiant DL140 G3 Servers* website at the following location:  
<http://h20000.www2.hp.com/bizsupport/TechSupport/SoftwareDescription.jsp?lang=en&cc=us&prodTypeId=15351&prodSeriesId=1842838&swItem=MTX-7357cb60dff4e22a507f6abe1&prodNameId=3285485&swEnvOID=2025&swLang=8&taskId=135&mode=5>

---

## Required Installation Directives



**Note** Release 4.5 and later do not require installation directives for the NAC-3310.

---

**For CCA release 4.1(x) and earlier only**, you are required to type either the **DL140** or **serial\_DL140** installation directive at the “boot:” prompt to install new system software via CD-ROM on the following hardware:

- HP ProLiant DL140 G3 servers
- NAC-3310 appliance (based on DL140 G3)
- Certain servers with LSI Logic SCSI drivers (e.g. Dell 1850)

For these server models, type either:

- **DL140**—if you are directly connected (monitor, keyboard, and mouse) to the machine
- **serial\_DL140**—if you are installing the software via serial console connection

For example:

```
Cisco Clean Access Installer (C) 2007 Cisco Systems, Inc.
      Welcome to the Cisco Clean Access Installer!
- To install a Cisco Clean Access device, press the <ENTER> key.
- To install a Cisco Clean Access device over a serial console,
  enter serial at the boot prompt and press the <ENTER> key.
boot: DL140
```

## Disable Serial Port Settings

If installing CCA version 4.1(x)/4.0(x)/3.6(x) software on Dell PowerEdge 750 or 1850, perform the following steps:

### To disable serial port settings on a Dell 750:

1. Power up the box.
2. Press F2 to enter Setup (BIOS) mode.
3. Go to “Console Redirection.”
4. Make sure “Console Redirect” is set to “Off”, and “Redirection After Boot” is set to “Disabled.”
5. Select “Save Changes and Exit.”
6. Reboot the machine with the CCA software installation CD. The software should boot up correctly.

### To disable serial port settings on a Dell 1850:

1. Power up the box.
2. Enter BIOS mode.
3. Go to “Integrated Devices” and disable “Serial Redirect”.
4. Disable “Redirect after Boot”.
5. Select “Save Changes”.
6. Reboot the machine. The software should boot up correctly.

## Disable Onboard NICs

If running CCA version 3.5(x)/3.4(x) on Cisco MCS-7825-I1-ECS1, or IBM eServer xSeries 306 servers with Adaptec 79xx SCSI controllers, disable the onboard NICs and use the following Intel/Broadcom PCI NICs instead:

- PWLA8492MT = Intel PRO/1000 MT Dual Port Server Adapter (copper)

- PWLA8492MF = Intel PRO/1000 MF (dual SX fiber LC connectors)

**To disable onboard NICs for each CAM/CAS installation server:**

1. Power up the box.
2. Press F1 to enter BIOS mode.
3. Disable on-board Ethernet Controllers 1 and 2.
4. Save and exit.

## Disable SATA RAID

If installing CCA version 4.1(x)/4.0(x)/3.6(x)/3.5(x)/3.4(x) on the Cisco MCS-7825-I1-ECS1 (IBM x306-based platform), perform the following steps to disable SATA RAID.

**For each CAM installation server:**

1. Power up the box.
2. Press F1 to enter BIOS mode.
3. Go to “Devices and I/O Ports” and disable “SATA RAID Enable”.

**For each CAS installation server:**

1. Power up the box.
2. Press F1 to enter BIOS mode.
3. Go to “Devices and I/O Ports” and disable “SATA RAID Enable”.
4. Disable “Onboard LAN 1” and “Onboard LAN 2” to disable the on-board NICs.
5. Install one of the following types of PCI NICs instead, and reboot the box.
  - PWLA8492MT = Intel PRO/1000 MT Dual Port Server Adapter (copper)
  - PWLA8492MF = Intel PRO/1000 MF (dual SX fiber LC connectors)

## Notes for 3.6.0/3.6.0.1

CCA versions 3.6(0) and 3.6.0.1 only require that the “IPMI-asf” feature be turned off on servers with Broadcom NIC controllers.

**To Disable IPMI (CCA 3.6.0/3.6.0.1 Only)**



**Note**

---

The following workaround is NOT needed for CCA version 3.6(1) and later.

---

To alter the IPMI-asf setting on the Broadcom controllers, you will need to download a utility from Broadcom.

1. Download the utility from [http://www.broadcom.com/support/ethernet\\_nic/driver-sla.php?driver=570x-diag](http://www.broadcom.com/support/ethernet_nic/driver-sla.php?driver=570x-diag) and follow the instructions on the web page to start the download. Then, follow the instructions below.
2. Save the **user\_diag-8.30.zip** utility to your workstation, and unzip the file.
3. Copy the contents of the user\_diag folder onto a bootable DOS floppy or CD-ROM.
4. Boot the machine into DOS.

5. At the DOS prompt, type: `b57udiag -cmd`  
Wait for a prompt to appear. This might take a while.
6. At the prompt, type: `setasf -d @`
7. After this is done, at the prompt, type: `exit`
8. Eject the CD-ROM and reboot the machine.

**Note**

For additional details, see “Important Notes for 3.6(0) Clean Access Server Machines with Broadcom NIC Controllers” at the following URL:  
[http://www.cisco.com/en/US/docs/security/nac/appliance/release\\_notes/36/36rn.html#wp41908](http://www.cisco.com/en/US/docs/security/nac/appliance/release_notes/36/36rn.html#wp41908).

## Custom Installation

**Note**

**Custom installation applies to CCA release 3.5(x) or prior ONLY.**

Custom installation is not needed starting from CCA release 3.6(x) and should not be used.

Some servers may require custom installation when installing Cisco Clean Access software. For example, when installing CCA 3.5(x)/3.4(x) on a HP ProLiant DL360/380, IBM x306, or Dell PowerEdge 1750/1850, custom installation is required. Note the following:

- Each controller that is not supported via the Cisco Clean Access CD-ROM needs to be downloaded from Cisco Secure Software and put on a driver disk so that the installation program can access the device
- An anaconda (installation program) patch must also be applied.

If installing CCA software on a server that requires custom installation, follow the instructions below:

1. [Pre-ISO Setup](#)
2. [Custom CD Install](#)

### Pre-ISO Setup

**Note**

You must have these steps completed before you can boot from the ISO CD-ROMs.

- Step 1** Download a copy of rawrite. You can obtain rawrite from <http://www.fdos.org/ripcord/rawrite/>
- Step 2** Save this rawrite file to C:\
- Step 3** Download the Driver and Update image files by logging into Cisco Secure Software and accessing the Cisco Clean Access System Drivers folder under:  
<http://www.cisco.com/cgi-bin/tablebuild.pl/CCA-drivers>
- Step 4** Download the appropriate driver.img file, depending on the server on which you are installing:
  - For **HP DL360/380**, you will need the **SmartArray 6i Driver** disk.
  - For **IBM 306**, you will need the **Adaptec SCSI 79xx Driver** disk.
  - For **Dell 1750/1850**, you will need the **LSI SCSI Driver** disk.
- Step 5** Download the update.img file (**General Update**). You will need to create an update.img disk to apply the anaconda (installation program) patch.

- Step 6** Save the Driver and Update files in the same C:\ directory as the rawrite file.
- Step 7** Open a command tool and type:  
`C:\rawrite`
- Step 8** Enter the full name of the source file(s) and the destination onto a floppy disk. You might need to change the filenames to something shorter, i.e. less than 10 characters. Do this for each image. Typically, use the names **driver.img** and **update.img**.

### Custom CD Install

To perform a custom installation for each Clean Access Manager and Clean Access Server machine:

- Step 1** Insert the distribution CD-ROM that contains the CAM or CAS .iso file into the CD drive of the installation server machine.
- Step 2** Connect to the machine directly with a keyboard and monitor, or by terminal emulation console over a serial connection.
- Step 3** Reboot the machine. The installation script starts automatically after the machine restarts.
- Step 4** At the “boot:” prompt, type `custom` and press Enter.
- Step 5** The program will prompt you for the driver diskette, then the update diskette. The installation then proceeds normally.



**Caution** Make sure to use the appropriate driver diskette for the platform.

## Troubleshooting Network Card Driver Support Issues



**Note** The instructions in this section apply only to customer-supplied hardware platforms running Release 4.1(x) or earlier. This section does not apply to Release 4.5 which only supports the CCA-3140, NAC-3310, NAC-3350, NAC-3390, and NME-NAC Cisco NAC Appliance hardware platforms.

Typically, the Cisco NAC Appliance (Cisco Clean Access) installation program automatically detects the network cards on the target machine and loads the appropriate drivers. In some cases, such as when NIC cards are changed on the server hardware, you may need to manually load drivers if they are not automatically loaded. The instructions below describe how to do this. Note that you must follow the instructions specific to the version of Cisco Clean Access version being run:

- [Loading Drivers for Cisco NAC Appliance Version 4.1\(x\)/4.0\(x\)/3.6\(x\)](#)
- [Loading Drivers for CCA Version 3.5\(x\)](#)

## Loading Drivers for Cisco NAC Appliance Version 4.1(x)/4.0(x)/3.6(x)



### Note

Cisco NAC Appliance versions 4.1(x)/4.0(x)/3.6(x) use the tg3 driver for Broadcom 5700 NIC cards.

To manually load drivers for server machines running Cisco NAC Appliance version 4.1(x), 4.0(x) or 3.6(x), perform the following steps:

1. [Verify Driver Loads Correctly](#)
2. [Manually Load the Driver](#)
3. [Hardcoding Speed/Duplex for the Intel e1000 Driver \(if applicable\)](#), or
4. [Hardcoding Speed/Duplex for the Broadcom tg3 Driver \(if applicable\)](#)
5. [Save and Reboot](#)

### Verify Driver Loads Correctly

- 
- Step 1** Connect to the server machine (Clean Access Manager or Clean Access Server) by serial cable or KVM and console into the box.
- Step 2** Type the following command: `modprobe <driver_name>`
- For example, for Broadcom NICs, type: `modprobe tg3`
  - For Intel Gigabit NICs, type: `modprobe e1000`

### Manually Load the Driver

If the above steps result in no errors, perform the next steps:

- Step 3** Edit the file `/etc/modprobe.conf` with vi or another editor. Add the following two lines:

```
alias eth0 <driver>
alias eth1 <driver>
```

For example, for Broadcom NICs insert:

```
alias eth0 tg3
alias eth1 tg3
```

For Intel Gigabit NICs (e1000-based) insert:

```
alias eth0 e1000
alias eth1 e1000
```

- Step 4** If the network card's operating parameters, such as speed and duplex, need to be hardcoded in the configuration file, perform the steps appropriate for your NIC drivers as described below:
- [Hardcoding Speed/Duplex for the Intel e1000 Driver \(if applicable\)](#), or
  - [Hardcoding Speed/Duplex for the Broadcom tg3 Driver \(if applicable\)](#)

### Hardcoding Speed/Duplex for the Intel e1000 Driver (if applicable)

To hardcode Intel e1000 Gigabit cards (eth0 and eth1) for 100Mbps full duplex, add the following `options` line to the file `/etc/modprobe.conf` (after the `alias` lines):

```
alias eth0 e1000
alias eth1 e1000
options e1000 Speed=100,100 Duplex=2,2
```

Table 8 lists the Intel e1000 NIC driver options available for Cisco NAC Appliance versions 4.1(x)/4.0(x)/3.6(x).

**Table 6 Cisco NAC Appliance Version 4.1(x)/4.0(x)/3.6(x)—Intel e1000 NIC Driver Options**

NIC Type	Speed (eth0,eth1)	Duplex (eth0,eth1)	Add this line in /etc/modules.conf
Intel e1000	100 Mbps	full duplex	options e1000 Speed=100,100 Duplex=2,2
Intel e1000	1000 Mbps	full duplex	options e1000 Speed=1000,1000 Duplex=2,2
Intel eeepro100	100 Mbps	full duplex	options eeepro100 option="0x30,0x30"

**Hardcoding Speed/Duplex for the Broadcom tg3 Driver (if applicable)**



**Note**

The Broadcom tg3 driver does not take options.

**Step 5**

For Cisco NAC Appliance 4.0(x)/3.6(x), you can temporarily change settings on Broadcom tg3 NIC cards (eth0 and eth1) in order to test which settings work for your drivers. You can use the following sequence of commands to first turn auto-negotiation off, then set the speed and duplex:

```
# ethtool -s eth0 autoneg off
# ethtool -s eth0 speed 1000
# ethtool -s eth0 duplex full
```

Note that these settings are lost after a reboot. If you want manually configured settings to be preserved during every reboot, add the above lines that work for your system into the file /etc/rc.local.

Table 8 lists the Broadcom tg3 NIC driver parameters you can modify using the ethtool command for Cisco NAC Appliance versions 4.1(x)/4.0(x)/3.6(x).

**Table 7 Cisco NAC Appliance Version 4.1(x)/4.0(x)/3.6(x)—Broadcom tg3 NIC ethtool Parameters**

NIC Type	Interface	Parameter	Value
tg3	eth0 eth1	autoneg	on / off
		speed	10/100/1000
		duplex	full/half

**Save and Reboot**

**Step 6**

Save and close the files.

**Step 7**

Reboot the server using the following command:

```
service perfigo reboot
```

## Loading Drivers for CCA Version 3.5(x)



**Note**

CCA version 3.5(x) and earlier use the bcm5700 driver for Broadcom 5700 NIC cards.

To manually load drivers for server machines running Cisco Clean Access version 3.5(x), perform the following steps:

1. [Verify Driver Loads Correctly](#)
2. [Manually Load the Driver](#)
3. [Hardcode Speed/Duplex for the Driver](#)
4. [Save and Reboot](#)

### Verify Driver Loads Correctly

- 
- Step 1** Connect to the server machine (Clean Access Manager or Clean Access Server) by serial cable or KVM and console into the box.
- Step 2** Change to the driver directory as follows (where <driver\_name> is the NIC card driver, such as bcm5700 or e1000):
- ```
cd /lib/modules/kernel-2.4.9-perfigo/drivers/addon/<driver_name>
```
- Step 3** Type the following command: `insmod ./<driver>.o`
- For example, for Broadcom NIC cards, type: `insmod ./bcm5700.o`
  - For Intel e1000-based NIC cards type: `insmod ./e1000.o`

### Manually Load the Driver

If the steps above result in no errors, perform the next steps:

- Step 4** Edit the file `/etc/modules.conf` with `vi` or another editor. Add the following two lines:
- ```
alias eth0 <driver>
alias eth1 <driver>
```

For example, for Broadcom 5700-based NICs, insert:

```
alias eth0 bcm5700
alias eth1 bcm5700
```

Or, for Intel e1000-based NICs, insert the following lines instead:

```
alias eth0 e1000
alias eth1 e1000
```

### Hardcode Speed/Duplex for the Driver

- Step 5** If the network card's operating parameters, such as speed and duplex, need to be hardcoded in the configuration file, add the appropriate option. For example, to hardcode Intel e1000 gigabit cards (eth0 and eth1) for 100Mbps full duplex, add the following line to the file `/etc/modules.conf`:
- ```
options e1000 Speed=100,100 Duplex=2,2
```

[Table 8](#) lists the NIC driver options available for CCA version 3.5(x).

**Table 8** CCA Version 3.5(x) – NIC Driver Options

| NIC Type        | Speed                   | Add this line in /etc/modules.conf                             |
|-----------------|-------------------------|----------------------------------------------------------------|
| Broadcom 5700   | 100 Mbps<br>full duplex | options bcm5700 line_speed=100,100 auto_speed=0,0 duplex=1,1   |
| Broadcom 5700   | 1000Mbps<br>full duplex | options bcm5700 line_speed=1000,1000 auto_speed=0,0 duplex=1,1 |
| Intel e1000     | 100 Mbps<br>full duplex | options e1000 Speed=100,100 Duplex=2,2                         |
| Intel e1000     | 1000Mbps<br>full duplex | options e1000 Speed=1000,1000 Duplex=2,2                       |
| Intel eeepro100 | 100 Mbps<br>full duplex | options eeepro100 option="0x30,0x30"                           |

**Save and Reboot**

**Step 6** Save and close the files.

**Step 7** Reboot the server using the following command:

```
# service perfigo reboot
```

## System Requirements

This section describes the minimum configuration recommended for server machines running the Cisco Clean Access Manager and Clean Access Server software. It also describes minimum requirements for browsers and for client systems running the Clean Access Agent.

- [Cisco NAC Appliance Sizing Guidelines](#)
- [Clean Access Manager \(CAM\)](#)
- [Clean Access Server \(CAS\)](#)
- [CAS High Availability \(HA\) Requirements](#)
- [Cisco NAC Appliance Agents System Requirements](#)

## Cisco NAC Appliance Sizing Guidelines

**Warning**

**Cisco NAC Appliance Release 4.5 only supports and can only be installed on the following Cisco NAC Appliance platforms: Cisco CCA-3140, Cisco NAC-3310, Cisco NAC-3350, Cisco NAC-3390, Cisco NAC Network Module (NME-NAC-K9). You cannot upgrade to or install release 4.5 on any other platform.**

With the introduction of the Cisco NAC Appliance 3300 Series, server and user count determinations are dependent on the type of license and NAC-3300 hardware platform purchased.

For comprehensive sizing and ordering information, refer to the [Cisco NAC Appliance Ordering Guide](#).

For additional details, see also [Cisco NAC Appliance Service Contract / Licensing Support](#).

**Note**

- The maximum user count available for a CAS installed on customer-supplied hardware is 1500 users.
- The maximum number of CASs that can be managed by a CAM installed on customer-supplied hardware is 20 failover CAS bundles.
- The 2500- and 3500-user Clean Access Servers and the Super CAM are not available as software-only products.
- Customers who wish to buy CCA as software only must use legacy SKUs (e.g. CCA-SVR-K9) and cannot use new appliance SKUs (e.g NAC3350-1500-K9). Refer to the [Cisco NAC Appliance End-of-Life / End-of-Sales Notices](#) for additional information.

## Clean Access Manager (CAM)

**Warning**

**Cisco NAC Appliance Release 4.5 only supports and can only be installed on the following Cisco NAC Appliance platforms: Cisco CCA-3140, Cisco NAC-3310, Cisco NAC-3350, Cisco NAC-3390, Cisco NAC Network Module (NME-NAC-K9). You cannot upgrade to or install release 4.5 on any other platform.**

The following minimum configuration is recommended for customer-supplied server machines running the CAM software

| Component        | Minimum Requirement                                                    |
|------------------|------------------------------------------------------------------------|
| CPU              | Single 2.4 GHz, or greater                                             |
| Memory           | 1 GB, or greater <sup>1</sup>                                          |
| NIC <sup>2</sup> | Dual Fast Ethernet or Gigabit Ethernet (Intel or Broadcom recommended) |
| Hard Disk Space  | 10 GB                                                                  |

1. Consider 2 GB of memory or greater if planning to deploy the CAM with a large number of device filters, traffic policies, local users, and/or multiple CASs fully loaded with >1000 users.
2. Unless deploying for High Availability, the Clean Access Manager only requires a single NIC.

**Note**

Super CAM software runs only on the NAC-3390 hardware platform. See [Cisco NAC Appliance Hardware Platforms, page 1](#).

**Note**

For serial cable connection for high availability (for either HA-CAM or HA-CAS pairs), the serial cable must be a “null modem” cable. For details, refer to <http://www.nullmodem.com/NullModem.htm>.

## Clean Access Server (CAS)



### Warning

**Cisco NAC Appliance Release 4.5 only supports and can only be installed on the following Cisco NAC Appliance platforms: Cisco CCA-3140, Cisco NAC-3310, Cisco NAC-3350, Cisco NAC-3390, Cisco NAC Network Module (NME-NAC-K9). You cannot upgrade to or install release 4.5 on any other platform.**

The following minimum configuration is recommended for customer-supplied server machine(s) running the CAS software.

| Component       | Minimum Requirement                                                    |
|-----------------|------------------------------------------------------------------------|
| CPU             | Single 2.4 GHz, or greater                                             |
| Memory          | 1 GB, or greater <sup>1</sup>                                          |
| NICs            | Dual Fast Ethernet or Gigabit Ethernet (Intel or Broadcom recommended) |
| Hard Disk Space | 10 GB                                                                  |

1. Consider 2 GB of memory or greater if deploying the CAS as a DHCP Server, configuring /30 subnets, or supporting 1500 users. 1 GB is typically sufficient otherwise.

## CAS High Availability (HA) Requirements



### Note

You must use identical appliances (e.g. NAC-3350 and NAC-3350) in order to configure High Availability (HA) pairs of Clean Access Managers (CAMs) or Clean Access Servers (CASs).

Cisco recommends the use of a **dedicated** connection for failover heartbeat on Clean Access Server high-availability pairs. You can use:

- A serial null-modem cable, or
- UDP heartbeat over eth0 **and** a serial null-modem cable



### Note

When connecting high availability (failover) pairs via serial cable, BIOS redirection to the serial port must be disabled for NAC-3300 series appliances, and for any other server hardware platform that supports the BIOS redirection to serial port functionality. See [Disable BIOS Redirection for Serial HA \(Failover\) Connections, page 10](#) for details.



### Note

For serial cable connection for high availability (for either HA-CAM or HA-CAS pairs), the serial cable must be a “null modem” cable. For details, refer to <http://www.nullmodem.com/NullModem.htm>.

## Cisco NAC Appliance Web Admin Console Requirements

- The CAM/CAS web console supports Internet Explorer 6.0 for all releases, and the IE 7.0 browser with release 4.1(0) and later.

- The CAM/CAS web console requires high encryption (64 or 128 bit) and does not accept 56-bit encryption (with release 3.5(7) and later).
- High encryption (64 or 128 bit) is also required for client browsers for web login and Clean Access Agent authentication.

**Note**

Cisco NAC Appliance does not support beta versions of third-party software, except where specifically noted.

## Cisco NAC Appliance Agents System Requirements

**Note**

Table 9 lists Clean Access Agent information for Cisco NAC Appliance Release 4.1.x and earlier only. For details on Cisco NAC Appliance Agents in Release 4.5, refer to *Support for Cisco NAC Appliance Agents* available at [http://www.cisco.com/en/US/products/ps6128/products\\_device\\_support\\_tables\\_list.html](http://www.cisco.com/en/US/products/ps6128/products_device_support_tables_list.html).

Table 9 lists the minimum configuration recommended to install and authenticate with the Clean Access Agent on client systems

**Table 9**      **Clean Access Agent System Requirements**

| Requirements                                                                                                                                                   | Min. Agent Version <sup>1</sup> | Min. CAM/CAS Version <sup>1</sup> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-----------------------------------|
| <b>Required Hard Drive Space</b>                                                                                                                               |                                 |                                   |
| Minimum of 10 MB of free hard drive space                                                                                                                      | All                             | All                               |
| <b>Required Hardware</b>                                                                                                                                       |                                 |                                   |
| No minimum hardware requirements (works on various client machines)                                                                                            | All                             | All                               |
| <b>Supported Client Operating Systems</b>                                                                                                                      |                                 |                                   |
| Windows XP Professional, Windows XP Home, Windows 2000 <sup>2</sup> , Windows 98, Windows SE, Windows ME                                                       | All                             | All                               |
| Windows XP Media Center Edition, Windows XP Tablet PC                                                                                                          | 4.0.2.0+                        | 4.0(3)+                           |
|                                                                                                                                                                | 4.1.0.0+                        | 4.1(x)+                           |
| Windows Vista Home, Windows Vista Business, Windows Vista Ultimate, Windows Vista Enterprise <sup>3, 4</sup>                                                   | 4.0.4.0+                        | 4.0(4)+                           |
|                                                                                                                                                                | 4.1.1.0+                        | 4.1(1)+                           |
| <b>Note</b> Agent stub installation on Windows Vista is only supported starting from 4.0(6) CAM/CAS and 4.0.6.0+ Agent and 4.1(3)+ CAM/CAS and 4.1.3.0+ Agent. |                                 |                                   |
| <b>Note</b> Cisco NAC Appliance 4.1(0)/4.1.0.1/4.1.0.2 does not support Windows Vista.                                                                         |                                 |                                   |
| Japanese Windows XP Professional SP2, Japanese Windows XP Home Edition, Japanese Windows 2000 Professional SP4 <sup>5, 6, 7</sup>                              | 4.0.2.0+                        | 4.0.3.2+                          |
|                                                                                                                                                                | 4.1.0.0+                        | 4.1(0)+                           |

Table 9 Clean Access Agent System Requirements (continued)

| Requirements                                                                                                                                                                                                                                                                                                                                                                  | Min. Agent Version <sup>1</sup> | Min. CAM/CAS Version <sup>1</sup> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-----------------------------------|
| Japanese Windows Vista Home, Windows Vista Business, Windows Vista Ultimate, Windows Vista Enterprise <sup>5,6,7</sup>                                                                                                                                                                                                                                                        | 4.0.4.0+                        | 4.0(4)+                           |
| <b>Note</b> Cisco NAC Appliance 4.1(0)/4.1.0.1/4.1.0.2 does not support Windows Vista.                                                                                                                                                                                                                                                                                        | 4.1.1.0+                        | 4.1(1)+                           |
| Korean Windows XP Professional SP2, Korean Windows 2000 Professional SP4 <sup>5,6,7</sup>                                                                                                                                                                                                                                                                                     | 4.1.2.1+                        | 4.1.2.1+                          |
| Korean Windows Vista Home, Windows Vista Business, Windows Vista Ultimate, Windows Vista Enterprise <sup>5,6,7</sup>                                                                                                                                                                                                                                                          | 4.1.2.1+                        | 4.1.2.1+                          |
| <b>Note</b> Cisco NAC Appliance 4.1(0)/4.1.0.1/4.1.0.2 does not support Windows Vista.                                                                                                                                                                                                                                                                                        |                                 |                                   |
| Windows XP SP2 with Simplified Chinese                                                                                                                                                                                                                                                                                                                                        | 4.1.0.0+                        | 4.1(0)+                           |
| Mac OS 10.5, 10.5.1 (Leopard) <sup>8</sup> —Authentication and auto-upgrade                                                                                                                                                                                                                                                                                                   | 4.1.3.0+                        | 4.1(3)+                           |
| Japanese Mac OS 10.5, 10.5.1 (Leopard) <sup>8</sup> —Authentication and auto-upgrade                                                                                                                                                                                                                                                                                          |                                 |                                   |
| Mac OS X (10.2, 10.3, 10.4)—Authentication only                                                                                                                                                                                                                                                                                                                               | 4.1.0.0+                        | 4.1(0)+                           |
| Japanese Mac OS X (10.2, 10.3, 10.4)—Authentication only                                                                                                                                                                                                                                                                                                                      |                                 |                                   |
| 64-bit Windows OS—Authentication-only <sup>9</sup>                                                                                                                                                                                                                                                                                                                            | 4.0.6.1+                        | 4.0.6.1+                          |
| Windows XP Professional x64, Windows Vista Home Basic x64, Windows Vista Home Premium x64, Windows Vista Business x64, Windows Vista Ultimate x64, Windows Vista Enterprise x64                                                                                                                                                                                               | 4.1.2.1+                        | 4.1.2.1+                          |
| Japanese Windows XP Professional x64, Japanese Windows Vista Home Basic x64, Japanese Windows Vista Home Premium x64, Japanese Windows Vista Business x64, Japanese Windows Vista Ultimate x64                                                                                                                                                                                |                                 |                                   |
| <b>Note</b> Only authentication is supported 64-bit Windows systems. Agent does not perform posture assessment or Nessus scanning. To support x64 Windows, the CAM/CAS/Agent must all be running same release (e.g. 4.1.2.1 or 4.0.6.1)                                                                                                                                       |                                 |                                   |
| <b>Cisco NAC Web Agent Support</b>                                                                                                                                                                                                                                                                                                                                            |                                 |                                   |
| <b>Supported OS:</b>                                                                                                                                                                                                                                                                                                                                                          | 4.1.3.9                         | 4.1(3)+                           |
| <ul style="list-style-type: none"> <li>Windows 2000 SP6, Windows XP Home/Professional SP2, Windows Vista Home Premium/Ultimate (authentication only)</li> <li>Japanese Windows XP Home/Professional SP2, Japanese Windows Vista Home Premium/Ultimate</li> <li>Korean Windows XP Professional SP2, Korean Windows 2000 Professional SP4, Korean Windows Vista Home</li> </ul> |                                 |                                   |
| <b>Supported Web Browsers:</b>                                                                                                                                                                                                                                                                                                                                                |                                 |                                   |
| <ul style="list-style-type: none"> <li>Internet Explorer 6.0, 7.0</li> <li>Firefox 1.5, 2.0</li> </ul>                                                                                                                                                                                                                                                                        |                                 |                                   |
| <b>Java Applet Support: JVM 1.4.2</b>                                                                                                                                                                                                                                                                                                                                         |                                 |                                   |
| <b>Supported Localized Language Templates <sup>10</sup></b>                                                                                                                                                                                                                                                                                                                   |                                 |                                   |

**Table 9** *Clean Access Agent System Requirements (continued)*

| <b>Requirements</b>                                                                                                                 | <b>Min. Agent Version <sup>1</sup></b> | <b>Min. CAM/CAS Version <sup>1</sup></b> |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|------------------------------------------|
| French (Canada)                                                                                                                     | 4.1.6.0+                               | 4.1(6)+                                  |
| Dutch, Hungarian, Portuguese, Japanese                                                                                              | 4.1.3.0+                               | 4.1(3)+                                  |
| German, Italian, Finnish, Czech, Norwegian, Spanish, Danish, French, Russian <sup>11</sup> , Swedish, Turkish, Serbian, and Catalan | 4.1.0.0+                               | 4.1(0)+                                  |
| <b>Supported OS Locales <sup>12</sup></b>                                                                                           |                                        |                                          |
| English, International English, French, Italian, German, Spanish, Norwegian, Swedish, Japanese                                      | All                                    | All                                      |
| <b>Supported Browsers (Windows)<sup>13</sup></b>                                                                                    |                                        |                                          |
| Internet Explorer 6.0,<br>Japanese Internet Explorer 6.0                                                                            | All                                    | All                                      |
| Internet Explorer 7.0,<br>Japanese Internet Explorer 7.0                                                                            | 3.6.5.0+                               | 3.6.4.3                                  |
|                                                                                                                                     | 4.0.2.0+                               | 4.0(3)+                                  |
|                                                                                                                                     | 4.1.0.0                                | 4.1(0)                                   |
| <b>Supported Browsers (Macintosh)</b>                                                                                               |                                        |                                          |
| Mac OS X: Safari 3, Firefox 2                                                                                                       | 4.1.0.0+                               | 4.1(0)+                                  |
| iPhone, iPod Touch: Safari (default browser) <sup>14</sup>                                                                          | 4.1.3.0+                               | 4.1(3)+                                  |

- The “+” designation in the **Min. Version** columns indicates the feature is supported starting from the Agent and CAM/CAS versions listed and for later versions in the same release branch (e.g. 4.0.x).
- 4.1.3.0 Agent login to Windows 2000 system with Local DB authentication (to CAM) and requirements configured requires a system restart.
- Windows Vista support (except for stub installer) starts with release 4.0(4)/4.0.4.0 Agent and release 4.1(1)/ 4.1.1.0 Agent. Agent stub installer support for Windows Vista starts with release 4.0(6)/ 4.0.6.0 Agent. Windows Vista is not supported by Cisco NAC Appliance releases 4.1(0)/4.1.0.1/4.1.0.2 and 4.1.0.0/4.1.0.2 Agents.
- For checks/rules/requirements, the Agent can detect “N” (European) versions of the Windows Vista operating system, but the CAM/CAS treat “N” versions of Vista as their US counterpart.
- For Japanese/Korean Windows OS, Windows user names must be ASCII.
- For Japanese/Korean Windows OS, only ASCII characters are supported for rules/checks.
- Japanese/Korean Windows XP/2000 clients only are affected by caveats CSCsg38702 and CSCse86581 for Trend AV products. Refer to [Release Notes for Cisco NAC Appliance \(Cisco Clean Access\) Version 4.0\(x\)](#) for additional details.
- Mac OS 10.5 and 1.0.5.1 users can only authenticate to the 4.1(3) CAM/CAS. Mac OS 10.5/10.5.1 is not supported on earlier Cisco NAC Appliance versions.
- The Clean Access Agent only fully supports authentication/posture assessment/remediation on 32-bit operating systems. Any client OS not listed is not supported, even if the Agent can be installed on the client (e.g. Embedded XP is not supported).
- The Agent picks the correct language template based on the local computer Locale (under Control Panel > Regional and Language Options). Cisco recommends using the localized Agent in the localized version of Windows (e.g. French Agent in French Windows). Agent language template support only controls what the viewer sees after the Agent is installed; it does not include support for different client operating systems for the Agent Installer or for AV/AS products.
- For Russian localized template, the Agent must run on Russian Windows to be able display all characters correctly.
- For releases 4.0(x)/3.6(x)/3.5(x) and below, there is no localization provided for non-English languages (for example, Clean Access Agent installs/authenticates on German Windows but displays all information and instructions in English).
- High encryption (64 or 128 bit) is required for Agent authentication (starting from release 3.5(7))
- Cisco NAC Appliance supports basic web login on Macintosh operating systems—whether Mac OS X, iPhone, or iPod Touch—as long as clients use the Safari or Firefox browsers.

