



Installation Guide for Cisco Virtual Network Data Server

Version 2.0

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Preface fm-v

- Obtaining Documentation fm-v
 - Cisco.com fm-v
 - Product Documentation DVD fm-v
 - Ordering Documentation fm-vi
- Documentation Feedback fm-vi
- Cisco Product Security Overview fm-vii
 - Reporting Security Problems in Cisco Products fm-viii
- Obtaining Technical Assistance fm-viii
 - Cisco Technical Support & Documentation Website fm-ix
 - Submitting a Service Request fm-ix
 - Definitions of Service Request Severity fm-x
- Obtaining Additional Publications and Information fm-xi

Planning Your Installation 1-1

- Installation Workflows 1-1
 - First-Time Installation 1-1
 - Update Installation 1-2
- Upgrading Licenses 1-3
- Registering Your Cisco Solution Product 1-3
 - Registration Information 1-4
- Determining Installation Options 1-4
- Product Licensing 1-5
 - Restricted and Unrestricted Licenses 1-5
 - Selecting the License Type 1-5

- Floating Mode 1-6
- How Licensing Types and Modes Affect Who Can Use a License 1-7
- Licensing Requirements 1-7
- Licensing Scenarios: Examples 1-8

System Requirements 2-1

- Cisco Virtual Network Data Server: System Requirements 2-1
 - Supported Platforms 2-1
 - Required System Patches 2-2
 - Windows and Red Hat System Configuration 2-3
 - Other Requirements 2-3

Installing Cisco Virtual Network Data Server (Windows) 3-1

- System Requirements 3-1
- Installation Workflows 3-2
 - Initial Cisco VNDS Installation (Windows/Local Oracle Database) 3-2
 - Initial Cisco VNDS Installation (Windows/Remote Oracle Database) 3-3
 - Update Cisco VNDS Installation (Windows) 3-5
- Installing Cisco VNDS (Windows) 3-6
- Configuring the Oracle Database for Cisco VNDS (Windows) 3-17
- Modifying Database Parameters (Windows) 3-20
- Verifying the Oracle Configuration for Cisco VNDS (Windows) 3-21
- Verifying the VNDS Software Installation (Windows) 3-23

Installing Cisco Virtual Network Data Server (Linux) 4-1

- System Requirements 4-1
- Installation Workflows: Overview 4-2
 - Initial VNDS Installation (Linux/Local Oracle Database) 4-2

Initial Cisco VNDS Installation (Linux/Remote Oracle Database)	4-3
Installing Cisco VNDS (Linux)	4-4
Licensing Notes	4-13
Configuring the Oracle Database for Cisco VNDS (Linux)	4-14
Modifying Database Parameters (Linux)	4-17
Verifying Oracle Configuration for Cisco VNDS (Linux)	4-19
Verifying the VNDS Software Installation (Linux)	4-21
Managing Licenses	5-1
Using the License Manager	5-2
License Names	5-2
Adding a License	5-3
Obtaining a Username and Password	5-3
Upgrading a License	5-4
Getting an Upgrade Authorization from Cisco Systems, Inc.	5-5
Adding a Module to the Product Options List	5-6
Deregistering a License	5-7
Refreshing a License	5-7
License Operations	5-8
Adding a License (Express Method)	5-8
Adding a License (Browser Method)	5-9
Deregistering a License (Express Method)	5-12
Deregistering a License (Browser Method)	5-13
Technical Support for Licensing Operations	5-15
Uninstalling Cisco Virtual Network Data Server	6-1
Removing VNDS Database Contents (Optional)	6-1
Uninstalling Cisco VNDS (Windows)	6-3

- Uninstalling Cisco VNDS on Windows (Standard) 6-3
- Removing All VNDS Elements (Advanced) 6-5
- Removing Prior Cisco VNDS Release After Software Update 6-7
- Uninstalling Cisco VNDS (Linux) 6-8
- Uninstalling a License Server 6-9

Oracle Procedures (Windows) A-1

- Oracle9i Installation Procedures A-1
 - Installing the Oracle9i Database (Windows) A-1
 - Installing the Oracle9i Client (Windows) A-5
- Oracle10g Installation Procedures A-7
 - Installing the Oracle10g Database (Windows) A-7
 - Installing the Oracle10g Client (Windows) A-10
- Collecting Oracle Database Access Information (Windows) A-13
- Installing Oracle TopLink (Windows) A-14
- Locating a Database Net Service Name in tnsnames.ora (Windows) A-16

Oracle Procedures (Linux) B-1

- Oracle Installation Procedures B-1
 - Configuring the Environment for the oracle Account (Linux) B-2
 - Configuring Permissions for Oracle Directories (Linux) B-2
- Collecting Oracle Database Access Information (Linux) B-3
- Installing Oracle TopLink (Linux) B-4
- Locating a Database Net Service Name in tnsnames.ora (Linux) B-6

Errata C-1

- Additional Requirements for the “Cisco WAN Manager” Adapter C-1

Known Issues D-1



Preface

Obtaining Documentation

Cisco documentation and additional literature are available on Cisco.com. Cisco also provides several ways to obtain technical assistance and other technical resources. These sections explain how to obtain technical information from Cisco Systems.

Cisco.com

You can access the most current Cisco documentation at this URL:

<http://www.cisco.com/techsupport>

You can access the Cisco website at this URL:

<http://www.cisco.com>

You can access international Cisco websites at this URL:

http://www.cisco.com/public/countries_languages.shtml

Product Documentation DVD

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The Product Documentation DVD is available as a single unit or as a subscription. Registered Cisco.com users (Cisco direct customers) can order a Product Documentation DVD (product number “DOC-DOCDVD=”) from Cisco Marketplace at this URL:

<http://www.cisco.com/go/marketplace/>

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Beginning June 30, 2005, registered Cisco.com users may order Cisco documentation at the Product Documentation Store in the Cisco Marketplace at this URL:

<http://www.cisco.com/go/marketplace/>

Nonregistered Cisco.com users can order technical documentation from 8:00 a.m. to 5:00 p.m. (0800 to 1700) PDT by calling 1 866 463-3487 in the United States and Canada, or elsewhere by calling 011 408 519-5055. You can also order documentation by e-mail at tech-doc-store-mkpl@external.cisco.com or by fax at 1 408 519-5001 in the United States and Canada, or elsewhere at 011 408 519-5001.

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170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate your comments.

Cisco Product Security Overview

Cisco provides a free online Security Vulnerability Policy portal at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

From this site, you can perform these tasks:

- Report security vulnerabilities in Cisco products.
- Obtain assistance with security incidents that involve Cisco products.
- Register to receive security information from Cisco.

A current list of security advisories and notices for Cisco products is available at this URL:

<http://www.cisco.com/go/psirt>

If you prefer to see advisories and notices as they are updated in real time, you can access a Product Security Incident Response Team Really Simple Syndication (PSIRT RSS) feed from this URL:

http://www.cisco.com/en/US/products/products_psirt_rss_feed.html

Reporting Security Problems in Cisco Products

Cisco is committed to delivering secure products. We test our products internally before we release them, and we strive to correct all vulnerabilities quickly. If you think that you might have identified a vulnerability in a Cisco product, contact PSIRT:

- Emergencies—security-alert@cisco.com

An emergency is either a condition in which a system is under active attack or a condition for which a severe and urgent security vulnerability should be reported. All other conditions are considered nonemergencies.

- Nonemergencies—psirt@cisco.com

In an emergency, you can also reach PSIRT by telephone:

- 1 877 228-7302
- 1 408 525-6532



Tip

We encourage you to use Pretty Good Privacy (PGP) or a compatible product to encrypt any sensitive information that you send to Cisco. PSIRT can work from encrypted information that is compatible with PGP versions 2.x through 8.x.

Never use a revoked or an expired encryption key. The correct public key to use in your correspondence with PSIRT is the one linked in the Contact Summary section of the Security Vulnerability Policy page at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

The link on this page has the current PGP key ID in use.

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Cisco Technical Support provides 24-hour-a-day award-winning technical assistance. The Cisco Technical Support & Documentation website on Cisco.com features extensive online support resources. In addition, if you have a valid Cisco

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Cisco Technical Support & Documentation Website

The Cisco Technical Support & Documentation website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The website is available 24 hours a day, at this URL:

<http://www.cisco.com/techsupport>

Access to all tools on the Cisco Technical Support & Documentation website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at this URL:

<http://tools.cisco.com/RPF/register/register.do>



Note

Use the Cisco Product Identification (CPI) tool to locate your product serial number before submitting a web or phone request for service. You can access the CPI tool from the Cisco Technical Support & Documentation website by clicking the **Tools & Resources** link under Documentation & Tools. Choose **Cisco Product Identification Tool** from the Alphabetical Index drop-down list, or click the **Cisco Product Identification Tool** link under Alerts & RMAs. The CPI tool offers three search options: by product ID or model name; by tree view; or for certain products, by copying and pasting **show** command output. Search results show an illustration of your product with the serial number label location highlighted. Locate the serial number label on your product and record the information before placing a service call.

Submitting a Service Request

Using the online TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Service Request Tool provides recommended

solutions. If your issue is not resolved using the recommended resources, your service request is assigned to a Cisco engineer. The TAC Service Request Tool is located at this URL:

<http://www.cisco.com/techsupport/servicerequest>

For S1 or S2 service requests or if you do not have Internet access, contact the Cisco TAC by telephone. (S1 or S2 service requests are those in which your production network is down or severely degraded.) Cisco engineers are assigned immediately to S1 and S2 service requests to help keep your business operations running smoothly.

To open a service request by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)

EMEA: +32 2 704 55 55

USA: 1 800 553-2447

For a complete list of Cisco TAC contacts, go to this URL:

<http://www.cisco.com/techsupport/contacts>

Definitions of Service Request Severity

To ensure that all service requests are reported in a standard format, Cisco has established severity definitions.

Severity 1 (S1)—Your network is “down,” or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Severity 2 (S2)—Operation of an existing network is severely degraded, or significant aspects of your business operation are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Severity 3 (S3)—Operational performance of your network is impaired, but most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Severity 4 (S4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- Cisco Marketplace provides a variety of Cisco books, reference guides, documentation, and logo merchandise. Visit Cisco Marketplace, the company store, at this URL:

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- *Cisco Press* publishes a wide range of general networking, training and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press at this URL:

<http://www.ciscopress.com>

- *Packet* magazine is the Cisco Systems technical user magazine for maximizing Internet and networking investments. Each quarter, Packet delivers coverage of the latest industry trends, technology breakthroughs, and Cisco products and solutions, as well as network deployment and troubleshooting tips, configuration examples, customer case studies, certification and training information, and links to scores of in-depth online resources. You can access Packet magazine at this URL:

<http://www.cisco.com/packet>

- *iQ Magazine* is the quarterly publication from Cisco Systems designed to help growing companies learn how they can use technology to increase revenue, streamline their business, and expand services. The publication identifies the challenges facing these companies and the technologies to help solve them, using real-world case studies and business strategies to help readers make sound technology investment decisions. You can access iQ Magazine at this URL:

<http://www.cisco.com/go/iqmagazine>

or view the digital edition at this URL:

<http://ciscoiq.texterity.com/ciscoiq/sample/>

- *Internet Protocol Journal* is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:

<http://www.cisco.com/ipj>

- Networking products offered by Cisco Systems, as well as customer support services, can be obtained at this URL:

<http://www.cisco.com/en/US/products/index.html>

- Networking Professionals Connection is an interactive website for networking professionals to share questions, suggestions, and information about networking products and technologies with Cisco experts and other networking professionals. Join a discussion at this URL:

<http://www.cisco.com/discuss/networking>

- World-class networking training is available from Cisco. You can view current offerings at this URL:

<http://www.cisco.com/en/US/learning/index.html>



CHAPTER 1

Planning Your Installation

The Cisco Virtual Network Data Server solution enables you to create an accurate highly detailed model of your current network based on configuration, topology, and traffic information.

Installation Workflows

There are two possible workflows for installing Cisco VNDS, depending on your situation:

- [First-Time Installation, page 1-1](#)—Use this workflow to install Cisco VNDS for the first time.
- [Update Installation, page 1-2](#)—Use this workflow to update a previous version of Cisco VNDS to the current version.

First-Time Installation

You should perform a first-time installation only if no prior version of Cisco VNDS is installed on your computer. [Table 1-1](#) lists the phases of the installation process.



Note

Cisco recommends that you do the steps in the order listed in this table.

Table 1-1 First-Time Installation: Workflow

	Description	Reference
Step 1	Register your Cisco Solution product	Registering Your Cisco Solution Product, page 1-3
Step 2	Determine the host computers	Determining Installation Options, page 1-4
Step 3	Determine licensing options	Product Licensing, page 1-5
Step 4	Verify system requirements	System Requirements, page 2-1
Step 5	Install Cisco Virtual Network Data Server	Installing Cisco Virtual Network Data Server (Windows), page 3-1 Installing Cisco Virtual Network Data Server (Linux), page 4-1
Step 6	Add a Virtual Network Data Server license	Adding a License, page 5-3

Update Installation

You should perform an update installation if a prior version of Cisco VNDS exists on your computer and you want to update it to the current version.



Warning

When updating from an earlier Cisco Virtual Network Data Server release, you must configure the Oracle database by running the `setup_accounts` script (`@setup_accounts.sql`). This means that you must re-create the network database. Network models created by previous releases cannot be retained by this release.



Note

Cisco recommends that you perform the steps in the order listed in [Table 1-2](#).

Table 1-2 Update Installation: Workflow

	Description	Reference
Step 1	Verify system requirements	System Requirements, page 2-1
Step 2	Install the current release of VNDS	Installing Cisco Virtual Network Data Server (Windows), page 3-1 Installing Cisco Virtual Network Data Server (Linux), page 4-1
Step 3	Refresh licenses	Refreshing a License, page 5-7
Step 4	Remove the previous VNDS installation (<i>optional</i>)	Uninstalling Cisco Virtual Network Data Server, page 6-1

Upgrading Licenses

If you have a Restricted license and want to upgrade it to an Unrestricted license, refer to the [“Upgrading a License” section on page 5-4](#).

Registering Your Cisco Solution Product

Before you can install Cisco VNDS, you must register your product with Cisco Systems, Inc. After you register your product, Cisco will send you a username, password, and group ID number. You will need this information when you install your product licenses (as described in the [“Adding a License” section on page 5-3](#).)



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http://www.cisco.com/univercd/cc/td/doc/es_inpk/cetrans.htm

To obtain the license activation credentials, log on to one of the websites listed below and follow the registration instructions. The Product Authorization Key (PAK) attached to your Software License Claim Certificate is required for the registration process. After registering, retain your Claim Certificate for future reference.

Registration Information

Use this URL if you are a registered user of Cisco.com:

<http://www.cisco.com/go/license>

Use this URL if you are not a registered user of Cisco.com:

<http://www.cisco.com/go/license/public>

You should receive the activation credentials and additional installation instructions through e-mail within one hour of registration. If you experience problems with the registration websites or if you have additional questions, contact the Cisco Licensing department through e-mail at licensing@cisco.com, or open a service request over the telephone by using one of these numbers:

- Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)
- EMEA: +32 2 704 55 55
- USA: 1 800 553-2447

You can find a complete list of Cisco TAC contacts at this URL:

<http://www.cisco.com/techsupport/contacts>

Determining Installation Options

Before installing Cisco Virtual Network Data Server, select the computers where you want to install the software. The host computer must meet the system requirements described in the [System Requirements](#) chapter.

After you complete this step, return to the “[Installation Workflows](#)” section on [page 1-1](#).

Product Licensing

Cisco VNDS requires a corresponding license to be installed and available to that program. On startup, the program contacts a *License Server* and requests a license; if it does not obtain a license, the program does not start. The License Server is a daemon/process that runs on the host where a license is installed; it handles license requests from component programs.

After you determine the licensing configuration you want, return to the [“Installation Workflows” section on page 1-1](#).

Restricted and Unrestricted Licenses

You can buy either Restricted or Unrestricted versions of the Cisco VNDS program licenses. This distinction determines the scope of authorized users:

- A *Restricted license* confines the user of a program to one IP network by default subnet class. This means that the licensed program can be used only if the License Server is in the same classful IP network. IP network connectivity between the program and server is required.
- An *Unrestricted license* offers the most flexibility for organizations that operate multiple IP networks (as defined by default subnet class). Users can access licenses from within the same classful IP network as the License Server as well as from up to 100 additional IP networks. These networks must be defined in advance.

Selecting the License Type

When you install a component program, the installer asks you to specify the licensing mode. The options are:

- Floating/Local (“*Floating: serve licenses from this computer*”)—If you select this option, the program will request a license from a License Server running on the local computer.
- Floating/Remote (“*Floating: access licenses from remote server*”)—If you select this option, the program will request a license from a License Server running on a remote computer. (The installer also prompts you for the host name of the remote server.)

Floating mode enables multiple users to share a license for Design and Analysis. The following section describes Floating mode in more detail.

Floating Mode

Floating mode enables multiple users to share a license for VNDS. On startup, the program communicates with the License Server automatically and “checks out” a license. When the program closes, it returns the license to the License Server. Then the license is available for another VNDS user to start the program and check out the license. In Floating mode, the license is not “node-locked,” but can “float” to different computers.



Note

Multiple users cannot share the same VNDS license concurrently. Multiple concurrent VNDS sessions require an equivalent number of program licenses.

Although the VNDS license server must use Floating mode, its license is not shared among multiple users. The Cisco Virtual Network Data Server operates automatically, “consuming” its license continually. System administrators do not need a license to log in to and operate the system.

How Licensing Types and Modes Affect Who Can Use a License

Table 1-3 illustrates how the different license modes and restriction types determine which applications can use a specific license.

Table 1-3 *Licensing Types and Modes*

License Mode Used by Installed Program	Restriction Type of Installed License	Client Applications That Can Use the License on the License Server		
		Applications on the Same Host as the License Server	Applications in the Same Classful IP ¹ Network as the License Server	Applications in a Different Classful IP Network from the License Server
Floating	Restricted	Yes	Yes	No
Floating	Unrestricted	Yes	Yes	Yes

1. Classful IP network refers to the classic “A”, “B”, and “C” IP network classes. For example, if the License Server is installed on a workstation that has a class “B” IP network address, then all workstations with the same class “B” address as the License Server are considered to be on the same classful IP network as the License Server.

Licensing Requirements

Note the following requirements:

- You must add the corresponding license as described in the [“Adding a License” section on page 5-3](#). Installing a program and specifying the licensing options does not install the license itself.
- If you specify Floating (remote) licensing for a program, the specified License Server must be accessible (via a TCP/IP network) to that program, as described in the [“Restricted and Unrestricted Licenses” section on page 1-5](#).

Licensing Scenarios: Examples

This section shows some examples of how you can install and configure licenses in your network.

In [Table 1-4](#), all licenses are installed on one host (VNDS_client), which acts as the only License Server in the network. The local Cisco VNDS program uses Floating/Local mode, while the remote programs use Floating/Remote mode. This type of setup is recommended; because there is only one License Server, it is easier to manage your licenses and configure programs.

Table 1-4 Licensing Example 1

LOCAL HOST CONFIGURATION			LICENSING OPTION SETTINGS FOR INSTALLED PROGRAM	
Installed Program	Host Name	Licenses Installed on Host	License Server	License Mode
Cisco Audit and Analysis	AA_client_1	—	VNDS_client	Floating / Remote
Cisco Audit and Analysis	AA_client_2	—	VNDS_client	Floating / Remote
Cisco VNDS	VNDS_client (License Server)	Cisco VNDS Cisco Audit and Analysis	(local host)	Floating / Local

In [Table 1-5](#), the Cisco Audit and Analysis program is installed on AA_client_1 and two other hosts. Each installation requests a license from AA_client_1. (Keep in mind that if only one license is installed on the host, only one Cisco Audit and Analysis session can run at a time.) The two other programs are installed on separate hosts which also act as License Servers.

Table 1-5 *Licensing Example 2*

LOCAL HOST CONFIGURATION			LICENSING OPTION SETTINGS FOR INSTALLED PROGRAM	
Installed Program	Host Name	Licenses Installed on Host	License Server	License Mode
Cisco Audit and Analysis	AA_client_1 <i>(License Server)</i>	Cisco Audit and Analysis	<i>(local host)</i>	Floating / Local
Cisco Audit and Analysis	AA_client_2	—	AA_client	Floating / Remote
Cisco Audit and Analysis	AA_client_3	—	AA_client	Floating / Remote
Cisco VNDS	VNDS_client <i>(License Server)</i>	Cisco VNDS	<i>(local host)</i>	Floating / Local

In [Table 1-6](#), the programs are installed on separate hosts with their respective licenses. Cisco Audit and Analysis uses Standalone mode, while Cisco VNDS request licenses from local License Servers.

Table 1-6 *Licensing Example 3*

LOCAL HOST CONFIGURATION			LICENSING OPTION SETTINGS FOR INSTALLED PROGRAM	
Installed Program	Host Name	Licenses Installed on Host	License Server	License Mode
Cisco Audit and Analysis	AA_client_1	Cisco Audit and Analysis	<i>(local host)</i>	Standalone
Cisco VNDS	VNDS_client <i>(License Server)</i>	Cisco VNDS	<i>(local host)</i>	Floating / Local

In [Table 1-7](#), each program has its license installed on the same computer and uses Floating/Local mode.

Table 1-7 *Licensing Example 4*

LOCAL HOST CONFIGURATION			LICENSING OPTION SETTINGS FOR INSTALLED PROGRAM	
Installed Program	Host Name	Licenses Installed on Host	License Server	License Mode
Cisco Audit and Analysis	CAS_client <i>(License Server)</i>	Cisco Audit and Analysis	<i>(local host)</i>	Floating / Local
Cisco VNDS		Cisco VNDS	<i>(local host)</i>	Floating / Local



System Requirements

This chapter describes the system requirements for the individual components in Cisco Virtual Network Data Server. Cisco recommends that, before you start to install Cisco VNDS, you verify that your computer hardware and software meet the requirements outlined in this chapter.

Cisco Virtual Network Data Server: System Requirements

Supported Platforms

Vendor ^{1 2}	Series
Microsoft	Windows 2000 Server
	Windows 2000 Professional
	Windows XP Professional
	Windows Server 2003
Red Hat	Red Hat Enterprise Linux 3 (v2.4 Kernel) ³
	Red Hat Enterprise Linux 4 (v2.6 Kernel)

1. Cisco VNDS is supported on the English-language version of each operating system.

2. Cisco VNDS is not supported on 64-bit editions of Windows or Linux operating systems, nor on Windows 2003 Web Edition.
3. `libstdc++.so.6` is required with Red Hat Enterprise Linux 3. You can obtain this by installing `gcc 3.4` or higher.

Required System Patches

Vendor	OS	Patch Number/Name
Microsoft	Windows 2000 Server	Service Pack 2 minimum
	Windows 2000 Professional	Service Pack 2 minimum
	Windows XP Professional	N/A
	Windows Server 2003	N/A

To determine the service pack installed on your Windows system, run `winver.exe`:

-
- Step 1** Select **Run** from the Windows **Start** menu.
 - Step 2** Type in the command `winver` and click **OK**. The *About Windows* window appears and shows the version and service pack level installed.
-

Windows and Red Hat System Configuration

Cisco VNDS does not operate on machines with the Intel Itanium processor. To check the processor used by your Windows computer, right-click on the **My Computer** desktop icon and choose **Properties**.

	Processor ¹	RAM ²	Disk	FSB ³
Minimum	Intel Pentium D processor model 945 2x2MB Cache, 3.4 GHz	4 GB	80 GB	800 MHz
	Dual Processor, Dual Core Intel Xeon Model 5060, 2x2MB Cache, 3.2 GHz	4 GB	80 GB	1066 MHz
Recommended	Intel Core2 Duo Processor Model E6700, 4MB Cache - 2.66GHz	6 GB	80GB	1066 MHz
	Dual Processor, Dual Core Intel Xeon Model 5160, 4MB Cache - 3.0 GHz	6 GB	160GB	1333 MHz

1. A dual-processor configuration is recommended if Cisco VNDS and the back-end Oracle database are to reside on the same platform.
2. Cisco VNDS performance will improve with more available memory as network size increases.
3. Front-Side Bus (FSB) speed affects the speed of data transfer to and from the Cisco VNDS database; faster bus speeds will improve Cisco VNDS performance.

Other Requirements

Cisco VNDS requires a dedicated Oracle database installation and dedicated database instance that cannot be shared with other applications. The preferred configuration includes a dedicated Oracle database installation local to the system on which Cisco VNDS is installed.

A shared Oracle instance where applications other than Cisco VNDS share/access the database or database instance are NOT supported. An Oracle database that is running on a system physically remote from or on a separate LAN from the Cisco VNDS system is NOT supported.

Software ¹	Platform	Supported Version	Required Database Character Set ²
Oracle Database	Windows	<ul style="list-style-type: none"> • Oracle 9i Release 2 (version 9.2.0.1 or higher) • Oracle 10g Release 2 (version 10.2.0.1 or higher) 	WE8MSWIN1252
	Red Hat	<ul style="list-style-type: none"> • Oracle 9i Release 2 (version 9.2.0.1 or higher) or • Oracle 10g Release 2 (version 10.2.0.1 or higher) 	WE8ISO8859P1

1. Contact Oracle Corporation for information about Oracle 9i system requirements.
2. The supported national character set is: AL16UTF16. **For international customers:** The Virtual Network Data Server 4.0 product might not operate correctly when used with Oracle databases that have been configured with international, or Unicode (AL32UTF8), database character sets.



Installing Cisco Virtual Network Data Server (Windows)

This chapter describes how to install the Cisco Virtual Network Data Server program on Windows.

System Requirements



Note

The host for Cisco Virtual Network Data Server must meet minimum system requirements. If the host system does not meet minimum requirements, do not install Cisco VNDS. For more information, see [Cisco Virtual Network Data Server: System Requirements, page 2-1](#).

If the host system does not have an Oracle database or an Oracle client installation, but meets all other requirements, install Oracle before installing Cisco Virtual Network Data Server as described in the [Installation Workflows](#) for your installation scenario.

Installation Workflows

This section covers the various installation scenarios you may encounter with Cisco VNDS on Windows. The procedures you must follow depend upon whether this is an initial installation or an update to an existing installation of the Cisco Virtual Network Data Server program. The procedures to follow also depend upon whether Cisco VNDS uses a local (same host) or a remote (different host) database.

Select the installation workflow appropriate for your circumstances. Follow the procedures in your workflow to install Cisco Virtual Network Data Server.

- [Initial Cisco VNDS Installation \(Windows/Local Oracle Database\)](#), page 3-2
- [Initial Cisco VNDS Installation \(Windows/Remote Oracle Database\)](#), page 3-3
- [Update Cisco VNDS Installation \(Windows\)](#), page 3-5

**Note**

Cisco VNDS software is installed in HTTP mode by default. After successful installation and verification of the Cisco Virtual Network Data Server software, HTTPS may be configured. See the HTTPS Mode section of Release Notes for more information.

Initial Cisco VNDS Installation (Windows/Local Oracle Database)

If you are installing Cisco Virtual Network Data Server for the first time and will install Oracle on the same host, follow this workflow:

-
- Step 1** Install the Oracle database on the Cisco VNDS host.
- Oracle9i users: see [Installing the Oracle9i Database \(Windows\)](#), page A-1.
 - Oracle10g users: see [Installing the Oracle10g Database \(Windows\)](#), page A-7.
- Step 2** Collect Oracle database information.
- See the “[Collecting Oracle Database Access Information \(Windows\)](#)” procedure on page A-13.

Step 3 Install Oracle TopLink.

See the [“Installing Oracle TopLink \(Windows\)”](#) procedure on page A-14.



Note You must complete the previous steps before you install Virtual Network Data Server.

Step 4 Install the Cisco Virtual Network Data Server program.

See the [“Installing Cisco VNDS \(Windows\)”](#) procedure on page 3-6.

Step 5 Configure the Oracle database.

See the [“Configuring the Oracle Database for Cisco VNDS \(Windows\)”](#) procedure on page 3-17.

Step 6 Verify the Oracle configuration.

See the [“Verifying the Oracle Configuration for Cisco VNDS \(Windows\)”](#) procedure on page 3-21).

Step 7 Verify the Cisco VNDS software installation.

See the [“Verifying the VNDS Software Installation \(Windows\)”](#) procedure on page 3-23.

Initial Cisco VNDS Installation (Windows/Remote Oracle Database)

If you are installing Cisco Virtual Network Data Server for the first time and will install Oracle on a different host, follow this workflow:

Step 1 Install the Oracle database on the remote host.

For information about installing the Oracle database, see [Appendix A, “Oracle Procedures \(Windows\)”](#) or [Appendix B, “Oracle Procedures \(Linux\)”](#).

Step 2 Install the Oracle client on the Cisco VNDS host.



Note Install the version of the client that matches the version of the database that you installed in step 1.

- Oracle9i users: see [Installing the Oracle9i Client \(Windows\)](#), page A-5.
- Oracle10g users: see [Installing the Oracle 10g Client \(Windows\)](#), page A-10.

Step 3 Collect Oracle database information (use the procedure for the platform on which the remote database is installed):

- “[Collecting Oracle Database Access Information \(Windows\)](#)” procedure on page A-13
- “[Collecting Oracle Database Access Information \(Linux\)](#)” procedure on page B-3

Step 4 Install Oracle TopLink.

See the “[Installing Oracle TopLink \(Windows\)](#)” procedure on page A-14.



Note You must complete the previous steps before you install Virtual Network Data Server.

Step 5 Install the Cisco Virtual Network Data Server program.

See the “[Installing Cisco VNDS \(Windows\)](#)” procedure on page 3-6.

Step 6 Configure the Oracle database on the database host.

See the “[Configuring the Oracle Database for Cisco VNDS \(Windows\)](#)” procedure on page 3-17.

Step 7 Verify the Oracle configuration on the Cisco VNDS host.

See the “[Verifying the Oracle Configuration for Cisco VNDS \(Windows\)](#)” procedure on page 3-21.

Step 8 Verify the Cisco VNDS software installation.

See the “[Verifying the VNDS Software Installation \(Windows\)](#)” procedure on page 3-23.

Update Cisco VNDS Installation (Windows)

If you are updating a previous Cisco Virtual Network Data Server program installation, follow this workflow.



Warning

When updating from an earlier Cisco Virtual Network Data Server release, you must configure the Oracle database by running the `setup_accounts` script (`@setup_accounts.sql`). This means that you must re-create the network database. Network models created by previous releases cannot be retained by this release.

Step 1 Collect Oracle database information.

See the [“Collecting Oracle Database Access Information \(Windows\)”](#) procedure on page A-13.



Note You must complete this step before you install Virtual Network Data Server.

Step 2 Install the Cisco Virtual Network Data Server program.

See the [“Installing Cisco VNDS \(Windows\)”](#) procedure on page 3-6.

Step 3 Configure the Oracle database on the database host.

See the [“Configuring the Oracle Database for Cisco VNDS \(Windows\)”](#) procedure on page 3-17.

Step 4 Verify the Oracle configuration on the Cisco VNDS host.

See the [“Verifying the Oracle Configuration for Cisco VNDS \(Windows\)”](#) procedure on page 3-21.

Step 5 Verify the Cisco VNDS software installation.

See the [“Verifying the VNDS Software Installation \(Windows\)”](#) procedure on page 3-23.



Note When updating from a previous Cisco VNDS installation, you can migrate configuration settings. Do not uninstall the previous installation until you migrate product configuration settings to the new installation. Make sure you read important notes on product migration in the Release Notes.

Installing Cisco VNDS (Windows)

Use the following procedure to install the Cisco Virtual Network Data Server program.

Installing Cisco VNDS (Windows)

-
- Step 1** Log into the host as Administrator or as a user with full administrative privileges. If you are not logged in with the proper privileges, log off and then log on with an appropriate account.
- Step 2** If the Cisco VNDS program is already installed on the host and you are updating to a new release, perform the following steps before continuing.
- Stop Cisco VNDS operation: Select **Services > Stop Services** from the Cisco Virtual Network Data Server Control Panel.
 - Exit Cisco VNDS: Select **File > Exit** from the Control Panel menu bar.
 - Open the Windows Task Manager, and select the Processes tab. If an op_monitor process is running, stop the process.
 - Use a License Manager to see if your Cisco VNDS license is still held. If the license is still held by Cisco VNDS, use the License Manager to revoke the license.



Note Do not rename or uninstall the existing Cisco VNDS release. If Cisco VNDS 3.5 is already installed (as part of CAS, CAS-SP, NPS, or NPS-SP), you can migrate configuration settings to Cisco VNDS 4.0.

Step 3 Start the installer:

- a. Insert the Cisco Virtual Network Data Server installation CD into the CD drive of the host. If the installer does not start automatically, use **Start > Run** to execute the `cvnds-2.0-win-K9.exe` program on the CD.

The installer displays an *Introduction* panel.

- b. Click **Next**.

If an existing Cisco VNDS software installation is detected, a *Notice* dialog appears to remind you to stop services and exit Cisco VNDS. Click **Yes** to continue or **No** to cancel the installation.

Step 4 Determine your Oracle installation scenario in [Table 3-1 on page 3-8](#) and follow instructions for that scenario.

Note Cisco VNDS can operate with either a local or remote Oracle database. If a database is present on the local host, you can use this database; you can also use a remote database on a different host. In either case, the installer displays a panel that requests database access information. If a local database is not found, but an Oracle client installation is detected, the installer displays a panel requesting access information about the remote database.

Table 3-1 Oracle Installation Scenarios

Scenario	Oracle Installation	Instructions
1	<ul style="list-style-type: none"> An Oracle installation is not present on the host. A message box indicates that Oracle cannot be found. 	<ul style="list-style-type: none"> Abort installation. Click OK to cancel the installation. Install Oracle on the host before attempting to install Cisco VNDS.
2	<ul style="list-style-type: none"> Oracle database installation is present on host. If more than one Oracle installation is found on the host, the installer asks which Oracle you want to use. Select the radio button for the correct Oracle installation and click Next. 	<p>An installer panel appears and asks if you want Cisco VNDS to use the local database.</p> <ul style="list-style-type: none"> Select Yes to use the local database and continue with step 5. Select No to use a remote database, and continue with step 6.
3	<ul style="list-style-type: none"> Oracle client installation is present on the host. If more than one Oracle installation is found on the host, the installer asks you which Oracle you want to use. Select the radio button for the correct Oracle installation and click Next. 	<ul style="list-style-type: none"> An installer panel appears stating that a local Oracle client is detected¹. if the Oracle installation is a Client, select the Client radio button. Click OK and continue with step 6. If the Oracle installation is really a local database server, select the Server radio button. Enter the Database SID from Table A-1 on page A-14. Click OK and continue with step 5.

1. Depending upon how Oracle is installed and databases are created, what appears to be a Client installation may really be a Server.



Note If you are working with a local database, use step 5. If you are working with a remote database, use step 6.

Step 5 Specify values for the account Cisco VNDS will use to access the **local** Oracle database:

- Local Database TNS Service Name
- Local Database User Name

- Local Database Password
- Confirm Password



Note Select a user name that is dedicated for use by Cisco VNDS. *DO NOT use SYS or SYSTEM for the Local Database User Name.*

Fill in each field with the information collected in [Table A-1 on page A-14](#) and click **Next**. Jump to step [7](#).

Step 6 Specify **remote** database access information.

- a. The installer prompts you for the following database access information:
- Remote Database TNS Service Name
 - Remote Database SID
 - Remote Database Hostname
 - Remote Oracle Home Directory
 - Remote Oracle Oradata Parent Directory

Fill in each field with the information collected in [Table A-1 on page A-14](#) and click **Next**.

The installer prompts you for additional remote database access information.

- b. Specify values for the account Cisco VNDS will use to access the Oracle database.
- Remote Database User Name
 - Remote Database Password
 - Confirm Password



Note Select a username that is dedicated for use by Cisco VNDS. *DO NOT use SYS or SYSTEM for the Local Database User Name.*

- c. Fill in each field with the information collected in [Table A-1 on page A-14](#) and click **Next**.

Step 7 The installer prompts you for the location of Oracle Toplink files required by Cisco VNDS.



Note Note: Version 9.0.3.5 of Oracle Toplink is required.

- a. If you have Toplink installed to the default path within your existing Oracle installation, the default path shown in this panel is the correct path. Locate the path on your system that contains the following Toplink files:

`tl_core.jar` `tl_tools.jar` `tl_x.jar`

- b. Click **Choose** and browse to the directory of the required Oracle Toplink files. Click **Select** to complete your choice.

Step 8 Click **Next**. If the required files are not found at the selected path, an error dialog appears. Click one of the following:

- **OK** to try again to select a path.
- **Cancel** to cancel the installation.

Step 9 Specify the licensing scheme.

- a. The installer prompts you for the type of licensing to use. The *Select Licensing Type* panel provides a choice between remote and local licensing:
 - Access licenses from a remote server
 - Serve licenses from a license server on this computer



Note Selecting the local option results in a license server being installed with the VNDS installation. This license server installed is the same version license server as is installed with other Cisco Solution programs.



Note The specified license server must have a valid VNDS license before you can run the software.

- b. Choose the licensing type, then click **Next**.
 - If you selected remote licensing, the installer displays the *Enter Server Name and Port* panel. Proceed to step **c**.
 - If you selected local licensing the *Enter Port* panel displays. Jump to step **d**.

- c. The installer prompts you for the server name and port.
 - Type the hostname of the remote license server in the Server field.
 - Type the port (`port_a`, `port_b`, or `port_c`) used by the remote license server in the Port field.
 - Click **Next**.

The installer prompts you for an installation path. Proceed to step 10.

- d. The installer prompts you for the port used by the local license server (`port_a`, `port_b`, or `port_c`).

Accept the default value. Click **Next** to proceed.

The installer prompts you for an installation path. Proceed to step 10.



Note If you are installing on Windows XP, you might see an error window that reads “OPNET <product_name> has encountered a problem and needs to close.” This error occurs because the installer caused an existing license server process (`op_license_server.exe`) to terminate abnormally. This is a known issue; click **Don’t Send** and proceed with the installation.



Note Write down the license settings you have chosen for future reference.

Step 10 Specify the VNDS installation directory.

- a. Type an installation path in the panel’s path field or use the file browser to select an installation path. The path you choose cannot contain embedded spaces.



Note The path you enter is the parent directory for the installation. The installer adds `\VNDServer\version_build#` to the path you choose.

- b. Click **Next**.

The installer prompts you for the path to use for the VNDS temp directory.

Step 11 Specify the VNDS temporary directory.

- a. Type a temp directory path in the panel's *path* field or use the file browser to select a path. The path you choose cannot contain embedded spaces.



Note The temp directory holds temporary working files for the product. The path you specify is the full path to this directory.

- b. Click **Next**.

The installer prompts you for the path to use for the VNDS config file archive directory.

Step 12 Specify the VNDS config file archive directory.

- a. Type an archive directory path in the panel's *path* field or use the file browser to select a path. The path you choose cannot contain embedded spaces.



Note The archive directory holds collected device configuration files that have been archived by the product. The path you specify is the full path to this directory.

- b. Click **Next**.

The installer prompts you to configure server parameters.

Step 13 Specify server information for this instance of Cisco VNDS. The installer prompts you for the following information:

- Virtual Network Data Server Name
 - Virtual Network Data Server ID (0-1022)
 - Virtual Network Data Server Address
- a. Type the primary IP address of the host in the *Cisco Virtual Network Data Server Address* field.



Note The primary IP address is required for all VNDS installations. To obtain the IP address, open a command window and run the `ipconfig` command.

- b. Fill in additional fields if this instance of Cisco VNDS will participate in an *n*-tier hierarchy.
- c. Click **Next**.

The installer displays the *Configure Cisco Virtual Network Data Server Client Connectivity* panel.

Step 14 Specify the VNDS Client Connectivity Port.

Type a port number or click **Next** to accept the default value.



Note The Client Connectivity port is the port on which the Live Update Service runs. If you enter a non-default port, VNDS clients might be unable to communicate with Cisco VNDS until you make a corresponding change in the client preferences.

The installer displays a panel for configuration of the web server.

Step 15 Specify web server connectivity information.

- a. The installer prompts you for the following:
 - HTTP Port
 - HTTPS Port
 - Keystore Directory
- b. Fill in each field or click **Next** to accept default values.

The installer prompts you to set the Web Server Administrator password.



Note Write down the web server connectivity settings for future use.

Step 16 Specify the password for the administrator (*admin*) user account for the Cisco Virtual Network Data Server Web Console. The installer prompts you for the following information:

- Enter administrator password
- Confirm administrator password

Type a password into the password fields or click **Next** to accept the default (*cisco*).



Note Write down the *admin* password. You will need this password to log into the Cisco Virtual Network Data Server Web Console for the first time—the VNDS Web Server is installed in the local authentication mode by default. Once logged into the Web Console, the *admin* user can change the *admin* password, create user accounts, or change the authentication scheme.

The installer prompts you to configure email notification parameters.

- Step 17** If you want to begin receiving email notification as soon as you start VNDS services, configure email notifications at this time. Otherwise, configure notifications when you are ready to begin automated operation (recommended) using the Notification panel in the Cisco Virtual Network Data Server Administrative Console.
- Enter the sender, recipients, and subject prefix for VNDS email notifications or leave these fields blank if you want to configure email notifications post-installation.
 - Click **Next** to proceed.

The installer prompts you for email server settings.

- Enter the SMTP Server, Port, User Name, and Password (if you want to configure email notifications post-installation, leave these fields blank).
- Click **Next** to proceed.

An installation progress panel shows status messages as VNDS installation progresses. Installation normally finishes in several minutes.

- If an existing VNDS 3.5 installation is detected, the installer displays the *Migrate Cisco Virtual Network Data Server Product Configuration* panel. Proceed to [Step 18](#).



Note The installer checks the version of the Oracle Toplink files that you chose in [Step 7](#). If the wrong version files were selected, an error dialog box appears. Click OK to continue. Before operating Virtual Network Data Server, you must locate the correct version of the required Toplink files and copy them to the <install dir>\ext directory

- If you are installing on a host that does not have Cisco VNDS 3.5 software installed, the installer displays the *Web Services Note* panel when installation is complete. Jump to step 19.

Step 18 Migrate the configuration settings from the previous version of Cisco Virtual Network Data Server to the current version (*optional*).

To migrate previous settings, perform the following steps:

- Select **Yes** in the *Migrate Cisco Virtual Network Data Server Product Configuration* panel, then click **Next**.

A Confirm dialog box displays. It provides the path of the previous installation (from which it will migrate product configuration) and lists the actions that will be performed if you proceed.

- Click **Yes** to continue with migration. Click **No** to skip migration and proceed to step 19.

Progress dialog boxes display during product configuration. A Status dialog box displays when migration is complete. This dialog summarizes the actions performed and provides the location of migration logs. Click **OK** and proceed to step 19.



Note During migration, VNDS 3.5 device info file is copied to the 4.0 installation. However, it is not converted to the 4.0 format or imported into Cisco VNDS. See the *Release Notes* for important notes on updating.

To install without migrating previous settings, perform the following steps:

- Select **No** in the *Migrate Cisco Virtual Network Data Server Product Configuration* panel then click **Next**.

A Notice dialog displays.

- Click **OK** to proceed to step 19. Click **Previous** to go back to the *Migrate Cisco Virtual Network Data Server Product Configuration* panel.



Note If you chose not to migrate but want to preserve groups, you must export this information from the database before you configure the database for 4.0. You can migrate adapter resources and text files after installation is complete as long as you do not uninstall or delete files from the previous release installation directory. See the Administration chapter of the *Cisco Virtual Network Data Server User Guide* for instructions on how to run the migration tools.

Step 19 Read the *Web Services Note*.



Note VNDS software is installed in HTTP mode. You can optionally configure HTTPS after you have completed your installation workflow. See the HTTPS Mode section of the *Release Notes* for more information.

Step 20 Click **Next**.

The installer displays the *Install Complete* panel.

Step 21 Click **Done** to exit the installer.



Note Installation of VNDS software is now complete. Return to the workflow you are following and continue with the next step. Do not attempt to start Cisco VNDS or access the Web Console until you complete all steps in the installation workflow.



Note Refer to the *Cisco Virtual Network Data Server User Guide*, Administration chapter, Licensing Operations section for instructions on adding a license.

After you have installed VNDS software, see [Configuring the Oracle Database for Cisco VNDS \(Windows\)](#), page 3-17.

Configuring the Oracle Database for Cisco VNDS (Windows)

After you install the current version of Cisco Virtual Network Data Server, you must configure the Oracle database for use by Cisco VNDS. This involves running an SQL script named *setup_accounts.sql* that creates tablespaces for the database and a VNDS access account.



Warning

Do not modify the *setup_accounts.sql* script. This can cause the installation to fail or prevent Cisco Virtual Network Data Server from operating correctly.

To configure the Oracle database, perform [“Configuring the Oracle Database \(Windows\)”](#) section on page 3-17.

Configuring the Oracle Database (Windows)

- Step 1** If the Oracle database and Cisco VNDS are located on the same host system, open a command window and navigate to the Cisco Virtual Network Data Server installation directory by typing

```
cd <install_path>\VNDServer\
```

Stay in the command window on the host system for Cisco VNDS, and continue with step 2.

- Step 2** Log into Oracle using the *system* account.

- For a local Oracle database installation enter the following command:

```
sqlplus system/<system_password>
```

- For a remote Oracle database, enter the following command:

```
sqlplus system/<system_password>@<DB TNS Service Name>
```

For example, if the Database is remote with a TNS Service Name of *o92avnes* and the Oracle system password is *magic*, type:

```
sqlplus system/magic@o92avnes
```

- Step 3** Enter the following command at the *SQL>* prompt:

```
@setup_accounts.sql
```

A message banner displays to inform you how much free disk space is required on the disk that hosts the database.



Note If you do not have sufficient disk space available to run this script, free up sufficient disk space before proceeding. If you want to cancel the script, press Ctrl-C or close the command window.

Step 4 Click **Enter** to continue.

A message banner displays a notification about Device and Platform Info.

- For Oracle9i, proceed to step 5.
- For Oracle10g, jump to step 6.

Step 5 Click **Enter** to continue.

When you configure Oracle 9i, a message banner displays with a list of database parameters, database parameter settings, and whether the parameters meet recommended settings. A log of database analysis results is saved to

`<install_dir>\analyzedb.<timestamp>.log.`



Note If all parameters meet recommended settings, no further action is required. If one or more parameters do not meet recommended settings, the installer recommends that you run the *dbparamchg.sql* script after this procedure is completed; this will improve data import performance with large networks and increase Oracle memory requirements.

Step 6 Click **Enter** to continue.

A database name displays.

Step 7 Verify the database instance name.



Note If the database is located on a Solaris or Linux system, the case (uppercase, lowercase) of the characters in the database instance name must be a case-sensitive match of the name of the database directory located under the `oradata` directory (e.g., `/u01/app/oracle/oradata`) on the database host. Look in the `oradata` directory to ensure that, when you enter the database instance name, it is a case-sensitive match.

Step 8 Click **Enter** to continue.

The `setup_accounts` script prompts you for the database instance name.

Step 9 Enter the database instance name obtained in step 7.

The `setup_accounts` script prompts you for the user password.

Step 10 Enter the same database user account password that was entered during VNDS installation and written down in [Table A-1 on page A-14](#).

A message displays to inform you that the VNDS user account and all data will be deleted by this script.

Step 11 Click **Enter** to continue.

The `setup_accounts` SQL script configures database storage for use by Cisco VNDS and sets up the user account. After the script finishes, the Oracle account information for Cisco VNDS is the user name and password from [Table A-1 on page A-14](#). A log of script actions is saved to the following location:

```
<install_dir>\setup_accounts.<timestamp>.log
```



Note When you run this script for the first time, several SQL error messages appear. You can ignore these messages. The messages are the result of the script trying to remove VNDS table and user accounts that do not exist prior to this script being run for the first time.

Step 12 Type `quit` at the `SQL>` prompt to exit sqlplus.

If the `setup_accounts` script recommended changing your database settings during step 5, and you agree with the recommended changes, see [Modifying Database Parameters \(Windows\)](#), page 3-20 at this time.

If you do not need to change your database settings or choose not to change them, see [Verifying the Oracle Configuration for Cisco VNDS \(Windows\)](#), page 3-21 to verify that Oracle is configured correctly for use with Cisco VNDS.

Modifying Database Parameters (Windows)

Perform [Modifying Database Parameters \(Windows\)](#), page 3-20 on the Oracle 9i database host to modify database parameters. The database parameter changes improve VNDS performance when working with large networks and will increase Oracle memory requirements.

Do not modify database parameters for Oracle 10g unless instructed to do so by Cisco Technical support.



Note

Work with your Database Administrator to run this script.

Modifying Database Parameters (Windows)

- Step 1** Log into Oracle using the *system* account.
- For a local Oracle database installation:

Type `sqlplus system/<system password>` in the command window.
 - If the Oracle database is not on the same host system as Cisco VNDS, then perform the following steps:

Type `sqlplus system/<system password>@<DB TNS Service Name>`

For example, if the Database is remote with a TNS Service Name of *o92avnes* and the Oracle system password is *magic*, type:

```
sqlplus system/magic@o92avnes
```
- Step 2** Enter the following command at the *SQL>* prompt:
- ```
@dbparamchg.sql
```
- A message shows the path to the Oracle spfile that contains the parameters for your database.
- Step 3** Make a backup copy of the spfile at the path specified in the previous step.
- Step 4** Press **Enter** as many times as needed to step through information messages produced by this script.
- When the script is done, a list of the changed parameters and their new settings appears with a reminder to restart the Oracle DB service for the changes to take effect.

- Step 5** Type `quit` at the `SQL>` prompt to exit sqlplus.
- Step 6** Use the Windows Service Manager to stop and restart the Oracle database service.
- From the desktop, select **Start > Settings > Control Panel > Administrative Tools > Services** to open the Windows Service Manager.
  - Select the service named **OracleService<DB SID>**.
  - Right-click on the service, and select **Stop** from the menu.
  - After the Service Control progress dialog completes, right-click on the service, and select **Start** from the menu to restart the service.
- Step 7** If the Oracle database service fails to restart, restore the original spfile for the database and repeat step 6 to recover.
- 

See “[Verifying the Oracle Configuration for Cisco VNDS \(Windows\)](#)” section on page 3-21 to verify that you can connect to the database through the VNDS account.

## Verifying the Oracle Configuration for Cisco VNDS (Windows)

Perform the follow procedure on the VNDS host to verify that you can connect to the database through the VNDS account.

### Verifying the Oracle Configuration (Windows)

---

- Step 1** Open a command window.
- Step 2** Navigate to the VNDS installation directory.
- Step 3** Verify that you can log in into Oracle using the VNDS account.
- For a local Oracle database, enter the following command:  

```
sqlplus <user name>/<password>
```

Use the user name and password from [Table A-1 on page A-14](#).
  - For a remote Oracle database, enter the following command:

```
sqlplus <user name>/<password>@<DB TNS Service Name>
```

Use the user name and password from [Table A-1 on page A-14](#). For example, if the database is remote with a TNS Database Service Name of *o92avnes* and the VNDS username and password are *vnes* and *pwd* respectively, enter:

```
sqlplus vnes/pwd@o92avnes
```

**Step 4** If Oracle configuration was not successful, error messages display indicating that login has been denied.

Reconfigure the Oracle database and verify again.

**Step 5** If configuration of the Oracle account for Cisco VNDS was successful, an Oracle banner, and a *Connected To:* message appears.

**Step 6** Type `quit` at the *SQL>* prompt to exit.

**Step 7** Test the Oracle database configuration.

a. Enter the following command:

```
vnes.bat DBAUTOTEST
```

Tests run to verify that the VNDS account can perform needed operations in Oracle.

Output is written to the command window and a separate java window opens to display a summary of results.

b. Review DBAUTOTEST results.




---

**Note** Do not proceed until all tests pass. [Figure 3-1 on page 3-23](#) shows a successful result.

---

If any of the database tests fail, contact Cisco Technical Support (as described in [“Obtaining Technical Assistance” section on page fm-viii](#)).

When all database tests pass, continue with your installation roadmap.

---

Figure 3-1 Example of Successful DBAUTOTEST Results

| Command/Test        | Summary                                          | Arguments/Explanation                                           | Result |
|---------------------|--------------------------------------------------|-----------------------------------------------------------------|--------|
| ping                | network connectivity to database host using ping | localhost                                                       | passed |
| tnsping             | using oracle's tnsping command                   | 092ML23                                                         | passed |
| thin-connection     | jdbc thin connection                             | connStr: jdbc:oracle:thin:@localhost:1521:o92, userName: FSUSER | passed |
| oci-connection      | oci8 connection with jdbc                        | ConnStr: jdbc:oracle:oci8:@092ML23 , userName: FSUSER           | passed |
| tablespace FS1DAT1  | creating table and deleting table in tablespace  | can create a table in this tablespace                           | passed |
| tablespace FS1IDX1  | creating table and deleting table in tablespace  | can create a table in this tablespace                           | passed |
| tablespace VNEBLOB  | creating table and deleting table in tablespace  | can create a table in this tablespace                           | passed |
| tablespace VNELARGE | creating table and deleting table in tablespace  | can create a table in this tablespace                           | passed |
| tablespace VNELGIDX | creating table and deleting table in tablespace  | can create a table in this tablespace                           | passed |
| tablespace CA       | creating table and deleting table in tablespace  | can create a table in this tablespace                           | passed |
| tablespace CAIDX1   | creating table and deleting table in tablespace  | can create a table in this tablespace                           | passed |
| tablespace FS1TMP1  | creating table and deleting table in tablespace  | temporary tablespace exists                                     | passed |
| synonym             | creating and deleting database synonym           | created and dropped test synonym                                | passed |
| schemaVersion       | checking the existing and new VNE Schema version | project.opnet.SchemaVer is : 2.38                               | passed |
| wellKnownId         | checking the well known ids in db and init.res   | current well known id : 0                                       | passed |

VNDS program installation and database configuration are now complete. Proceed to [Verifying the VNDS Software Installation \(Windows\)](#), page 3-23 to verify the VNDS installation.

## Verifying the VNDS Software Installation (Windows)

After the database has been configured and verified, perform the following procedure to verify that the VNDS software is installed correctly.

### Verifying the VNDS Installation (Windows)

- Step 1** Verify that the license server specified during installation has required licenses installed.



**Note** Do not proceed until you have verified that the appropriate licenses are available.

- Step 2** Open the Cisco Virtual Network Data Server Control Panel from the Program Group shortcut as follows.
- Start > Programs > Cisco Virtual Network Data Server 2.0 > Virtual Network Data Server**
- Within a minute, the Cisco Virtual Network Data Server Control Panel appears.
- Step 3** Start VNDS services from the Control Panel by clicking the Start Services button on the tool bar.
- A progress dialog appears, and within a few minutes, service start-up completes.
- Step 4** Stop VNDS services from the Control Panel by clicking the Stop Services button on the tool bar.
- A progress dialog box appears; services should stop within a few minutes.




---

**Note** If the Control Panel fails to open, services fail to start or stop, or error dialog boxes appear, there is a problem with the installation. Review Release Notes for known issues and workarounds; you can also search for troubleshooting information in the FAQ database at the Cisco Quick Support Center. Contact Cisco Technical Support for assistance if problems persist (for more information, see [“Obtaining Technical Assistance”](#) section on page fm-xii).

---

- Step 5** Verify communication with the VNDS Web Server via HTTP.
- a. Start the Cisco Virtual Network Data Server Web Service using the Windows services window.
  - b. Open a web browser and enter the URL for the VNDS Web Console.
 

```
<protocol>://<host>:<port>/vnes
```

For example, if the VNDS host is myhost.myco.com and the http port is 9190, enter the following:

```
http://myhost.myco.com:9190/vnes
```
  - c. Close the browser window.
- Step 6** Click the Exit button on the Control Panel tool bar to exit from Cisco VNDS.
- Step 7** Some VNDS services continue to run in the background. If you want to completely shut down Cisco VNDS, stop all services.

To stop all services, do the following:

- a. Open a command window and navigate to the VNDS install directory.
- b. Enter the following command:

```
vnes.bat /svc_cmd stop ALL
```

---





# Installing Cisco Virtual Network Data Server (Linux)

---

This chapter describes how to install the Cisco Virtual Network Data Server program on Linux.

## System Requirements



### Note

---

The host for Cisco Virtual Network Data Server must meet minimum system requirements. If the host system does not meet minimum requirements, do not install Cisco VNDS. For more information, see [Cisco Virtual Network Data Server: System Requirements, page 2-1](#).

---

If the host system does not have an Oracle database or an Oracle client installation, but meets all other requirements, install Oracle before installing Cisco VNDS as described in the “[Installation Workflows: Overview](#)” section.

# Installation Workflows: Overview

This chapter covers the installation scenarios you might encounter with Cisco VNDS on Linux. The procedures you must follow depend upon whether VNDS uses a local or a remote database.

Select the installation workflow appropriate for your circumstances. Follow the procedures in your workflow to install Cisco VNDS.

- [Initial VNDS Installation \(Linux/Local Oracle Database\)](#), page 4-2
- [Initial Cisco VNDS Installation \(Linux/Remote Oracle Database\)](#), page 4-3

**Note**

---

VNDS software is installed in HTTP mode by default. After successful installation and verification of the VNDS software, HTTPS may be configured. See the “HTTPS Mode” section of the *Release Notes* for more information.

---

## Initial VNDS Installation (Linux/Local Oracle Database)

If you are installing Cisco VNDS for the first time and will install Oracle on the same host, follow this workflow.

- 
- Step 1** Install the Oracle database on the VNDS host.  
For more information, see [Oracle Installation Procedures](#), page B-1.
- Step 2** Collect Oracle database information (see [Collecting Oracle Database Access Information \(Linux\)](#), page B-3).
- Step 3** Install Oracle TopLink.  
See the “[Installing Oracle TopLink \(Linux\)](#)” procedure on page B-4.



---

**Note** You must complete the previous steps before you install Virtual Network Data Server.

---

- Step 4** Install the Cisco Virtual Network Data Server program (see [Installing Cisco VNDS \(Linux\)](#), page 4-4).

- Step 5** Configure the Oracle database for VNDS (see [Configuring the Oracle Database for Cisco VNDS \(Linux\)](#), page 4-14).
- Step 6** Verify the Oracle configuration for VNDS (see [Verifying Oracle Configuration for Cisco VNDS \(Linux\)](#), page 4-19).
- Step 7** Verify the VNDS installation (see [Verifying the VNDS Software Installation \(Linux\)](#), page 4-21).
- 

## Initial Cisco VNDS Installation (Linux/Remote Oracle Database)

If you are installing Cisco VNDS for the first time and will install Oracle on a different host, follow this workflow:

- Step 1** Install the Oracle database on the remote host.
- For information about installing the Oracle database, see [Appendix A, “Oracle Procedures \(Windows\)”](#) or [Appendix B, “Oracle Procedures \(Linux\)”](#).
- Step 2** Install the Oracle client on the host for Cisco VNDS.



**Note** Install the version of the client that matches the version of the database that you installed in step 1.

---

For more information, see [Appendix B, “Oracle Procedures \(Linux\).”](#)

- Step 3** Collect Oracle database information (use the procedure for the platform on which the remote database is installed):
- [“Collecting Oracle Database Access Information \(Windows\)”](#) procedure on page A-13
  - [“Collecting Oracle Database Access Information \(Linux\)”](#) procedure on page B-3
- Step 4** Install Oracle TopLink.
- See the [“Installing Oracle TopLink \(Linux\)”](#) procedure on page B-4.



---

**Note** You must complete the previous steps before you install Virtual Network Data Server.

---

- Step 5** Install the Cisco Virtual Network Data Server program (see [Installing Cisco VNDS \(Linux\), page 4-4](#)).
- Step 6** Configure the Oracle database on the remote host (see [Configuring the Oracle Database for Cisco VNDS \(Linux\), page 4-14](#)).
- Step 7** Verify the Oracle configuration on the remote host (see [Verifying Oracle Configuration for Cisco VNDS \(Linux\), page 4-19](#)).
- Step 8** Verify the VNDS installation (see [Verifying the VNDS Software Installation \(Linux\), page 4-21](#)).
- 

## Installing Cisco VNDS (Linux)

Perform the following procedures to install the Cisco Virtual Network Data Server program:

1. [Performing Pre-Installation Checks for Cisco VNDS \(Linux\), page 4-4](#)
2. [Installing Cisco VNDS \(Linux\), page 4-5](#)

### Performing Pre-Installation Checks for Cisco VNDS (Linux)

---

- Step 1** Make sure the Oracle database is up and running.

Enter the following command on the database host:

```
ps -aef | grep ora_
```

You should see a number of processes with the following naming convention:

```
ora_<process>_<sid>
```

If the Oracle database is not running, contact your database administrator to start the database.

- Step 2** If Cisco VNDS is already installed on the host and you are updating to a new release, perform the following steps to make sure that all VNDS services are stopped.
- Log into the VNDS host as `root` or a user with permission to run VNDS or switch users to one of these accounts. When switching users, use the following command:  

```
su - <user_name>
```
  - Navigate to the VNDS installation directory.
  - Enter the following command to determine whether VNDS services are running:  

```
ps -aef | grep wrapper
```
  - Stop any VNDS services that are running. Navigate to the VNDS installation directory and enter the following command:  

```
vnes.sh -c stop ALL
```
- 

## Installing Cisco VNDS (Linux)

---

- Step 1** Log into the VNDS host as `root` or switch users to `root`. To switch to `root`, open a command prompt window and enter the following command:  

```
su - root
```
- Step 2** Start the installer.
- Insert the Cisco Virtual Network Data Server installation CD into the CD drive of the host, then execute the `cvnds-2.0-lin-K9.bin` program.  
As an example, open a command window and navigate to the folder that corresponds to the CD drive (e.g., `/media/cdrecorder`), then enter  

```
./cvnds-2.0-lin-K9.bin
```

  
The installer displays an *Introduction* panel.
  - Click **Next**.  
The installer displays a *Specify database type* panel.
- Step 3** Specify parameters that describe the Oracle installation that Cisco VNDS will use. The installer prompts you for the following:
- Choose whether the database is local or remote

- Choose whether you are using a 32 bit or 64 bit Oracle

Make your selections, then click **Next**.

The installer displays a *Specify an Oracle database* panel.

**Step 4** Specify the Oracle database that Cisco VNDS will use. The installer prompts you for the following database access information:

- Database TNS Service Name
- Database SID
- Database Hostname
- Local Oracle Installation Dir
- Base Dir for Database

Fill in each field with the information collected in [Table B-1 on page B-3](#) and click **Next**.

The installer displays the *Specify account information for the Oracle database* panel.

**Step 5** Specify values for the account that Cisco VNDS will use to access the Oracle database.

- Database User Name
- Database Password
- Confirm Password

Fill in each field with the information collected in [Table B-1 on page B-3](#) and click **Next**.




---

**Note** Select a user name that is dedicated for use by Cisco VNDS. DO NOT use SYS or SYSTEM for the Local Database User Name.

---

If you specified a remote database in [Step 3](#), the installer displays the *Choose the Oracle version* panel. Proceed to [Step 6](#).

If you specified a local database in [Step 3](#), the installer prompts you for the location of the Oracle TopLink files. Jump to [Step 7](#).

**Step 6** Specify the Oracle version for the remote database. The choices are:

- Oracle9i

- Oracle10g

Choose the appropriate Oracle version, then press Next to continue. The installer prompts you for the location of the Oracle Toplink files.

- Step 7** The installer prompts you for the location of Oracle Toplink files required by Cisco VNDS.



---

**Note** Note: Version 9.0.3.5 of Oracle Toplink is required.

---

- If you have Toplink installed to the default path within your existing Oracle installation, the default path shown in this panel is the correct path. Locate the path on your system that contains the following Toplink files:  
`tl_core.jar tl_tools.jar tl_x.jar`
- Click **Choose** and browse to the directory of the required Oracle Toplink files. Click **Select** to complete your choice.
- Click **Next**. If the required files are not found at the selected path, an error dialog appears. Click one of the following:
  - **OK** to try again to select a path.
  - **Cancel** to cancel the installation.

- Step 8** Specify the licensing type (see [Licensing Notes, page 4-13](#) for more information).

- The installer prompts you for the type of licensing to use. The *Select Licensing Type* panel provides the following choices:
  - Access licenses from a remote server
  - Serve licenses from a new license server on this computer
  - Serve licenses from an existing license server on this computer
- Choose the licensing type, then click **Next**.



---

**Note** The specified license server must have a valid VNDS license before you can run the software.

---

If you selected remote licensing, the installer displays the *Enter Server Name and Port* panel. Proceed to step **c**.

If you selected local licensing, the installer displays the *Enter Port* panel. Jump to step **d**.

- c. The installer prompts you for the server name and port.
  - Type the hostname of the remote license server in the Server field.
  - Type the port (`port_a`, `port_b`, or `port_c`) used by the remote license server in the Port field.
  - Click **Next**.

The *Choose the Cisco Virtual Network Data Server Installation folder* panel displays. Proceed to [Step 9](#).




---

**Note** Write down the license settings for future reference.

---

- d. The installer prompts you for the port used by the local license server (`port_a`, `port_b`, or `port_c`)

Accept the default value. Press **Next** to proceed.

The installer displays the *Choose the Cisco Virtual Network Data Server Installation folder* panel. Proceed to [Step 9](#).

**Step 9** Specify the VNDS installation directory.

- a. Type an installation path in the panel's path field or use the file browser to select an installation path. The path you choose cannot contain embedded spaces.




---

**Note** The path you enter is the parent directory for the installation. The installer adds `\VNEServer\<version>_<build#>` to the path you choose.

---




---

**Note** The installer suggests a default directory. Although you can override the default, Cisco strongly recommends that you install Cisco VNDS in its own, program-specific directory. Cisco also recommends that you do not install multiple Cisco Solution programs (such as Cisco VNDS and Cisco Audit and Analysis) in the same directory.

---

- b. Press **Next**.

The installer displays the *Enter File Ownership* panel.

**Step 10** Specify user and group ownership for the VNDS installation directory. The installer prompts you for the following information:

- User ID
- Group ID



---

**Note** The user must be a member of the specified group. The user will be the owner of the VNDS installation directory. Any user that is a member of the specified group will have appropriate permission to run the VNDS software.

---

Type a valid user name and group name into the appropriate fields then press **Next**.

The installer displays the *Choose the Cisco Virtual Network Data Server temp folder* panel.

**Step 11** Specify the VNDS temporary directory.

Type a temp directory path in the panel's path field or use the file browser to select a path. The path you choose cannot contain embedded spaces.



---

**Note** The temp directory holds temporary working files for the product. The path you specify is the full path to this directory.

---



---

**Note** Make sure that the specified directory has appropriate write permissions. The group specified in [Step 10](#) must be able to write to this directory.

---

- a. Press **Next**.

The installer displays the *Choose the Cisco Virtual Network Data Server config file folder* panel.

**Step 12** Specify the VNDS config file archive directory.

- a. Type an archive directory path in the panel's path field or use the file browser to select a path. The path you choose cannot contain embedded spaces.




---

**Note** The archive directory holds collected device configuration files that have been archived by the product. The path you specify is the full path to this directory.

---




---

**Note** Make sure that the specified directory has appropriate write permissions. The group specified in [Step 10](#) must be able to write to this directory.

---

- a. Press **Next**.

The installer displays the *Configure Cisco Virtual Network Data Server* panel.

**Step 13** Specify server information for this instance of Cisco VNDS. The installer prompts you for the following information:

- Virtual Network Data Server Name
- Virtual Network Data Server ID (0-1022)
- Virtual Network Data Server Address

- a. Type the primary IP address of the host in the **Cisco Virtual Network Data Server Address** field.




---

**Note** The primary IP address is required for all VNDS installations. To obtain the IP address, open a command window and run the `ifconfig` command.

---

- b. Fill in additional fields if this instance of Cisco VNDS will participate in an n-tier hierarchy.

- c. Press **Next**.

The installer displays the *Configure Cisco Virtual Network Data Server Client Connectivity* panel.

**Step 14** Specify the VNDS Client Connectivity port.

Type a port number or press **Next** to accept the default value.



---

**Note** The Client Connectivity port is the port on which the Live Update Service runs. If you enter a non-default port, VNDS clients might be unable to communicate with this service until you make a corresponding change in the client preferences.

---

The installer displays the *Configure Web Server Connectivity* panel.

**Step 15** Specify web server connectivity information.

The installer prompts you for the following:

- Virtual Network Data Server HTTP Port
  - Virtual Network Data Server HTTPS Port
  - Keystore Directory
- a. Fill in each field or press **Next** to accept default values.



---

**Note** Write down the web server connectivity settings for future use.

---

The installer displays the *Set Web Server Administrator Password* panel.

**Step 16** Specify the password for the administrator (*cisco*) user account for the VNDS Web Console. The installer prompts you for the following information:

- Enter administrator password
- Confirm administrator password

Type a password into the password fields or press **Next** to accept the default password (*cisco*).



---

**Note** Write down the *admin* password. You will need this password to log into the VNDS Web Console for the first time—VNDS Web Server is installed in the local authentication mode by default. Once logged into the Web Console, the *admin* user may change the *admin* password, create user accounts, or change the authentication scheme.

---

The installer prompts you to configure email notification parameters.

**Step 17** If you want to begin receiving email notification from Cisco VNDS as soon as you start VNDS services, configure email notifications at this time. Otherwise, configure notifications when you are ready to begin automated operation (recommended) using the Notification panel in the VNDS Administrative Console.

- a. Enter the sender, recipients, and subject prefix for VNDS email notifications or leave these fields blank if you want to configure email notifications post-installation.
- b. Click **Next** to proceed.

The installer prompts you for email server settings.

- c. Enter the SMTP Server, Port, User Name, and Password or leave these fields blank if you want to configure email notifications post-installation.
- d. Click **Install**.

An installation progress panel shows status messages as VNDS installation progresses. Installation normally finishes in several minutes. When installation is complete, the *Web Services Note* panel displays.




---

**Note** The installer checks the version of the Oracle Toplink files that you chose in Step 7. If the wrong version files were selected, an error dialog box appears. Click OK to continue. Before operating Virtual Network Data Server, you must locate the correct version of the required Toplink files and copy them to the `<install_dir>/ext` directory.

---

**Step 18** Read the *Web Services Note*.




---

**Note** VNDS software is installed in HTTP mode. You can optionally configure HTTPS after you have completed your installation workflow. See the “HTTPS Mode” section of the *Release Notes* for more information.

---

Click **Next** to proceed.

The installer displays the *Install Complete* panel.

**Step 19** Click **Done** to exit the installer.



---

**Note** Installation of VNDS software is now complete. Return to the workflow you are following and continue with the next step. Do not attempt to start Cisco VNDS or access the Web Console until you complete all steps in the installation workflow.

---

After you have installed VNDS software, see [Configuring the Oracle Database for Cisco VNDS \(Linux\)](#), page 4-14.

## Licensing Notes

You must specify a licensing type for the VNDS software during installation. The installer provides the following options:

- Access licenses from a remote server—Selecting this option results in the VNDS software obtaining a license from a remote host.
- Serve licenses from a new license server on this computer—Selecting this option results in a license server being installed with the VNDS installation. The license server executable installed by Cisco Virtual Network Data Server version 4.0 is the same version license server that is included with programs in other Cisco Solution packages (such as the program included in the Cisco Configuration Assurance Solution) . To start the license server, enter the following from a command prompt:

```
vnes.sh -l <license_server_host> -p <port> LS
```



---

**Note** The license server program must be manually restarted when the server reboots.

---

- Serve licenses from an existing license server on this computer—Selecting this option configures Cisco VNDS to use a license server that is already installed on the host as part of an existing Cisco VNDS or Cisco Solution package. No license server is installed by the VNDS installer.

**Note**

---

The specified license server must have a valid VNDS license before you can run the software. Check to see if the license server has a valid VNDS license before you attempt to run the VNDS software. Add a license, if needed. Refer to the *Cisco Virtual Network Data Server User Guide*, Administration chapter, Licensing Operations section for instructions on adding a license.

---

## Configuring the Oracle Database for Cisco VNDS (Linux)

After VNDS software is installed, the Oracle database must be configured for use by VNDS. This involves running an SQL script named `setup_accounts.sql` that creates tablespaces for the database and a VNDS access account. This SQL script is run on the host system for the Oracle database.

**Warning**

---

**Do not modify the `setup_accounts.sql` script. This can cause the installation to fail or prevent VNDS from operating correctly.**

---

See [Configuring the Oracle Database \(Linux\)](#), page 4-14 for instructions on configuring the Oracle database.

### Configuring the Oracle Database (Linux)

- 
- Step 1** Log into the VNDS host as `oracle` or switch users to the `oracle` account. To switch to `oracle`, open a command prompt window and enter the following command:  

```
su - oracle
```
  - Step 2** Copy the SQL scripts from the VNDS installation directory to a directory on the database host where the `oracle` user has execute permission. The SQL scripts have a file extension of `.sql`.
  - Step 3** Navigate to the directory that contains the SQL scripts.

Stay in the command window on the database host (as `oracle`) and continue with step 4.

**Step 4** Log into Oracle using the `system` account.

- For a local Oracle database installation, type the following command in the command window:

```
sqlplus system/<system password>
```

- For a remote Oracle database installation, type the following command in the command window:

```
sqlplus system/<system password>@<DB TNS Service Name>
```

For example, if the Database TNS Service Name is `o92avnes` and the account password is `magic`, type:

```
sqlplus system/magic@o92avnes
```

**Step 5** Enter the following command at the `SQL>` prompt:

```
@setup_accounts.sql
```

A message banner appears that states how much free disk space is required on the disk that hosts the database.



---

**Note** If you do not have sufficient disk space available to run this script, free up sufficient disk space before proceeding. If you want to cancel the script, press Ctrl-C or close the command window.

---

**Step 6** Press **Enter** to continue.

A message banner displays a notification about Device and Platform Info.

- For Oracle9i, proceed to step 7.
- For Oracle10g, jump to step 8.



---

**Note** If you want to cancel the script, press Ctrl-C or close the command window.

---

**Step 7** Press **Enter** to continue.

When configuring Oracle 9i, database parameters are analyzed and a message banner displays with a list of database parameters, database parameter settings, and whether the parameters meet recommended settings. A log of database analysis results is saved to `<install_dir>\analyzedb.<timestamp>.log`.




---

**Note** If all parameters meet recommended settings, no further action is required. If one or more parameters do not meet recommended settings, the installer recommends that you run the `dbparamchg.sql` script after you complete this procedure. This will improve data import performance with large networks and increase Oracle memory requirements.

---

**Step 8** Press **Enter** to continue.

A database name appears. If more than one database is available, contact your database administrator to find out which database name to use with Cisco VNDS.

**Step 9** Verify the database instance name.




---

**Note** If the database is located on a Solaris or Linux system, the database instance name must be a case-sensitive match of the name of the database directory located under the `oradata` directory (for example, `/u01/app/oracle/oradata`) on the database host. Look in the `/oradata` directory to ensure that when you enter the database instance name it is a case-sensitive match.

---

**Step 10** Press **Enter** to continue.

The `setup_accounts` script prompts you for the database instance name.

**Step 11** Enter the database instance name obtained in step 9.

The `setup_accounts` script prompts you for the user password.

**Step 12** Enter the same database user account password that was entered during VNDS installation and written down in [Table B-1 on page B-3](#).

The script informs you that the VNDS user account and all data will be deleted by this script.

**Step 13** Press **Enter** to continue.

The `setup_accounts` SQL script configures database storage for use by VNDS and sets up the user account. After the script finishes, the Oracle account information for Cisco VNDS is the user name and password from [Table B-1 on page B-3](#). A log of script actions is saved to

```
<install_dir>\setup_accounts.<timestamp>.log.
```



---

**Note** When you run this script for the first time, several SQL error messages appear. You can ignore these messages. The messages are the result of the script trying to remove VNDS table and user accounts that do not exist prior to this script being run for the first time.

---

Type `quit` at the `SQL>` prompt to exit sqlplus.

---

If the `setup_accounts` script recommended changing your database settings during step 7, and you agree with the recommended changes, see [Modifying Database Parameters \(Linux\), page 4-17](#) at this time.

If you do not need to change your database settings or choose not to change them, see [Verifying Oracle Configuration for Cisco VNDS \(Linux\), page 4-19](#) to verify that Oracle is configured correctly for use with Cisco VNDS.

## Modifying Database Parameters (Linux)

Perform [Modifying Database Parameters \(Linux\), page 4-18](#) on the Oracle 9i database host to modify database parameters. The database parameter changes improve VNDS performance when working with large networks and will increase Oracle memory requirements.

Do not modify database parameters for Oracle 10g unless instructed to do so by Cisco Technical support (see [Obtaining Technical Assistance, page fm-xii](#)).



---

**Note** Work with your Oracle Database Administrator to run this script.

---

## Modifying Database Parameters (Linux)

- Step 1** Log into the database host as `oracle` or switch users to the `oracle` account. To switch to `oracle`, open a command prompt window and enter the following command:

```
su - oracle
```

- Step 2** Open a command window.

- Step 3** Navigate to the VNDS installation directory or directory where you copied the VNDS SQL scripts.

Stay in the command window on the database host (as ) and proceed with [Step 4](#).

- Step 4** Log into Oracle using the `system` account.

- For a local Oracle database installation, type the following command in the command window:

```
sqlplus system/<system password>
```

- If the Oracle database is not on the same host system as Cisco VNDS, type the following command in the command window:

```
sqlplus system/<system password>@<DB TNS Service Name>
```

For example, if the Database TNS Service Name is `o92avnes` and the account password is `magic`, type:

```
sqlplus system/magic@o92avnes
```

- Step 5** Enter the following command at the `SQL>` prompt:

```
@dbparamchg.sql
```

A message is displayed that shows the path to the Oracle spfile that contains the parameters for your database.

- Step 6** Make a backup copy of the spfile at the path specified in the previous step.

- Step 7** Press **Enter** as many times as needed to step through information messages produced by this script.

When the script is done, a list of the changed parameters and their new settings appears with a reminder to restart the Oracle DB service for the changes to take effect.

- Step 8** Type `quit` at the `SQL>` prompt to exit sqlplus.

- Step 9** Stop and restart the Oracle database service.

- Step 10** If the Oracle database service fails to restart, restore the original spfile for the database and repeat step 9 to recover.
- 

See [Verifying Oracle Configuration for Cisco VNDS \(Linux\)](#), page 4-19 to verify that you can connect to the database through the VNDS account.

## Verifying Oracle Configuration for Cisco VNDS (Linux)

Perform the following procedure on the database host to verify that Oracle is configured correctly for use with Cisco VNDS.

### Verifying the Oracle Configuration (Linux)

---

- Step 1** Log in to the database host as `oracle` or switch users to `oracle`. To switch to `oracle`, open a command prompt window and enter the following command:

```
su - oracle
```

- Step 2** Open a command window.

- Step 3** Verify that you can log into Oracle using the VNDS account.

- For a local Oracle database, enter the following command:

```
sqlplus <user name>/<password>
```

Use the user name and password from [Table B-1 on page B-3](#).

- For a remote Oracle database, enter the following command:

```
sqlplus <user name>/<password>@<DB TNS Service Name>
```

Use the user name and password from [Table B-1 on page B-3](#). For example, if the Database TNS Service Name is `o92avnes` and the VNDS username and password are `vnes` and `pwd` respectively, enter:

```
sqlplus vnes/pwd@o92avnes
```

- Step 4** If Oracle configuration was not successful, error messages notify you that login has been denied.

- Reconfigure the Oracle database and verify again.

**Step 5** If configuration of the Oracle account for Cisco VNDS was successful, an Oracle banner, and a *Connected To:* message appears.

**Step 6** Type `quit` at the `SQL>` prompt to exit.

**Step 7** Test the Oracle database configuration.

- a. Switch users to `root` or a user with permission to run Cisco VNDS. When switching users, open a command prompt window and enter the following command:

```
su - <user>
```

For example, you might enter `su - vnds_user`

- b. Navigate to the VNDS installation directory.

Enter the following command:

```
vnes.sh DBAUTOTEST
```

Tests run to verify that the VNDS account can perform needed operations in Oracle.

Output is written to the command window and a separate java window opens to display a summary of results.

- c. Review DBAUTOTEST results.




---

**Note** Do not proceed until all tests pass. [Figure 4-1](#) shows a successful result.

---

- If any of the database tests fail, contact Cisco Technical Support for assistance and provide the DBAUTOTEST results (for more information, see [Obtaining Technical Assistance, page fm-xii](#)).
  - When all database tests pass, continue with your installation workflow.
-

Figure 4-1 Example of Successful DBAUTOTEST Results

| Command/Test        | Summary                                          | Arguments/Explanation                                           | Result |
|---------------------|--------------------------------------------------|-----------------------------------------------------------------|--------|
| ping                | network connectivity to database host using ping | localhost                                                       | passed |
| tnsping             | using oracle's tnsping command                   | 092ML23                                                         | passed |
| thin-connection     | jdbc thin connection                             | connStr: jdbc:oracle:thin:@localhost:1521:o92, userName: FSUSER | passed |
| oci-connection      | oci8 connection with jdbc                        | ConnStr: jdbc:oracle:oci8:@092ML23 , userName: FSUSER           | passed |
| tablespace FS1DAT1  | creating table and deleting table in tablespace  | can create a table in this tablespace                           | passed |
| tablespace FS1IDX1  | creating table and deleting table in tablespace  | can create a table in this tablespace                           | passed |
| tablespace VNEBLOB  | creating table and deleting table in tablespace  | can create a table in this tablespace                           | passed |
| tablespace VNELARGE | creating table and deleting table in tablespace  | can create a table in this tablespace                           | passed |
| tablespace VNELOIDX | creating table and deleting table in tablespace  | can create a table in this tablespace                           | passed |
| tablespace CA       | creating table and deleting table in tablespace  | can create a table in this tablespace                           | passed |
| tablespace CAIDX1   | creating table and deleting table in tablespace  | can create a table in this tablespace                           | passed |
| tablespace FS1TMP1  | creating table and deleting table in tablespace  | temporary tablespace exists                                     | passed |
| synonym             | creating and deleting database synonym           | created and dropped test synonym                                | passed |
| schemaVersion       | checking the existing and new VNE Schema version | project.opnet SchemaVer is : 2.38                               | passed |
| wellknownId         | checking the well known ids in db and init.res   | current well known id : 0                                       | passed |

VNDS installation and database configuration are now complete. Proceed to [Verifying the VNDS Software Installation \(Linux\)](#), page 4-21 to verify the VNDS installation.

## Verifying the VNDS Software Installation (Linux)

After the database has been successfully configured for Cisco VNDS, perform the following procedure to verify that the VNDS software is installed correctly.

### Verifying the VNDS Installation (Linux)

- Step 1** Verify that the license server specified during installation has the required licenses installed.



**Note** Do not proceed until you have verified that the appropriate licenses are available.

- Step 2** Log in to the VNDS host as a member of the VNDS group or switch to a user that is a member of the VNDS group. When switching users, open a command prompt window and enter the following command:

```
su - <user>
```

For example, you might enter `su - vnds_user`

- Step 3** Open the *Cisco Virtual Network Data Server Control Panel* as follows:
- Open a command window and navigate to the VNDS installation directory.
  - Enter the following command:

```
vnes.sh CP
```

Within a minute, the *Cisco Virtual Network Data Server Control Panel* appears.

- Step 4** Start VNDS services from the Control Panel by clicking the Start Services button on the tool bar.

A progress dialog appears, and within a few minutes, service start-up completes.

- Step 5** Stop VNDS services from the Control Panel by clicking the Stop Services button on the tool bar.

A progress dialog appear appears; services should stop within a few minutes.




---

**Note** If the Control Panel fails to open, services fail to start or stop, or error dialog boxes appear, there is a problem with the installation. Contact Cisco Technical Support for assistance if problems persist (for more information, see [Obtaining Technical Assistance, page fm-viii](#)).

---

- Step 6** Verify communication with the VNDS Web Server via HTTP.

- Start the VNDS Web Service by entering the following command:

```
vnes.sh -c start WS
```




---

**Note** You must start the Web Service manually before you can access the Web Console.

---

- Open a web browser and enter the URL for the Cisco Virtual Network Data Server Web Console.

```
<protocol>://<host>:<port>/vnes
```

As an example, if the VNDS host is myhost.myco.com and the http port is 9190, enter:

```
http://myhost.myco.com:9190/vnes
```

The login page displays.

c. Close the browser window.

**Step 7** Click the Exit button on the Control Panel tool bar to exit from Cisco VNDS.

**Step 8** Some VNDS services continue to run in the background. If you want to completely shut down VNDS, stop all services (`vnes.sh -c stop ALL`).



---

**Note** If you manually stop the Web Service or shut down VNDS by stopping all services, you must manually start the Web Service before you can access the Web Console. See substep [a.](#) of [Step 6](#).

---



---

**Note** Before using Virtual Network Data Server, you must change the default port that Cisco Network Planning Solution's Design and Analysis or Cisco Configuration Assurance Solution's Audit and Analysis uses to connect to VNDS. Search the known product issues (as described in [Appendix D, "Known Issues"](#)) for details on how to configure Audit and Analysis or Design and Analysis to successfully import from a Virtual Network Data Server running on Linux.

---





# Managing Licenses

---

To start a Cisco Solutions program such as Cisco Virtual Network Data Server, you must have a valid license for that program installed on the local or a remote computer.

This chapter describes the following operations:

- [Adding a License, page 5-3](#)—Perform this workflow if you have purchased an initial or additional license and want to add it.
- [Upgrading a License, page 5-4](#)—Perform this workflow if you have already added a Restricted license and want to upgrade it to an Unrestricted license.
- [Deregistering a License, page 5-7](#)—Perform this workflow if you need to deregister a license.



**Note**

---

Licenses (that is, the License Manager) must reside on a host that is accessible to the component program at startup. This can be the local host where the component program is installed or a remote host. For more information about licensing options, see the [“Product Licensing” section on page 1-5](#).

---

# Using the License Manager

You can see which licenses and license servers are installed on your network by using the License Manager. You can also perform license operations from the License Manager using the following procedure.

- 
- Step 1** Log on to a computer that has at least one of the following programs installed:
- Cisco Application Analysis
  - Cisco Audit and Analysis
  - Cisco Audit and Analysis–SP
  - Cisco Design and Analysis
  - Cisco Design and Analysis–SP
- Step 2** Start the License Manager for the installed program. On a Windows host, for example, you might see the following shortcut:
- Start > Programs > Cisco Design and Analysis 12.0 > License Manager**
- Step 3** In the License Manager, select the license(s) or license server you want to act on, then click on the correct operation button on the right.



---

**Note** The License Manager might show some child windows that prompt you for additional information, such as which product modules to use. You do not need to specify these options to use the License Manager; generally you can click **OK** to accept the default settings and close the child window.

---

## License Names

License names in the License Manager differ from the Cisco component names. The following table shows the component names and the license names that appear for each component.

Table 5-1 Cisco Product Component Names and License Names

| Cisco Component Name        | License Name |
|-----------------------------|--------------|
| Virtual Network Data Server | VNE Server   |

## Adding a License

Table 5-2 shows the workflow for adding your licenses.

Table 5-2 Adding a License: Workflow

|             | Description                                                                                                                                                                                                                                                                                       | Reference                                                                                                                                                                                                          |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 1      | Obtain a username and password (if you have not done so already)                                                                                                                                                                                                                                  | <a href="#">Obtaining a Username and Password, page 5-3</a>                                                                                                                                                        |
| Step 2      | <p>Add program license(s) using one of the following methods for each license:</p> <ul style="list-style-type: none"> <li>Express method</li> <li>Browser method (if Express method does not work)</li> </ul> <p>Contact Cisco Technical Support (if Express and Browser methods do not work)</p> | <p><a href="#">Adding a License (Express Method), page 5-8</a></p> <p><a href="#">Adding a License (Browser Method), page 5-9</a></p> <p><a href="#">Technical Support for Licensing Operations, page 5-15</a></p> |
| <b>Note</b> | You must repeat the Add License procedure for every computer on which you want to add a license. In this case, you must do the add-license operation twice—once for each computer.                                                                                                                |                                                                                                                                                                                                                    |

## Obtaining a Username and Password

To add a license, you must have a valid username, password, and group ID. To obtain this information, you must register your Cisco VNDS product with Cisco Systems, Inc. Instructions for doing this are listed on the Software License Claim Certificate that is included in your product installation package. For more information, see the [“Registering Your Cisco Solution Product”](#) section on [page 1-3](#).

After your registration is confirmed, Cisco will send you an email with a username, password, and Group ID number. You will need this information when you add the component licenses as described in the following sections.

After you obtain a username and password, you can add your licenses as described in the [“Adding a Component License \(Express Method\)”](#) procedure on page 5-8 or the [“Adding a Component License \(Browser Method\)”](#) procedure on page 5-10.

## Upgrading a License

[Table 5-3](#) shows the workflow for upgrading your licenses. For information about different grades of licenses, see the [“Product Licensing”](#) section on page 1-5.

*Table 5-3 Upgrading a License: Workflow*

|        | Description                                                                                                                                                                                                                                                                                             | Reference                                                                                                                                                                                                              |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 1 | Obtain an Upgrade authorization from Cisco Systems, Inc.                                                                                                                                                                                                                                                | <a href="#">Getting an Upgrade Authorization from Cisco Systems, Inc.</a> , page 5-5                                                                                                                                   |
| Step 2 | Deregister the original (Restricted) license using one of the following methods: <ul style="list-style-type: none"> <li>• Express method</li> <li>• Browser method (if Express method does not work)</li> <li>• Contact Cisco Technical Support (if Express and Browser methods do not work)</li> </ul> | <a href="#">Deregistering a License (Express Method)</a> , page 5-12<br><a href="#">Deregistering a License (Browser Method)</a> , page 5-13<br><a href="#">Technical Support for Licensing Operations</a> , page 5-15 |

Table 5-3 Upgrading a License: Workflow (continued)

| Description                                                                                                                                                                                                                                                                                                                                            | Reference                                                                                                                                                                                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 3</b> Add the upgraded (Unrestricted) version of the original license using one of the following methods: <ul style="list-style-type: none"> <li>• Express method</li> <li>• Browser method</li> <li>• Contact Cisco Technical Support (if Express and Browser methods do not work)</li> </ul>                                                 | <a href="#">Adding a License (Express Method), page 5-8</a><br><a href="#">Adding a License (Browser Method), page 5-9</a><br><a href="#">Technical Support for Licensing Operations, page 5-15</a> |
| <b>Note</b> You must perform both procedures—that is, deregister the Restricted license and add the Unrestricted license—before you can use Unrestricted licensing mode. Also, keep in mind that after you deregister your current (Restricted) license, you will be unable to use the software until you register the updated (Unrestricted) license. |                                                                                                                                                                                                     |

## Getting an Upgrade Authorization from Cisco Systems, Inc.

Before you can upgrade a Cisco Solution license, you must obtain an authorization from Cisco Systems, Inc. To obtain an authorization, do the following:

- 
- Step 1** Go to the following URL:  
[http://www.opnet.com/support/cisco\\_qsp.html](http://www.opnet.com/support/cisco_qsp.html)
  - Step 2** Follow the **my PAKS** link to see the Product Authorization Keys you have added already. Note the PAK of the product that you want to upgrade from Restricted to Unrestricted.
  - Step 3** Go to one of the URLs listed in the “[Registration Information](#)” section on [page 1-4](#).
  - Step 4** Follow the instructions on the Cisco licensing page. You must submit the Product Authorization Key for both the new license and the original license that you want to upgrade.

After you submit the requested information, Cisco Systems will email you an authorization to proceed with the upgrade (go to [Step 2 of Upgrading a License, page 5-4](#)).

---

## Adding a Module to the Product Options List

After you add a license for a product module, you must update your Product Options list so that the program requests the module license on startup.

### Adding a Module to the Product Options List

- 
- Step 1** Start the program to which the product module applies.
  - Step 2** In the main program window, choose License > Product Modules.
  - Step 3** In the Select Product Modules, select the checkbox for the module you have added. Then click OK.
  - Step 4** For the change to take effect, you must exit and restart the program.
-

# Deregistering a License

Table 5-4 shows the workflow for deregistering licenses.

*Table 5-4 Deregistering a License: Workflow*

| Description                                                                                                                                                                                                                                                                                                                  | Reference                                                                                                                                                                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Step 1</b> Deregister a program license(s) using one of the following methods for each license:</p> <ul style="list-style-type: none"> <li>• Express method</li> <li>• Browser method (if Express method does not work)</li> </ul> <p>Contact Cisco Technical Support (if Express and Browser methods do not work)</p> | <p><a href="#">Deregistering a License (Express Method), page 5-12</a></p> <p><a href="#">Deregistering a License (Browser Method), page 5-13</a></p> <p><a href="#">Technical Support for Licensing Operations, page 5-15</a></p> |

# Refreshing a License

After installing an update to the Cisco Virtual Network Data Server software, you must refresh your licenses by contacting Cisco Systems as described in the [“Technical Support for Licensing Operations”](#) section on page 5-15.

# License Operations

## Adding a License (Express Method)

The following procedure is the quickest and easiest way to add a license. This method requires that your computer be able to communicate directly with the Cisco Solutions license-registration server over the Internet, either directly or using a proxy server.



### Note

---

The Express method can fail due to firewall restrictions, socket or proxy errors, or transaction time-outs. If you cannot add the license using this method, try the Browser method (as described in [Adding a License \(Browser Method\), page 5-9](#)).

---

## Adding a Component License (Express Method)

- 
- Step 1** Log on to a computer that has at least one of the following programs installed:
- Cisco Application Analysis
  - Cisco Audit and Analysis
  - Cisco Audit and Analysis–SP
  - Cisco Design and Analysis
  - Cisco Design and Analysis–SP
- Step 2** Start the License Manager for the installed program. On a Windows host, for example, you might see the following shortcut:
- Start > Programs > Cisco Design and Analysis 12.0 > License Manager**
- Step 3** In the License Manager, click on the green dot that represents the license server on the computer where you want to add the license. (The license server computer might not be the same as your local computer.)
- Click on the **Add License** button on the right side of the box.
- Step 4** When prompted to select the transaction method, click **Express**. This method is easiest and fastest.

- Step 5** Enter the **Username**, **Password**, and **Group ID** that you received when you registered your product with Cisco Systems, Inc. (as described in the [“Obtaining a Username and Password”](#) section on page 5-3).
- Step 6** If the computer uses a proxy server, click on **Specify Proxy** button and fill in the information.
- Step 7** The next screen shows a list of available licenses. To select one license, click on it. To select multiple licenses, control-click or drag on the licenses.



---

**Note** Select only the licenses you want to add to the computer of the license server you have selected. (If you also want to add other licenses to a different computer, you must repeat this procedure for that computer.)

---

- Step 8** After you select the licenses you want to add, click on the **Add License** button at the bottom. A progress window might appear while the license is added to your computer. A window should then appear and say that the license operation succeeded.
- Step 9** When the operation is complete, the *Select Product Modules* box might appear. This allows you to select the modules you want to use. (In most cases, you should select all available modules.)
- Step 10** To start using the program, exit the License Manager and start the program.
- 

## Adding a License (Browser Method)

Before using the Browser method, try the Express method. With the Express method, there is no need to exchange codes and you can add many licenses to your computer in one operation. Use this procedure if the Express method fails or you prefer to use the Browser method.



---

**Note** If you still cannot add your licenses using this method, see the [“Technical Support for Licensing Operations”](#) section on page 5-15.

---

## Adding a Component License (Browser Method)

- 
- Step 1** Log on to a computer that has at least one of the following programs installed:
- Cisco Application Analysis
  - Cisco Audit and Analysis
  - Cisco Audit and Analysis–SP
  - Cisco Design and Analysis
  - Cisco Design and Analysis–SP
- Step 2** Start the License Manager for the installed program. On a Windows host, for example, you might see the following shortcut:
- Start > Programs > Cisco Design and Analysis 12.0 > License Manager**
- Step 3** *License Manager:* Click on the green dot that represents the license server on the computer where you want to add the license. (The license server computer might not be the same as your local computer.)
- Click **Add License** on the right side of the window.
- Step 4** *License Manager:* When prompted, click **Browser**. The following events should now occur:
- The License Manager launches your Web browser and points it to the Cisco Solutions Quick Support Page.
  - The License Manager shows a transaction code and a hostname.
- Step 5** *Web browser:* Enter the **Username** and **Password** that you received when you registered your product with Cisco Systems, Inc. (as described in the “[Obtaining a Username and Password](#)” section on page 5-3).
- If your browser fails to launch, start it manually and navigate to the following URL:
- [http://www.opnet.com/support/cisco\\_qsp.html](http://www.opnet.com/support/cisco_qsp.html)
- Then follow the **My Licenses** link in the browser window.
- Step 6** *Web browser:* Click **Perform license operations**, then select **Add License (add\_permits)** and click **Next**. Back in the License Manager, a dialog box containing a Transaction Code and Hostname field should appear.

**Step 7** *Web browser:* Copy the Transaction Code and Hostname from the License Manager into the corresponding fields in the browser. You can either copy/paste the text or type it manually.



---

**Note** Make sure there are no extra spaces before or after the code or hostname.

---

**Step 8** *Web browser:* Click **Next**.

**Step 9** *Web browser:* When the *Select the starting license number* page appears, select the lowest license ID that you want to add to your computer. If you want to add only one license, select that license.

**Step 10** *Web browser:* When the *Select the ending license number* page appears, select the highest license ID that you want to add to your computer. If you want to add only one license, select that license. The confirmation page appears.

**Step 11** *Web browser:* When the License Registration Confirmation page appears, check that the information is correct, then click **Get Approval Code**. The approval code appears.

**Step 12** *License Manager:* Click **Next** and enter the approval code that appears in the web browser.



---

**Note** This code can be very long, so make sure you copy the entire approval code.

---

**Step 13** *License Manager:* After you enter the approval code, click **Next**.

**Step 14** *License Manager:* If the *Select Product Modules* license window appears, click **OK**. Then click **File > Exit** to close the License Manager.

**Step 15** To start using the program, exit the License Manager and start the program.

---

## Deregistering a License (Express Method)

The following procedure is the quickest and easiest way to deregister a license. This method requires that your computer be able to communicate directly with the Cisco Solutions license-registration server over the Internet, either directly or using a proxy server.



**Note** The Express method can fail due to firewall restrictions, socket or proxy errors, or transaction time-outs. If you cannot deregister the license using this method, try the Browser method (as described in the [“Deregistering a License \(Browser Method\)”](#) section on page 5-13).

### Deregistering a Component License (Express Method)

- 
- Step 1** Log on to a computer that has at least one of the following programs installed:
- Cisco Application Analysis
  - Cisco Audit and Analysis
  - Cisco Audit and Analysis–SP
  - Cisco Design and Analysis
  - Cisco Design and Analysis–SP
- Step 2** Start the License Manager for the installed program. On a Windows host, for example, you might see the following shortcut:
- Start > Programs > Cisco Design and Analysis 12.0 > License Manager**
- Step 3** In the License Manager, expand the license file by clicking on the + sign next to the **License file** folder icon. Make sure the license you want to deregister is available (green).



**Note** If a license is represented by a “white page” icon, that license is currently in use. If you want to deregister a license that is in use, quit the component that is using it, then choose **File > Refresh Server Information** in the License Manager.

- Step 4** Select the license you want to deregister by clicking on it. To select one license, click on it. To select multiple licenses, control-click or drag on the licenses.
- Step 5** Click **Deregister License** on the right side of the License Manager window.
- Step 6** When prompted to select the transaction method, click **Express**. This method is easiest and fastest.
- Step 7** When the *Authentication* window appears, enter your **Username**, **Password**, and **Group ID** in the appropriate fields.
- Step 8** If the computer uses a proxy server, click **Specify Proxy**; when the *Specify proxy server information* window appears, fill in the requested information and click **OK**.
- Step 9** Click **OK** in the *Authentication* window.
- A progress window might appear while the license is deregistered from your computer.
  - A window should then appear to indicate that the operation succeeded.
- 

## Deregistering a License (Browser Method)

Before using the Browser method, try the Express method. With the Express method, there is no need to exchange codes and you can add many licenses to your computer in one operation. Use this procedure if the Express method fails or you prefer to use the Browser method.



### Note

If you still cannot deregister your licenses using this method, see the [“Technical Support for Licensing Operations”](#) section on page 5-15.

---

## Deregistering a Component License (Browser Method)

- Step 1** Log on to a computer that has at least one of the following programs installed:
- Cisco Application Analysis
  - Cisco Audit and Analysis
  - Cisco Audit and Analysis-SP

- Cisco Design and Analysis
- Cisco Design and Analysis–SP

**Step 2** Start the License Manager for the installed program. On a Windows host, for example, you might see the following shortcut:

**Start > Programs > Cisco Design and Analysis 12.0 > License Manager**

**Step 3** *License Manager:* Expand the appropriate license file by clicking on the + sign next to the **License file** folder icon. Make sure the license you want to deregister is available (green).




---

**Note** If a license is represented by a “white page” icon, that license is currently in use. If you want to deregister a license that is in use, quit the component that is using it, then choose **File > Refresh Server Information** in the License Manager.

---

**Step 4** *License Manager:* Select the license you want to deregister by clicking on it. To select one license, click on it. To select multiple licenses, control-click or drag on the licenses.

**Step 5** *License Manager:* Click **Deregister License**.

**Step 6** *License Manager:* When prompted, click on the **Browser** button.

**Step 7** The License Manager launches your Web browser and points it to the Cisco Quick Support page. If your browser fails to launch, start it manually and navigate to the following URL:

[http://www.opnet.com/support/cisco\\_qsp.html](http://www.opnet.com/support/cisco_qsp.html)

**Step 8** *Web browser:* Log in with your Cisco Solution username and password. Then click on **My Licenses**.

**Step 9** *Web browser:* Follow the **Perform license operations** link, then select **Deregister License (delete\_permits)** and click **Next**.

Back in the License Manager, a dialog box containing a Transaction Code and Hostname field should appear.

**Step 10** *Web browser:* Copy the **Transaction Code** and **Hostname** from the License Manager into the browser window, then click **Next**. You can either paste the text or type it manually.



---

**Note** Make sure there are no extra spaces before or after the text you enter.

---

- Step 11** *Web browser:* When the *Select the starting license number* page appears, select the lowest license ID that you want to deregister from your computer. If you want to deregister only one license, select that license.
- Step 12** *Web browser:* When the *Select the ending license number* page appears, select the highest license ID that you want to deregister from your computer. If you want to deregister only one license, select that license.
- Step 13** *Web browser:* When the License Registration Confirmation page appears, check that the information is correct, then click **Get Approval Code**. The approval code appears.
- Step 14** *License Manager:* Click **Next** and enter the approval code that appears in the browser.



---

**Note** This code can be very long, so make sure you copy the entire approval code.

---

- Step 15** *License Manager:* Click **Next**. The confirmation code appears.
- Step 16** *Web browser:* Enter the confirmation code that appears in the License Manager, then click **Next**.
- The confirmation code is saved in the Session Log, which is available from the Help menu in the Cisco Solution software.
- Step 17** *License Manager:* click **Done**. The license is deregistered and you can now add it to another computer.
- 

## Technical Support for Licensing Operations

If you cannot manage your licenses using the Express or Browser methods, or if you have additional questions or problems regarding your licenses, you can do the following:

- Go to the Cisco Solutions Quick Support Page:

[http://www.opnet.com/support/cisco\\_qsp.html](http://www.opnet.com/support/cisco_qsp.html)

- Contact Cisco Systems as described in the “Obtaining Technical Assistance” section on page fm-viii



# Uninstalling Cisco Virtual Network Data Server

---

Use the procedures in this chapter to uninstall Cisco VNDS:

- [Removing VNDS Database Contents \(Optional\)](#), page 6-1
- [Uninstalling Cisco VNDS \(Windows\)](#), page 6-3
- [Uninstalling Cisco VNDS \(Linux\)](#), page 6-8
- [Uninstalling a License Server](#), page 6-9

## Removing VNDS Database Contents (Optional)

If you want to completely remove the tablespace files and user account for Cisco VNDS 4.0 from a local database, perform [Removing Cisco VNDS Database Contents](#), page 6-2. You do not need to perform this procedure if you are updating the Cisco VNDS installation.



### Warning

---

**Perform this procedure only if you are permanently removing Cisco VNDS from a system AND want to remove database contents as well as the product installation.**

---



### Note

---

If you choose to perform this procedure, you must do it before you remove the Cisco VNDS installation.

---

## Removing Cisco VNDS Database Contents

- 
- Step 1** Log into the Cisco VNDS host using an account with administrator and ORA\_DBA privileges.
- Step 2** Stop services and exit the Control Panel.
- Step 3** Open a command window and use the `cd` command to set the working directory to the Cisco VNDS installation directory. An example installation directory might be:
- Windows: `C:\Cisco\VNDServer\4.0.2_<build_number>`
  - Linux: `/opt/cisco/VNDServer/4.0.2_<build_number>`
- Step 4** Stop all VNDS background services/daemons by entering the following command:
- Windows: `vnes.bat /svc_cmd stop ALL`
  - Linux: `vnes.sh -c stop ALL`
- Step 5** Type: `sqlplus system/<password>`  
*A `Connected to:` Oracle banner message appears if you succeed in logging into Oracle.*
- Step 6** To get a list of database instance names, type: `select name from v$databases;`  
*A list (probably just one item) of database names known to Oracle appears. If more than one name appears, work with your DBA to identify which one is used for Cisco VNDS.*
- Step 7** While still in sqlplus, type: `@drop_accounts.sql <dbname>`  
 where the `<dbname>` is the one identified in the previous step.
- Progress messages appear as the user account and tablespace files are deleted.
  - When done, the database instance still exists, but the tables and account used by Cisco VNDS no longer exist.




---

**Note** ALL network project data written to the database by Cisco VNDS is deleted by this procedure.

---

# Uninstalling Cisco VNDS (Windows)

This section includes the procedures described in the following table.

| Procedure                                                                          | Description                                                                                                                                                                                                                                                           |
|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <a href="#">Uninstalling Cisco VNDS on Windows (Standard)</a> , page 6-3           | Procedure for uninstalling Cisco VNDS 4.0.                                                                                                                                                                                                                            |
| <a href="#">Removing All VNDS Elements (Advanced)</a> , page 6-5                   | Procedure for removing residual elements of the VNDS 4.0 installation (such as top-level Windows Registry keys and Program Group shortcuts).<br><br>Perform this procedure ONLY if you need to completely remove everything installed or generated by Cisco VNDS 4.0. |
| <a href="#">Removing Prior Cisco VNDS Release After Software Update</a> , page 6-7 | Procedure for removing VNDS 3.5 following successful installation of Cisco VNDS 4.0 and migration of product configuration.                                                                                                                                           |

Use the “[Uninstalling Cisco VNDS on Windows \(Standard\)](#)” procedure on page 6-3 to uninstall the current release. If you wish to completely remove all traces of the current release from a machine, first perform “[Uninstalling Cisco VNDS on Windows \(Standard\)](#)” procedure on page 6-3 then continue on to “[Removing All VNDS Elements \(Advanced\)](#)” procedure on page 6-5.

To uninstall VNDS 1.1 after you update to the current release, perform “[Removing Prior Cisco VNDS Release After Software Update](#)” procedure on page 6-7.

## Uninstalling Cisco VNDS on Windows (Standard)

Perform the following procedure to remove the VNDS 4.0 software from your computer.

- 
- Step 1** Log into the Cisco VNDS host using an account with administrator privileges.
  - Step 2** Stop services and exit the Control Panel.

**Step 3** Open a command window and use the `cd` command to set the working directory to the Cisco VNDS installation directory. An example installation directory might be:

```
C:\Cisco\VNDServer\4.0.2_<build_number>
```

**Step 4** Stop all VNDS background services by entering the following command:

```
Windows: vnes.bat /svc_cmd stop ALL
```

**Step 5** Open the Windows Control Panel from the Start menu:

**Start > Settings > Control Panel**

**Step 6** In the Windows Control Panel, double-click **Add/Remove Programs**.

**Step 7** Scroll down the list of installed programs, select the entry for Cisco Virtual Network Data Server 4.0, and click **Remove**.

The Windows uninstaller removes the following items:

- Windows services
- Desktop shortcut
- Most Windows Registry entries
- Most Program Group shortcut entries
- Most of the installation directory

**Step 8** Delete the remnants of the corresponding installation directory. For example, the installation directory might be:

```
C:\Cisco\VNDServer\4.0.2_<build_number>
```

---

After you complete this procedure, the following remain:

- top-level Windows Registry entry for the release
- top-level Program Group shortcut for the release
- VND Server temporary directory
- VND Server archive directory
- Jre directory

## Removing All VNDS Elements (Advanced)

If you wish to completely remove all traces of Cisco Virtual Network Data Server 4.0 from a machine, first perform [“Uninstalling Cisco VNDS on Windows \(Standard\)” procedure on page 6-3](#) then use the [“Removing All VNDS Elements \(Advanced\)” procedure on page 6-5](#) to remove residual components of the installation.

**Note**

---

Perform this procedure ONLY if you need to completely remove everything installed or generated by Cisco Virtual Network Data Server 4.0.

---

### Removing All Cisco VNDS Elements

- 
- Step 1** Perform [“Uninstalling Cisco VNDS on Windows \(Standard\)” procedure on page 6-3](#) if you have not already done so.
- Step 2** Log into the VND Server host using an account with administrator privileges.
- Step 3** Delete the temporary directory. Typical temporary directory:

```
C:\op_admin\temp\vne
```

**Note**

---

If you have another VNDS release that you want to keep and it uses the same parent directory, skip this step.

---

- Step 4** Delete the archive directory. Typical archive directory:

```
C:\op_admin\archive
```

**Note**

---

If you have another VNDS release that you want to keep and it uses the same archive directory, skip this step.

---

- Step 5** Delete the `Java Jre` directory (if it remains). This directory is located under the parent install directory. Typical Jre directory:

```
C:\Cisco\Jre
```




---

**Note** If you have another VNDS release that you want to keep and it is installed to the same parent directory (for example C:\Cisco), skip this step. Otherwise, you'll remove the Jre used by a release you want to keep.

---

**Step 6** Delete the top-level Program Group shortcut for the release. All users have a shortcut. Delete the Cisco Virtual Network Data Server 2.0 shortcut from:

```
C:\Documents and Settings\All Users\Start Menu\Programs
```

**Step 7** Start regedit: From the Windows Start menu, choose **Run**; then enter `regedit` and click **OK**.

**Warning**


---

**Be very careful when you edit the system registry. Incorrect changes to the registry can cause your Windows system to become unstable. You might want to create a backup before editing the registry.**

---

**Step 8** In the Windows Registry Editor, find and select the registry key for the software being removed. Example registry key:

```
HKEY_LOCAL_MACHINE\SOFTWARE\OPNET Technologies\
Cisco VND Server 4.0.2
```

**Step 9** Select **Delete** from the menu to delete the entry.

**Step 10** Verify that the uninstaller entry in the Registry has been removed. Remove the entry if it still exists in the Registry at the following location:

```
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\
Uninstall
```

Example entry:

```
Cisco Virtual Network Data Server 2.0
```

**Step 11** Verify that any services installed by Virtual Network Data Server are gone. Remove the following services if they still exist in the Registry at the following location:

```
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services
-OPNETVNESXXX
-OPNETVnesXXX
```

Where *xxx* is AdapterServer, BootstrapService, etc.

**Step 12** Exit the Windows Registry Editor.

At this point, Cisco Virtual Network Data Server is completely removed from your system.

---

## Removing Prior Cisco VNDS Release After Software Update

Perform this procedure if you wish to remove Cisco Virtual Network Data Server 3.5 after you have installed Cisco VNDS 4.0 and migrated your product configuration.

If you want to remove Cisco VNDS 3.5 completely from a machine that has not been updated to the current release, Refer to the Installation Guide for Cisco Configuration Assurance Solution 1.1 or Network Planning Solution 1.1.



### Note

Do not run the Windows uninstaller for a previous VNDS release after you have updated to the current software release. Doing so may impact the current release.

---

## Removing a Prior VNDS Release After Update

**Step 1** Delete the VNDS 3.5 install directory. Typical default install directory:

```
C:\Cisco\CiscoCAS\VNEServer\3.5.2_<build_number>
```

```
C:\Cisco\CiscoNPSSPM1.1\VNEServer\3.5.2_1107<build_number>
```

**Step 2** Delete the following VNDS Program Group shortcuts from the Program Group menu for the appropriate Cisco solution bundle (Cisco Configuration Assurance Solution, Cisco Network Planning Solution, etc.):

- Virtual Network Data Server
- Open Virtual Network Data Server File Log Viewer

Example Program Group menus for Cisco solution bundles:

```
C:\Documents and Settings\All Users\Start Menu\Programs\Cisco
Configuration Assurance Solution 1.1
```

```
C:\Documents and Settings\All Users\Start Menu\Programs\Cisco Network
Planning Solution 1.1 - SPM
```

**Step 3** If the Program Group menu for the appropriate Cisco solution bundle is now empty, delete the menu.

**Warning**

**Be very careful when you edit the system registry. Incorrect changes to the registry can cause your Windows system to become unstable. You might want to create a backup before editing the registry.**

- Step 4** In the Windows Registry Editor, find and select the registry key for the software being removed. Example registry key:

```
HKEY_LOCAL_MACHINE\SOFTWARE\OPNET Technologies\
Cisco Virtual Network Data Server 1.1\OPNET VNE Server 3.5.2.
```

- Step 5** Select **Delete** from the menu to delete the entry.

- Step 6** Remove the uninstaller entry in the Registry at the following location:

```
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\
Uninstall
```

Example entry names:

```
Cisco Virtual Network Data Server 1.1 Virtual Network Data Server
Cisco Virtual Network Data Server 1.1 - Service Provider Module -
Virtual Network Data Server
```

- Step 7** Exit the Windows Registry Editor.

## Uninstalling Cisco VNDS (Linux)

Perform the following procedure to remove the VNDS software from your computer.

- Step 1** Stop services and exit the Control Panel.
- Step 2** Open a command window and use the `cd` command to set the working directory to the VNDS installation directory. An example installation directory might be:

```
/opt/cisco/VNDServer/4.0.2_<build_number>
```

- Step 3** Enter the following command:

```
./vnes.sh -c stop ALL
```

- Step 4** Close the window or `cd` up one level.

- Step 5** Enter the following command:

```
rm -rf <vnds_install>
```

where `<install_path>` is the VNDS installation directory.

- Step 6** At this point, there are still some daemon scripts remaining in the `/etc` directory. Removing these scripts is optional. To remove these scripts, open a command window and enter the following commands:

```
cd /etc/init.d
run "rm OPNET*"
run "rm tomcat.sh"
run "rm vnetomcat.sh"
```

## Uninstalling a License Server

This section describes how to uninstall a license server from the Cisco VNDS host.



### Note

In previous versions of Cisco VNDS, a license server that was installed with the software was uninstalled with the Cisco VNDS software. If you installed a local license server with Cisco VNDS 3.5, refer to the *Installation Guide* for the previous release.

If you installed a local license server with Cisco VNDS 4.0, use the following procedure to remove it.

### Uninstalling License Server (Windows)



### Warning

**Do not uninstall the license server until another license server can be set up elsewhere. You must deregister licenses and move them to the new license server then redirect all impacted solution components to the new license server before you uninstall the old license server.**

- Step 1** Deregister all active licenses for the license server. Use the [“Deregistering a License” procedure on page 5-7](#).
- Step 2** Open the Windows Control Panel from the Start menu:

**Start > Settings > Control Panel**

- Step 3** In the Windows Control Panel, double-click **Add/Remove Programs**.
- Step 4** Scroll down the list of installed programs, select the entry for OPNET License Server 12.0, and click **Remove**.
- Step 5** (Optional) Remove the license directory (for example, C:\OPNET\_license dir).

**Warning**

**Be very careful when you edit the system registry. Incorrect changes to the registry can cause your Windows system to become unstable. You might want to create a backup before editing the registry.**

---

- Step 6** (Optional) Verify that the registry key has been removed. In the Windows Registry Editor, find and select the registry key for the software being removed. Example registry key:

```
HKEY_LOCAL_MACHINE\SOFTWARE\OPNET Technologies\
OPNET License Server 12.0\12.0.A
```

If the entry exists, select **Delete** from the menu to remove it.

**Uninstalling License Server (Linux)****Warning**

**Do not uninstall the license server until another license server can be set up elsewhere. You must deregister licenses and move them to the new license server then redirect all impacted solution components to the new license server before you uninstall the old license server.**

---

- Step 1** Deregister all active licenses for the license server.
- Step 2** Open a command window and use the cd command to set the working directory to the license server installation directory (for example, /usr/bin/OPNET/12.0.A/).
- Step 3** Enter the following command to delete the contents of the license server installation directory:

```
rm -rf *
```

- Step 4** Remove the startup folder by entering the following command:

```
rm /etc/rc3.d/S99opnet_lic_server
```

**Step 5** (Optional) Remove the license directory.





## Oracle Procedures (Windows)

---

This appendix includes a series of procedures for installing Oracle software for use with Cisco Virtual Network Data Server. For information about when to perform each procedure, see the [“Installation Workflows” section on page 3-2](#).



### Note

---

The instructions in this appendix are included for the convenience of Cisco VNDS users. For detailed information about using Oracle products, consult the Oracle product documentation or Oracle technical support.

---

## Oracle9i Installation Procedures

### Installing the Oracle9i Database (Windows)



### Warning

---

**Use caution when installing Oracle for use with VNDS. Recovery is difficult if Oracle is incorrectly installed.**

---

You can install the Oracle database on the same host as VNDS or on a different host. Install the database on the appropriate host using [Installing the Oracle 9i Database on Windows, page A-2](#).

## Installing the Oracle 9i Database on Windows

- 
- Step 1** Log into the host as Administrator or as a user with full administrative privileges. If you are not logged in with the proper privileges, log off and log on with an appropriate account.
- Step 2** Insert the Oracle installation CD into the CD drive of the host for the database. If the installer does not start automatically, use **Start > Run** to execute Oracle's *setup.exe* program.
- The installer displays a *Welcome* panel.
- Step 3** Press **Next** to proceed to the *File Locations* panel.
- The installer prompts you for an installation path in the *File Locations* panel. Oracle (9.2.0.1.0) requires about 2.8 GB of disk space.
- Step 4** Enter an installation path that resides on a disk with adequate free space. Press **Next** to proceed.
- The installer prompts you for the Oracle product to install in the *Available Products* panel.
- Step 5** Select the *Oracle9i Database* product. Press **Next** to proceed.
- The installer prompts you for the type of installation in the *Installation Types* panel.
- Step 6** Select a *Personal*, *Standard*, or *Enterprise* edition installation. Any of these editions can be used with VNDS. The Enterprise edition is recommended for best scalability and performance.
- Step 7** Press **Next** to proceed.
- The installer prompts you for the type of database in the *Database Configuration* panel.
- Step 8** Select **General Purpose**. Press **Next** to proceed.
- The installer prompts you for the port number for the Oracle MTS Recovery Service.
- Step 9** Leave the default port number (2030) unchanged. Press **Next** to proceed.
- The installer prompts you for a global database name (GDN) in the *Database Identification* panel.
- VNDS will work with any valid GDN and SID that Oracle accepts.
- Answer with a GDN constructed according to the following rules:

Global Database Name = o92a<name>.<domain>.com

An example: o92avnes.opnet.com



---

**Note** If the first portion of the GDN exceeds 8 characters, the Oracle installer will block installation.

---

The installer prompts you for a system ID (SID). Some examples follow:

- o92a
- o92avnes
- vnesDB

**Step 10** Enter the SID you want to use. After entering a GDN and SID, press **Next** to continue to the *Database File Location* panel.

The installer prompts you for the Database File Location.

**Step 11** Keep the default location and press **Next** to proceed.

The installer prompts you for the Database Character Set.



---

**Note** To view the list of supported Oracle database and national character sets for use with VNDS, refer to [Cisco Virtual Network Data Server: System Requirements, page 2-1](#). Choose a supported character set and press **Next** to proceed with file installation.

---

The Oracle installer takes up to 30 minutes to copy files to the installation directories. Oracle9i has three installation CDs. The installer prompts you to insert a new CD in the CD drive when it is ready to copy files from the next CD.

During this time, *Install*, *Configuration Tools* and *Database Creation* panels appear.

**Step 12** Press **Next** or **OK** to proceed through these panels.



---

**Note** A window titled HTTP Server may launch at this point. You can close this window.

---

An installation *summary* panel appears.

**Step 13** Press **Install** to proceed.

The Database Configuration Assistant prompts you for new passwords for the SYS and SYSTEM accounts.

**Step 14** Enter the passwords that you want to use for these accounts, and press **OK** when done.

**Step 15** When installation is complete, an *End of Installation* panel appears. Press **Exit** to close the Oracle installer.




---

**Note** You do not need to create a user account for VNDS at this time. This is done after VNDS installation.

---

**Step 16** Record the Oracle GDN, SID, install path and database hostname in [Table A-1 on page A-14](#).

---

Installation logs are located here:

```
C:\Program Files\Oracle\Inventory\logs\installActions.log
```

If you run the Oracle installer again, the install actions log is renamed with an embedded date-stamped name such as: `installActions2002-01-24_xxx`.

Oracle9i (9.2.0.1.0) installation is now complete.

After VNDS is installed, a final configuration step is required to finish Oracle setup for VNDS. This step is described in “[Configuring the Oracle Database for Cisco VNDS \(Windows\)](#)” section on page 3-17, but is not performed until after installation of VNDS.

Proceed at this time to “[Oracle9i Installation Procedures](#)” section on page A-1 and then to “[Installing Cisco VNDS \(Windows\)](#)” section on page 3-6.




---

**Note** About Oracle Services

After Oracle installation, several Windows services are created. VNDS only requires the Oracle services shown below. These Windows services should be configured to automatically start when the PC is booted. All other Oracle services may be configured for a manual start and stopped unless specifically needed for other uses. The following services are required for VNDS to run:

- OracleOraHome92TNSListener

- OracleService<DB SID>

## Installing the Oracle9i Client (Windows)



### Warning

---

**Use caution when installing Oracle for use with VNDS. Recovery is difficult if Oracle is incorrectly installed.**

---

If the Oracle database is installed on a different machine than the VNDS software, you must install the Oracle client on the VNDS host. The Oracle client is required by VNDS to communicate with an Oracle database located on another host. Perform “[Installing the Oracle 9i Client on Windows](#)” section on page A-5 to install the Oracle 9i client.

## Installing the Oracle 9i Client on Windows

- 
- Step 1** Log into the host as Administrator or as a user with full administrative privileges. If you are not logged in with the proper privileges, log off and log on with an appropriate account.
- Step 2** Insert the Oracle installation CD into the CD drive of the host for VNDS. If the installer does not start automatically, use **Start > Run** to execute Oracle’s `setup.exe` program.
- The installer displays a `Welcome` panel.
- Step 3** Press **Next** to proceed to the *File Locations* panel.
- The installer prompts you for an installation path in the *File Locations* panel. Oracle Client (9.2.0.1.0) requires about 200 MB of disk space.
- Step 4** Enter an installation path that resides on a disk with adequate free space. Press **Next** to proceed.
- The installer prompts you for the Oracle product to install.
- Step 5** Select the **Oracle9i Client** product. Press **Next** to proceed.
- The installer prompts you for the type of installation in the *Installation Types* panel.
- Step 6** Select **Runtime**. Press **Next** to proceed to the *Summary* panel.
- An installation *Summary* panel appears.

**Step 7** Press **Install** at this panel to begin Oracle installation. The Oracle installer takes up to 30 minutes to copy files to the installation directories.




---

**Note** The final installation tasks involve setting up Net services using the Net Configuration Assistant.

---

**Step 8** Press **Next** at the *Configuration Tools* panel.

The installer prompts you for whether you want to use a directory service at the *Net Configuration Assistant* panel.

**Step 9** Select **No**, and press **Next**.

The installer prompts you for the version of Oracle used by the database at the *Database Version* panel.

**Step 10** Select **Oracle 8i or later database**, and press **Next**.

The installer prompts you for a database service name at the *Service Name* panel.

**Step 11** Enter the Global Database Name used during Oracle database installation on the database host. This name should be the same as the Database TNS Service Name collected in [Table A-1 on page A-14](#). Press **Next**.

The installer prompts you for the communication protocol to use at the *Select Protocols* panel.

**Step 12** Select the appropriate protocol to use (e.g. TCP), and press **Next**.

The installer prompts you for the database host name.

**Step 13** Enter the hostname as an IP address or a fully qualified domain name, and press **Next**.

The installer prompts you for whether you want to test the database connection.

**Step 14** Answer **Yes**, and press **Next**.

The installer displays the test status in a test result panel.

**Step 15** Press **Next**.




---

**Note** Investigate and resolve any problems if the connection test fails.

---

The installer prompts you for whether or not you want to configure another service name.

- Step 16** Answer **No**, and press **Next**.  
A *Configuration Complete* panel appears.
- Step 17** Press **Next**.  
Another completion panel appears.
- Step 18** Press **Finish**.  
The installer displays an *End of Installation* panel.
- Step 19** Press **Exit** to close the Oracle installer.
- 

Installation logs are located here:

C:\Program Files\Oracle\Inventory\logs\installActions.log

If you run the Oracle installer again, the install actions log is renamed with an embedded date-stamped name such as: `installActions2002-01-24_xxx`.

Proceed at this time to [Oracle9i Installation Procedures, page A-1](#), and then to [Installing Cisco VNDS \(Windows\), page 3-6](#).

# Oracle10g Installation Procedures

## Installing the Oracle10g Database (Windows)



### Warning

---

**Use caution when installing Oracle for use with VNDS. Recovery is difficult if Oracle is incorrectly installed.**

---

You can install the Oracle database on the same host as VNDS or on a different host. Install the database on the appropriate host using [Installing the Oracle 10g Database \(Windows\), page A-8](#).



### Note

---

Oracle10g requires a static IP address on the database host machine. If the database host has a dynamically assigned IP address, install the Microsoft Loopback Adapter before you install Oracle10g.

---

## Installing the Oracle 10g Database (Windows)

- 
- Step 1** Log into the host as Administrator or as a user with full administrative privileges. If you are not logged in with the proper privileges, log off and log on with an appropriate account.
- Step 2** Insert the Oracle installation CD into the CD drive of the host for the database. If the installer does not start automatically, use **Start > Run** to execute Oracle's `setup.exe` program.
- The installer displays an *Installation Method* panel.
- Step 3** Select Basic Installation in the *Installation Method* panel and enter values for Basic Installation configuration.
- Enter an installation path into the **Oracle Home Location** field. Make sure that it resides on a disk with adequate free space.  
Oracle (10.2.0.1.0) requires about 2.8 GB of space.
  - Select the **Installation Type**.  
Select a **Personal**, **Standard**, or **Enterprise** edition installation. Any of these editions can be used with VNDS. The Enterprise edition is recommended for best scalability and performance.
  - Make sure that **Create Starter Database** is selected.
  - Specify the **Global Database Name (GDN)**.  
VNDS will work with any valid GDN that Oracle accepts.  
Enter a GDN constructed according to the following rules:  
Global Database Name = `<database_name>.<database_domain>` where `<database_domain>` is optional.  
Some examples:  
`o10gvnes`  
`vnes`  
`vnes.opnet.com`
  - Type the password that will be used for the SYS, SYSTEM, SYSMAN, and DBSNMP accounts into the Database Password and Confirm Password fields.
  - Press **Next** to proceed.
- Step 4** A progress dialog displays while Oracle runs system verification checks.

The *Product-Specific Prerequisite Checks* panel displays.

- Step 5** Review the results of the prerequisite checks and resolve errors and warnings before proceeding.
- Step 6** Press **Next** to proceed.  
A Summary panel displays.
- Step 7** Press **Install** to proceed with installation.  
An Install panel displays progress.  
Next a Configuration Assistants panel displays progress.  
A *Database Configuration Assistant* dialog notifies you when database creation is complete.
- Step 8** Record the Oracle GDN, SID, install path and database hostname in [Table A-1 on page A-14](#).  
You do not need to do any account or password management at this time. Creation of the VNDS account is done after VNDS installation.
- Step 9** Press **OK** in the *Database Configuration Assistant* dialog to continue.  
When configuration is complete, an *End of Installation* panel displays.
- Step 10** Press **Exit** to close the Oracle installer.



---

**Note** A web browser with the Oracle Enterprise Manager may open. You can close this window.

---

Installation logs are located here:

```
C:\Program Files\Oracle\Inventory\logs\installActions.log
```

If you run the Oracle installer again, the install actions log is renamed with an embedded dated name such as: `installActions<date_time>.log`.

Oracle10g (10.2.0.1.0) installation is now complete.

After VNDS is installed, a final configuration step is required to finish Oracle setup for VNDS. This step is described at [“Configuring the Oracle Database for Cisco VNDS \(Windows\)” section on page 3-17](#), but is not performed until after installation of VNDS.

Proceed at this time to [Oracle9i Installation Procedures, page A-1](#) and then to [Installing Cisco VNDS \(Windows\), page 3-6](#).

## Installing the Oracle10g Client (Windows)



### Warning

**Use caution when installing Oracle for use with VNDS. Recovery is difficult if Oracle is incorrectly installed.**


If the Oracle database is installed on a different machine than the VNDS software, you must install the Oracle client on the VNDS host. The Oracle client is required by VNDS to communicate with an Oracle database located on another host. Perform [Installing the Oracle 10g Client \(Windows\), page A-10](#) to install the Oracle 10g client.

### Installing the Oracle 10g Client (Windows)

- 
- Step 1** Log into the host as Administrator or as a user with full administrative privileges. If you are not logged in with the proper privileges, log off and log on with an appropriate account.
- Step 2** Insert the Oracle installation CD into the CD drive of the host for VNDS. If the installer does not start automatically, use **Start > Run** to execute Oracle's `setup.exe` program.
- The installer displays a *Welcome* panel.
- Step 3** Press **Next** to proceed to the *Installation Type* panel.
- The installer prompts you for the type of client installation.
- Step 4** Select Runtime then press **Next**.
- The installer displays the *Specify Home Details* panel.
- Step 5** Specify the Path.
- Oracle Runtime Client (10.2.0.1.0) requires about 213 MB of disk space.



**Note** Do not modify the Name field in the Specify Home Details panel. Use the value that the Oracle installer provides.

- Step 6** Enter an installation path that resides on a disk with adequate free space. Press **Next** to proceed.
- The Oracle installer performs prerequisite checks then displays the results in the *Product-Specific Prerequisite Checks* panel.
- Step 7** Press **Next** to proceed.
- The *Summary* panel displays.
- Step 8** Press **Install** at this panel to begin Oracle installation. The Oracle installer takes several minutes to copy files to the installation directories.
- The *Install* panel displays progress then the *Configuration Assistants* panel displays.
- After a moment, the *Oracle Net Configuration Assistant: Welcome* dialog displays.
- Step 9** Press **Next**.
- The *Oracle Net Configuration Assistant: Done* dialog displays.
- Step 10** Press **Finish**.
- Step 11** The *End of Installation* panel displays.
- Step 12** Press **Exit**.
-  **Note** The final installation tasks involve setting up Net services using the Oracle Net Configuration Assistant.
- 
- Step 13** Select **Programs > Oracle - Oracle - OraClient10g\_home1 > Configuration and Migration Tools > Net Configuration Assistant** from the Windows Start menu.
- The Oracle Net Configuration Assistant opens and prompts you to choose the configuration you would like to do at the *Welcome* panel.
- Step 14** Select Local Net Service Name configuration and press **Next**.
- The Oracle Net Configuration Assistant opens and prompts you to specify an action at the *Net Service Name Configuration* panel.
- Step 15** Select Add then press **Next**.
- The Oracle Net Configuration Assistant prompts you for a database service name at the *Net Service Name Configuration, Service Name* panel.

**Step 16** Enter the Global Database Name used during Oracle database installation on the database host. This name should be the same as the Database TNS Service Name collected in [Table A-1 on page A-14](#). Press **Next**.

The Oracle Net Configuration Assistant prompts you for the communication protocol to use at the *Net Service Name Configuration, Select Protocols* panel.

**Step 17** Select the appropriate protocol to use (e.g. TCP), and press **Next**.

The Oracle Net Configuration Assistant prompts you for the database host name and TCP/IP port number.

**Step 18** Enter the hostname as an IP address or a fully qualified domain name, and press **Next**.

The Oracle Net Configuration Assistant prompts you for whether you want to test the database connection.

**Step 19** Answer **Yes**, and press **Next**.

The test status displays.




---

**Note** Investigate and resolve any problems if the connection test fails. If the test did not succeed, make sure that the username and password is valid for the VNDS account that has been configured on the remote database. Change the login, if required, and retest.

---

**Step 20** Press **Next**.

The Oracle Net Configuration Assistant prompts you for a net service name.

**Step 21** Leave the Net Service Name set to the global database name for the remote database and press **Next**.

The Oracle Net Configuration Assistant prompts you for whether or not you want to configure another service name.

**Step 22** Answer **No**, and press **Next**.

A *Net Service Name Configuration* panel displays.

**Step 23** Press **Next**.

The *welcome* panel displays.

**Step 24** Press **Finish** to close the Oracle Net Configuration Assistant.

**Step 25** Verify that a `tnsnames.ora` file has been created for the database client.

Look in `<oracle_home>\client_1\NETWORK\ADMIN` directory (for example, `C:\oracle\product\10.2.0\client_1\NETWORK\ADMIN`).

---

Installation logs are located here:

`C:\Program Files\Oracle\Inventory\logs\installActions.log`

If you run the Oracle installer again, the install actions log is renamed with an embedded date-stamped name such as: `installActions<date_time>.log`.

Now proceed to the following procedures.

*For VNDS on Windows:*

- a. [Oracle9i Installation Procedures, page A-1](#)
- b. [Installing Cisco VNDS \(Windows\), page 3-6](#).

*For VNDS on Linux:*

- a. [Collecting Oracle Database Access Information \(Linux\), page B-3](#)
- b. [Installing Cisco VNDS \(Linux\), page 4-4](#).

## Collecting Oracle Database Access Information (Windows)

The VNDS installer prompts for database access information. Before beginning installation, collect the database access information listed in [Table A-1 on page A-14](#). The database administrator can supply the database access information that you need. Print out the installation instructions and write down the database access information in the [Table A-1 on page A-14](#) for reference during installation. Continue with [Installing Cisco VNDS \(Windows\), page 3-6](#).

The Database Account User Name in [Table A-1 on page A-14](#) is the account used by VNDS to access network data stored in the database. This account is created after VNDS is installed using the user name and password entered during VNDS installation.



Warning

**DO NOT use SYS or SYSTEM for the Database Account User Name.**

Table A-1 Database Access Information Worksheet

| Access Item                                           | Value | Description                                                                                                                                                                                                                        |
|-------------------------------------------------------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Database TNS Service Name<br>(alias for Database GDN) | •     | The TNS Net Service name used for the local or remote database. Refer to <a href="#">Locating a Database Net Service Name in tnsnames.ora (Windows)</a> , page A-16 in the Appendix for instructions on locating the service name. |
| Database SID                                          | •     | The database SID.                                                                                                                                                                                                                  |
| Database hostname                                     | •     | The IP address or fully qualified domain name for the database host. <b>Only needed for remote databases.</b>                                                                                                                      |
| Oracle Home (installation) directory                  | •     | The Oracle installation directory on the database host. <b>Only needed for remote databases.</b>                                                                                                                                   |
| Oracle Oradata Parent directory                       | •     | The parent directory to the Oracle oradata directory on the database host. <b>Only needed for remote databases.</b>                                                                                                                |
| Database account user name                            | •     | User name of the account used to access the database. DO NOT use the Oracle SYS or SYSTEM accounts.                                                                                                                                |
| Database account password                             | •     | Password for the account used to access the database.                                                                                                                                                                              |

## Installing Oracle TopLink (Windows)

The Cisco VNDS program requires access to an installation of Oracle 9i Application Server Toplink that is patched to release 9.0.3.5. This section describes how to install Toplink 9.0.3.5 on your system. Install Toplink on the same system as Cisco Virtual Network Data Server.



---

**Note** VND Server requires access to Oracle TopLink 9.0.3.5. This is true regardless of the version of Oracle used for the VNDS database.

---



---

**Note** You must perform the following procedure before you install Cisco Virtual Network Data Server.

---

### Installing Toplink 9.0.3.5 (Windows)

- 
- Step 1** Download or copy the required Oracle Toplink components into a working directory:
- Oracle Toplink 9.0.3.0 (A99417-01.zip)
  - Oracle Toplink 9.0.3.5 patch (p3188702\_9031\_GENERIC.zip)
- Step 2** Create a working directory on your system. Copy the downloaded Oracle Toplink 9.0.3.0 and 9.0.3.5 zip files to this directory.
- Step 3** Unzip the Oracle Toplink 9.0.3.0 archive, A99417-01.zip, into the working directory.
- Step 4** Execute the Toplink 9.0.3.0 installer, toplink903-windows.exe:
- a. At the introduction panel, click **Next**. The installer prompts you for the installation folder.



---

**Note** If you already have an Oracle installation on this system, the default Toplink installation folder will be in your Oracle installation. Cisco recommends that you use this folder. Write down the installation folder you choose; you will need it later during installation of Cisco Virtual Network Data Server.

---

- b. Select an install folder and click **Next**. In the remaining panels, the installer prompts you for:
  - Shortcut Location (select your preference)
  - Toplink Features (select **Full Install**)
  - Viewing Release Notes (select your preference)

- c. Work through the remaining installer panels and enter the preferences in Step b.
- b. Click **Done** in the *Install of TopLink Complete* panel to exit the installer.

**Step 5** Do the following steps to install the Toplink 9.0.3.5 patch.

- a. Open a window to the working directory that contains the Toplink patch, p3188702\_9031\_GENERIC.zip.
- b. Unzip the Oracle Toplink patch archive, p3188702\_9031\_GENERIC.zip, into the Toplink installation directory. For example, if you installed Toplink to C:\oracle\ora92\toplink, select this path as the extraction path for the archive.
- c. If you are prompted to confirm file overwrite, select "Yes to All".
- d. Close the archive application (WinZip or similar application) when done.
- e. Verify that the Toplink installation has the files required by Cisco Virtual Network Data Server. The following files should exist in the `<toplink install>\core\lib` directory:
  - tl\_core.jar
  - tl\_tools.jar
  - tl\_x.jar

At this point, Toplink 9.0.3.5 is installed on your system and ready for access during Cisco Virtual Network Data Server installation. Proceed to the next step of the installation workflow (as described in [Installation Workflows, page 3-2](#)).

---

## Locating a Database Net Service Name in tnsnames.ora (Windows)

VNDS uses a database's Oracle Net service name for connection to the database. This is true whether VNDS uses a local or remote database. The database service name is located in the `tnsnames.ora` file. This file is located in the `<oracle`

*install\_dir*\ora92\network\Admin for Oracle9i and at *<oracle install\_dir>*\product\10.2.0\db\_1\NETWORK\ADMIN directory for Oracle10g. A sample file is shown below.

In this sample file, there are three entries. The O92AML14.OPNET.COM entry (highlighted) represents the database service name. Each entry has a *<net service name> = ()* structure. The text string preceding the “=” is the service name. In this example, you use O92AML14.OPNET.COM as the service name for VNDS installation.

Note that this file has entries for other Oracle Net services and may contain entries for more than one database. If the Oracle installation you are using supports other products, contact the database administrator for the service name you should use.

```
TNSNAMES.ORA Network Configuration File:
D:\oracle\ora92\network\admin\tnsnames.ora
Generated by Oracle configuration tools.

O92AML14.OPNET.COM =
 (DESCRIPTION =
 (ADDRESS_LIST =
 (ADDRESS = (PROTOCOL = TCP) (HOST = mlpc14) (PORT = 1521))
)
 (CONNECT_DATA =
 (SERVICE_NAME = o92aml14)
)
)

EXTPROC_CONNECTION_DATA.OPNET.COM =
 (DESCRIPTION =
 (ADDRESS_LIST =
 (ADDRESS = (PROTOCOL = IPC) (KEY = EXTPROC0))
)
 (CONNECT_DATA =
 (SID = PLSExtProc)
 (PRESENTATION = RO)
)
)

INST1_HTTP.OPNET.COM =
 (DESCRIPTION =
 (ADDRESS_LIST =
 (ADDRESS = (PROTOCOL = TCP) (HOST = mlpc14) (PORT = 1521))
)
 (CONNECT_DATA =
 (SERVER = SHARED)
 (SERVICE_NAME = o92aml14)
 (PRESENTATION = http://admin)
```

Locating a Database Net Service Name in tnsnames.ora (Windows)

)  
)



## Oracle Procedures (Linux)

---

This appendix includes a set of procedures for installing Oracle software for use with Cisco Virtual Network Data Server. For information about when to perform each procedure, see the [“Installation Workflows: Overview”](#) section on page 4-2.



### Note

---

The instructions in this appendix are included for the convenience of Cisco VNDS users. For detailed information about using Oracle products, consult the Oracle product documentation or Oracle technical support.

---

## Oracle Installation Procedures

The procedures for installing Oracle on Linux can vary, depending on the versions of Oracle and Linux as well as platform-specific parameters. Installing Oracle might also require changes in kernel settings, updating system patches, and other system administration tasks. Work with your Database Administrator and refer to the Oracle Installation Guide and other relevant Oracle documentation to complete the installation.



### Note

---

Check the `/etc/oratab` file and verify that the database instance you are using can be started by Oracle scripts. The `oratab` entry for the database instance name you are using should end in “:Y”. If it does not, work with your database administrator to change this setting to allow database startup.

---

## Configuring the Environment for the *oracle* Account (Linux)

**Step 1** Verify/configure the environment for the *oracle* account.

- a. Open `/oracle/.bash_profile` with a text editor of your choice.



**Note** If you are using another shell, examine the appropriate file.

- b. Confirm that it has the following entries. Manually add the entries, if needed.

```
ORACLE_HOME=<oracle_home>
ORACLE_SID=<dbSID>
PATH=$ORACLE_HOME/bin:$PATH
export PATH
export ORACLE_HOME ORACLE_SID
where <dbSID> is the database SID (for example, o92m123)
and <oracle_home> is the Oracle installation directory (for example,
/u01/app/oracle/product/9.2.0)
```

## Configuring Permissions for Oracle Directories (Linux)

**Step 1** Assign read and execute permissions for all users to the `bin`, `lib` and `jdbc` directories in `$ORACLE_HOME`.

- a. Log in as *oracle*.
- b. Use the following commands to modify directory permissions.

```
chmod 755 $ORACLE_HOME/bin
chmod 755 $ORACLE_HOME/lib
chmod 755 $ORACLE_HOME/jdbc
```

# Collecting Oracle Database Access Information (Linux)

The VNDS installer prompts for database access information. Before beginning installation, collect the database access information listed in [Table B-1](#). The database administrator can supply the database access information that you need. Print out the installation instructions and write down the database access information in the [Table B-1](#) for reference during installation. Continue with installing Cisco VNDS.

The Database Account User Name in [Table B-1](#) is the account used by VNDS to access network data stored in the database. This account is created after VNDS is installed using the user name and password entered during VNDS installation.



**Warning**

**DO NOT use SYS or SYSTEM for the Database Account User Name.**

*Table B-1 Database Access Information Worksheet*

| Access Item                                        | Value | Description                                                                                                                                                                                                                                     |
|----------------------------------------------------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Database TNS Service Name (alias for Database GDN) |       | The TNS Net Service name used for the local or remote database. Refer to <a href="#">Locating a Database Net Service Name in tnsnames.ora (Linux)</a> , <a href="#">page B-6</a> in the Appendix for instructions on locating the service name. |
| Database SID                                       |       | The database SID.                                                                                                                                                                                                                               |
| Database hostname                                  |       | The IP address or fully qualified domain name for the database host.                                                                                                                                                                            |
| Oracle Home (installation) directory               |       | The Oracle installation directory on the database host.                                                                                                                                                                                         |
| Oracle Oradata Parent directory                    |       | The parent directory to the Oracle oradata directory on the database host.                                                                                                                                                                      |

Table B-1 Database Access Information Worksheet (continued)

| Access Item                | Value | Description                                                                                         |
|----------------------------|-------|-----------------------------------------------------------------------------------------------------|
| Database account user name |       | User name of the account used to access the database. DO NOT use the Oracle SYS or SYSTEM accounts. |
| Database account password  |       | Password for the account used to access the database.                                               |

## Installing Oracle TopLink (Linux)

The VNDS program requires access to an installation of Oracle 9i Application Server Toplink that is patched to release 9.0.3.5. This section describes how to install Toplink 9.0.3.5 on your system. Install Toplink on the same system as Cisco Virtual Network Data Server.



### Note

VND Server requires access to Oracle TopLink 9.0.3.5. This is true regardless of the version of Oracle used for the VNDS database.



### Note

You must perform the following procedure before you install Cisco Virtual Network Data Server.

### Installing Toplink 9.0.3.5 (Linux)

- 
- Step 1** Log into your system using the account used to operate Cisco VNDS.
- Step 2** Download or copy the required Oracle Toplink components into a working directory:
- Oracle Toplink 9.0.3.0 (A99417-01.zip)
  - Oracle Toplink 9.0.3.5 patch (p3188702\_9031\_GENERIC.zip)
- Step 3** Create a working directory on your system. Copy the downloaded Oracle Toplink 9.0.3.0 and 9.0.3.5 zip files to this directory.

- Step 4** Unzip the Oracle Toplink 9.0.3.0 archive into the working directory. To do this, enter the following command:

```
unzip -d <working_dir> <zip_file>
```

- Step 5** Use the gzip command to expand the GZ file. To do this, enter the following command:

```
gunzip toplink903-unix.tar.gz
```

- Step 6** Use the tar command to expand the TAR file. To do this, enter the following command:

```
tar -xvf toplink903-unix.tar
```

This command creates a toplink directory under the working directory.

- Step 7** Do the following steps to install the Toplink 9.0.3.5 patch.

- a. Open a window to the working directory that contains the Toplink patch, p3188702\_9031\_GENERIC.zip.
- b. Unzip the Oracle Toplink patch archive, p3188702\_9031\_GENERIC.zip, into the Toplink installation directory. To do this, enter the following command:

```
unzip -d <working_dir>/toplink p3188702_9031_GENERIC.zip
```

For example, if you installed Toplink to /u01/app/oracle/9.2.0/toplink, select this path as the extraction path for the archive.

- c. If you are prompted to confirm file overwrite, select [A] for "Yes to All".
- d. Verify that the Toplink installation has the files required by Cisco Virtual Network Data Server. The following files should exist in the <toplink\_install>/core/lib directory:

- tl\_core.jar
- tl\_tools.jar
- tl\_x.jar

At this point, Toplink 9.0.3.5 is installed on your system and ready for access during Cisco Virtual Network Data Server installation. Proceed to the next step of the installation workflow (as described in [Installation Workflows, page 3-2](#)).

# Locating a Database Net Service Name in tnsnames.ora (Linux)

VNDS uses a database's Oracle Net service name for connection to the database. This is true whether VNDS uses a local or remote database. The database service name is located in the *tnsnames.ora* file. This file is located in the following directory:

Oracle 9i: `<oracle install dir>/oracle/product/9.2.0/network/Admin`

Oracle10g: `<oracle install dir>/oracle/product/10.2.0/NETWORK/ADMIN`

In the following example file, there are three entries. The `O92AML14.OPNET.COM` entry (highlighted) represents the database service name. Each entry has a `<net service name> = ()` structure. The text string preceding the "=" is the service name. In this example, you use `O92AML14.OPNET.COM` as the service name for VNDS installation.

Note that this file has entries for other Oracle Net services and may contain entries for more than one database. If the Oracle installation you are using supports other products, contact the database administrator for the service name you should use.

```
TNSNAMES.ORA Network Configuration File:
/u01/app/oracle/product/10.2.0/network/admin/tnsnames.ora
Generated by Oracle configuration tools.

O92AML14.OPNET.COM =
 (DESCRIPTION =
 (ADDRESS_LIST =
 (ADDRESS = (PROTOCOL = TCP) (HOST = mlpc14) (PORT = 1521))
)
 (CONNECT_DATA =
 (SERVICE_NAME = o92aml14)
)
)

EXTPROC_CONNECTION_DATA.OPNET.COM =
 (DESCRIPTION =
 (ADDRESS_LIST =
 (ADDRESS = (PROTOCOL = IPC) (KEY = EXTPROC0))
)
 (CONNECT_DATA =
 (SID = PLSExtProc)
 (PRESENTATION = RO)
)
)
```

```
INST1_HTTP.OPNET.COM =
 (DESCRIPTION =
 (ADDRESS_LIST =
 (ADDRESS = (PROTOCOL = TCP)(HOST = mlpc14)(PORT = 1521))
)
 (CONNECT_DATA =
 (SERVER = SHARED)
 (SERVICE_NAME = o92aml14)
 (PRESENTATION = http://admin)
)
)
)
```





## Errata

---

This appendix contains miscellaneous information that was unavailable when the Cisco VNDS documentation was published.

# Additional Requirements for the “Cisco WAN Manager” Adapter

The Cisco WAN Manager adapter includes a CWM Database Reader option. To use this option, you must perform the following procedure.

For more information about the Cisco WAN Manager adapter, see the following section of the Cisco Virtual Network Data Server documentation:

VNE Server User Guide > Importing Device and Configuration and Topology  
> Cisco WAN Manager Import

## Installing Additional Libraries to Allow Communication with the Cisco WAN Manager Database

---

**Step 1** Obtain and install the IBM Informix JDBC Driver libraries.

For information about purchasing the IBM Informix JDBC Driver, go to:

<http://www.ibm.com/software/data/informix/tools/jdbc>

For information about downloading an evaluation or trial version of the IBM Informix JDBC Driver, go to :

<http://www.ibm.com/software/data/informix/downloads.html>



---

**Note** You must install IBM Informix JDBC Driver version 2.21.JC4 or later.

---

**Step 2** After you obtain and successfully install the IBM Informix JDBC driver, you must copy or link all files located in

*<Informix\_JDBC\_Driver\_Install\_Directory>/lib*

to the following directory:

*<Cisco\_VNDS\_Install\_Directory>/ext*



---

**Note** All files in the *<Informix\_JDBC\_Driver\_Install\_Directory>/lib* directory should have a prefix of “ifx” and a suffix of “.jar”.

---

**Step 3** Restart Cisco VNDS services.

---



## Known Issues

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We highly recommend that you check, after installation and on a regular basis, for software updates and maintenance information of any software, documentation, model, or other components on <http://www.cisco.com/techsupport>.

You can search for additional online information regarding known product issues and workarounds on the Cisco Quick Support page at OPNET Technologies ([http://www.opnet.com/support/cisco\\_qsp.html](http://www.opnet.com/support/cisco_qsp.html)).





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## A

Add License operation

workflow [5-3](#)

---

## C

Collecting Oracle Database Access  
Information [A-13](#)

---

## D

Database Net Service Name

locating in tnsnames.ora [A-16](#)

Database Net Service Name, locating [B-6](#)

Deregister License operation

Browser method [5-13](#), [5-15](#)

Express method [5-12](#)

workflow [5-7](#)

---

## F

Floating license mode

local ("serve licenses from this  
computer") [1-5](#)

remote ("serve licenses from remote  
computer") [1-5](#)

---

## H

HTTPS mode, configuring [3-2](#)

---

## I

installation workflows for Windows [3-2](#)

Installing Virtual Network Data Server [3-6](#)

---

## L

license

deregister (workflow) [5-7](#)

License Manager

"white page" icon in [5-12](#)

license names vs. Cisco component  
names [5-2](#)

using [5-2](#)

License Server

Refresh Server Information operation [5-12](#)

licensing

Add License operation (workflow) [5-3](#)

- deregister
    - Browser method [5-13](#)
    - Express method [5-12](#)
  - example scenarios [1-8](#)
  - license names vs. Cisco component names [5-2](#)
  - local vs. remote [1-5](#)
  - refreshing a license [5-7](#)
  - troubleshooting licensing operations [5-15](#)
  - upgrade authorization, obtaining [5-5](#)
  - upgrading from Restricted to Unrestricted (workflow) [5-4](#)
  - username/password, obtaining [5-3](#)
- Licensing Notes [4-13](#)
- 
- O**
- Oracle
    - supported versions [2-3](#)
  - Oracle, installing (Linux)
    - configuration, verifying [4-19](#)
    - database parameters, configuring [4-14](#)
    - database parameters, modifying [4-17 to 4-18](#)
    - notes [4-15 to 4-17](#)
    - verifying the installation [4-19](#)
    - warnings [4-14](#)
  - Oracle, installing (Windows)
    - Configuring the Oracle Database [3-17](#)
    - database, worksheet for database access [A-14](#)
    - database parameters, modifying [3-20](#)
    - local Oracle install [3-2](#)
      - installation scenarios [3-8](#)
      - specifying account information [3-8](#)
    - Modifying Database Parameters [3-20](#)
    - remote Oracle install
      - specifying account information [3-9](#)
    - verifying [3-21, 3-23](#)
  - Oracle10g (Windows)
    - procedures for installing [A-1, A-7](#)
  - Oracle 10g client (Windows)
    - installing [A-10](#)
  - Oracle 10g client (Windows), installing [A-10](#)
  - Oracle 10g database (Windows), installing [A-7 to A-8](#)
  - Oracle 9i client (Windows)
    - installing [A-5](#)
  - Oracle 9i client (Windows), installing [A-5](#)
  - Oracle 9i database (Windows), installing [A-1 to A-2](#)
  - Oracle accounts (Linux)
    - environment, configuring [B-2](#)
  - Oracle database (Linux)
    - database access information, collecting [B-3](#)
    - Database Net Service Name, locating in tnsnames.ora (Linux) [B-6](#)
  - Oracle directories (Linux)
    - permissions, configuring [B-2](#)

Oracle Installation Scenarios (continued) [3-8](#)

---

## P

password, obtaining [5-3](#)

---

## S

system requirements

- hardware requirements [2-3](#)

system requirements (Linux)

- software requirements [2-1](#)

system requirements (Windows)

- hardware requirements [2-1](#)

- software requirements [2-1](#)

---

## T

technical assistance

- for licensing operations [5-15](#)

tnsnames.ora [A-16](#)

TopLink (Windows)

- installing [A-14 to A-15, B-4](#)

- requirements [2-3](#)

---

## U

uninstalling VNDS

- notes [6-1 to 6-2, 6-5 to 6-6](#)

- warnings [6-6, 6-8, 6-10](#)

Upgrade License operation

- authorization, obtaining [5-5](#)

- workflow [5-4](#)

- username, obtaining [5-3](#)

---

## V

VNDS, installing (Linux) [4-4 to 4-5](#)

- Initial VNDS Installation (Local Oracle Database) [4-2](#)

- Initial VNDS Installation (Remote Oracle Database) [4-3](#)

- notes [4-6 to 4-13](#)

- prerequisites

- local Oracle install [4-2, 4-4](#)

- prerequisite steps [4-4](#)

- system requirements [4-1](#)

- verifying the installation [4-21](#)

- workflows [4-2](#)

VNDS, installing (Windows)

- HTTPS mode and [3-2](#)

- Initial VNDS Installation (Local Oracle Database) [3-2](#)

- Initial VNDS Installation (Remote Oracle Database) [3-3](#)

- notes [3-6 to 3-7, 3-9 to 3-16, 3-18 to 3-19](#)

- Oracle database, and [3-1](#)

- prerequisites

- local Oracle install [3-3](#)

remote Oracle install [3-4](#)

upgrade install [3-5](#)

Upgrade Installation (from Previous VNDS  
Version) [3-5](#)

warnings [3-17](#)

workflows, overview [3-2](#)

## VNE Server

license name for Virtual Network Data  
Server [5-3](#)

---

## W

Windows System Configuration [2-3](#)