Requirements & Install

Module 2 – Single Engine Installation

Requirements

Requirement	Minimum	Optimum
Processor	Intel Core 2 @ 2GHz	Dual Processor Xeon 3.0 GHz
Memory	2 GB RAM	8 GB RAM
Disk Space	2 GB	5GB
Monitor Resolution	1024x768 resolution	1280x1024 resolution or higher
Operating System	Windows 2008 Server R2	Windows 2008 Server R2
Web Administration	Internet Explorer 8 Firefox 10 ESR	Internet Explorer 8 Firefox 10 ESR

Requirements Continued

Requirement	Minimum	Optimum
	Install the following components from: Start Menu =>Administration Tools => Manage Server =>Add Server Roles	
Operating System Component	• IIS 7.5[1] • Network COM+ Access	• IIS 7.5[1] • Network COM+ Access
.NET Framework	.NET Framework 4.0	.NET Framework 4.5 (required for certificate enrollment with VeriSign) Director 8.0.1 required

[1]IIS 6 compatibility mode is required if you are provisioning to IIS 7 or IIS 7.5

Database Requirements

Requirement	
Database Version	• Microsoft SQL Server 2008 and 2012 • Oracle 10g R2 or Oracle 11g R2
Oracle Client	• Oracle 11g Database Client with Oracle Data Access Components (ODAC) version 11.1.0.6.20 Note: For the Oracle 11g R2 client, you must install Patch 5 or higher (patch set 9966926)
Database size	25 GB*

*Database size requirements very greatly depending upon a number of different factors Including log retention policy, number of certificates, number of Director servers, and licensing levels.

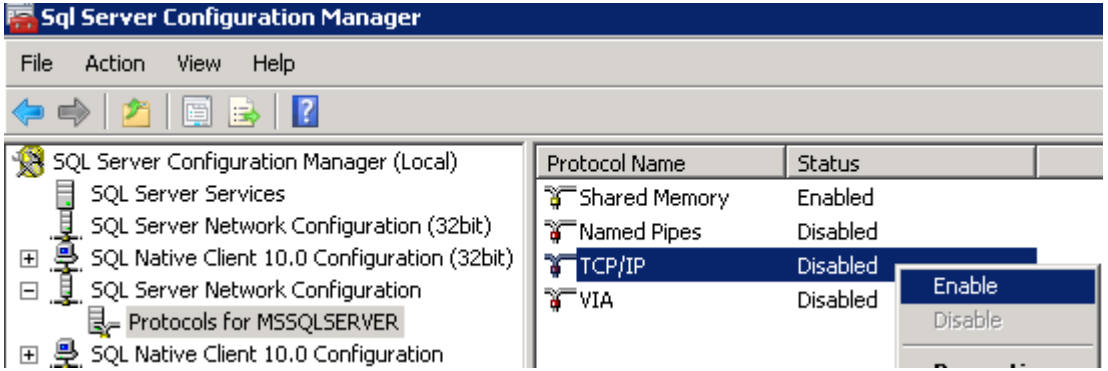
Database Access

- For MSSQL, SQL Authentication and Windows Authentication are both supported
  - A dedicated account for Venafi Director SQL access is recommended
  - db_datareader and db_datawriter are the required permissions for Director to function properly after installation
- For Oracle, the database scripts provided with Director will create the database user account

Database Setup

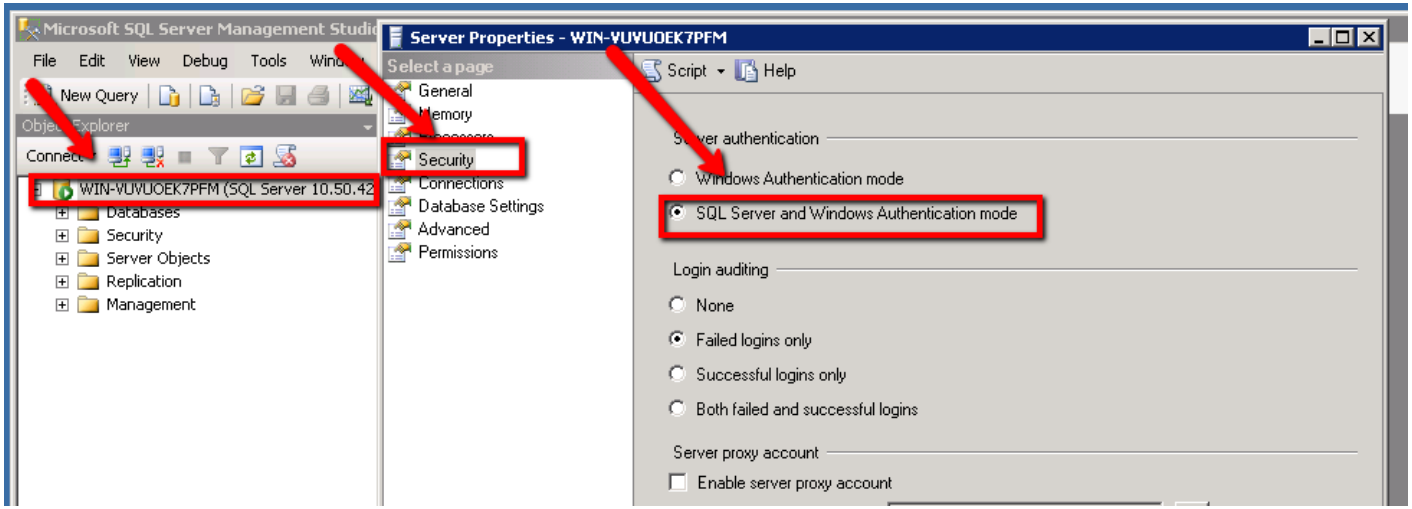
1. Enable TCP/IP Protocol for SQL Services (disabled by default but required)
2. Configure MS SQL for SQL Authentication (if desired)
3. Create Director Database
4. Create SQL login and assign rights
5. Run Database scripts to create tables and configure database

Enable TCP/IP on MSSQL



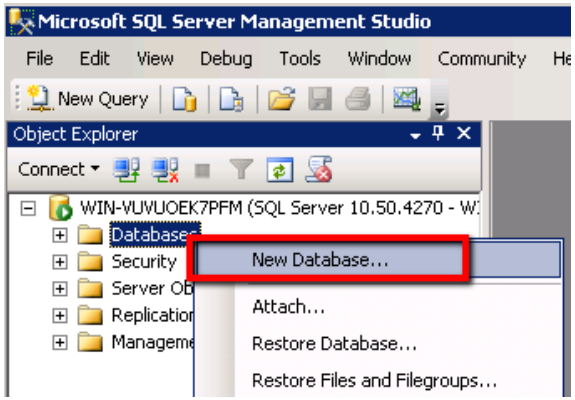
1. Start SQL Server Configuration Manager. Click **Start,** point to **All Programs,** and click **Microsoft SQL Server**. Click **Configuration Tools,** and then click **SQL Server Configuration Manager**.
2. In SQL Server Configuration Manager, in the console pane, expand **SQL Server Network Configuration**.
3. In the console pane, click **Protocols for** *MSSQLSERVER*
4. In the details pane, right-click **TCP/IP,** and then click **Enable**.
5. Restart SQL Services

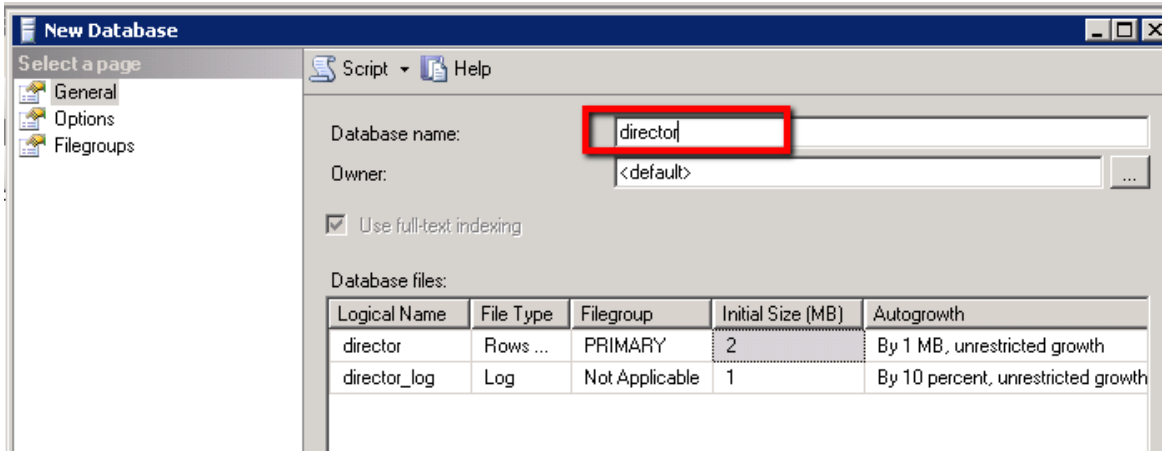
Enable SQL Authentication



1. In SQL Server Management Studio Object Explorer, right-click the server, and then click **Properties**.
2. On the **Security** page, under **Server authentication**, select the new server authentication mode, and then click **OK**.
3. Restart SQL Services

Create Director Database

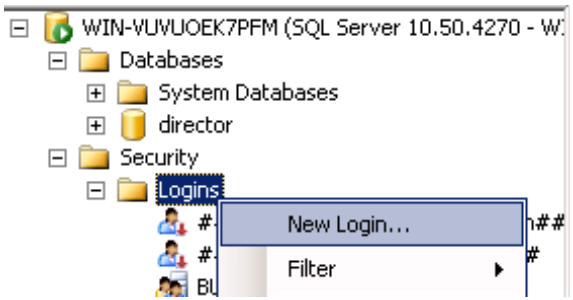


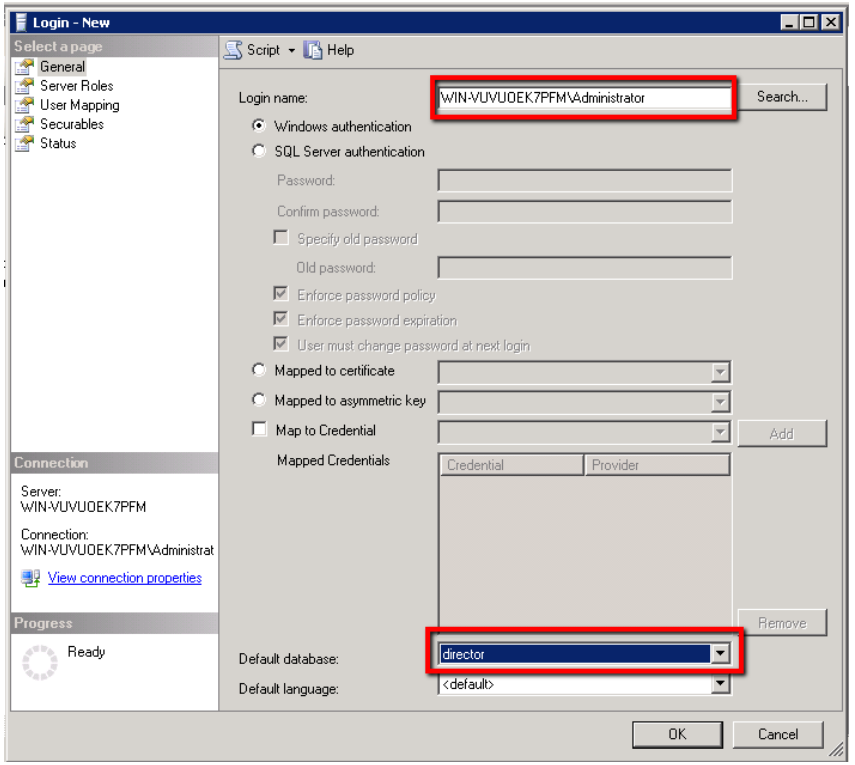


1. Right click on "Databases" and choose "New Database..."
2. Choose a name for the new database, for example "director"
3. Click "OK" on the New Databases dialog.

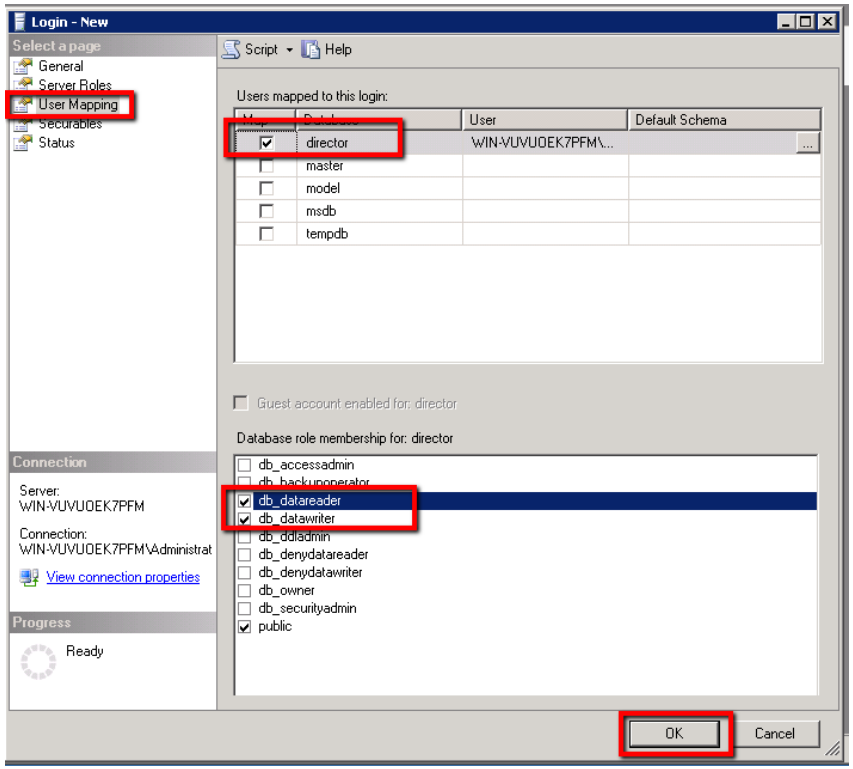
Create Login & Assign Rights

1. Expand Security
2. Right click on "Logins" and choose "New Login…"
3. Chose domain account (for Win Auth) or chose new username and password (for SQL Server Auth)
4. Change Default database to Director database



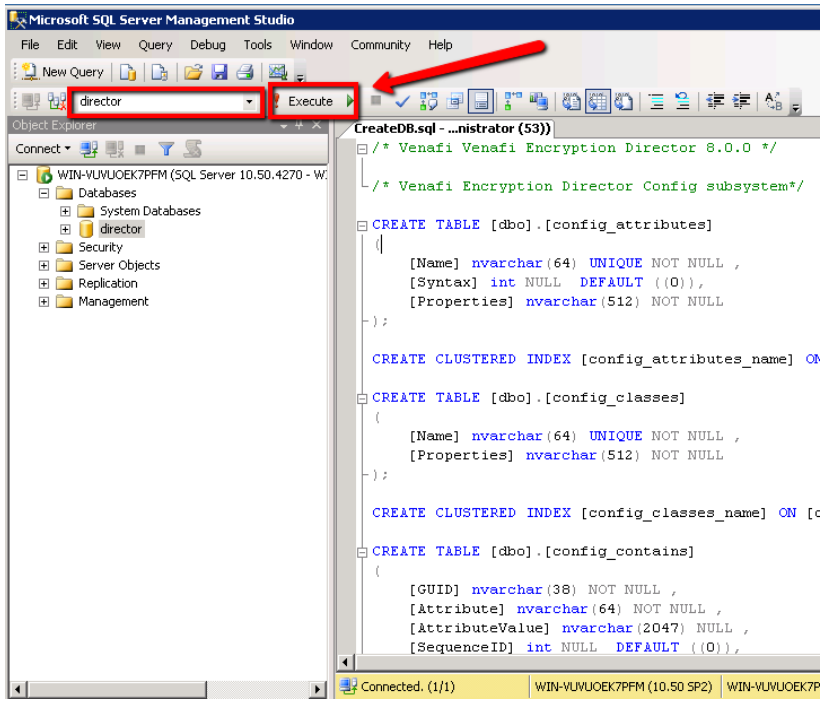


Create Login & Assign Rights

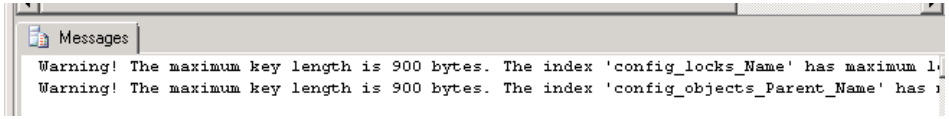


1. Select "User Mapping" page
2. Place a checkbox for the Director database
3. Provide the Login "db_datareader" and "db_datawriter" rights
4. Click OK to save changes

Run Database Create Script



1. Double Click on "Venafi Encryption Director 8.0.0\Database Scripts\MSSQL\CreateDB.sql"
2. Make sure the Director database is selected
3. Click the "Execute" button
4. Some warning messages are expected



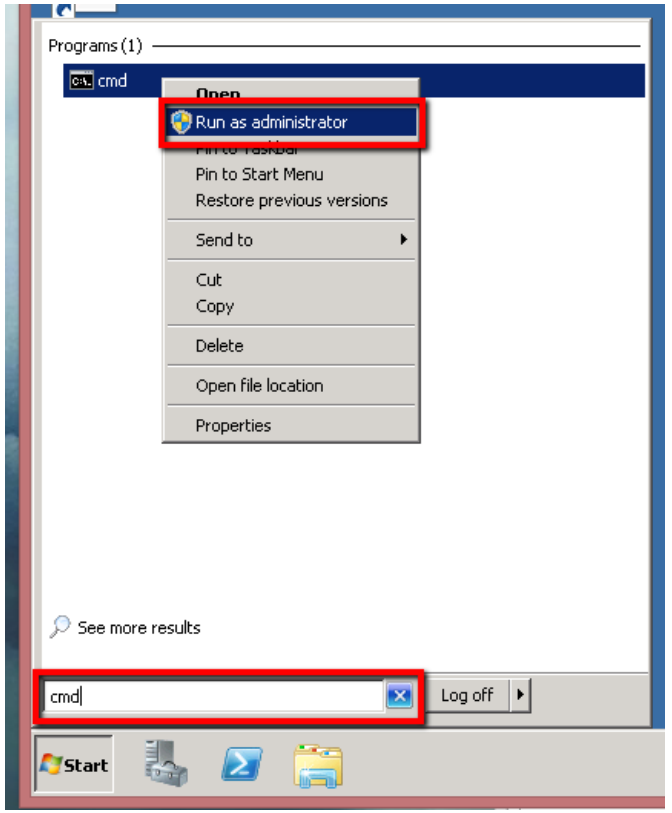
Install Director

1. Execute MSI Installer from elevated command prompt
2. Accept licensing and choose installation location
3. Choose products to install
4. Choose product components to install
5. Configure connection to primary and failover Venafi Log Servers
6. Configure and verify database connection
7. Create Local Master Administrator credentials for Director software
8. Configure credentials for Microsoft Certificate Authority if component was selected
9. Review configuration summary and initiate product configuration

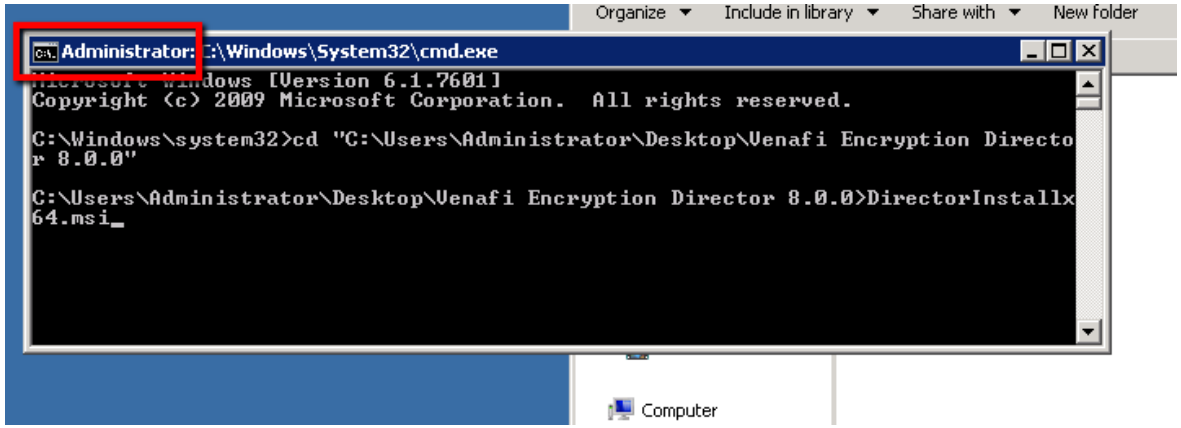
Execute MSI

- Venafi Director only available in 64-bit
- Start an "elevated command prompt" by right clicking on command prompt and choosing "Run as administrator"

Note: This is required because the MSI does not request the necessary permissions from the operating system during configuration. Hence the required permissions must be manually given.



Execute the MSI

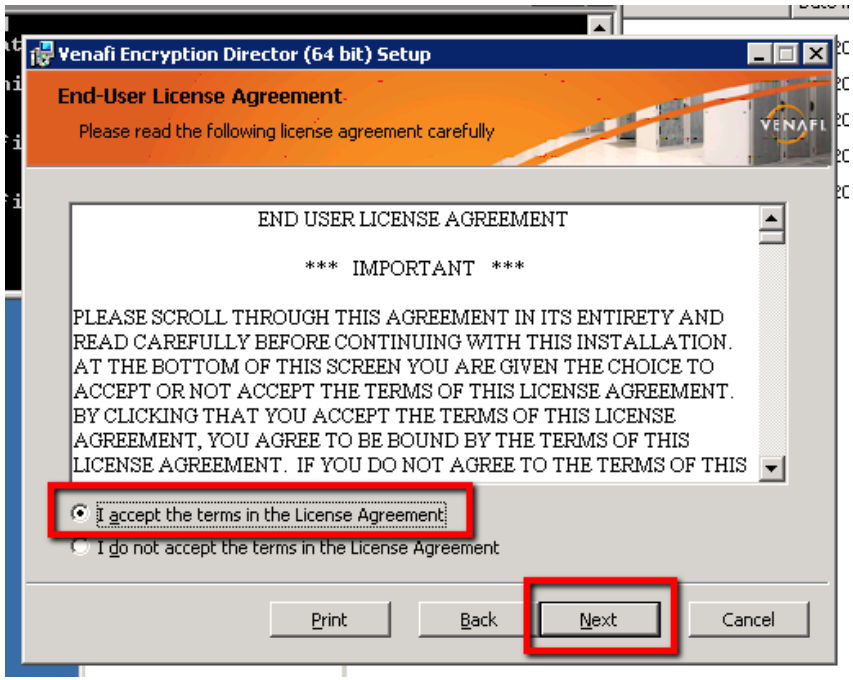


- Command prompt title bar will start with "Administrator" if successfully started with elevated administrative rights.
- Change your working directory to the folder the MSI is stored using the "cd" command
- Type in the filename of the MSI and hit Enter.
  By default the file is named "DirectorInstallx64.msi"

Windows Install Shield

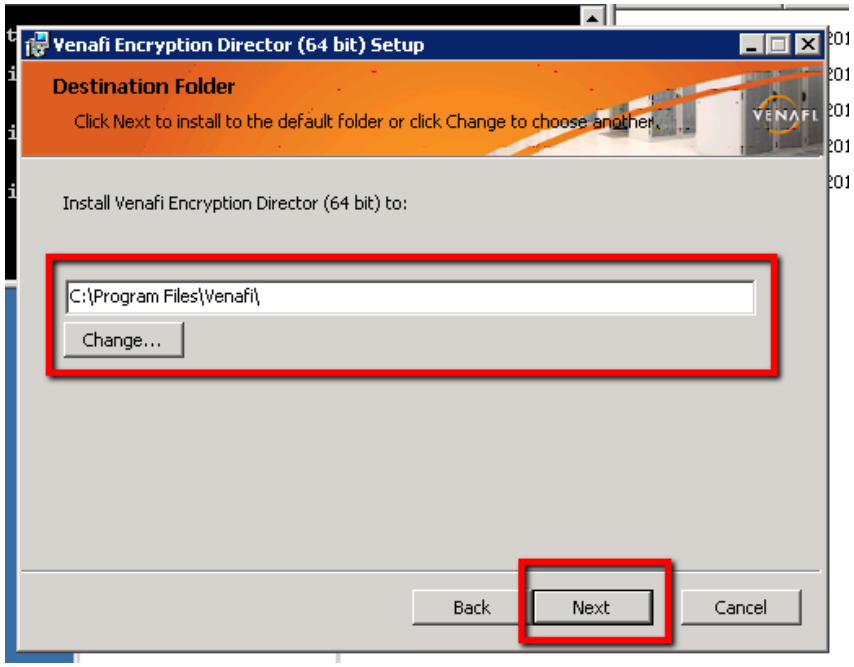
- Windows Install Shield will launch

Windows Install Shield



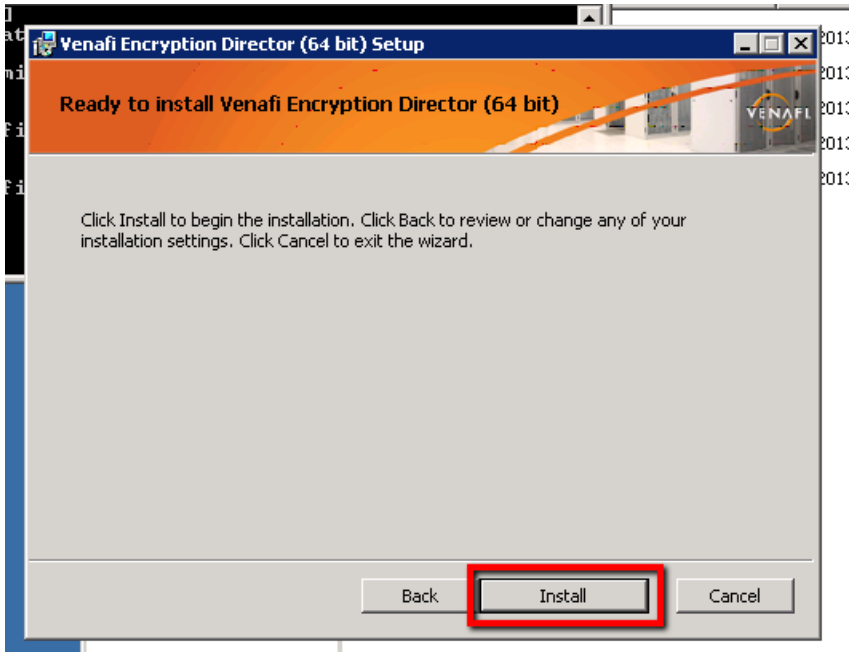
- Read the End User License Agreement
- Accept the terms of the agreement

Windows Install Shield



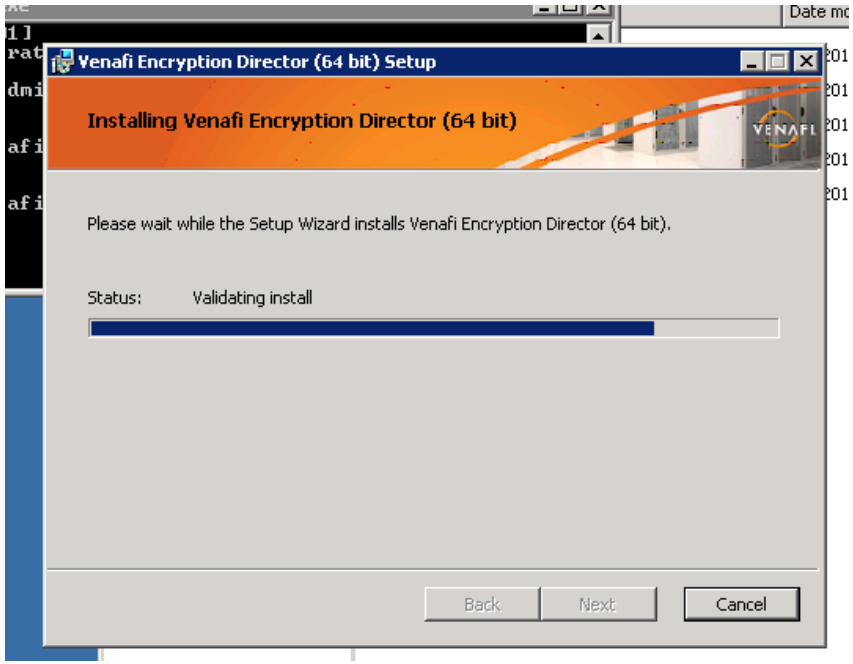
- Set the installation location or leave the default
- It is common to change the installation location to a drive other than the System drive.

Windows Install Shield



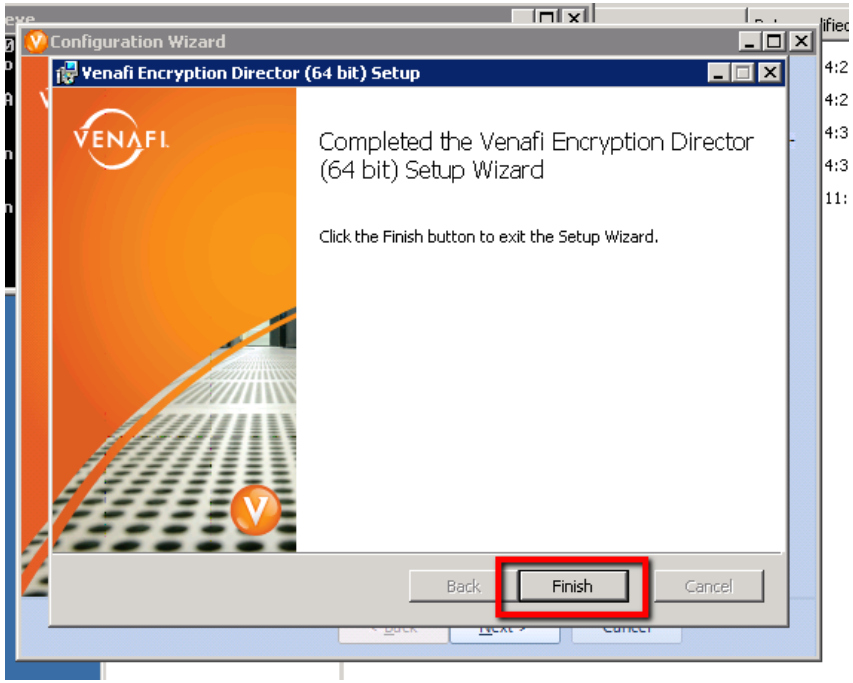
- Clicking "Install" will copy the binaries of the software to the desired location and register it with the Windows operating system.
- It does not configure the software.

Windows Install Shield



- Installation usually only takes a couple of minutes

Windows Install Shield



- After the Windows Installer finishes, the Director Control Center (DCC) wizard will automatically launch to walk you through the configuration of the software and prepare it for use.
- You can safely click "Finish" on the setup screen to close it.

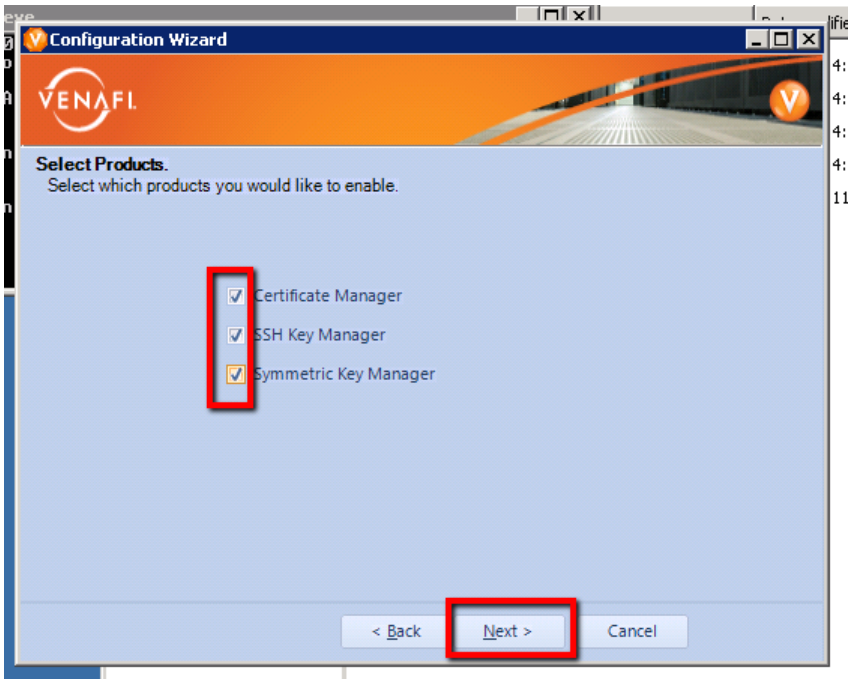
Director Control Center Wizard

- Welcome screen for DCC
- Can be reran anytime to change installation options by launching "dcc.exe –wizard" from an elevated command prompt found in "Venafi\Platform"

Director Control Center Wizard

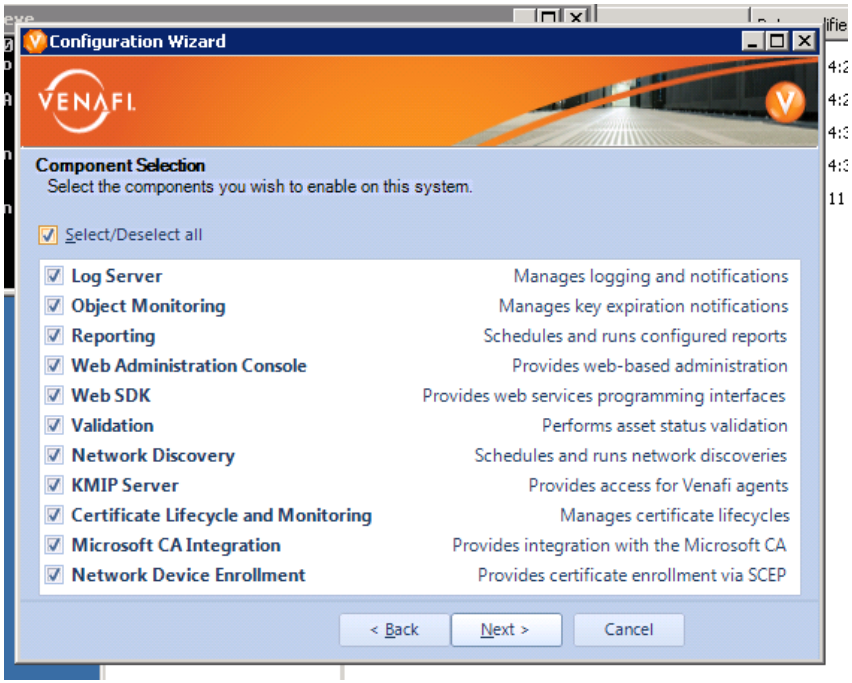
- Select which of the product(s) your organization is licensed for and would like to install in this environment.

Note: Director 8 does not currently implement software license enforcement. Although you can technically install and use all aspects of the software, you can only legally use what you have purchased and licensed. Contact your Venafi Account Manager or Customer Support to find out what your organization is licensed for.



Component Selection

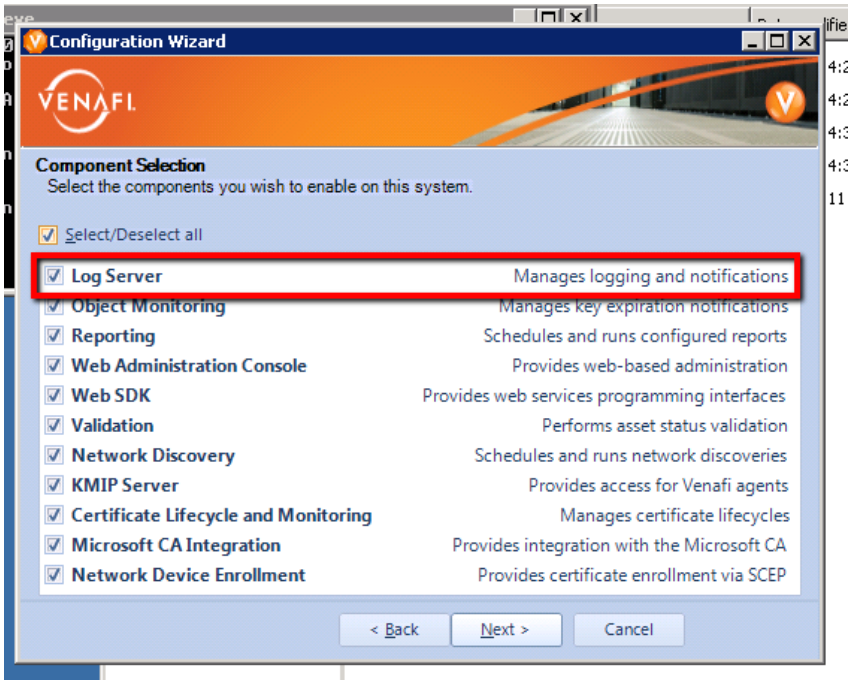
- Components will be visible based on the products you chose to install
- By default all components are selected
- You may want to uncheck components that you will not be utilizing in your environment or on this particular server



Component Selection

Log Server

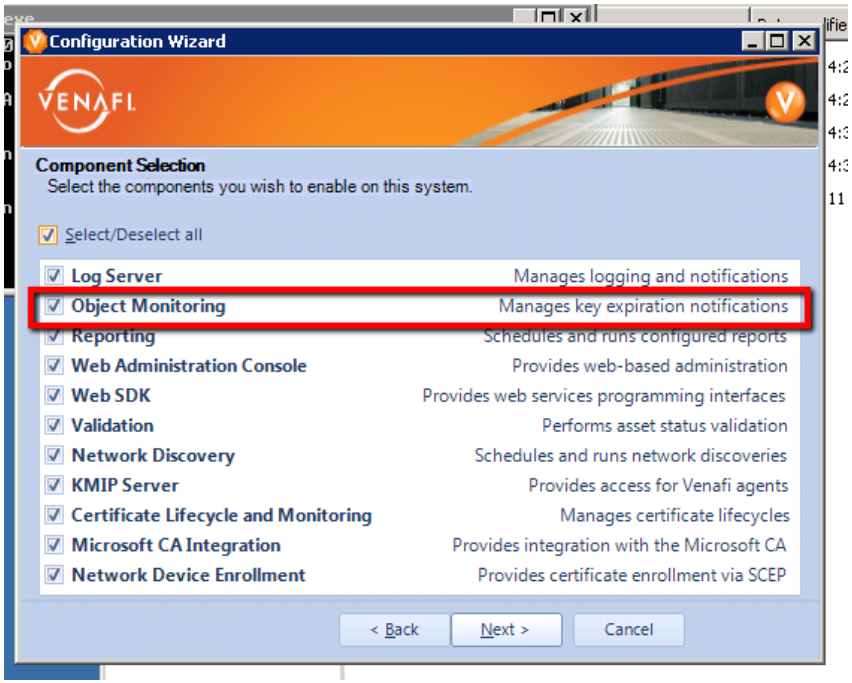
- Log Server is a Windows service that collects event data from other services and consoles and sends the event data to predefined locations (ex: logs table in database)
- The Log Server windows service will be installed on all servers. This box controls whether DCC will enable or disable the windows service
- Each Director environment can only have one primary Log Server and one failover Log Server. If you already have these servers defined you may want to uncheck this component



Component Selection

Object Monitoring

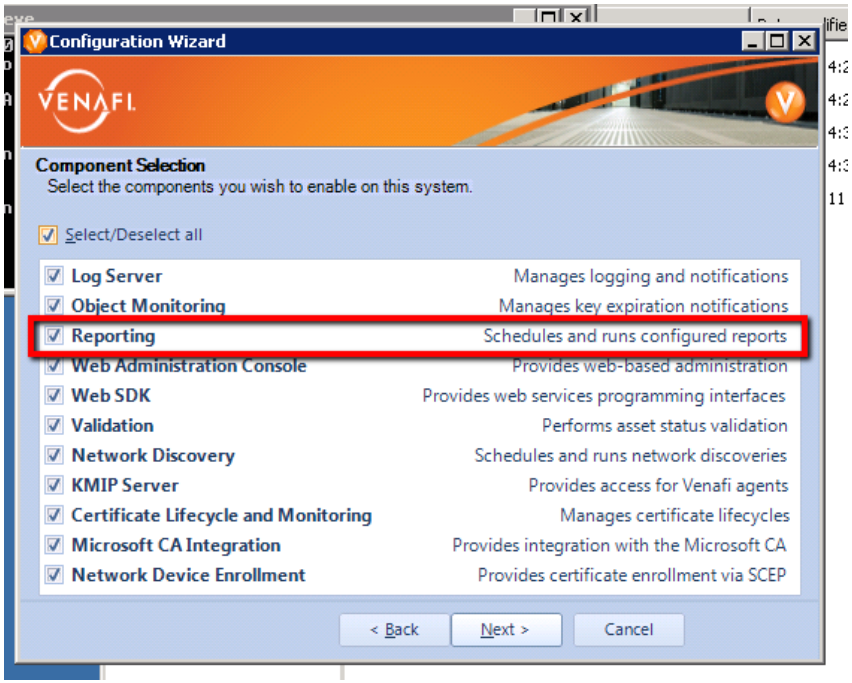
- Monitors the expiration of credential resources, SSH keys, and symmetric keys in Director
- Generates expiration events when objects near the expiration date



Component Selection

Reporting

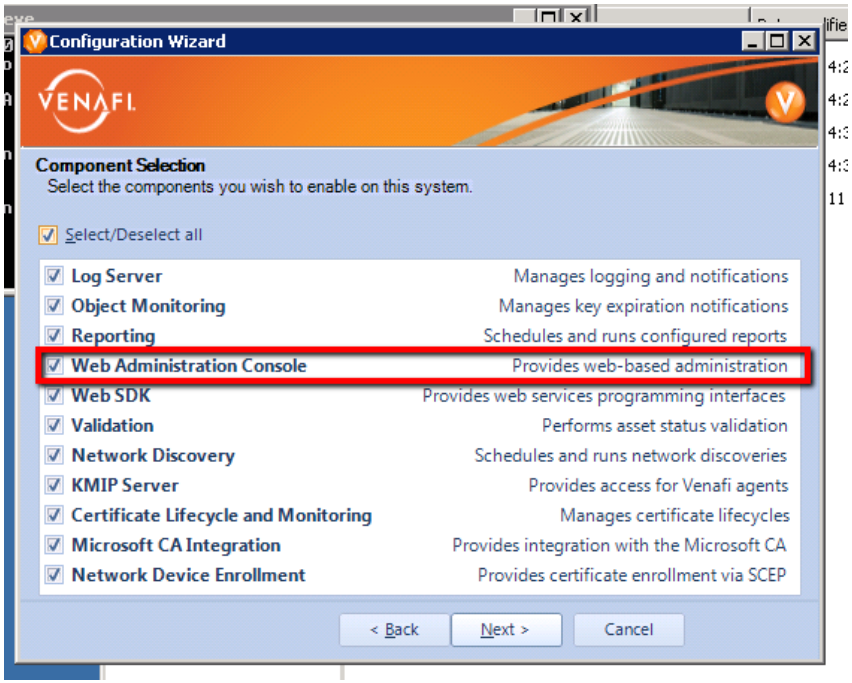
- Generates and delivers configured reports either on demand or via a schedule



Component Selection

Web Administration Console

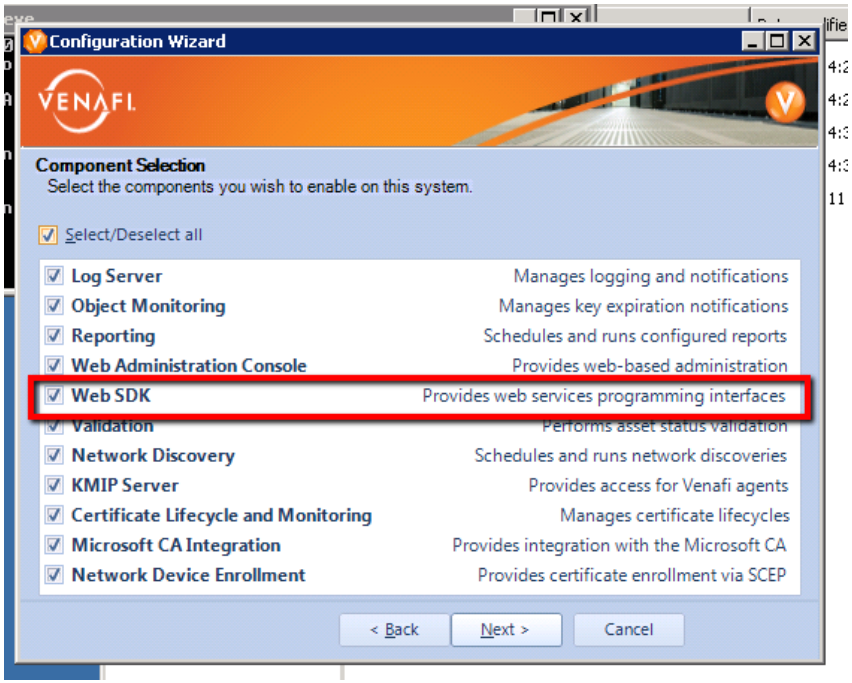
- Provides remote access to daily administrative functions
- It is recommended that the Web Administration Console (Web Admin) be installed on at least one server. Some management functions can only be performed in Web Admin
- If checked, DCC will configure the "VedAdmin" web application within the "Venafi" site in IIS.



Component Selection

Web SDK

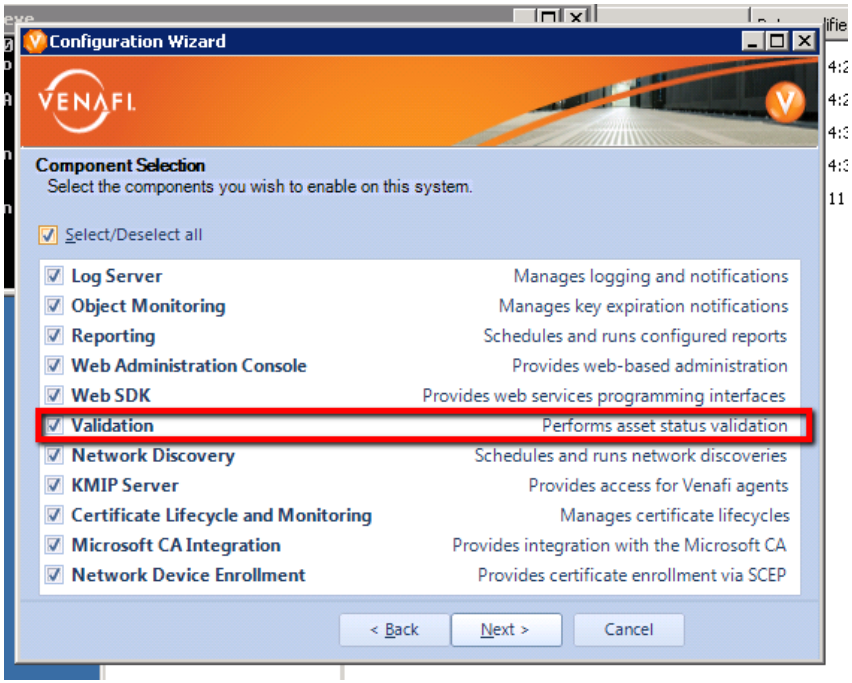
- Provides a programming interface for third party applications through Director's web services REST API
- If checked, DCC will configure the "WebSDK" web application within the "Venafi" site in IIS
- Documentation can be found at https://support.venafi.com



Component Selection

Validation

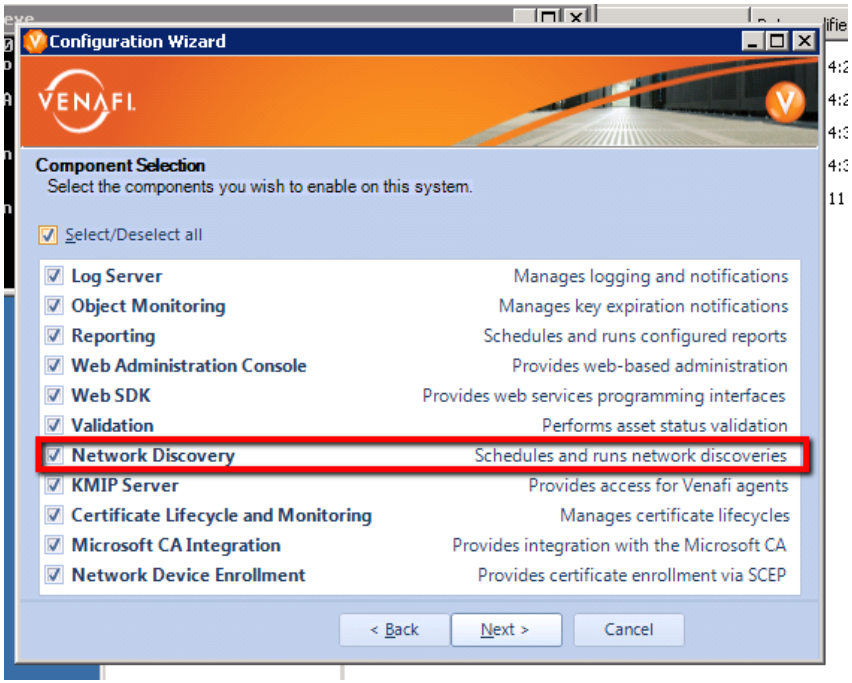
- Runs daily and on-demand validation to ensure correct certificates and SSH keys are installed and functioning properly
- Component only available for Certificate Manager and SSH Key Manager products



Component Selection

Network Discovery

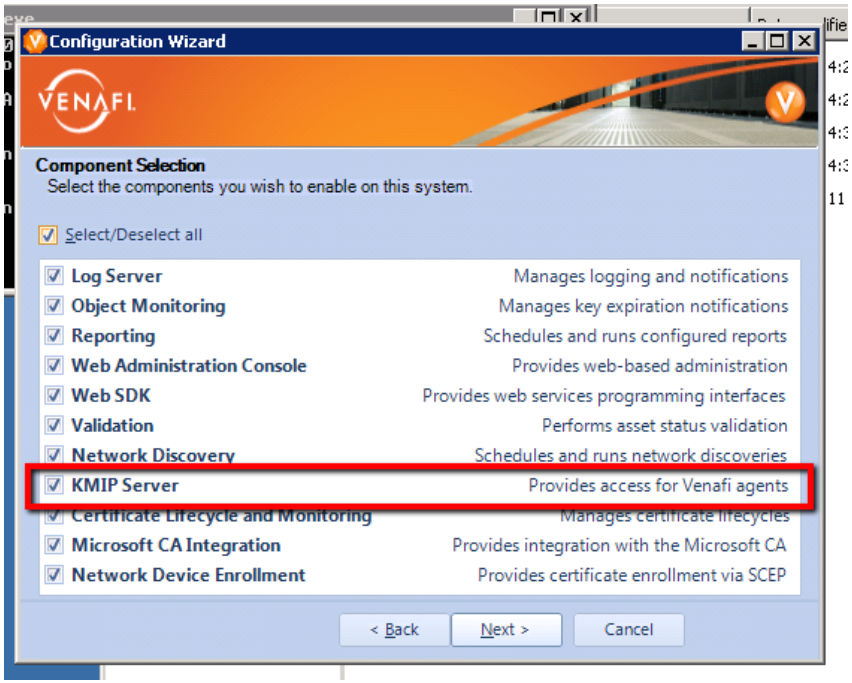
- Runs schedulable and on-demand network discoveries of certificates and SSH keys
- Component only available for Certificate Manager and SSH Key Manager products



Component Selection

KMIP Server

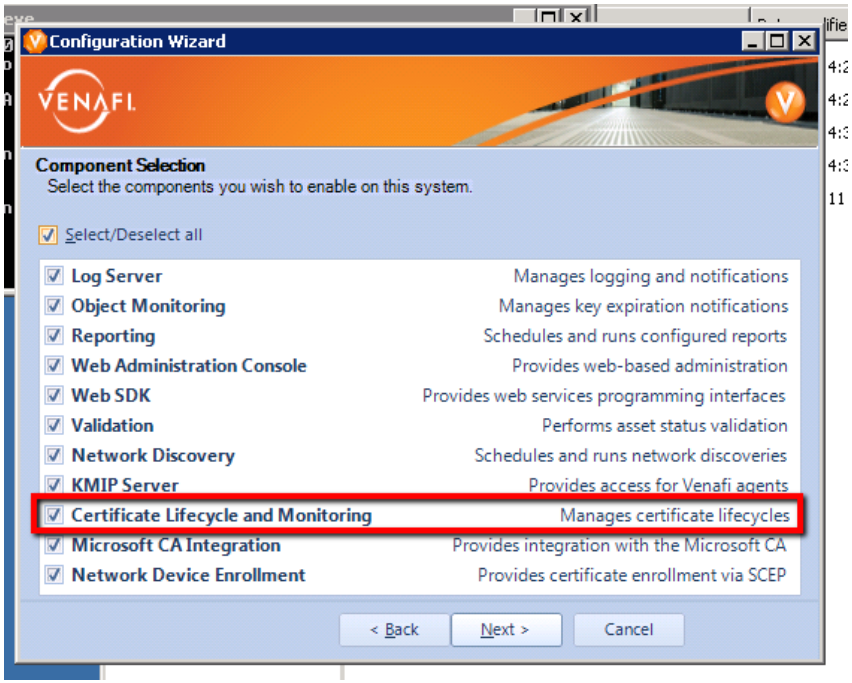
- Enables Director services to listen for incoming connections from the Director Agent
- Component only available for Certificate Manager and SSH Key Manager products



Component Selection

Certificate Lifecycle and Monitoring

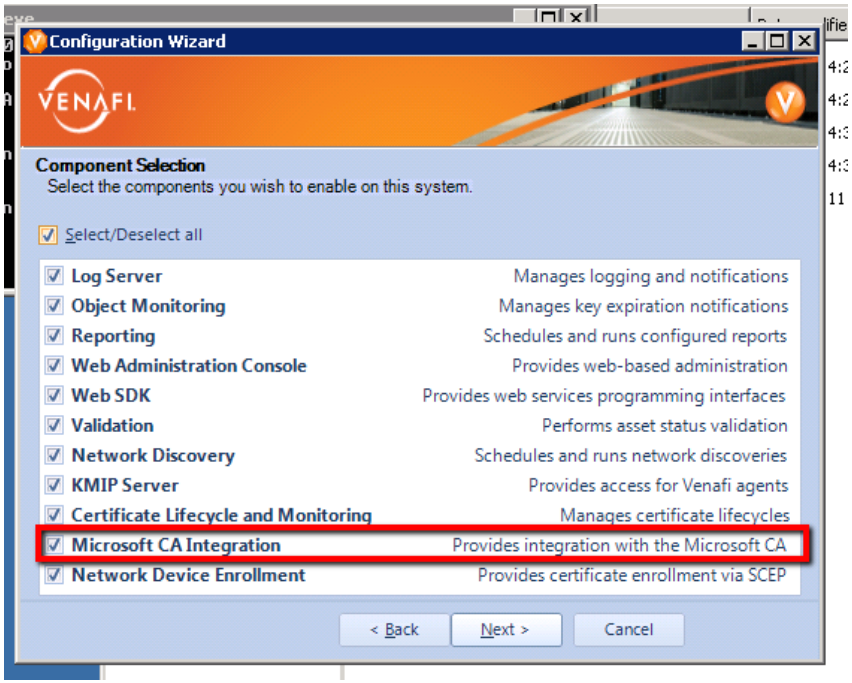
- Monitors expiration for certificates. Also responsible for key and CSR generation, enrollment and provisioning
- Component only available for Certificate Manager product



Component Selection

Microsoft CA Integration

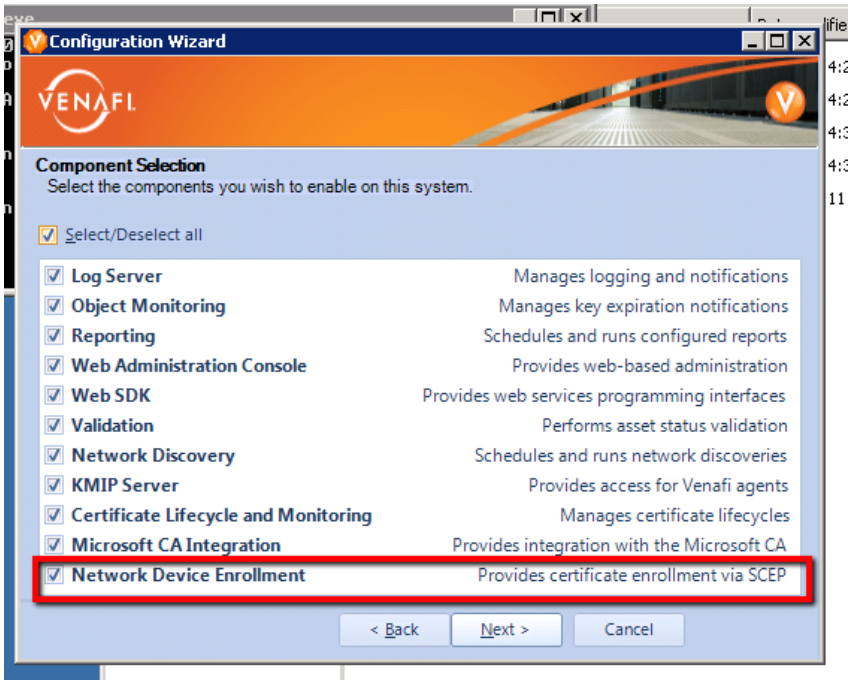
- Director uses Microsoft DCOM technology to communicate with Microsoft Certificate Authority (MSCA)
- If checked, Director will prompt for the domain account used to authenticate with MSCA so that DCC can configured DCOM permissions on the local Director server
- Component only available for Certificate Manager product



Component Selection

Network Device Enrollment

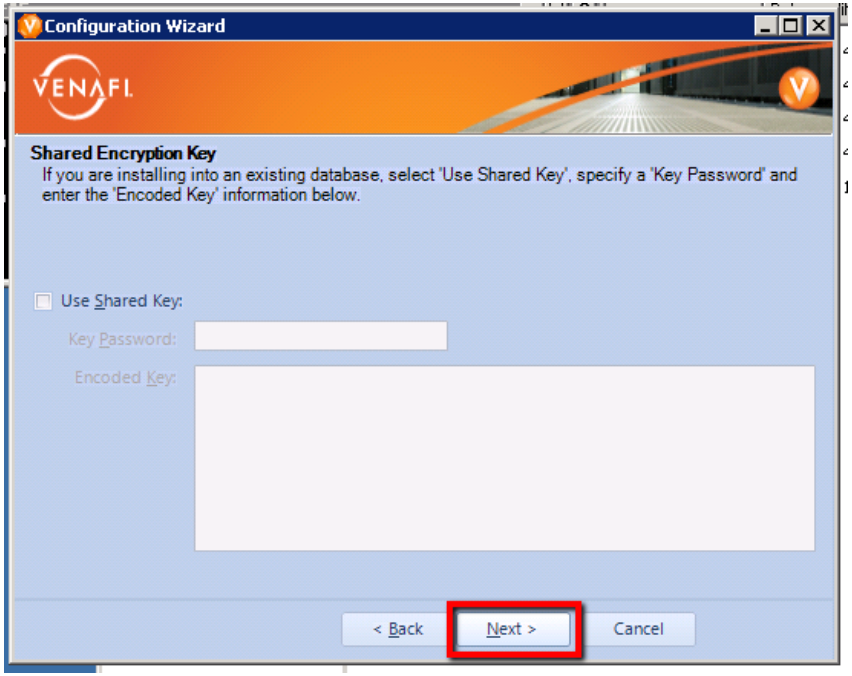
- Enables Director to be able to enroll certificates via SCEP protocol
- Typically used with mobile device management platforms and network appliances
- If checked, DCC will configure the "NDE" web application within the "Venafi" site in IIS
- Component only available for Certificate Manager product



Director Control Center Wizard

Shared Encryption Key

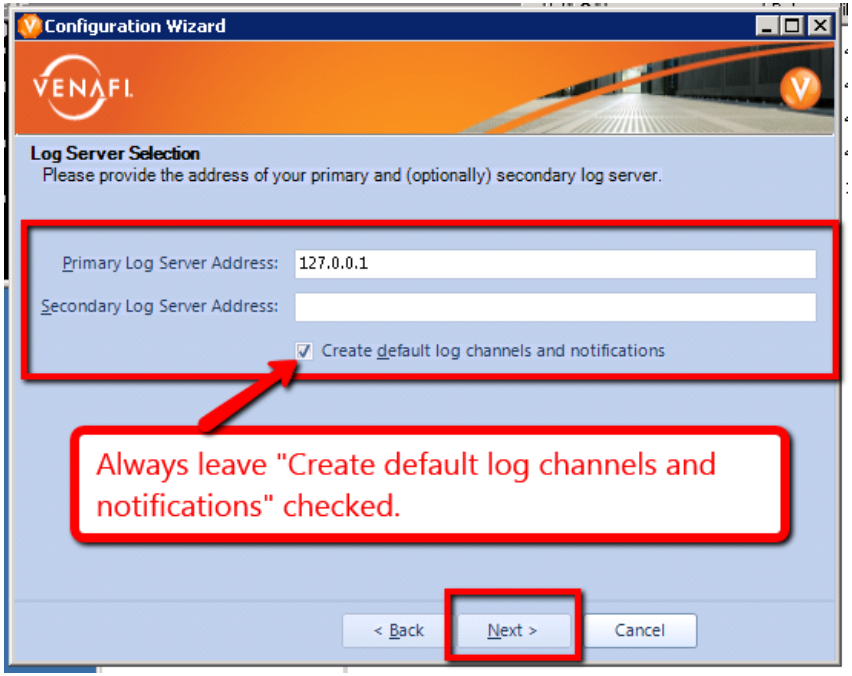
- Director uses a shared symmetric encryption key to encrypt sensitive portions of the database
- If this is the first server in a new environment, click "Next" and a key will be generated for you
- If this server will be joining an existing Director environment, type in the key password and paste the Encoded key
- Shared Encryption Key is often referred to as the "DPAPI Key" because it is protected by Microsoft's Data Protection API



Director Control Center Wizard

Log Server Addresses

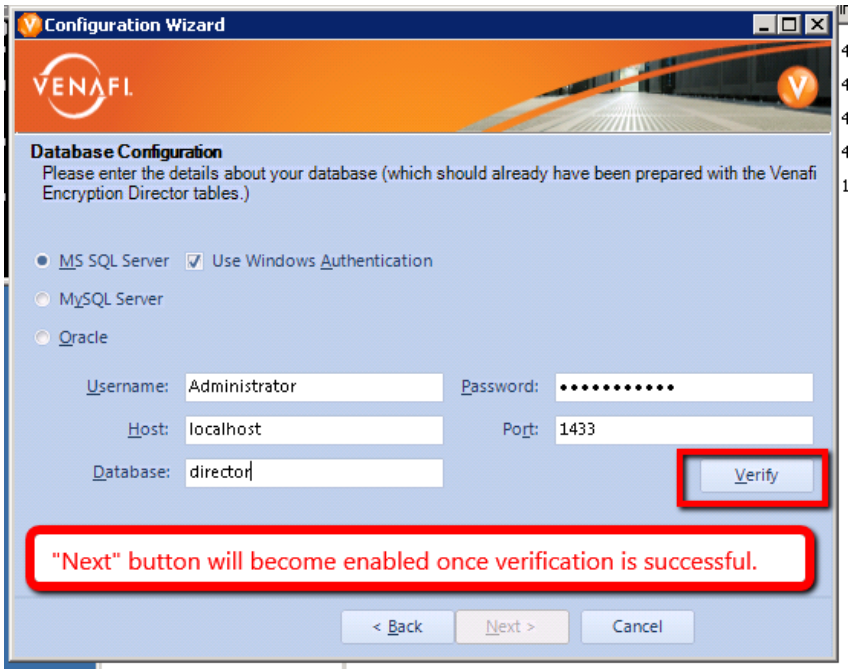
- Type in the IP address of the Primary Log Server and Secondary Log Server
- If there will only be on Director server in your environment then leave the defaults and click "Next"
- If a multi-engine environment (multiple Director server), type in the IP address of the Secondary Log Server
- IPv4 and IPv6 both accepted



Director Control Center Wizard

Database Configuration

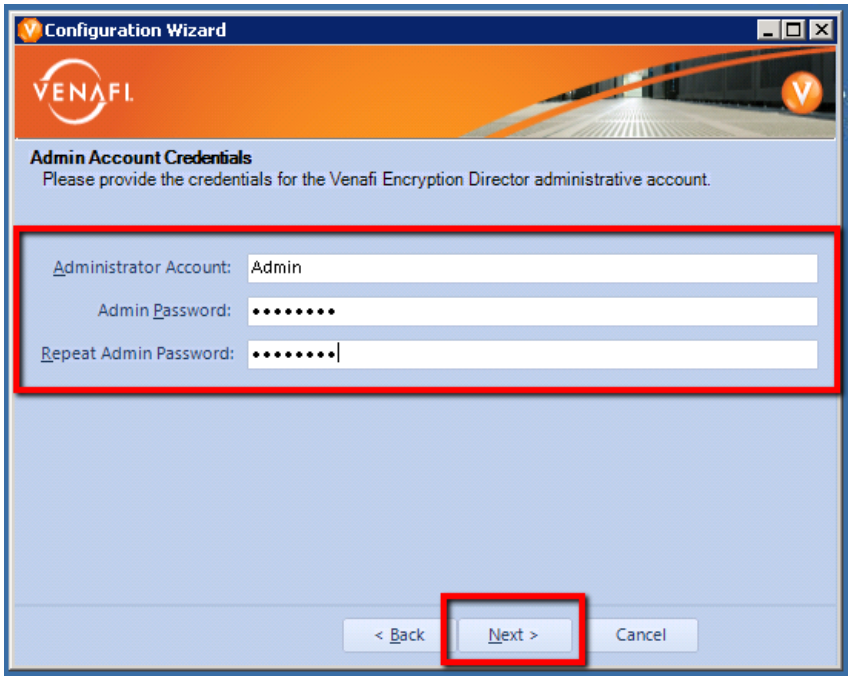
- Select the type of database
- If using Windows Authentication for MS SQL Server, check the box
- Type in the connection information. All fields required
- Click "Verify" and DCC will attempt to use the information provided to test the connection to the database
- Problems will result in an error message. Success will result in "Next" becoming enabled to click on



Director Control Center Wizard

Create Local Master Admin Account

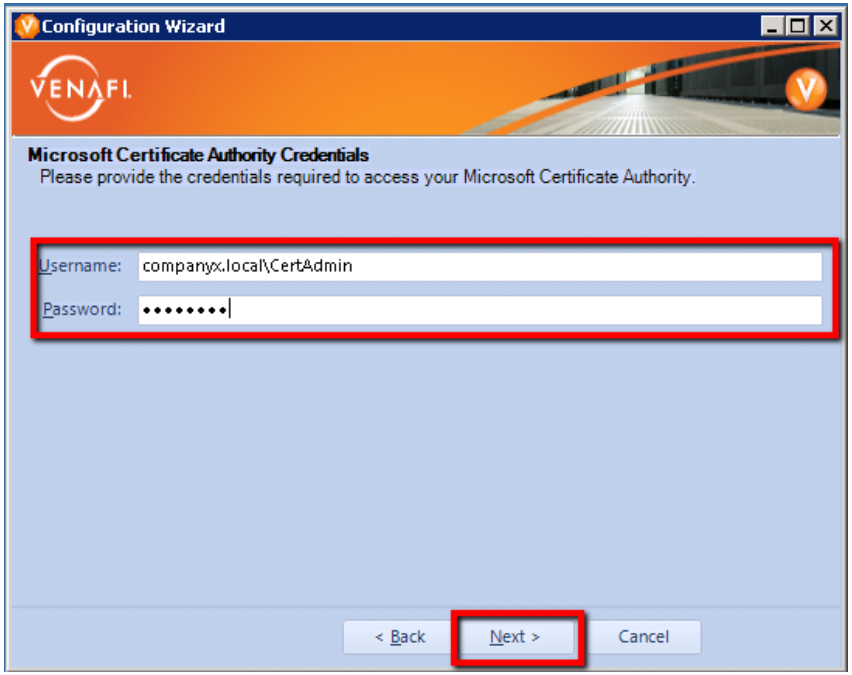
- Create the first account used to login to Director
- Master Admin account has all rights to all aspects of Director
- Used to join other servers to environment and perform upgrades
- Can create multiple Master Admin accounts within Director
- Username chosen here, but cannot be renamed later.



Director Control Center Wizard

Microsoft Certificate Authority Credentials

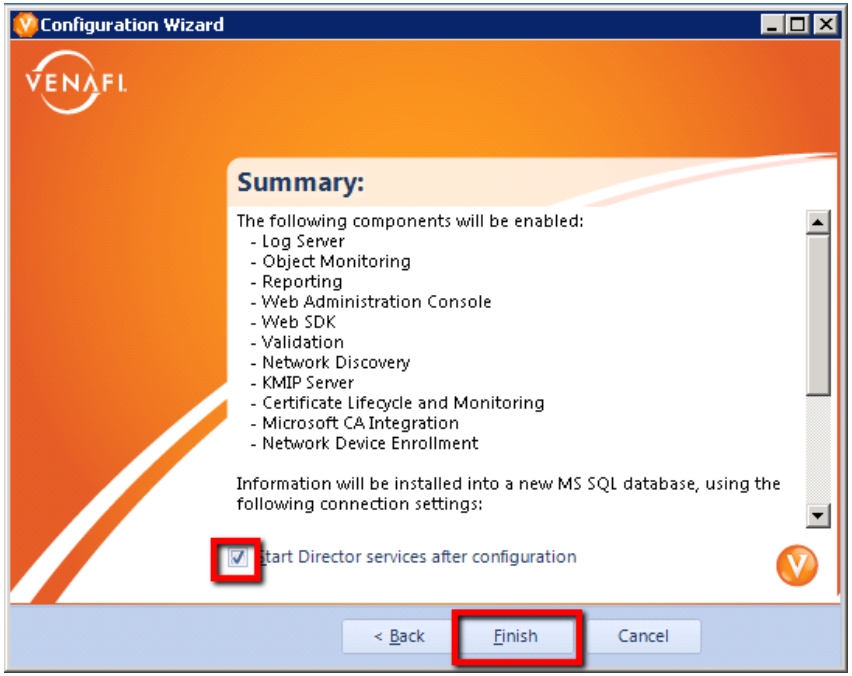
- Username can be in NTLM or UPN format
- If windows account does not exist, DCC will error out at the end of the wizard when it attempts to configure permissions for Windows DCOM



Director Control Center Wizard

Summary

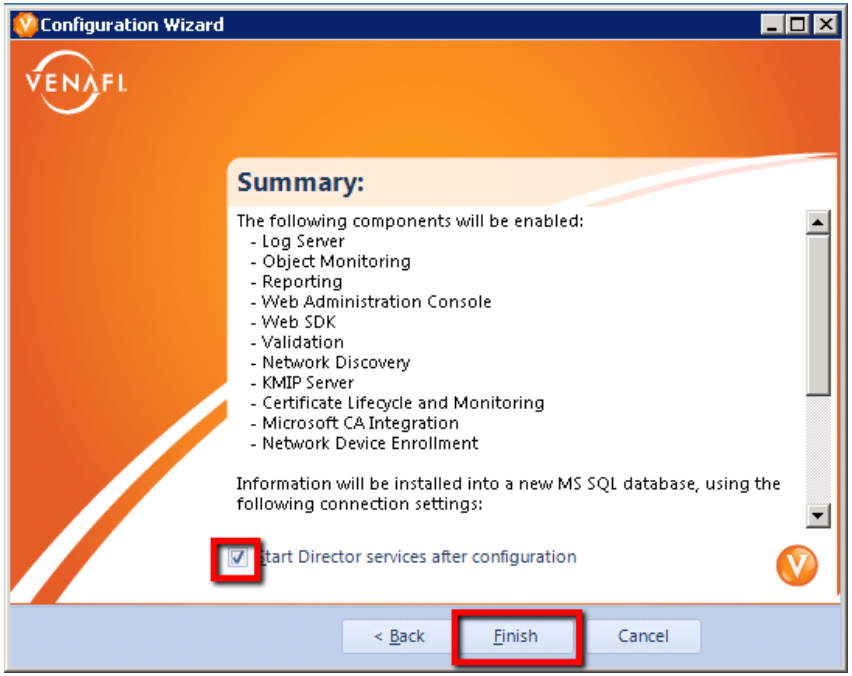
- Scroll through the summary to review the information collected during the DCC Wizard
- Select the box to start Director services
- Click Finish



Director Control Center Wizard

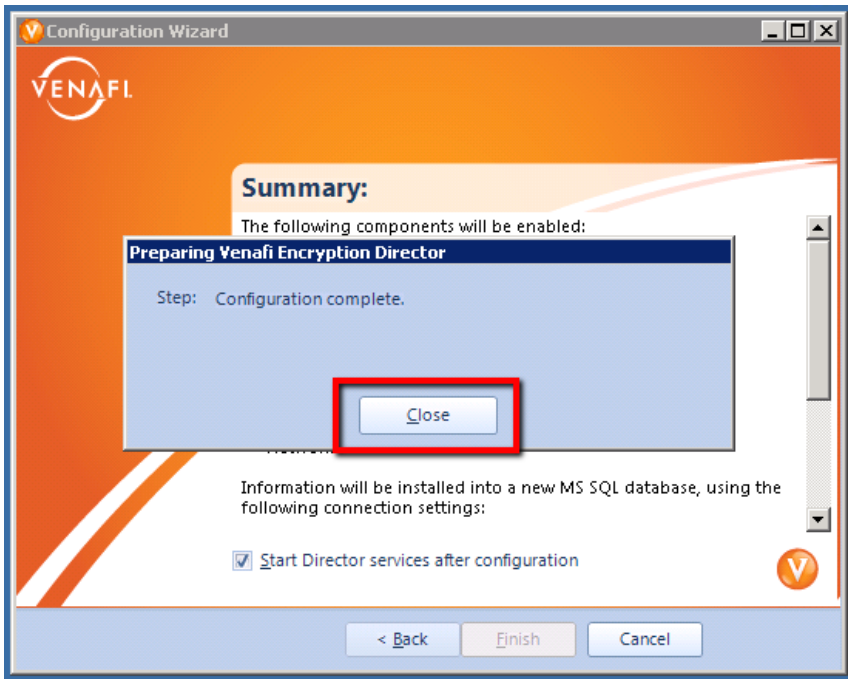
Configuring Director Services and Components

- Scroll through the summary to review the information collected during the DCC Wizard
- Select the box to start Director services
- Click Finish



Director Control Center Wizard

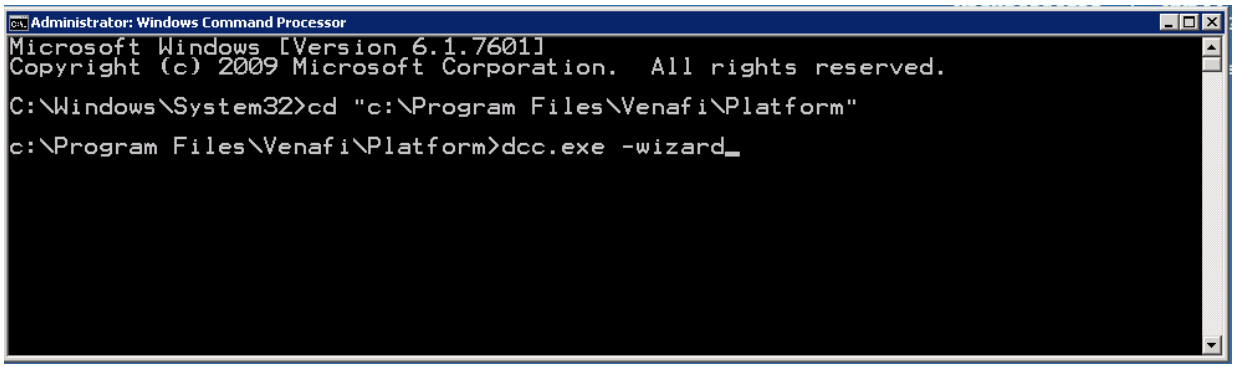
- Director is now successfully installed
- Click the "Close" button to exit the Director Control Center Wizard



Director Control Center Wizard

Re-Run Wizard

- Type in "dcc.exe -wizard" from Venafi\Platform folder
- Can change what components are installed on server
- Can Change DCOM Credentials for Microsoft Certificate Authority
- Must have existing Master Admin credentials to complete wizard



Multi-Engines Setups

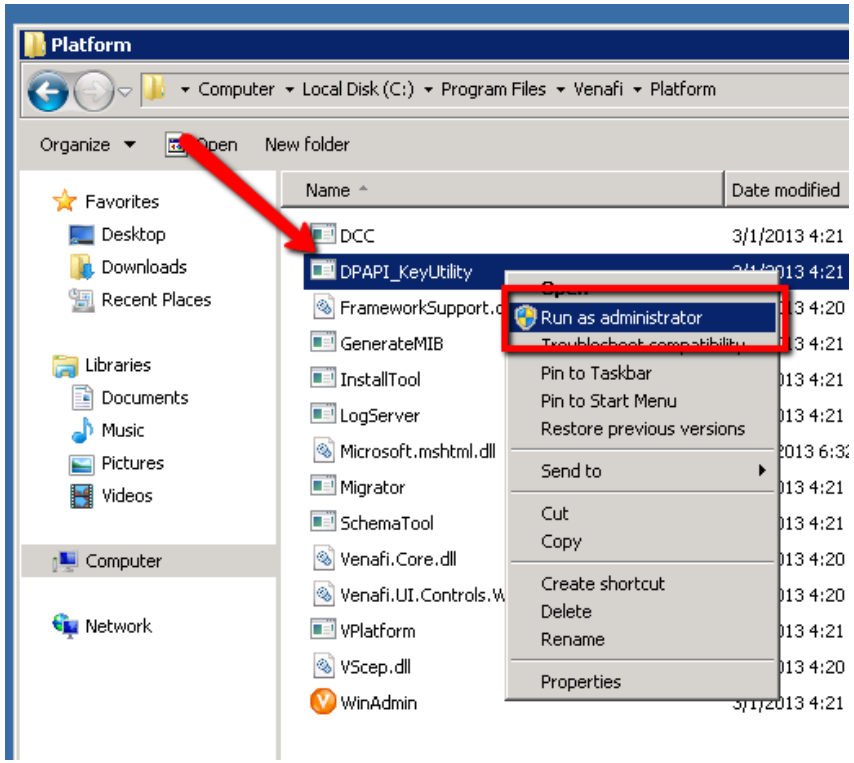
Module 3 – Setting up a 2nd Director Server

Multi-Engine Setup

Director's architecture allows it to scales across multiple servers for:

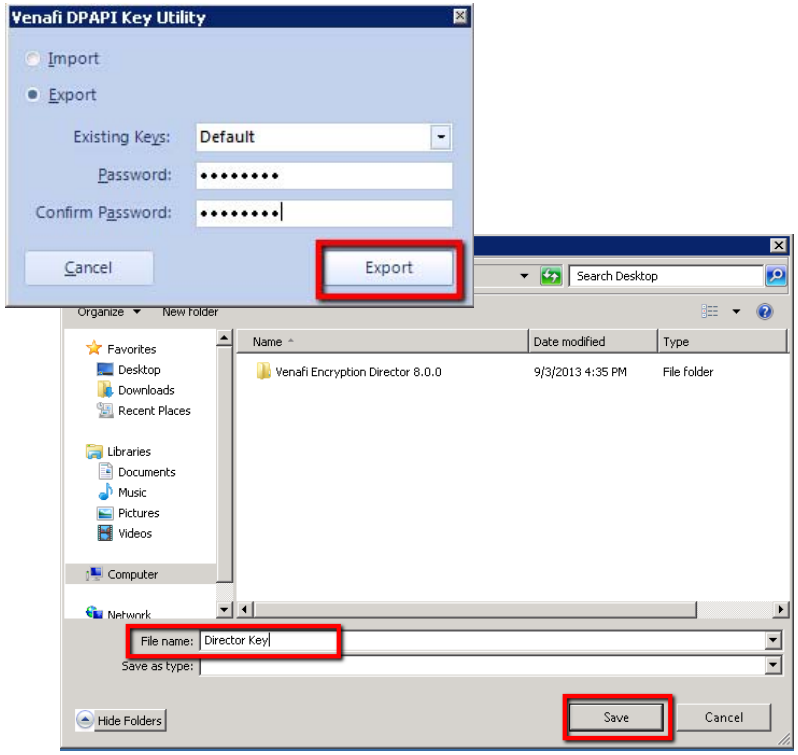
- Load Balancing
  - When the work is spread across multiple engines, the work is performed faster
- Fault Tolerance
  - When an engine goes offline, other engines with the same roles can resume the work
- Enhanced Network Access
  - Deploy Director engines to restricted network segments for discovery, validation, and provisioning

Export Shared Encryption Key



1. Browse to Venafi\Platform
2. Right Click on "DPAPI_KeyUtility.exe"
3. Choose "Run as administrator"

Export Shared Encryption Key



4. Choose a password to encrypt the key file
5. Click "Export"
6. Choose a File Name (File Type will be left blank)
7. Click "Save"
8. Store the Shared Encryption Key file in a safe and protected space
9. Temporarily copy to servers you will be installing Director on

Install Director on Additional Engine

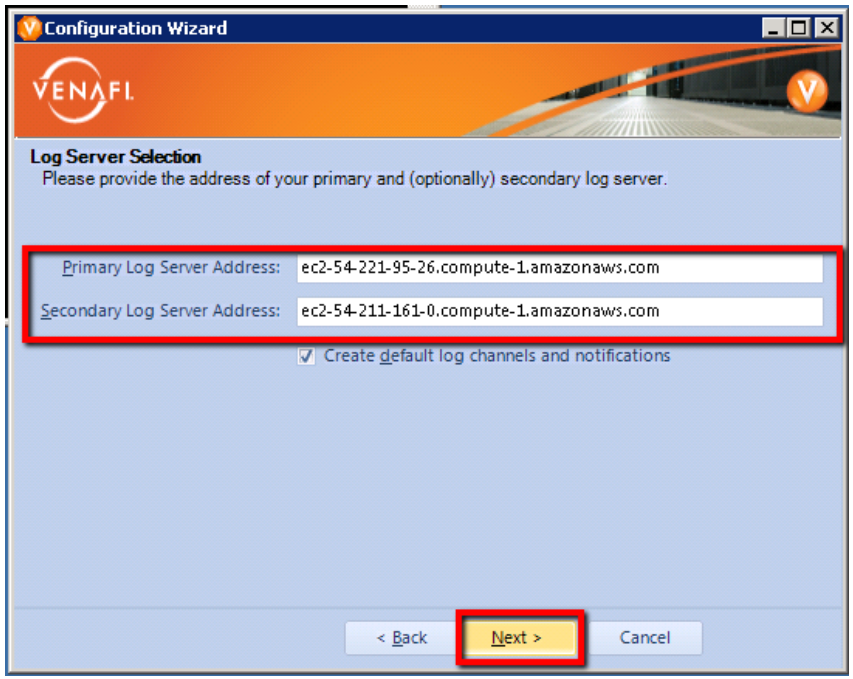
Installing Director on Additional Servers is very similar to installing it on your first server. There are some key differences:

- Skip database setup on database server, it has already been done
- Choose different components depending upon the role of the server
- Enter the Shared Encryption Key instead of having DCC create a new one
- Enter your Master Admin credentials instead of creating them

Launch MSI

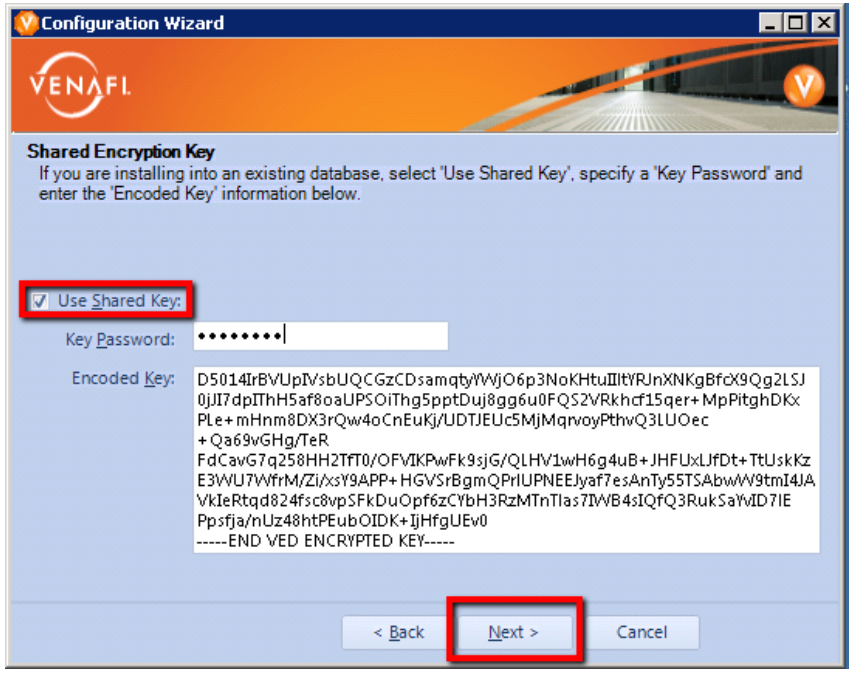
- Launch the MSI from an elevated command prompt the same way done on the original Director Server
- Accept End User License Agreement
- Install it to the same physical path (not required but recommended)

Log Server Configuration



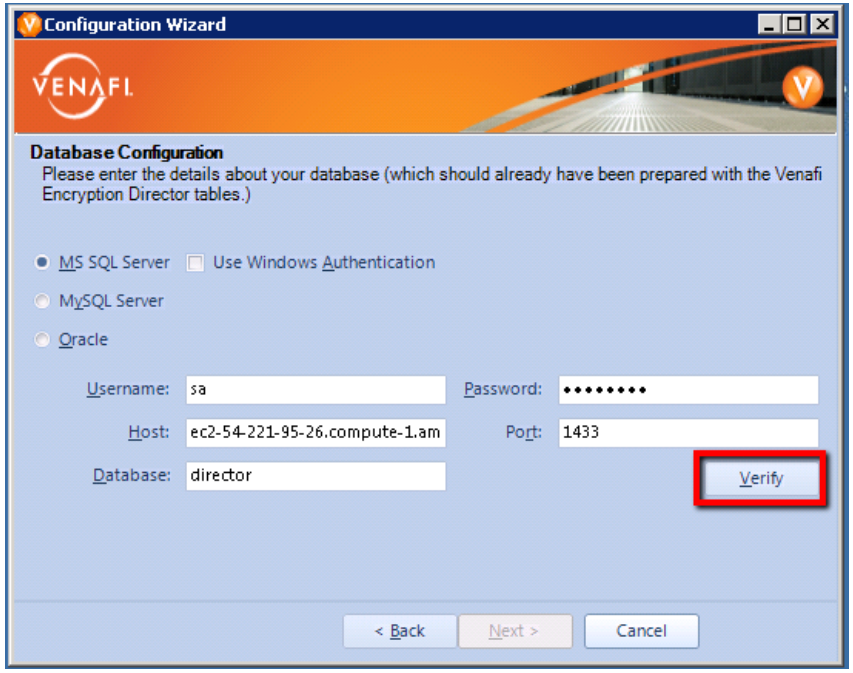
- Enter the hostname/IP of the first director server
- Put hostname/IP for the secondary server

Shared Encryption Key



- Check "Use Shared Key"
- Paste the encoded key into the space provided
- Type the corresponding password for the encoded key that was created when you exported the key

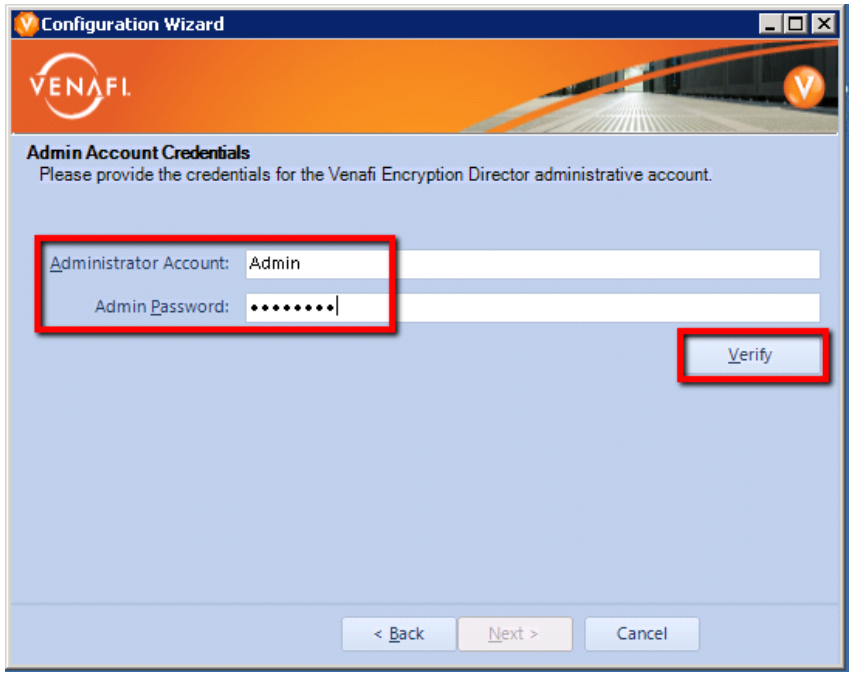
Database Settings



- Type in the connection information to connect to the database

Note: Windows Authentication can only be used to connect when the director server is in a trusted domain of the database server

Master Credential Verification



- Type in a set of local master administrative credentials

Note: These are typically the credentials created during the Director Control Center wizard on the first server – but can be any local master admin credentials if more were created later