

# Ex 1 - Nomad 7.0 - Installing the Nomad Components

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All command lines and queries used throughout the lab exercises are available by accessing the SkyTap Shared Drive shortcut on the desktop and browsing to **1E Nomad - Course Content\Nomad 7.0 Course Content\CommandLinesAndQueries.txt** file to make copying and pasting within the virtual machines easier.

## Installing the Nomad Components

In this lab, you will install ActiveEfficiency on the Application server, the Nomad Components on the ConfigMgr server, and the Nomad client on the Distribution Point and the workstations.

### Install ActiveEfficiency Server

ActiveEfficiency Server is a core component of 1E solutions that discovers and stores information about the IT environment from various data sources. Nomad uses ActiveEfficiency to support the Single Site Download (SSD), Single Site Peer Backup Assistant (SSPBA), Nomad Pre-Cache and WakeUp Integration features.

In this exercise, you will learn how to install and configure ActiveEfficiency Server for use with Nomad.

Other 1E solutions use ActiveEfficiency in different ways. This exercise covers the necessary steps required to install ActiveEfficiency for use with Nomad. Please refer to the ActiveEfficiency documentation for further information on sizing and capacity planning for your specific requirements.

### Enable the Distributed Transaction Coordinator (MSDTC)

To support Nomad features, ActiveEfficiency will need to be able to synchronize with the ConfigMgr database. For this to succeed, the Distributed Transaction Coordinator needs to be configured. In this task, MSDTC will be set on the ConfigMgr server.

#### 1ETRNCM

1. Log on to **1ETRNCM** as **1ETRNSCCMAdmin** and launch **Server Manager**
2. Open **Component Services** from the **Tools** menu
3. Expand **Component Services\Computers\My Computer\Distributed Transaction Coordinator**
4. Right-click on **Local DTC** and select **Properties**
5. Select the **Security** tab
6. In the **Security Settings** section, check the **Network DTC Access**.

7. In the *Client and Administration* subsection, select **Allow Remote Clients**. In the *Transaction Manager Communication* subsection, check **All ow Inbound** and **Allow Outbound** with the **Mutual Authentication Required** option selected.
8. Select the **Enable XA Transactions** checkboxes and uncheck the **Enable SNA LU 6.2 Transactions** checkbox
9. In the *DTC Logon Account* section, accept the default of **NT AUTHORITY\NetworkService**
10. Click **OK**
11. A prompt will be displayed warning you that the MSDTC service will be restarted. Click **Yes** to proceed
12. Click **OK** on the *MSDTC Service* dialog box
13. Close the **Component Services** MMC Snap-in and close **Server Manager**

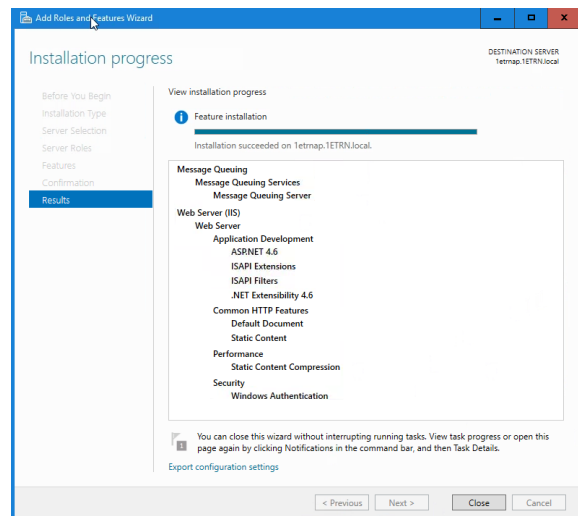
## Install required Windows Role Services and Features

ActiveEfficiency requires certain Web Server Role Services, which you will install on the application server in this task.

### 1ETRNP

14. Log into 1ETRNP as 1ETRNPAppInstaller and open **Server Manager**
15. From the **Manage** menu (top-right menu bar) select **Add Roles and Features** to start the *Add Roles and Features Wizard*
16. On the *Before you begin* page click **Next**
17. On the *Select Installation Type* page ensure **Role-based or feature-based installation** is selected and click **Next**
18. On the *Select destination server* page, ensure the local server (1ETRNP.1ETRNP.local) is selected and click **Next**
19. On the *Select server roles* page, locate and expand the **Web Server (IIS)** server role then expand the **Web Server** role service
20. Expand **Common HTTP Features** and select **Default Document** and **Static Content**
21. Expand **Performance** and select **Static Content Compression**
22. Expand **Security** and select **Windows Authentication**
23. Expand **Application Development** and select **ASP.NET 4.6**. You will be prompted to add the **ISAPI Filters**, **ISAPI Extensions** and **.NET Extensibility 4.6** role services required by ASP.NET 4.6. Click **Add Features** to include these then click **Next**
24. On the *Features* page, select **Message Queuing** and click **Next**  
ActiveEfficiency requires Microsoft Message Queuing (MSMQ) to support WakeUp integration with Nomad. If you are only using ActiveEfficiency for Nomad Single Site Download, MSMQ is not needed, in which case, the 1E ActiveEfficiency windows service would not be installed when you install ActiveEfficiency Server. WakeUp integration is covered in an additional course module (1EWAK03-71 WakeUp and Nomad Integration) which can be appended to this course so we'll install MSMQ for future use. Additionally, the ActiveEfficiency Service is required for Nomad synchronization with the ConfigMgr database. This synchronization supports the Dynamic Nomad Precaching feature. No thats

25. The *Confirm installation selections* page should now show the following Role Services and Features



26. Click **Install**
27. When the installation completes, close the wizard

## Install ActiveEfficiency Server

In this task, you will install ActiveEfficiency Server on the Application server (1ETRNP)

### 1ETRNP

28. From the SkyTap Shared Drive shortcut on the desktop navigate to: **1E Nomad Course Content\Nomad 7.0 Course Content\** download and copy **1EActiveEfficiency.zip** to **C:\Temp** once copied **right click** and select **extract all**
29. From the Windows **Start** screen, right-click **Command Prompt** and select **Run as administrator**
30. Switch to the **C:\Temp\1EActiveEfficiency\activeefficiency.v1.10.0.62** folder and run the following command line to start the ActiveEfficiency installation wizard

```
msiexec /i ActiveEfficiencyServer.msi patch=C:\Temp\1EActiveEfficiency\activeefficiency.v1.10.0.62
\Q20481-activeefficiencyserver.v1.10.0.62.msp /! *v AEServer-Install.log
```

31. On the *Welcome* page click **Next**
32. On the *License Agreement* page select, **I accept the terms of the license agreement** and click **Next**
33. On the *Prerequisite Checks* page, ensure all checks have passed and click **Next**  
As noted previously, it is possible to install ActiveEfficiency Server without the 1E ActiveEfficiency windows service if you are not using any of the features that require this service. If MSMQ is not installed at this point in the ActiveEfficiency Server installation wizard, the MSMQ check will fail, but installation can proceed. You can add the 1E ActiveEfficiency Service at a later date by installing MSMQ then uninstalling and reinstalling ActiveEfficiency Server.
34. On the *Destination Folder* page accept the default location and click **Next**
35. On the *Database Server* page select the **(local)** database server from the drop down and leave the database name as **ActiveEfficiency**. Click **Next**  
In production environments, it is best practice to create the ActiveEfficiency database at the required size before running the installation to avoid the database files having to auto-grow considerably, which would impact performance.
36. On the *ActiveEfficiency Website Settings* click **Next**
37. On the *Nomad synchronization* page, check the **Enable Nomad Sync** option, enter  
**1ETRNCM**  
**CM\_PS1**  
**5**
38. On the *Ready to Install the Program* page click **Install**  
The *Installing database* step takes several minutes to complete.
39. When the wizard completes, click **Finish**

## Review the installation

In this task, you will observe the changes made by the ActiveEfficiency server installation

### 1ETRNPAP

40. Browse to **C:\Program Files (x86)\1E\ActiveEfficiency** and note the following folders

Folder	Description	Notes
<b>Database</b>	Files used to create and manage the database	Always created
<b>DeployCertificate</b>	Binaries associated with deploying a certificate to the client for communication with the 1E ActiveEfficiency cloud service	Only created if MSMQ prerequisite is installed
<b>Service</b>	Binaries associated with the ActiveEfficiency service	Only created if MSMQ prerequisite is installed
<b>Web</b>	Binaries associated with the ActiveEfficiency Web Service	Always created

41. Open the **Internet Information Services (IIS) Manager** and expand the **1ETRNPAP** server node
42. Select the **Application Pools** node and note the **ActiveEfficiency** Application Pool, running with the identity of **NetworkService**
43. Expand **Sites**, then the **Default Web Site** and select the **ActiveEfficiency** Web Site. Click the **Basic Settings** link (under Actions on the right) and note that the physical location is the **Web\WebService** folder identified in step 41. Click **Cancel** to close the dialog box
44. Close Internet Information Services (IIS) Manager
45. Open **Chrome** and browse to <http://localhost/ActiveEfficiency>  
This page provides a simple interface to the ActiveEfficiency web service, which is used to read or write data in the ActiveEfficiency database. Nomad uses the Devices and Locations tables that are exposed through this interface, as well as some other tables that are not.
46. Click the **Devices** and **Locations** links in turn and observe devices and locations are currently empty. In a later exercise you will populate Locations, and later the 1E Clients will register with ActiveEfficiency and populate Devices
47. Open the **Registry Editor** and navigate to **HKLM\Software\Wow6432Node\1E\ActiveEfficiency**. The values in this registry key define the ActiveEfficiency website settings, installation directory, SQL server instance, and ActiveEfficiency version. Close the **Registry Editor**
48. Start the **SQL Server Management Studio** from the Start screen and connect to the local server. Expand the **Databases** node and note the **ActiveEfficiency** database
49. Expand the **ActiveEfficiency** database and review the tables. Close **SQL Server Management Studio**

### 1ETRNCM

50. Open **Computer Management** on **1ETRNCM** and look at the properties of the **ConfigMgr\_DViewAccess** local group. Note that **1ETRNPAP** has been added to the group

## Installing the ConfigMgr Console extensions for Nomad

To enable the ConfigMgr client to interpret the Nomad settings and ensure Content Transfer Manager hands over content transfer jobs to Nomad to download content, we need to extend the standard software deployment and client settings policies associated with Packages, Applications and Software Updates. The additional Nomad attributes are configured through the ConfigMgr console by way of custom console extensions, which add properties pages to the standard Package, Driver Package, Operating System Image, Boot Image, Task Sequence, and Client Settings dialog boxes and wizards. In this exercise, you will install these ConfigMgr console extensions on the ConfigMgr server.

In a production environment, where you may have the ConfigMgr console installed on additional administrators' workstations, you would need to install the console extensions on any machine running the ConfigMgr console.

## Install Nomad ConfigMgr Console Extensions

In this task, you will install the Nomad extensions to the ConfigMgr console on the CM server.

### 1ETRNCM

51. Log on to **1ETRNCM** as **1ETRNSCCMAdmin**
52. Ensure the ConfigMgr console is closed
53. From the SkyTap Shared Drive shortcut on the desktop browse to **1E Nomad - Course Content\Nomad 7.0 Course Content\ download and Copy **NomadBranch.v7.0.0.205.zip** to **C:\Temp** once copied **right click** and **extract all****
54. From the Start screen, right-click **Command Prompt** and select **Run as administrator**. Change directory to **C:\Temp\NomadBranch.v7.0.0.205\NomadBranch.v7.0.0.205** and run the following command

```
msiexec /i NomadBranchAdminUIExt.msi /l*v NomadUIExt-Install.log
```

55. On the *Welcome* screen, click **Next**
56. Accept the terms in the license agreement on the *License Agreement* page and click **Next**
57. On the *Nomad Pre-Caching* page, enter <http://1ETRNCM/ActiveEfficiency> for the *ActiveEfficiency URL* and click **Next**
58. On the *Nomad Tachyon Integration* page, click **Next**
59. On the *Ready to Install the Program* page click **Install**
60. When the installation has completed, click **Finish**

## Confirm the admin console extensions have been installed

### 1ETRNCM

61. Start the **ConfigMgr Console** from the taskbar
62. Open the **Administration** workspace and select the **Client Settings** node
63. Note that the ribbon has a **1E Nomad** button. Click the button and select **Nomad Properties**
64. Note that *Nomad Settings* dialog enables you to configure Nomad settings for Application Management and Software Updates. Do not make any changes at this point (click **Cancel**)
65. Open the **Software Library** workspace and expand the **Application Management** node. Click on the **Packages** node
66. Right-click the **CMTrace** package and note that there is a new item at the bottom of the context menu named **Pre-cache content using Nomad**. We will explore that feature later in the lab exercises
67. Select **Properties** from the context menu
68. Note that a new **Nomad** tab has been added to the Package Properties dialog box
69. Click **Cancel** in the dialog box to close it without any changes
70. Close the ConfigMgr console

## Installing the Nomad Tools for OSD

To extend Nomad functionality as it relates to OS Deployment, we need to install certain Nomad components onto each Primary Site Server where we intend to administer task sequence packages to use Nomad as the Alternate Content Provider. In this exercise, you will install the tools and observe the changes made by the installation.

## Install the Nomad Tools for OSD

### 1ETRNCM

71. From the previously used command prompt, run the following command

```
msiexec /i NomadBranchTools.msi /l*v NomadTools-install.log
```

72. On the *Welcome* screen, click **Next**
73. Accept the terms of the license agreement on the *License Agreement* page and click **Next**
74. On the *Ready to Install the Program* page click **Install**
75. When the installation has completed, click **Finish**

## Confirm the Nomad Tools for OSD installation

76. Open the ConfigMgr console. Open the **Software Library** workspace, expand the **Operating Systems** node and select **Task Sequences**
77. Right-click the **Windows 10 Ent – Basic ConfigMgr** Task Sequence and select **Edit** from the context menu
78. In the *Windows 10 Ent – Basic ConfigMgr Task Sequence Editor*, click on the **Add** button and note that **1E** tasks that have been added to the Task Sequence editor  
If **Add** does not open the list of tasks, close the ConfigMgr console and the VM tab in your browser and reopen it.
79. Click **Cancel** to close the Task Sequence editor without saving any changes
80. Browse to **C:\Program Files\Microsoft Configuration Manager\OSD\bin\i386** and sort files by Date Modified (descending). Note the following files have been added

If you don't see the files, you are likely in the wrong place. Please ensure you are using the correct path, for this task as well as the task below!

**C:\Temp\1EActiveEfficiency\1EActiveEfficiency\activeefficiency.v1.10.0.62**

These are the files you should see in the folder.

Name	Date modified	Type	Size
NomadBranch.exe	5/16/2019 13:01	Application	4,518 KB
TSEnv2.exe	5/16/2019 12:56	Application	257 KB
TSEnv2.pdb	5/16/2019 12:56	PDB File	491 KB
SnoIrfPS.dll	5/16/2019 12:56	Application extens...	100 KB
SMSTSNomad.pdb	5/16/2019 12:56	PDB File	923 KB
SMSTSNomad.exe	5/16/2019 12:56	Application	631 KB
SMSNomad.exe	5/16/2019 12:56	Application	463 KB
SMSNomad.pdb	5/16/2019 12:56	PDB File	923 KB
NomadPackageLocator.exe	5/16/2019 12:55	Application	997 KB
NomadPackageLocator.pdb	5/16/2019 12:55	PDB File	1,395 KB
NomadBranch.pdb	5/16/2019 12:55	PDB File	6,475 KB
NBCacheActions.exe	5/16/2019 12:55	Application	471 KB
NBCacheActions.pdb	5/16/2019 12:55	PDB File	747 KB

64-bit versions of these tools are also installed in the **OSD\Bin\x64** folder.

81. Open **C:\Program Files\Microsoft Configuration Manager\bin\x64\osdinjection.xml** in Notepad

82. Search for any of the files listed above and confirm they have been added

83. Close the XML file, ensuring no changes were made. If asked to save the file, click **Don't Save**

This manifest defines the files that are to be added into the Windows PE boot image when it is updated on a DP. Note that the files listed above, except the .PDB files, have been added to this manifest, ensuring that they will be added to all boot images that are updated on a DP from this point on.

## The Nomad Dashboard – First Look

Nomad 6.x introduced the Nomad Dashboard that provides a graphical summary of how Nomad is configured and operating within your estate. Accessible within the CM console or via a Web browser, it has a set of tiles that provide you with a view of all your Nomad related activities.

The Nomad client health tile will no longer populate, client health should be checked using Guaranteed State within Tachyon.

## The Nomad Dashboard

### 1ETRNCM

84. Open the **Monitoring** workspace in the ConfigMgr console and expand the **1E Nomad** folder at the bottom of the left-hand pane. Note the two items: **Dashboard** and **Pre-caching Jobs**. **Pre-caching Jobs** will be empty right now

85. Select **Dashboard** and observe the tiles presented in the main pane. There won't be much to look at right now, but we will come back to the Dashboard at different times to observe the data presented here

86. Hover over the different bars in the **Content by type** tile to see status of Nomad across the different content

87. Use **[CTRL +]** and **[CTRL -]** to adjust how the tiles are displayed in the dashboard

Make sure you click in the dashboard prior to using **[CTRL -]** as it will lower the display size (zoom) percentage of the browser hosting the VM and shrink it down.

88. Browse to <http://1ETRNCM/ActiveEfficiency/NomadDashboard> in a browser to see the Nomad Dashboard as a standalone web page. The **[CTRL +]** and **[CTRL -]** work in the web page as well

This allows access to the Nomad dashboard without provisioning rights within the ConfigMgr console.

## Understanding IIS Request Filtering on DPs

IIS 7 introduced IIS Request Filtering. This security feature allows administrators to configure IIS to block requests for specific file types and URL paths that include specific folder names or special characters. By default, IIS Request Filtering will block a number of file extensions and folder paths that may occur in distribution of content (Packages, Applications and Software Updates).

Although the Microsoft documentation highlights this issue ([http://technet.microsoft.com/en-gb/library/gg712264.aspx#BKMK\\_RequestFiltering](http://technet.microsoft.com/en-gb/library/gg712264.aspx#BKMK_RequestFiltering)), the ConfigMgr client actually bypasses this security measure by using a custom method when querying for the file rather than a standard **HTTP GET** for the file directly. 1E has developed Nomad per Microsoft security best practice, which means that we do a standard **HTTP GET** for the file that will be filtered by the IIS Request Filtering security feature. It is therefore necessary when using Nomad to follow the guidance in the Microsoft documentation and configure the IIS Request Filter on all Distribution Points to allow any file extensions, paths and special characters that may occur in your ConfigMgr content.

In this exercise, you will learn how to modify the filters to accommodate different scenarios.

## View default restrictions

In this task, you will observe the file extensions and URL path elements that IIS Request Filtering blocks by default.

### 1ETRNCM

89. On **1ETRNCM** start **Internet Information Services (IIS) Manager** from the Start screen

90. Select the **1ETRNCM** server in the tree view on the left, then double-click the **Request Filtering** icon in the panel on the right (grouped under IIS) to view the Request Filtering properties page

91. Select the **File Name Extensions** tab. This shows all the file extensions that are blocked by default. Note that by default, any file extensions not listed here are allowed. Nomad will fail to download any content that includes any of these file types
92. Select the **Hidden Segments** tab. This shows all the folder names that are blocked by default. Nomad will fail to download any content where the URL path includes any of these Hidden Segments

## Allowing restricted file extensions

In this task, you will learn how to reconfigure the Request Filtering to allow specific file extensions (in this case .config) to be served by the DP by removing the File Name Extension from the filter.

### 1ETRNCM

93. Copy the **CommandLinesAndQueries.txt** file into **c:\temp**. This will ensure no changes are made mistakenly to the master copy of the file! The 'appcmd.exe' command lines used in the upcoming Tasks are available From the SkyTap Shared Drive shortcut on the desktop and browsing to 1E Nomad - Course Content\Nomad 7.0 Course Content\CommandLinesAndQueries.txt file. You may prefer to copy and paste the command lines into the command prompt to avoid typing errors.
94. Start a command prompt (run as administrator) and change directory to **C:\Windows\System32\inetsrv**
95. Run the following command

```
appcmd set config /section:requestfiltering /-fileExtensions.[fileextension='.config']
```

Although for optimal security you should only allow the specific file types that are included in your various packages, applications and software updates, practically you will probably want to remove all of the file extension filters on your DPs.

## Allowing restricted folders (Hidden Segments)

In this task, you will learn how to reconfigure the Request Filtering to allow the \bin path segment that is blocked by default.

### 1ETRNCM

96. From the command prompt, run the following command

```
appcmd set config /section:requestfiltering /-hiddensegments.[segment='bin']
```

## Allowing special characters (Double Escaping)

The third filtering option that may prevent Nomad from downloading content is **allowDoubleEscaping**. By default, any path or filename that includes special 'escape' characters are blocked by default. In this task, you will learn how to allow files with these special characters in their name to be downloaded.

### 1ETRNCM

97. From the command prompt, run the following command

```
appcmd set config /section:requestfiltering /allowdoubleescaping:true
```

98. Repeat the steps in the exercise *View default restrictions* to view the effects of the changes you have made. The .config file extension should no longer be listed, nor should the bin folder in the Hidden Segments tab. (You may need to refresh the screen if IIS Manager was already open on the Request Filtering page)

## Preparing for 1E Client Deployment

The Nomad agent functionality has been moved into the 1E Client Nomad Module in version 7 of Nomad. The 1E Client needs to be installed on all ConfigMgr Distribution Points and all clients. In this exercise, you will use the 1E Client Deployment Assistant to prepare for the installation of the 1E Client on the distribution point and clients in the lab.

## Run the 1E Client Deployment Assistant

### 1ETRNCM

99. On **1ETRNCM**, logged on as **1ETRNSCCMAdmin**, open the SkyTap Shared Drive shortcut on the desktop and navigate to **1ETools\ClientDeploymentAssistant.v1.4.0.27.zip** copy the file to **C:\Temp** then **right click** and **extract all**
100. Double-click the **1EClientDeploymentAssistant.exe** file in **C:\Temp\1EClientDeploymentAssistant.v1.4.0.27** to launch the wizard interactively
101. On the *Welcome* page, click **Next** to begin
102. Accept the license terms on the *License Terms* page and click **Next**
103. On the *ConfigMgr Connection* page, with the Local ConfigMgr Site Server option selected, click the **Connect** button. When the status says "C onnected", click **Next**
104. On the *1E License File* field click **browse** and select our licenses.txt file



105. On the *General Settings* page, in the *1E ActiveEfficiency Server URL* field type in <http://1etnrap/ActiveEfficiency>

We could pre-populate these fields by editing the values in the *ApplImport.xml* file in the *1E Client Deployment Assistant* folder.

106. On the *Application Content Source* and the *Package Content Source* fields type in `\\1ETRND\NDC\ConfigMgrSource\Software`  
The *Application* and *Package* content locations may be different in some production environments, but this training environment uses a common content location.
107. Check the **Distribute Content** box and ensure that **All Distribution Points** is selected by default for the *Distribution Point Group*. Click **Next** on the *General Settings* page
108. On the *Agent Selection* page, **uncheck** everything *except* **PXE Everywhere 3.2.0.56** and **1E Client 4.1.0.267** and note that the license key for *PXE Everywhere* is imported from the *licenses.txt* file. Click **Next**
109. On the *PXE Everywhere 3.2.0.56* page **check** the **Create Application** and **Create Package** boxes. We do not need to create a deployment as we will deliver *PXE Everywhere* in a *Task Sequence* in order to stage our boot image. **Uncheck** the **Create Application Deployment**. Click **Next**
110. On the *PXE Everywhere settings* page set the *PXE Everywhere Central Web Service* to: <http://1etnrcm.1etrn.local/PXELite/PXELiteConfiguration.asmx>
111. On the *1E Client 4.1.0.267* page, ensure that both **Create Application** and **Create Application Deployment** are selected along with **Create Package**. Ensure that the limiting collection is set to **All Desktop and Server Clients** and click **Next**

The *Client Deployment Assistant* allows for the creation of packages and applications. Certain environments prefer one over the other. You can deselect either one, however, we will create both for this lab. We will deploy the client via the application, however use the package in a *Task Sequence* later in the labs.

112. On the *Tachyon and other client Settings* page, **uncheck** the **Enable Tachyon**, and **Enable Inventory checkboxes**. We are not using these features in this class. Click **Next**
113. On the *Nomad Client Settings* page, check the **Enable Nomad** checkbox, and accept the defaults for **Log Path** and **Log Size**. Ensure that only **Hidden Nomad Share** and **Prevent Failing Over to BITS** are selected. Click **Next**  
We will be enabling *Single Site Download*, *Fanout* and *Peer Backup Assistant* in later lab exercises.
114. On the *Summary* page, wait for the summary to be compiled. Review all the actions that will be performed based on the settings selected in the wizard. When finished reviewing the summary, click **Create**
115. The progress will be displayed as each task is completed. When the status is displayed as *Successful*, click **Next**
116. On the *Completion* page, note that all tasks completed successfully. Click **Finish**

## Observe the results of running the 1E Client Deployment Assistant Wizard

In this task, we will observe the *ConfigMgr* objects created by running the *1E Client Deployment Assistant* wizard.

### 1ETRNCM

117. Open the *ConfigMgr* console, select the **Assets and Compliance** node and click on **Device Collections**
118. Note that the **1E Client 4.1.0.267 – Required** collection is created with **All Desktop and Server Clients** as the limiting collection and that there are no members
119. Click on the *Deployments* tab for the collection and note that the **1E Client 4.1.0.267** Application is deployed to this collection
120. Click on the **Software Library** node and select **Applications** in the *Application Management* section
121. Click on the **1E Client 4.1.0.267** application and select the **Deployment Types** tab at the bottom of the console
122. Note that the application has two *Deployment Types* created – **1E Client x86** and **1E Client x64**

When the *1E Client Deployment Assistant* wizard is run, the deployment types that are created have been limited (using prerequisites) to workstation operating systems for the *Nomad x86* deployment type and workstation and server operating systems for the *Nomad x64* deployment type. This behavior is defined in the *ApplImport.xml* file in the: `C:\Temp\1EClientDeploymentAssistant.v1.4.0.27` folder.

123. Right-click the **1E Client x64** *Deployment Type* and select **Properties**
124. Click on the **Requirements** tab, select the **Operating system** Requirement Type and click **Edit**
125. In the list of operating systems, scroll down, and **select** the **Windows Server 2012 R2**, **Windows Server 2016** and **Windows Server 2019**. Click **OK**
126. Click **OK** to close the **1E Client x64** Properties
127. Select **Packages** under *Application Management* and note that there are two packages created – one for **x86** and one for **x64** and that each Package has two programs – one for *install* and one for *uninstall*

## Deploy the 1E Client

In this exercise, we will use the collection and application created by the *Endpoint Agent Installation* wizard to deploy the *1E Client* to all workstations.

## Deploy 1E Client to Workstations and Distribution Point

### 1ETRNCM

128. On **1ETRNCM**, select the **Assets and Compliance** node of the *ConfigMgr* console and click on **Devices**  
Ensure all workstations have been powered on in *SkyTap*.
129. Select the following machines from the device list (You may hold the **CTRL** key down and use multi-select)  
**1ETRNCM**  
**1ETRNCM71**  
**1ETRNCM72**

1ETRNW73  
1ETRNW101  
1ETRNW102

130. Right-click on any of the selected devices and choose **Add Selected Items > Add Selected Items to Existing Device Collection**
131. Select **1E Client 4.1.0.267 – Required** and click **OK**
132. Under **Assets and Compliance**, select **Device Collections** and observe the **1E Client 4.1.0.267 – Required** collection. If the member count is still zero, you may need to refresh the collection to see the member count display six members

## Monitor the progress of the installation

1ETRNCM

133. In the **ConfigMgr Console**, select the **Assets and Compliance** workspace, select the **Device Collections** node then right-click **1E Client 4.1.0.267 – Required** and select **Client Notification > Download Computer Policy**. A dialog box will pop up indicating there are six resources in this Collection. Click **OK**  
This process will cause each of the ConfigMgr clients to download the new deployment policy you have just created rather than waiting for them to do it on their regular schedule. In the lab environment, this interval is only 5 minutes rather than the default value of 60 minutes.
134. Select the **Monitoring** workspace and select the **Deployments** node
135. Right-click the **1E Client 4.1.0.267** deployment and select **View Status** monitor the progress (refresh periodically to view updated status information)  
Please note that this may not be updated very quickly because this information is provided by status/state messages sent up from the individual ConfigMgr client. Take a 5 minute break, and if it has still not updated, proceed to the next task – you will likely find that the agent has already been installed.

## Review the Installation on the Workstations

1ETRNW71

136. Log on to **1ETRNW71** as **1ETRNUser**  
**1ETRNUser** is a member of the **Workstation Admins** group and will be able to perform administrative tasks on the Lab Workstations.
137. Double-click the **services.msc** shortcut on the desktop
138. Note the **1E Nomad Branch** and **1E Client** services are running
139. Leave the Services interface open and from the Start menu, right-click **Computer** and select **Manage**
140. In the *Computer Management* interface, expand the **Local Users and Groups** node and click on the **Users** folder
141. Note that the local user **SMSNomadP2P&** has been created
142. In the *Computer Management* interface, expand the **Shared Folders** node and click on **Shares**
143. Note that the **NomadSHR\$** share has been created. This is the Nomad cache
144. Right-click the **NomadSHR\$** and select **Properties** from the context menu
145. In the **NomadSHR\$** properties dialog, on the *General* tab, note the path to the share, and the **6** user (connection) limit
146. Select the **Share Permissions** tab and note the permissions applied to the share
147. Cancel the **NomadSHR\$** properties dialog to return to the *Computer Management* interface
148. Leave the *Computer Management* interface open and return to the **Services** interface
149. Right-click the **1E Nomad Branch** service and select **Stop**
150. Return to the **Computer Management** interface and refresh the **Shares** node. Note that the **NomadSHR\$** share is deleted when the service is stopped
151. Switch to the **Services** interface and start the **1E Nomad Branch** service
152. Return to the **Computer Management** interface and refresh the **Shares** node. Note that the **NomadSHR\$** share is recreated when the service starts  
The Nomad share is deleted every time the Nomad service is stopped. The content in the Nomad share will still reside on the machine but won't be shared unless the service is running.  
  
If the P2P protocol is changed to HTTP(S), the share no longer plays a role in content sharing. The share will still exist, but will not be required, because we are no longer using SMB to connect to a share to copy content.
153. Close the Services interface and the Computer Management interface
154. Start **Windows Explorer** and browse to **C:\ProgramData\1ENomadBranch**. This is the folder that is shared as **NomadSHR\$**, and is the root of the Nomad cache
155. Browse to the **ConfigMgr Logs** folder on the desktop and double-click the **NomadBranch.log** to open it. You will use this log file in future exercises to follow Nomad processing a distribution
156. Observe the Nomad service startup activity at the beginning of the log. Note that the agent has created a hidden share, and has automatically set the option to use HTTP and SMB because it has detected an installed CM client

Your log should look like this.

Date/Time	Log Text
5/11/2018 6:15:30 PM	0x0010 Hidden Share (NomadSHR\$)
5/11/2018 6:15:30 PM	0x0020 Dont Broadcast Statistics
5/11/2018 6:15:30 PM	0x2000 SMB and Http

157. Close the **NomadBranch.log** file
158. From the Start menu run **regedit**
159. Navigate to **HKLM\Software\1ENomadBranch**. This registry key contains all the configuration options used by Nomad  
In later labs you will learn how to use the Configuration Manager Compliance and Settings feature to manage the 1E Client settings in this registry key after the agent has been installed.



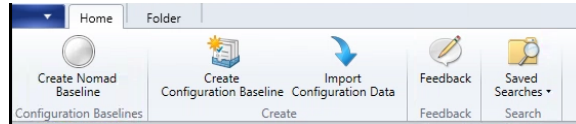
## Changing the StatusMsgEvents using a the Create Nomad Baseline functionality

Nomad 6.3 introduced new functionality to manage Nomad settings on the client. Best practice is to manage client settings, which all reside in the registry, using CI's deployed via Configuration Baselines. Nomad has now productized this functionality to simplify the management of client settings. In this task, we will change the value of StatusMsgEvents from 0 to a specific number so the clients send data back to ActiveEfficiency which will then be used by the Nomad Dashboard.

### 1ETRNCM

160. Logged in as **1ETRNISCCMAdmin** navigate to the **Assets and Compliance** workspace in the ConfigMgr console

161. Expand **Compliance Settings**, click on **Configuration Baselines**. Note the **Create Nomad Baseline** button in the ribbon



162. Click the **Create Nomad Baseline** button to start the wizard

163. On the *Configuration Type* page, input **Nomad Settings** into the name

164. Configuration Type – leave **Configure settings manually** selected. **Configure settings using MSI Transform** would be selected if you had a transform (.mst) created to perform the settings changes required. This setting will allow you to import the .msi and .mst files so you do not have to recreate the settings. Click **Next**

165. On the *Nomad Settings* page, start typing **StatusMsgEvents** into the **Registry Value Name** field. It should autofill. Click on the value

166. In the **Registry Value** box, input **0x100000064**. Click **Next**

Copy the value from the doc so the correct value will be used. There are 7 zeros between the 1 and the 64.

167. On the *Summary* page, click **Apply**

168. Once completed, click **Finish**

## Review the Configuration Baseline

169. Click on the **Assets and Compliance** workspace in the ConfigMgr console

170. Expand the **Compliance Settings** node. Select **Configuration Items** and Right-click on the newly created Configuration Baseline named **Nomad Registry Settings - Nomad Settings** and select **Properties**

171. Click on the **Settings** tab and note **StatusMsgEvents** Registry Value setting

172. Click the **Edit** button to review the setting

173. Click on the **Compliance Rules** tab to confirm the condition reflects the value we defined for the setting. Click **Cancel**

174. Click on the **Compliance Rules** tab of the CI and note that **Remediate** is set to **Yes**. Click **Cancel** to close out of the CI

175. Navigate to the **Configuration Baselines** node and note the newly create baseline

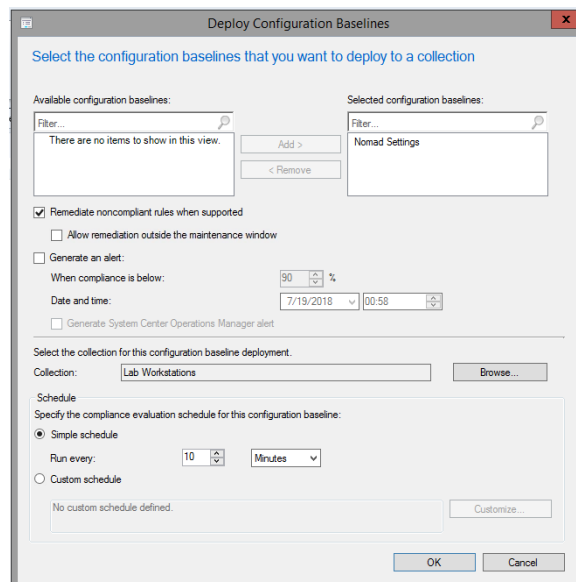
176. Right-click the **Nomad Settings** baseline and select **Properties**

177. Click on the **Evaluation Conditions** tab and confirm the CI we just reviewed is listed there. Click **Cancel**

178. Right-click the Configuration Baseline and select **Deploy**

179. Check the **Remediate noncompliant rules when supported** and select **Lab Workstations** as the collection.

This is what your window should look like this. Then click **Ok**



180. From the **Device Collections** node, right-click the **Lab Workstations** collection and initiate a machine policy refresh by selecting **Client Notification - Download Computer Policy**

## 1ETRNCM

181. On 1ETRNCM, logged in as 1ETRNCMUser, run regedit
182. Navigate to **HKLM\Software\1ENomadBranch**. Confirm the **StatusMsgEvents** setting is set to **0x0**. Leave regedit open
183. Open the ConfigMgr applet from the desktop
184. Click on the **Configurations** tab and note the **Nomad Settings** baseline present  
It might take a minute or two for policy to refresh and the baseline to show. If you do not see it, wait a minute and then click **Refresh**.
185. Click the **Evaluate** button, then **Refresh**. Note the Compliance value change to **Compliant**
186. Return to regedit and refresh the view. Confirm the **StatusMsgEvents** settings has changed to the value we specified in the Configuration Item

## Review the installation on the Distribution Point

The installation on the DP server results in the same 1E Client component being installed on the server, however the service will perform the LsZ generation and RDC processing as it identifies that it is running on a Site Server and DP.

## 1ETRNCM

187. From the Start menu, click **Services**
188. Note the **1E Nomad Branch** and **1E Client** services are running
189. From the Start screen, start typing **regedit** and click **regedit** when it appears in the Search results. Note the **HKLM\Software\1ENomadBranch** registry key  
As 1ETRNCM is running a 64-bit OS, the 64-bit version of the 1E Client has been installed based on the requirements of the Deployment Type.
190. Navigate to **C:\ProgramData\1ENomadBranch** folder. Note that as this is a DP, the agent has created the **LSZFILES** folder. Note that the folder is empty. When content is requested, this is where the LSZ files will be generated and stored
191. Open the **C:\Windows\CCMLogs** folder and double-click the **NomadBranch.log** file  
Note that we set the log file path in the Endpoint Agent Installation wizard based on where the ConfigMgr client logs are on client systems (C:\Windows\CCMLogs) to make access to the CM client logs and the Nomad logs easier. Since this server had the management point role installed prior to the CM client installation, the CM client logs are actually located in C:\Program Files\SMS\_CCMLogs.
192. Near the top of the log file, notice that the computer (**1ETRNCM**) has been identified as an **SMS Site Server** and an **SMS Distribution Point**

This is what your log should look like when Nomad identifies the DP

Date/Time	Log Text
5/11/2018 18:13:27	NomadBranch (64 bit) on 1ETRNCM - Version 6.3.200.123 (Apr 23 2018)
5/11/2018 18:13:27	OS version 6.3 SP=0.0 AMD64 (4 processors)
5/11/2018 18:13:27	1ETRNCM is SMS Site Server
5/11/2018 18:13:27	1ETRNCM is SMS Distribution Point

193. Note also that the HTTP LsZ generation option (normally set in SpecialNetShare) has also been enabled as Nomad has detected this is a ConfigMgr Distribution Point and will therefore be using HTTP

This is what the log looks like when Nomad is installed on a DP for HTTP LsZ Generation

Date/Time	Log Text
5/11/2018 18:13:27	CM DP detected - Auto Enabling Http LsZgen
5/11/2018 18:13:27	0x0010 Hidden Share (NomadSHRS)
5/11/2018 18:13:27	0x0020 Dont Broadcast Statistics
5/11/2018 18:13:27	0x2000 SMB and Http
5/11/2018 18:13:27	0x4000 Http LsZgen enabled

194. Open **Internet Information Services (IIS) Manager** from the Start menu and expand **1ETRNCM\Sites\Default Web Site**
195. Note the **LSZFILES** and **NOMAD\_PKGCACHE** virtual directories  
These virtual directories are in **C:\ProgramData\1ENomadBranch\LSZFILES** and **C:\ProgramData\1ENomadBranch\NOMAD\_PKGCACHE** respectively. The LSZFILES directory store the LsZ files used for content validation and the NOMAD\_PKGCACHE is the storage location for compressed (also compressed and encrypted) content when the Nomad SECure feature is used to compress the content.

The Client version distribution tile in the Nomad Dashboard will eventually reflect the deployment of the 1E Client, but this will take a little time. A hardware inventory sync from the client machines must happen, and then that data is synced into ActiveEfficiency to populate the data in the dashboard tiles.

## Installing the Nomad Download Monitor

The Nomad Branch Download Monitor is a useful admin tool to monitor Nomad activity on either the local or a remote client. In this exercise, you will create a new Application to install the download monitor and then deploy this to all workstations.

## Create the Nomad Download Monitor Package and Program

### 1ETRNCM

196. From the *SkyTap Shared Drive* shortcut on the desktop browse to **1E Nomad - Course Content\Nomad 7.0 Course Content** and download **DownloadMonitor.zip** to **c:\temp**. Right click the file and choose Extract All. Copy the DownloadMonitor folder to **\\1etrndc\ConfigMgrSource\Software**. The DownloadMonitor folder contains the installer (msi) file and a transform (mst) file
197. A shortcut to the **ConfigMgrSource** location has been created on the desktop, named **ConfigMgr Content Source**
198. From the **ConfigMgr Console**, open the **Software Library** workspace, expand the **Application Management** node
199. Right-click the **Packages** node and select **Create Package** to start the *Create Package and Program Wizard*

200. On the *Package* page, enter **Nomad Download Monitor** as the Name. Check the option **This package contains source files** then click the **Browse...** button and enter or browse to `\\1ETRNDC\ConfigMgrSource\Software\DownloadMonitor` as the source folder. Click **OK** to close the **Set Source Folder** dialog, then click **Next**
201. On the *Program Type* page ensure **Standard program** is selected and click **Next**
202. On the *Standard Program* page enter the following details and click **Next**  
 Name: **Install Nomad Download Monitor**  
 Command line: `msiexec /i NomadBranchGUI.msi TRANSFORMS=NomadGUIAdvancedMode.mst /qn`  
 Program can run: **Whether or not a user is logged on**  
 The default install of the Nomad Download Monitor is in Basic Mode (UI=0). Basic Mode provides only progress bars. Advanced Mode (UI=1) allows adjustment of the workrate and allows connection to remote clients for remote monitoring. The transform contains the configuration to allow Nomad Download Monitor to be deployed in Advanced Mode.
203. Click **Next**
204. On the *Requirements* page click **Next**
205. On the *Nomad Settings* page select **Enable Nomad** and click **Next**  
 This will be the first bit of content that the newly installed Nomad clients will download.
206. On the *Summary* page, click **Next** then close the wizard when it completes
207. From the **Packages** node, right-click the **Nomad Download Monitor** package and select **Distribute Content** to start the *Distribute Content Wizard*
208. On the *General* page click **Next**
209. On the *Content Destination* page click **Add**, select **Distribution Point**, and select the **1ETRNCM.1ETRN.LOCAL** Distribution Point. Click **OK**. Click **Next**
210. On the *Summary* page click **Next**, then click **Close** when the wizard completes

## Deploy the Nomad Download Monitor

In a production environment, you would normally only deploy the Nomad Download Monitor to administrators' workstations, using the Advanced UI (UI=1) option to allow connection to any 1E Client for monitoring. In this task, you will deploy the Download Monitor onto all workstations for convenience.

### 1ETRNCM

211. From the **Packages** node in the **ConfigMgr Console**, right-click the **Nomad Download Monitor** package and select **Deploy** to start the *Deployment Software Wizard*
212. On the *General* page, select the **Lab Workstations** Collection by clicking the **Browse...** button to the right of the Collection field. Once the collection is selected click **OK** to close the **Select Collection** dialog. Click **Next**
213. On the *Content* page ensure the **1ETRNCM** Distribution Point is listed in the top half of the page and click **Next**
214. On the *Deployment Settings* page, note that the Action is set to **Install** and ensure that the Purpose to **Required** and click **Next**
215. On the *Scheduling* page click **New...** to create a new Assignment Schedule then from the *Assignment Schedule* dialog box click **OK** to use the default (current time) schedule and return to the *Scheduling* page. Click **Next**
216. On the *User Experience* page select **Allow users to run the program independently of assignments** and click **Next**
217. On the *Distribution Points* page ensure the Deployment options are set to **Download content from distribution point and run locally** in both drop-downs, make sure the box Allow clients to use distribution points from the default site boundary group is unchecked, click **Next**
218. On the *Summary* page, review the settings and click **Next**
219. When the wizard completes click **Close**
220. Use the Client Notifications feature (as described in step 134) to make sure all the clients in the Lab Workstations Collection download the new deployment policy without having to wait

### 1ETRNAP

221. Open a Command Prompt (run as administrator) and switch to the `C:\Program Files (x86)\1E\ActiveEfficiency\Service` directory  
 Leave the command prompt window open, we'll be back shortly to use it again.
222. Run the following command to initiate an on-demand sync from ConfigMgr to ActiveEfficiency

```
ServiceHost.exe -NomadSyncAll
```

We are forcing a sync between ConfigMgr and ActiveEfficiency here to review the status of this deployment in the Nomad dashboard.

### 1ETRNCM

223. Open the **Nomad Dashboard** under the **Monitoring** workspace and observe the **Deployments** tile
224. The **Download Progress** for this deployment should indicate what percentage of the targeted machines have started the download yet. The percentage will be driven by how fast the machines retrieved the software distribution policy
225. The **Caching Metrics** tile will potentially have data available, but this is dependent on machines retrieving policy
226. We will revisit these tiles in a few minutes to see what changed
227. The **Client version distribution** tile might now show the client version of some or all clients as well

## Verify the installation

### All Workstations

228. When the above deployment has completed on the clients, log on to all of them as **1ETRNUser** and check the following
229. Note the new Nomad icon in the system tray.




230. If the download monitor is not running, launch it from the Start menu
231. Double-click the Nomad icon in the system tray to open the UI. Note that there is a **Connect** option in the top menu and a table labelled **All downloads** in the middle of the GUI. This indicates that the GUI was installed in Advanced mode (UI=1 on the msixexec command line)
232. Close the Download Monitor  
Note that when you close the UI, the icon remains in the system tray and the monitor is still active. To completely exit the monitor, right-click the system tray icon and select **Exit** from the context menu.

## 1ETRNP

233. Run the following command to initiate an on-demand sync from ConfigMgr to ActiveEfficiency

```
ServiceHost.exe -NomadSyncAll
```

## 1ETRNCM

234. Open the Nomad Dashboard in the ConfigMgr console and observe the changes in the Deployments tiles. Download Progress shows 100% complete and the Caching Metrics show that 60% of the clients retrieved content from a peer while 40% retrieved the content from the DP
235. Why are we seeing these proportions here? Ask your instructor if you aren't sure
236. Click the expand  button on either tile to get more details

## Lab Summary

In this lab, you have learned how to install the Nomad extensions to the ConfigMgr console and the additional tools that are used during an Operating System Deployment Task Sequence. The Nomad Tools installer updates OSDINJECTION.XML to ensure these tools are added to all future boot images.

You then used the 1E Endpoint Agent Installation wizard to create the ConfigMgr deployment objects (collections, packages, applications and deployment types) to support the deployment of the 1E Client on the client workstations. You have learned where the 1E Client is installed and where the Nomad cache is located.

You have begun to explore the data presented in the Nomad Dashboard as we've deployed the Nomad Agent and Nomad-enabled content. In order for the Dashboard to populate, we changed a value in the Nomad settings using the Create Nomad Baseline functionality. Finally, you installed the Nomad Branch download monitor that will be used in later exercises to observe Nomad behaviour.

### Next Page

[Ex 2 - Nomad 7.0 - Deploying Software using Nomad](#)