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Building Smarter Suite Deployments

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Learning Objectives

- Understand Suite deployment fundamentals
- Optimize Suite install processes
- Create multiple Suite deployments for different user profiles using a single Suite install package
- Timely software delivery

Description

Autodesk Suites are ever increasing in size and complexity requiring more resources and time to deploy to the enterprise. This class focuses on understanding and optimizing Suite deployments. It will leverage best practices and tricks of the trade used by seasoned IT experts and the concepts of "master" deployments to reduce redundant install files and minimize disk space consumption of your Suites. To complete the process, you will build your own deployment package that will allow you to quickly and efficiently deploy your Autodesk software to your end users.

Your AU Experts

Scott Baker *is a seasoned IT professional with 15 years of experience in software and operating system deployment strategies. Prior to his stint as a Technical Specialist, Scott was a member of the Autodesk IT organization and responsible for global operating system and software deployment. He is a certified Microsoft Developer has been featured in Migration Expert Zone for his work on the migration strategy during the Autodesk transition from Windows XP to Windows 7 and is a recognized expert in the Microsoft System Center field.*

Keith Dando *is a First Line Manager of Engineering Tools within Lockheed Martin Mission Systems and Training. He has 15 years of experience of Cad Management and License Management of the Autodesk Products along with other leading Mechanical Tool Vendors. Keith is responsible for the License Management and Deployment Strategy of the Autodesk Products for Lockheed Martin MST. Keith holds a B.S. in Product and System Design from Pennsylvania College of Technology. Keith also sits on the Advisory Board for Engineering Design Technology Advisory Committee at Pennsylvania College of Technology.*

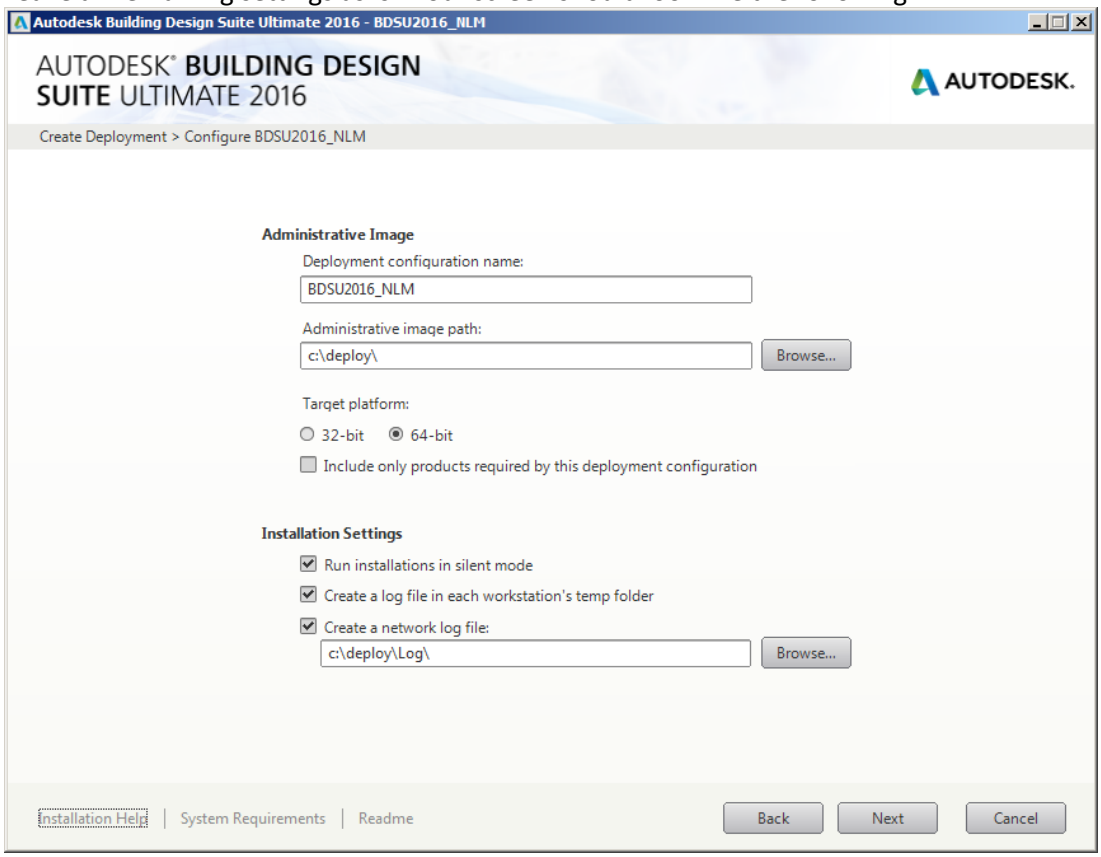
Understand Suite deployment fundamentals

Creating the master deployment

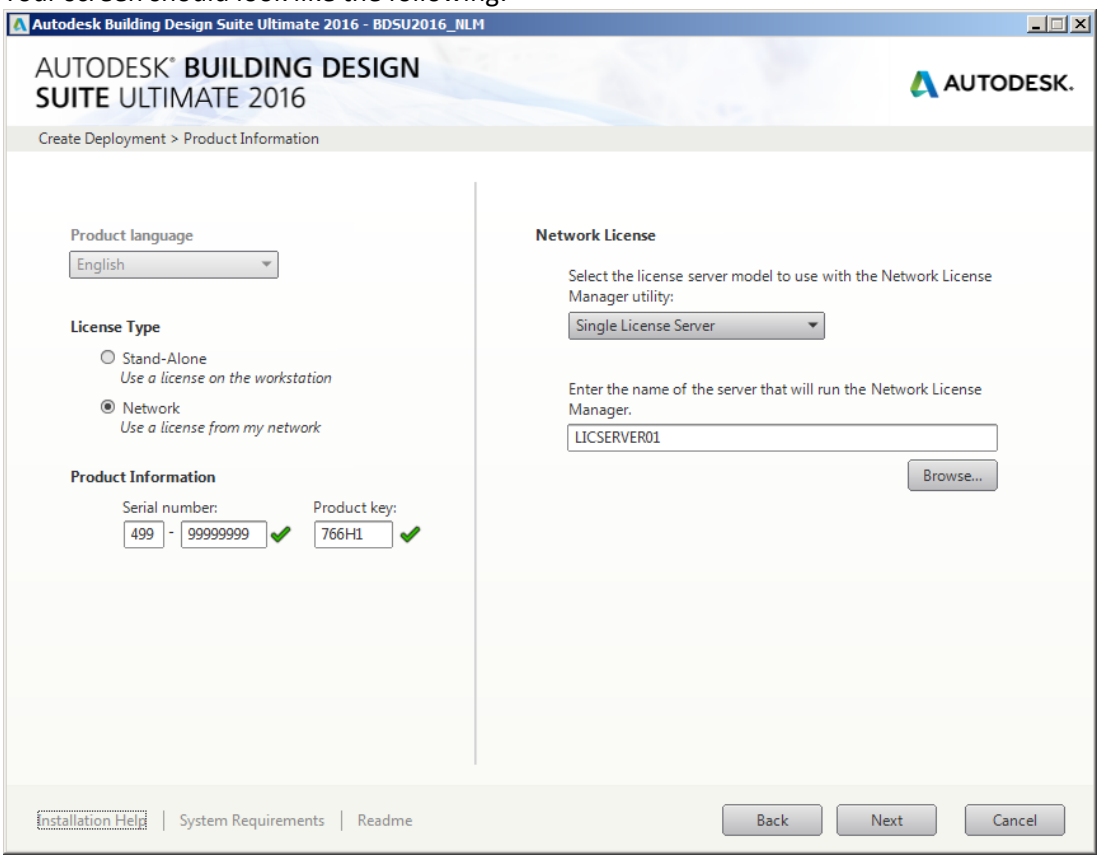
The first step involves creating the master deployment. This deployment will contain all the product binaries of the suite (thus will be larger) however will give us the foundation from which to build out additional sub-deployments. For the purposes of this hands-on lab, we will be using Building Design Suite Ultimate 2016 however the concepts used here can be applied to any Autodesk Design and Creation Suite or individual products, such as AutoCAD, in certain scenarios.

Walk through the creation process

1. Navigate to **D:\Autodesk\BDSU_2016** and launch the setup process by double-clicking on **setup.exe**
2. From the initial screen, select **Create Deployment**
3. Set the following configuration options on the **Configure** screen:
    a. **Deployment configuration name**: BDSU2016_NLM
    b. **Administrative image path**: D:\deploy\
    c. **Target platform**: 64-bit
    d. Clear the checkbox next to **Include only products required by this deployment configuration**
    e. Leave all remaining settings as is. Your screen should look like the following:



4. Click **Next**
5. Accept the License and Services Agreement (LSA) and click **Next**.
6. On the **Product Information** screen, set the following options:
    a. **License Type**: Network
    b. **Serial number**: 499-99999999
    c. **Product key:** 766H1
    d. **License server model:** Single License Server
    e. **License server name**: LICSERVER01
    f. Your screen should look like the following:



7. Click **Next**. When prompted that server cannot be found, click **Yes** to continue.
8. On the **Product Selection** screen, confirm that all products have been selected
9. **STOP**

NOTE: Due to time constraints, we will not create the deployment. We have staged a completed deployment in D:\deploy which we will use for the remainder of the class.

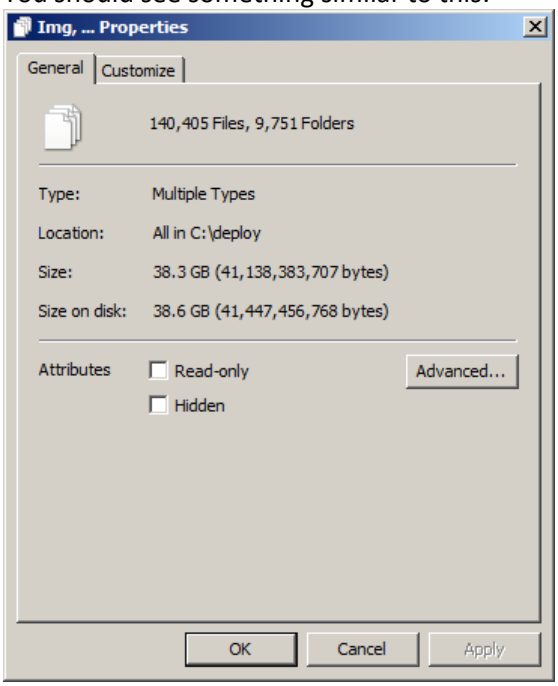
Optimize Suite install processes

Taking a look under the hood

Before we move forward with additional Suite deployment packages, it is a good idea to get a better idea of the interworking's of a few keys files in the deployment package. This will allow you to optimize not only the master deployment but also any future sub-deployments you will make.

Check the master deployment size

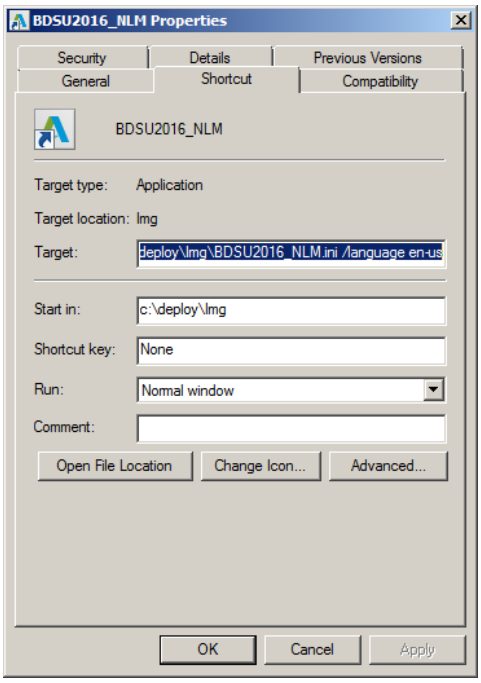
1. In Windows Explorer, navigate to **D:\deploy**
2. Select the entire contents of the directory, right-click and select **Properties**
3. You should see something similar to this:



4. While large, it will only grow by a few megabytes in size even with multiple sub-deployments. We will investigate this further in our next section.
5. Close the **Properties** window

Locate the MST and MSI files for Inventor 2016

1. If not already there, open Windows Explorer and navigate to **D:\deploy**
2. Right-click on the **BDSU2016_NLM.lnk** shortcut and select **Properties**
3. Take note of the path and name of the **INI** file in the **Target** path. It should match that of your deployment name:



4. Close the **Properties** window
5. Navigate to **D:\deploy\Img** and open **BDSU2016_NLM.ini** in **Notepad**.
6. Do a search for **CONFIG_TRANSFORM=inventor-BDSU2016_NLM.mst**
7. Scroll up slightly until you see **EXE_PATH=%platform%\inventor\inventor.msi**

```
#============================== INVENTOR ===
EXE_PARAM=
PATCHES=

[INVENTOR]
PLATFORM=x64
PRODUCT_NAME=Autodesk® Inventor® 2016
PREREQUISITE=_DOTNET35SP1;DOTNET45SP1;DOTNE
POSTREQUISITE=GRANTA
EXE_PATH=%platform%\inventor\inventor.msi
EXE_PARAM=PRODUCTEDITION="INVNTOR" ENABLECE
EXTRA_FILES=inventor;%platform%\inventor\*.
MUILPLINK=http://www.autodesk.com/inventor-
LOG=%tmp%\Inventor2016Install.log
ROLLBACKABLE=NO
ADMIN_INSTALL=YES
PRODUCT_MESSAGE=BDSRes.dll;113
PRODUCT_INSTALLED_INFO_MSG=InventorUiRes.dl
PRODUCT_INSTALLED_INFO_URL=InventorUiRes.dl
DEPLOYMENTLANGUAGE=
EULA_PATH=EULA
ACTION=INSTALL
USE_EXTERNAL_UI=YES
INSTALL_FINALIZE=InventorCIP
INSTALL_FINALIZE_SOURCE=Setup\InventorUI.dl
UI_SEQUENCE=InvOptionsPageIUP;DesktopConten
MAINTENANCE_UI_SEQUENCE=MaintenanceDlg;AddR
SUBCOMPONENT=RXI;CONFIGURATOR360ADDIN
OGS_XML_FILE=OgsInventor.xml
LPMODE=MUI
DEFAULTMEDIALANGUAGE=en-US
AVAILABLELANGUAGES=en-us
SHAREDREQUISITE=
UPI=INVPROSA2016&English_Locked_x64&20.0.1
EULA_INDEX=1
EULA_STATE=YES
CONFIG_TRANSFORM=inventor-BDSU2016_NLM.mst
EMBEDDED_TRANSFORMS=
```

8. Take note of the path to the MSI file in this property. **%platform%** will equate to **x64** in this example.

   a. **NOTE**: Each product that was selected on the **Product Information** screen in the first section will have this property present and it will reference the associated MSI file
9. Close the **INI** file

Explore the Inventor 2016 MST file

1. Double-click **Orca** on the Desktop
2. From the **File** menu, select **Open**
3. Browse to **D:\deploy\Img\x64\inventor** and select **inventor.msi** and click **Open**
4. From the **Transform** menu, select **Apply Transform**
5. Orca should bring you back to the same directory you selected the MSI from in Step 3. Select **inventor-BDSU2016_NLM.mst** and click **Open**
6. In the **Tables** section on the left, scroll down until you see the **Property** table and select it
7. Scroll through the **Properties** on the right taking note of the items highlighted with a green box around them. These are the values that were changed by the MST based on what was selected in the Deployment creation wizard.
8. In particular, look at **ACADSERVERPATH**, **ACADSERIALNUMBER**, **ACADSERIALPREFIX**, **ACADLICENSETYPE**

Property	Value
ACADSERVERPATH	LICSERVER01 000000000000
Property	Value
ACADSERIALNUMBER	99999999
Property	Value
ACADSERIALPREFIX	499
Property	Value
ACADLICENSETYPE	Network License

9. Do these values seem consistent with what you selected in the Deployment wizard?
10. Repeat the last two sections selecting different MSI and MST files for different products, such as AutoCAD, to see how the MST affects the MSI Properties.

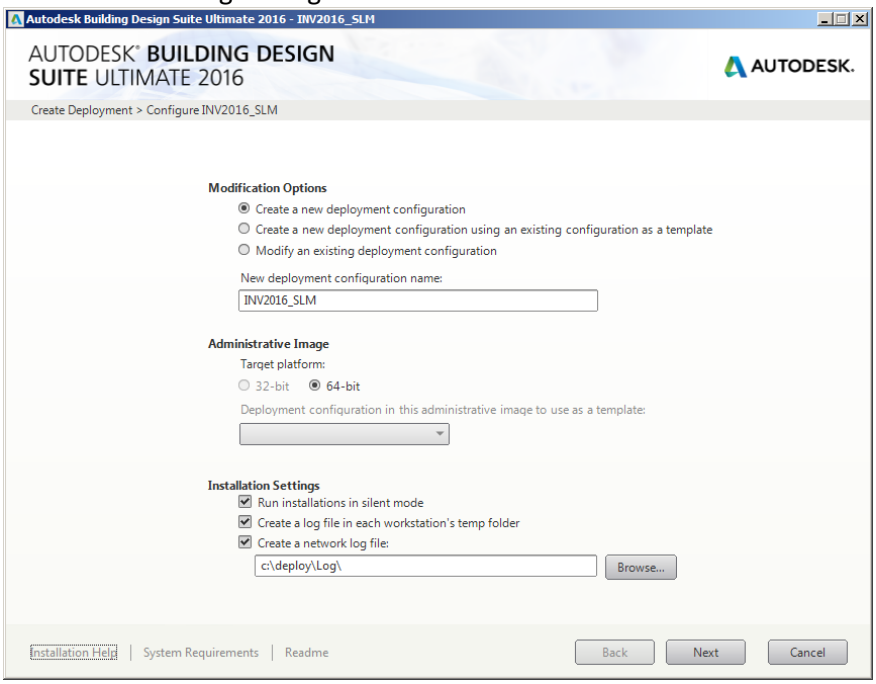
Create multiple Suite deployments for different user profiles using a single Suite install package

Sharing the wealth

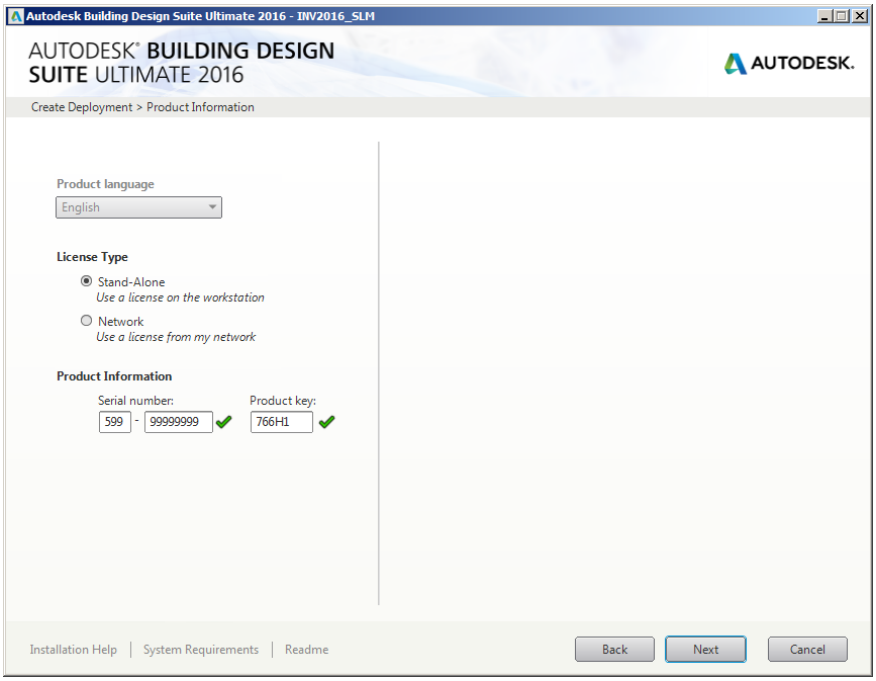
Let's assume you would like to share this deployment package with another division but they have multi-seat standalone licensing vs. network. Rather than create a new deployment, we can use the existing deployment as a template to create the Inventor 2016 standalone deployment. The advantage of using this method is that we are leveraging the existing install binaries thus eliminating a new deployment footprint.

Create a customized sub-deployment

1. Navigate to **D:\deploy\Tools**
2. Double-click on **Create & modify a deployment**
3. From the Configure screen, make the following changes:
    a. **Modification Options**: Create a new deployment configuration
    b. **New deployment configuration name**: INV2016_SLM
    c. Leave all remaining settings as is. Your screen should look like the following:



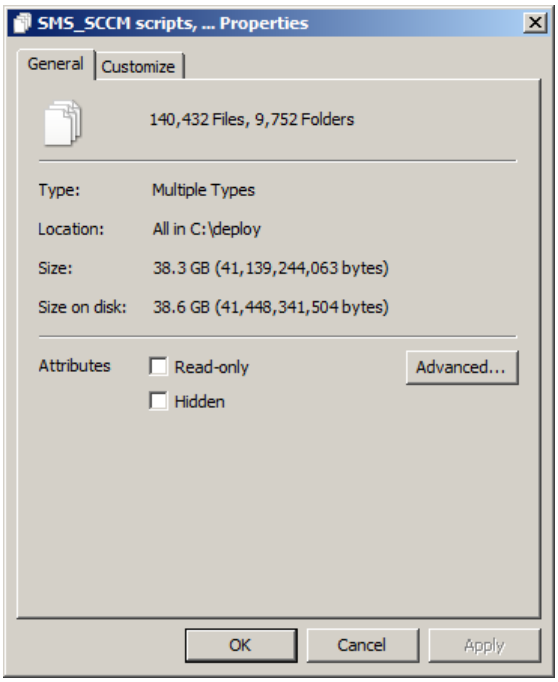
4. Accept the License and Services Agreement (LSA) and click **Next**.
5. On the **Product Information** screen, set the following options:
    a. **License Type**: Standalone
    b. **Serial number**: 599-99999999
    c. **Product key:** 766H1
    d. Your screen should look like the following:



6. Click **Next**.
7. On the **Product Selection** screen, deselect all products except Autodesk Inventor 2016, Autodesk Application Manager, Autodesk Inventor Content Libraries, and A360 Desktop.
8. Click **Create**
9. Notice how quickly the process finishes. Click the **X** in the top right corner to exit out of the deployment creation tool.

Check the new deployment size

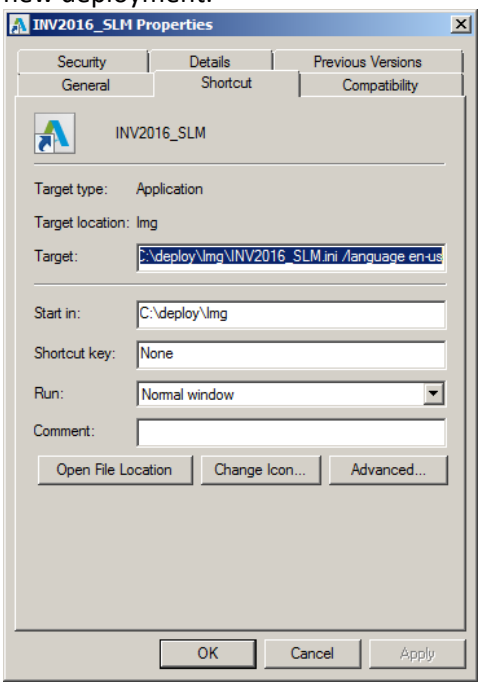
1. In Windows Explorer, navigate to **D:\deploy**
2. Select the entire contents of the directory, right-click and select **Properties**
3. You should see something similar to this:



4. You will notice that the deployment size has only increased by a few megabytes.
5. Close the **Properties** window

Locate the new MST file for Inventor 2016 SLM

1. Right-click on the **INV2016_SLM.lnk** shortcut and select **Properties**
2. Take note of the path and name of the **INI** file in the **Target** path. It should match that of your new deployment:



3. Close the **Properties** window

4. Navigate to **D:\deploy\Img** and open **INV2016_SLM.ini** in Notepad.
5. Do a search for **CONFIG_TRANSFORM=inventor-INV2016_SLM.mst**. You will notice that this has replaced the previous MST from the master deployment

```
#============================ INVENTOR ==
EXE_PARAM=
PATCHES=

[INVENTOR]
PLATFORM=x64
PRODUCT_NAME=Autodesk® Inventor® 2016
PREREQUISITE=_DOTNET35SP1;DOTNET45SP1;DOTN
POSTREQUISITE=GRANTA
EXE_PATH=%platform%\inventor\inventor.msi
EXE_PARAM=PRODUCTEDITION="INVNTOR" ENABLEC
EXTRA_FILES=inventor;%platform%\inventor\*
MUILPLINK=http://www.autodesk.com/inventor
LOG=%tmp%\Inventor2016Install.log
ROLLBACKABLE=NO
ADMIN_INSTALL=YES
PRODUCT_MESSAGE=BDSRes.dll;113
PRODUCT_INSTALLED_INFO_MSG=InventorUiRes.d
PRODUCT_INSTALLED_INFO_URL=InventorUiRes.d
DEPLOYMENTLANGUAGE=
EULA_PATH=EULA
ACTION=INSTALL
USE_EXTERNAL_UI=YES
INSTALL_FINALIZE=InventorCIP
INSTALL_FINALIZE_SOURCE=Setup\InventorUI.d
UI_SEQUENCE=InvOptionsPageIUP;DesktopConte
MAINTENANCE_UI_SEQUENCE=MaintenanceDlg;Add
SUBCOMPONENT=RXI;CONFIGURATOR360ADDIN
OGS_XML_FILE=OgsInventor.xml
LPMODE=MUI
DEFAULTMEDIALANGUAGE=en-US
AVAILABLELANGUAGES=en-us
SHAREDREQUISITE=
UPI=INVPROSA&2016&English_Locked_x64&20.0.
EULA_INDEX=-1
EULA_STATE=YES
CONFIG_TRANSFORM=inventor-INV2016_SLM.mst
EMBEDDED_TRANSFORMS=
```

6. Close the **INI** file

Explorer the new Inventor 2016 SLM MST File

1. Double-click **Orca** on the Desktop
2. From the **File** menu, select **Open**
3. Browse to **D:\deploy\Img\x64\inventor** and select **inventor.msi** and click **Open**
4. From the **Transform** menu, select **Apply Transform**
5. Orca should bring you back to the same directory you selected the MSI from in Step 3. Select **inventor-INV2016_SLM.mst** and click **Open**
6. In the **Tables** section on the left, scroll down until you see the **Property** table and select it
7. Scroll through the **Properties** on the right and look for **ACADSERIALPREFIX** and **ACADLICENSETYPE**

Property	Value
ACADSERIALPREFIX	599

Property	Value
ACADLICENSETYPE	Stand-Alone License

8. You will notice that **ACADSERIALPREFIX** has changed to **599** and **ACADLICENSETYPE** is now **Stand-Alone License**
9. Repeat this section a few additional times, each time creating a new combination of license types, serial numbers, and product configurations. Because different products store their serial number and license type info differently in the MST file, it will give you a better feel for the process.

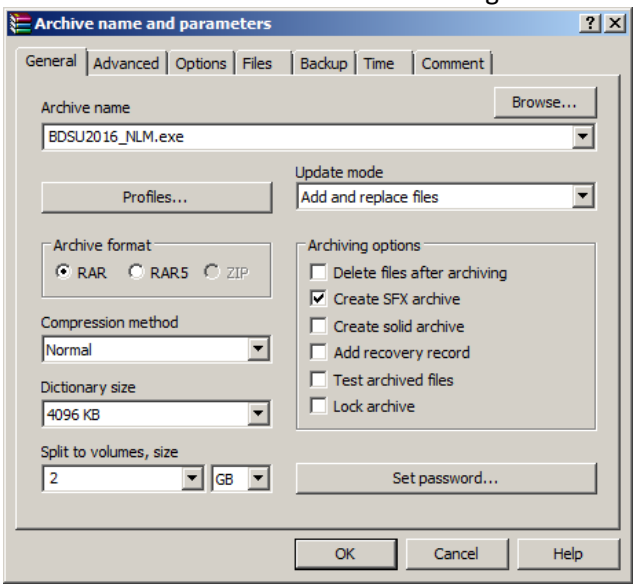
Timely software delivery

When in duress, you must compress

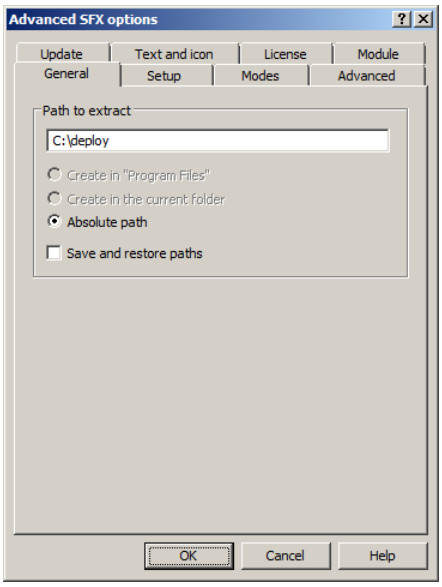
Now that we have explored the concepts of master deployments, sub-deployments, and how data is referenced in those deployments, let's switch gears and walk through an alternative way to get your deployments out to your end users in a more efficient manner. The concepts in our final section will utilize a concept known as self-extracting archives, also known as SFX archives.

Creating the SFX archive

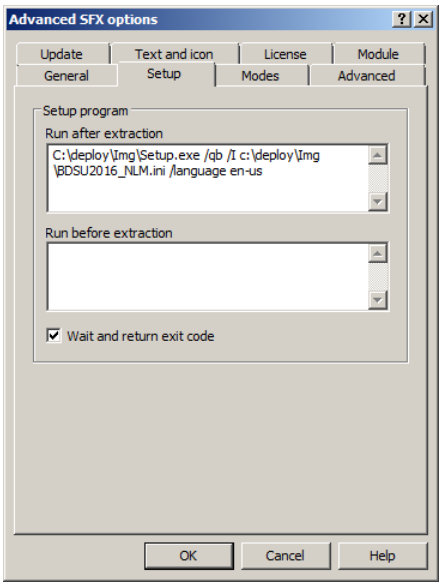
1. In Windows Explorer, navigate to **D:\deploy**
2. Select the entire contents of the directory, right-click and select **Add to archive.** This will open a tool called **WinRAR**
3. Make the following changes on the **General** tab:
    a. In the **Archive name** field, enter **BDSU2016_NLM**
    b. On the bottom left under **Split to volumes, size**, enter **2** and select **GB** from the second drop down. This will separate the SFX archive into 2GB sections to prevent file corruption.
    c. On the right side under **Archiving options**, check the box next to **Create SFX archive**. You will notice WinRAR adds an **EXE** extension to the **Archive name**.
    d. Your screen should look like the following:



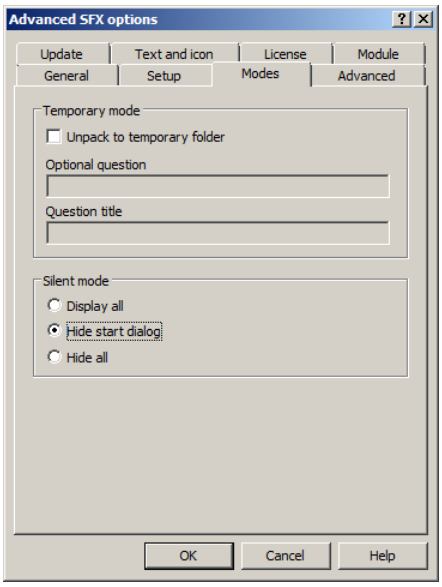
4. Select the **Advanced** tab at the top of the screen and click **SFX options** on the right-side
5. In the **Path to extract field**, enter **D:\deploy** and leave the defaults for the remaining settings:



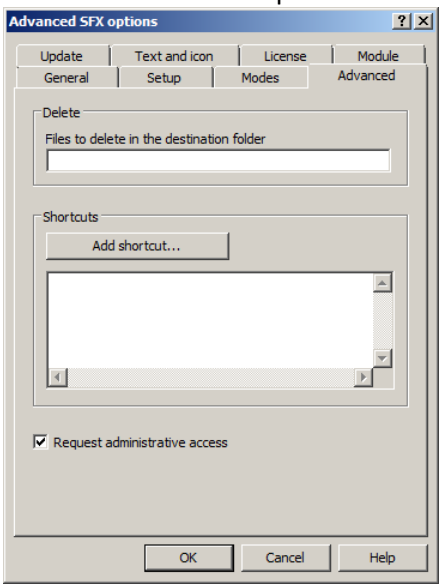
6. Click on the **Setup** tab and in the **Run after extraction** field, enter **D:\deploy\Img\setup.exe /qb /I D:\deploy\Img\BSDU2016_NLM.ini /language en-us.** This tells the SFX archive to start the Suite installer for the master deployment as soon as the extraction process finishes. This install syntax was taken from the **Target** path of the **BDSU2016_NLM.lnk** shortcut in **D:\deploy**
7. Check the box next to **Wait and return exit code**. Your screen should look like the following:



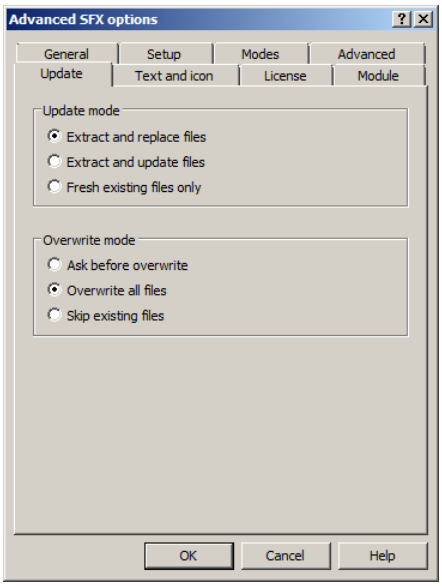
8. Select the **Modes** tab and under **Silent mode**, select **Hide start dialog.** This will hide any prompts to start the extraction and will force the process to just begin.



9. Click on the **Advanced** tab and check the box next to **Request administrative access.** This will force the archive to request administrative access to install the software.



10. Click on the **Update** tab and under **Overwrite mode**, select **Overwrite all files**. This will overwrite any like files in the directory the files will be extracted to (not installed to) and prevent unnecessary dialogs for the end user.



11. Click **OK** to go back to the main WinRAR screen
12. Normally you would click **OK** to begin the compression process however due to time constraints, click **Cancel**.
13. The length of time it will take to complete the archive will vary based on the size of the deployment being compressed and the performance of the system the compression is being run on. Using the above settings, the final compressed output will be roughly 19.6GB spread across ten 2GB files, which is slightly more than half of the uncompressed master deployment package. WinRAR also provides the ability to use different compression methods to make your SFX archives even smaller.
14. Using this method provides a few advantages over an uncompressed deployment:
    a. Install files are cached locally on the client. This is especially helpful when applying future updates.
    b. Network install failures are all but eliminated as the installer will run locally on the client vs. across a network connection.
    c. Faster replication times to additional servers in the environment
15. Your compressed deployment can be distributed via a software asset management tool, such as Microsoft System Center Configuration Manager, or using a network share similar to how a standard deployment would be hosted today.
16. The above example will store the install files locally on the client indefinitely which may not be optimal for environments with limited disk space. WinRAR also provides the option to clean up the install files for you after install however note that this may affect future service pack installs so be sure to test before you deploy.