TIBCO OpenSpirit®

TIBCO OpenSpirit® Runtime

Installation & Configuration Guide

Software Release 4.2.0

December 2015

TIBCO

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Table of Contents

OpenSpirit Concepts

OpenSpirit is a framework that provides multi-vendor application and data interoperability that is targeted at the upstream oil and gas business. OpenSpirit removes technology barriers that, prior to OpenSpirit, prevented applications from working directly with data residing in competing application data stores or in incompatible computing platforms.

OpenSpirit also provides an event bus that enables applications from different software vendors to cooperate in work flows as if they were produced by a common software vendor.

The following sections of this guide describe concepts that are important to understand before planning the installation of your OpenSpirit environment.

OpenSpirit Runtime

The OpenSpirit runtime is the software infrastructure and services needed to connect applications to data and to other applications. The OpenSpirit runtime is typically installed on all computers in your enterprise that are used to run applications that connect to the OpenSpirit runtime and on computers hosting data stores that feed the applications with data. Typical network configurations of the OpenSpirit runtime are illustrated in the next section of this installation guide titled OpenSpirit Runtime Configurations. Additional OpenSpirit concepts are introduced in the configuration section.

Application Adapter

A software component that connects a software application to the OpenSpirit runtime is called an application adapter. Applications that have an OpenSpirit application adapter are called an OpenSpirit enabled application.

Application adapters are typically created by the same company that creates the software application. However, some applications provide mechanisms to enable customers and other companies to plug additional capabilities into their application.

The ***TIBCO OpenSpirit© Adapter for Petrel*** and the ***TIBCO OpenSpirit© ArcGIS Extension*** are examples of application adapters that were not developed by the same company that created the application. They were developed by TIBCO Software, Inc.

Application adapters can connect to the OpenSpirit runtime in a variety of ways. They can connect to read data and/or write data that resides in a data store that has OpenSpirit data connector support. Application adapters can also interact with other OpenSpirit enabled applications using various application interaction events such as data selection, cursor tracking, and GIS spatial feature events.

Application adapters typically check out a Universal Application Adapter (UAA) license when they connect to the OpenSpirit runtime. UAA licenses are checked out per-concurrent user for a given application type. Application adapters may also require a license from the

software company that developed and sells the application adapter. Check with your application adapter supplier regarding the license requirements of a particular adapter.

Information about application adapters that are available from OpenSpirit business partners can be found in the OpenSpirit section of the TIBCO web site.

Data Connector

A software component that publishes a data store to the OpenSpirit runtime is called a *data connector*. Publishing a data store to the OpenSpirit runtime makes its data available to OpenSpirit enabled applications. Applications can query, create, modify, and delete data residing in the data store.

Currently all OpenSpirit data connectors are developed by TIBCO. OpenSpirit data connectors are licensed by data store type on a per-concurrent user basis. See the Data Source Configuration Tool section of the OpenSpirit Desktop help document for information about the data stores that are supported by OpenSpirit data connectors.

OpenSpirit Tools

OpenSpirit tools are software components included in the OpenSpirit runtime. There are also some optional OpenSpirit tools that are purchased separately and installed into the OpenSpirit runtime. The OpenSpirit tools are accessed from the OpenSpirit Desktop and are organized into three categories; administrator tools, data manager tools, and tools used in a variety of work flows that have been grouped into a category called data browsing tools. Refer to the OpenSpirit Desktop help guide for a list of the available OpenSpirit tools.

The next section of this guide introduces additional OpenSpirit concepts that are fundamental to how OpenSpirit software is installed and configured.

OpenSpirit Runtime Configurations

This section introduces the concept of a master installation and a satellite installation. The concepts are followed with some examples of typical OpenSpirit runtime deployment configurations, along with the factors to consider when deciding which example best meets the needs of your company. Understanding these concepts and examples is important before beginning the process of installing and configuring OpenSpirit.

Master Installation

A master installation is a configuration of the OpenSpirit runtime that runs two service processes and manages a database of information needed by the OpenSpirit framework. A master installation is identified by the host computer used to run the service processes and the network port address that is assigned to the master installation when it is configured.

 Multiple master installations can be run on a single Linux host computer as long as they are assigned different port numbers. Only one master can be run on a Windows host.

At least one master installation is required in order to run any OpenSpirit enabled application. A master installation can be used to run OpenSpirit applications and data connector processes in addition to running the service processes described below.

Metadata Repository

A database is created and provisioned as part of the process of creating and configuring a master installation. The database is also known as the OpenSpirit metadata repository. The metadata repository is an embedded relational database composed of a hierarchy of directories and files. The root directory of the database file hierarchy is chosen during the master installation configuration process.

 The metadata repository database does not require any administration, but it should be backed up on a regular basis using your company's standard file system backup procedures.

All reading and writing of the metadata repository files is done by the Shared Service process which is described below. The metadata repository is used to store the information described in the following table.

Metadata Category	Description
Master installation settings	Various settings that are established during the master installation configuration process.

Metadata Category	Description
Catalog of satellite installations	Host computer name, operating system version, software installation directory, and configuration directory of all Linux satellite installations that are associated with the master installation. Satellite installation information is saved in the metadata repository when configuring a Linux satellite. This information is used to create data connector processes to service requests from OpenSpirit enabled applications running on a different host computers.
User definitions and rights	Information about all users that have used the OpenSpirit installation, including any rights assigned to them by the OpenSpirit administrator. User definitions are created automatically the first time a new account is used to run an OpenSpirit enabled application. User definitions can also be created by an OpenSpirit administrator using the User Manager tool.
User data source credentials	Data source credentials entered using the User Setup Wizard.
Data source configuration settings	Information about data stores that can be accessed using OpenSpirit data connectors. This information is entered using the Data Source Configuration tool. This information enables OpenSpirit to access and publish data residing in data stores that are supported by an OpenSpirit data connector.
Data model definitions	Detailed information describing the OpenSpirit common data model and the native data model supported by each OpenSpirit data connector. This information is pre-loaded in the metadata repository. It is used by many OpenSpirit tools, such as the Data Selector and Copy Manager, and it is used by OpenSpirit data connectors.
Data source capabilities	Detailed information describing the read, write, update, and delete capabilities of each data source type supported by an OpenSpirit data connector. This information is pre-loaded in the metadata repository.
Copy Manager rules	Rules describing how data is copied between two data sources using the OpenSpirit Copy Job Manager tool. Default copy rules are added to the metadata repository the first time Copy Job Manager is used. Additional custom rules can be created using the Copy Rule Manager tool.
Copy and scan job definitions	Job definitions are created using the Copy Job Manager tool or the Scan Job Manager tool. Job definitions describe how data is to be copied or scanned.
Copy and scan job run histories	Job run histories are created each time a copy job or a scan job is run. Job run histories can be quite large and should be cleaned out periodically using the Job Run History tool.

Metadata Category	Description
Model view definitions	Model view definitions describe how a data model is to be presented. A default model view of the OpenSpirit data model for use by the Data Selector tool is pre-loaded in the metadata repository. Model views are also added to the metadata repository the first time the Copy Job Manager tool or the Scan Job Manager tool is run. New model views can also be created using the Model View Manager tool.
Session definitions	A Session is a set of data source selections, a coordinate system preference, and a set unit of measure preferences that has been given a name. Sessions are created using the Session Manager tool.
EPSG coordinate system definitions	A catalog of pre-defined coordinate reference systems and transformations obtained from the International Association of Oil & Gas Producers. This information is pre-loaded in the metadata repository.
Unit catalog definitions	A collection of catalogs of units of measure. This includes a POSC catalog and catalogs for data stores that have their own unit of measure definitions. This information is pre-loaded in the metadata repository.
Reference value catalogs and maps	A collection of reference data catalogs that define allowable values for selected data model attributes. For example, the set of country names, well status codes, etcetera. This includes the OpenSpirit reference catalog values and catalogs for data stores supported by OpenSpirit data connectors. Reference values are used when transferring data from one data source type to a different data source type and when application write data using OpenSpirit. This information is pre-loaded in the metadata repository.

Shared Service

A Shared Service process is run by each OpenSpirit master installation. The Shared Service process runs on a specified host computer using a port that is assigned during the master installation configuration procedure. The primary function of the Shared Service process is to provide access to the information managed in the master installation's metadata repository.

Notification Service

The other service process that runs from an OpenSpirit master installation is the Notification Service. This process is started automatically when the Shared Service process is started. The Notification Service manages OpenSpirit event sending and receiving.

Satellite Installation

An OpenSpirit satellite installation is a configuration of OpenSpirit that does not have a service process and does not have a metadata repository. Satellite installations can be used to run OpenSpirit enabled applications and can be used to run OpenSpirit data connector processes.

A satellite is associated with one master installation by assigning it the host and port of a master. OpenSpirit enabled applications and data connectors that are run from a satellite installation access metadata from the satellite's associated master installation.

The primary purpose of a satellite installation is to make OpenSpirit available on host computers that have a different operating system than the master installation or do not have visibility to the directory that contains the OpenSpirit software or configuration files. A satellite may be needed to run data connector processes on a host that has visibility to data files needed by a data connector, but does not have access to the master installation directory.


Linux satellites are registered in the metadata repository when they are configured in order to make the satellites available for running data connector processes. Registered satellites appear in the OpenSpirit User Setup Wizard's host selection lists. They can also been seen in the Satellite Tab of the Master Configuration panel in the Install Config Manager tool. Windows satellites are not registered in the metadata repository because few companies have the network protocols enabled on Windows that are needed to start data server processes from another computer on the network.

Example OpenSpirit Deployment Configurations

An OpenSpirit runtime configuration contains a master installation and zero or more satellite installations. An enterprise may need a single OpenSpirit runtime configuration, or it may need many configurations. User community, geography, and network topology considerations all play a role in designing your company's OpenSpirit runtime environment.

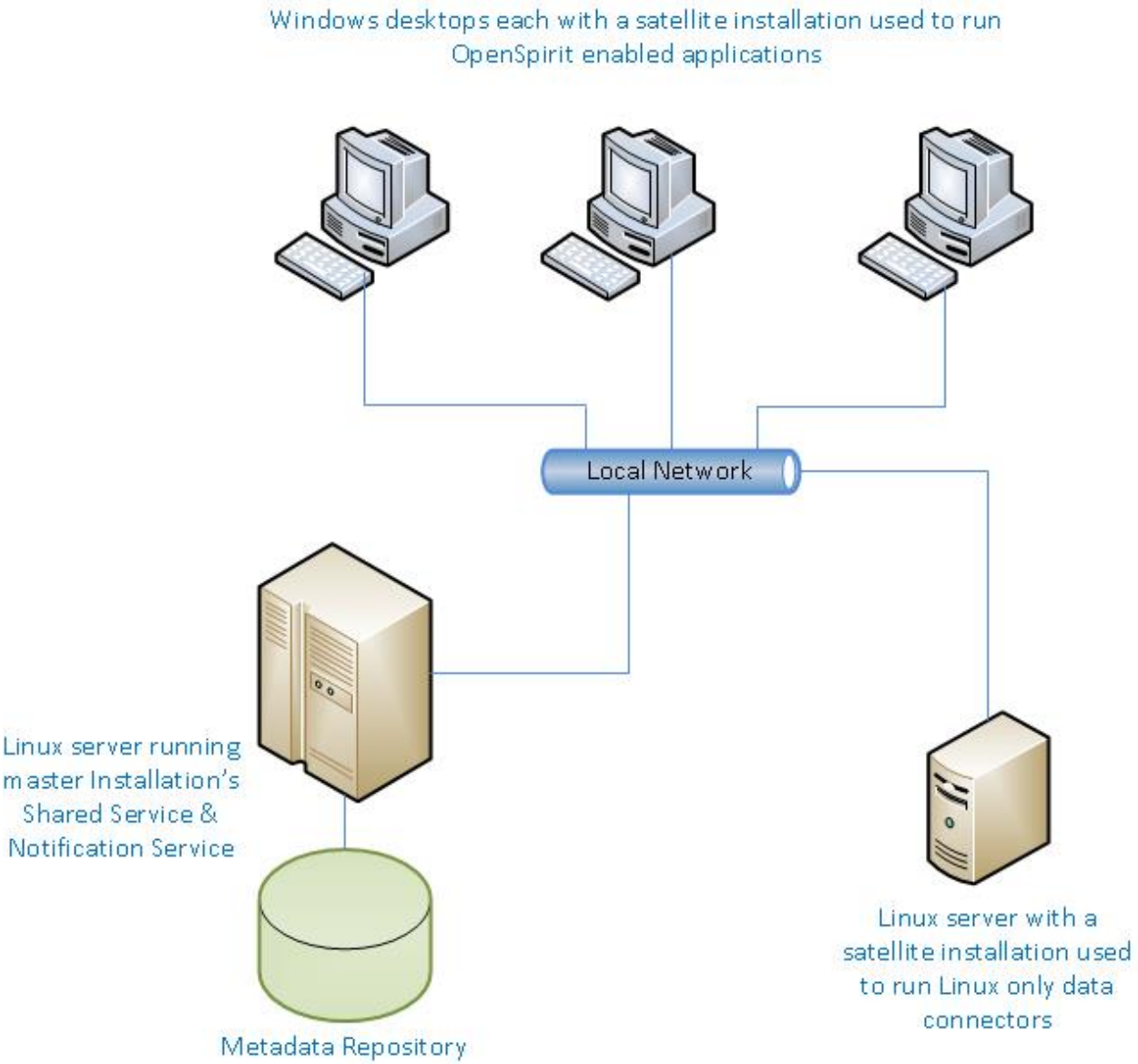
Following are examples of the most common OpenSpirit deployment configurations. Each deployment configuration is illustrated with a network diagram and a description of the usage pattern that the deployment was designed to address. Consult OpenSpirit Support if you are unsure of the best network deployment configuration for your computing environment. The examples below are not exhaustive. They are the subset of most common deployment configurations currently in use.

Windows Desktop Applications & Linux Data Sources Deployment

The following network diagram illustrates the most common OpenSpirit deployment configuration. The diagram shows an OpenSpirit master installation running on a large Linux server.

A satellite installation has been configured on a different Linux server to run Linux data connectors. The additional satellite is needed in this deployment example because the Linux server running the master installation does not have visibility to files needed by a Linux data connector (e.g. cannot see the SeisWorks project directories needed by an OpenWorks data connector from the master installation server).

Finally, each Windows PC that needs to run OpenSpirit enabled applications (e.g. Petrel, Gocad, etc.) has an OpenSpirit satellite installed on their local C drive. The PC satellites can also be used to run Windows only data connectors, such as Kingdom and Studio.

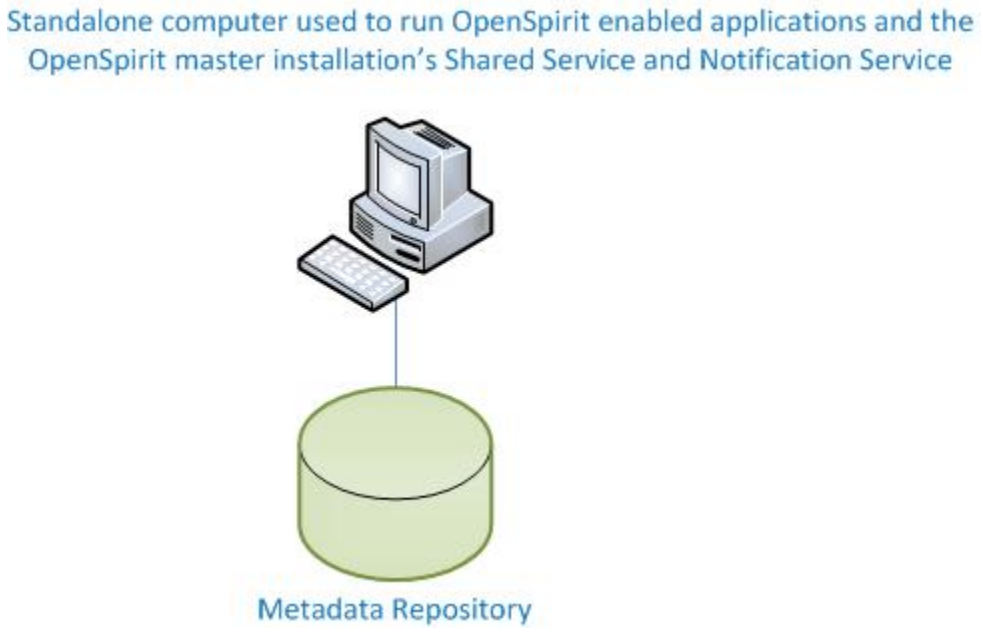


Note, this deployment configuration also enables Linux applications to be run in addition to running Linux data connectors. Users wanting to run Windows and Linux

applications may need to set a secondary account if their Windows account name is different from their Linux account name. This is done using the User Manager tool.

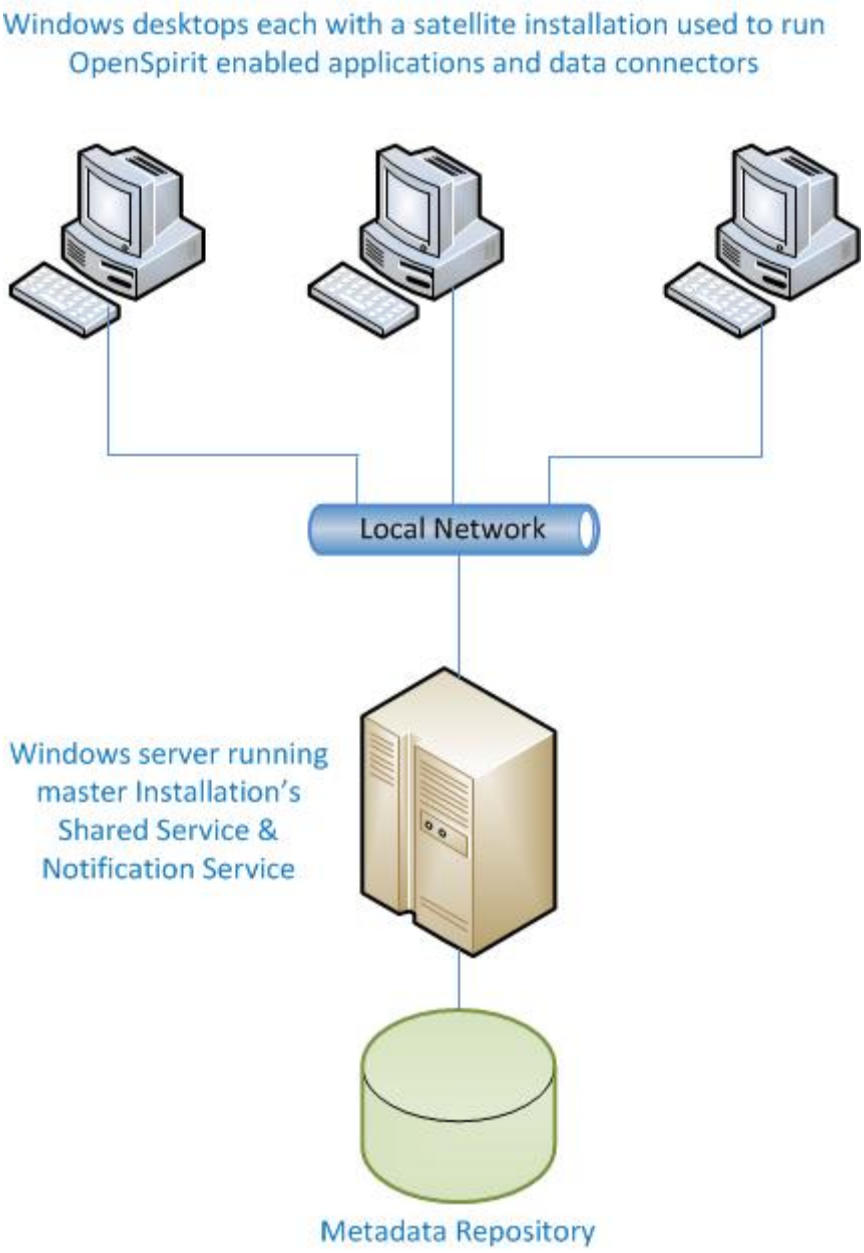
Standalone Computer Deployment

This is the simplest OpenSpirit deployment configuration. This configuration can be used when all users, OpenSpirit enabled applications, and data connectors can run on a single host computer. The computer could be running Windows or Linux. This deployment configuration is typically used for laptops that require OpenSpirit access when not connected to the company network.



Windows Only Deployment

This OpenSpirit deployment configuration is used at companies that do not use Linux to run OpenSpirit enabled applications and do not have data stores that require Linux. An OpenSpirit master installation is installed on a Windows server and each Windows desktop has a satellite used to run the applications and the data connectors.



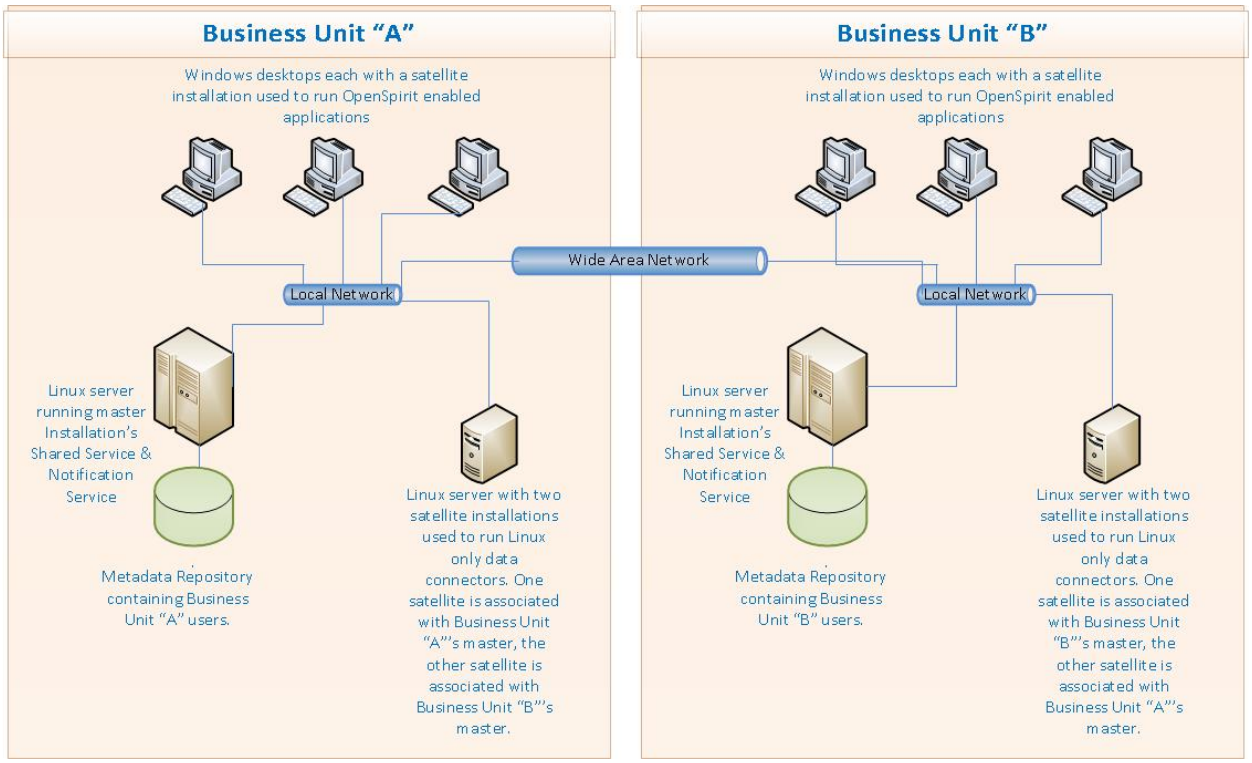
Multi-Site Enterprise Deployment

An enterprise deployment is sometimes used by companies that want business units to be able to access each other's data sources. Each business unit has a master installation that contains users working for that business unit. Satellites are configured on servers in other business units to provide visibility to the other business unit's data stores across the company's wide area network.

An enterprise deployment may require a site-to-site VPN connection to be established to enable OpenSpirit processes to communicate through firewalls that may exist between the company's wide area network and local area networks. Also, login accounts must be

provided to enable users from one business unit to create data connector processes on servers managed by other business units.

Prior to version 4 of the OpenSpirit runtime this enterprise deployment configuration would require multiple installations of the OpenSpirit software on each server. OpenSpirit version 4 introduced the ability to configure multiple masters and satellites using one software installation.



Installation Requirements

Following are the hardware, operating system, and account requirements for installing and running OpenSpirit.

Supported Platforms

The OpenSpirit runtime is supported on the following operating systems. Each OpenSpirit data connector and some OpenSpirit tools have more specific platform requirements. Refer to the OpenSpirit Release Notes for data connector and tool specific platform requirements.

- Windows Vista (32 & 64 bit)
- Windows 7 (64 bit)
- Windows 8 (64 bit)
- Windows 8.1 (64 bit)
- Windows Server 2008 (64 bit)
- Windows Server 2012 (64 bit)
- Red Hat Enterprise Linux release 5 (64 bit)
- Red Hat Enterprise Linux release 6 (64 bit)

System Requirements

Following are the disk storage requirements, memory and processor recommendations for the OpenSpirit runtime. OpenSpirit is a highly parallel, distributed, N-tier client server architecture. Processor power, network bandwidth, physical memory, and disk I/O performance are all important to achieving satisfactory OpenSpirit performance.

Disk Space

The OpenSpirit software installation directory disk space requirement varies according to operating system platform. The software installation disk requirements for each of the three supported operating system platforms are shown in the following table.

Platform	Disk Space	Temp Space During Installation
Linux	1.7 GB	998 MB
Windows	2.6 GB	802 MB

Additional disk space is required by each master installation configuration for the metadata repository. A master installation metadata repository is 494 MB when initially installed. The metadata repository will grow over time as OpenSpirit is used. The rate of growth can vary considerably depending on the number of users using the OpenSpirit configuration and

depending on the tools the users run. The following table lists categories of information that may be added to the metadata repository as OpenSpirit is used. This information can be used to estimate the metadata repository storage requirements for your way of using OpenSpirit.

Metadata Category	Typical Disk Space Requirements
User definition and credentials	1 KB to 4 KB per user
Data source configuration	1 KB per data source
Session definitions	1 KB per session
Model view	1 KB to 500 KB per model view; typical average size is 100 KB
Copy rules	3 KB to 40 KB per rule; average size of the default rules is 14 KB
Copy job definition	15 KB to 6 MB per job; typical average size is 50 KB
Copy job run history	5 KB to 30 MB per job run; typical average size is 700 KB
Scan job definition	5 KB to 4 MB per job; typical average size is 100 KB
Scan job run history	5 KB to 10 MB per job run; typical average size is 400 KB

Note that the size of copy and scan job run histories can vary greatly due to the amount of data being copied or scanned, and due to the logging level chosen for the job run. Jobs with DEBUG or ALL Log Level can generate extremely large job run histories. Avoid using these logging levels unless you need to diagnose a problem.

Hardware Memory Recommendation

Memory requirements are highly dependent on the number of applications and data connectors that are being run concurrently on the same machine. Memory also varies based on the amount of data being accessed by an application.

As a general rule of thumb, the OpenSpirit master installation services require 2 to 3 GB of virtual memory with 1 to 2 GB of it resident during OpenSpirit use.

OpenSpirit data connector processes typically require 1 to 4 GB of virtual memory with 0.3 to 1.5 GB of it resident.

The OpenSpirit desktop typically requires 1 to 3 GB of virtual memory with 0.3 to 2 GB of it resident.

Processor Recommendation

Typical OpenSpirit work flows involve multiple processes running on the user's desktop as well as on remote servers. Therefore, multi-core processors provide substantial benefit to OpenSpirit work flows. Dual or quad core processors for user desktops is recommended. Multi-processor multi-core servers are also recommended for running data server processes.

Installation Account

Linux Installation Accounts

Any account can be used to install the OpenSpirit software on Linux. The only consideration is to use an account that can install the software on a file system that can be seen by the users that need to run OpenSpirit from the computers that they will use to run OpenSpirit tools, data connectors, or third party OpenSpirit enabled applications. The same account used to install the software is commonly the account that is also used to create master and satellite configurations, but it is not required that the same account be used.

There are no special requirements for the account used to configure a Linux satellite installation. You will be prompted for the OpenSpirit administrator password when configuring a Linux satellite if it is done from a different account than was used to configure the master installation.

The account used to configure a Linux master installation does however matter. The account does not require any special privileges, but it will own the master installation's metadata repository storage files. The configuration account will also be used to run the Shared Service and Notification Service processes. The account used to configure the master will become the OpenSpirit administrator account and will have rights to perform all administrative tasks for the OpenSpirit master installation.


OpenSpirit administrator rights can be granted to other OpenSpirit users using the User Manager tool.


It is strongly advised to configure Linux masters using an account that has been created specifically to manage and run the master installation services. The account does not require root privileges. Using the root account to run the shared service process is strongly discouraged.


An example Linux boot script is provided in the ***bin/etc*** directory of Linux OpenSpirit software installations. This script can be used to configure your Linux system to start the OpenSpirit services at system boot time. The script is called ***OpenSpirit_init.d***. The root account is needed to add the boot script to the system boot sequence.

Windows Installation Accounts

No special installation privileges are required to install OpenSpirit software on Windows. Administrative permissions are required to have the installer create Start menu entries for all users.

Configuring a Windows master installation does require an account with authority to install and run Windows services. The Shared Service and Notification service processes are configured to run as Windows services when a master is configured on Windows. The Windows services run under the Windows ***Local System*** account by default.

Installation Modes

The OpenSpirit installer for Windows and Linux runs with a windowing user interface by default. An X Windows display is required to run in interactive mode on Linux. A Windows desktop is required to run in interactive mode on Windows. The OpenSpirit installer can also be run in silent mode. Silent mode can be used if a windowing system is not available and the install must be done from a terminal console. Silent mode can also be used if there is a desire to script the installation process.

Installing OpenSpirit

OpenSpirit install kits are available on the TIBCO software download web site https://edelivery.tibco.com/. Type ***OpenSpirit Runtime*** in the search field to find install kits for the OpenSpirit runtime product. Installers are provided for each of the operating system platforms that are supported by the OpenSpirit runtime. Download the installation files required for the operating system platforms you wish to run OpenSpirit applications or data connectors on. The following table lists the files required to install on each of the operating system platforms supported by OpenSpirit.

Platform	Install File	Description
All	product_tibco_lgpl_jacorb_3.4.0.002_common.zip	contains 3rd party libraries needed on all platforms
	product_tibco_lgpl_jts_1.12.0.001_common.zip	contains 3rd party libraries needed on all platforms
Linux	TIB_os_rt_<OpenSpirit version>_lin.bin*	the installer executable for Linux
	product_tibco_eclipse_swt_lgpl_3.5.1.001_linux26gl23_x86.zip	contains 3rd party libraries needed on Linux
	product_tibco_lgpl_mico_2.3.13.003_linux26gl23_x86.zip	contains 3rd party libraries needed on Linux
Windows	TIB_os_rt_<OpenSpirit version>_win.exe*	the installer executable for Windows
	product_tibco_lgpl_mico_2.3.13.007_win_x86.zip	contains 3rd party libraries needed on Windows

**Where <OpenSpirit version> is the version number of the OpenSpirit Runtime.*

 The names of the files listed in the table above contain version numbers of the software product contained in the file. The numbers may change in future versions of the OpenSpirit Runtime.

Download all the installation files needed for the operating system platform you will be installing on and place them together in the same directory. The OpenSpirit installers are provided as self-extracting executable files. The Linux installer is a self-extracting shell script that has a ***.bin*** file name extension. The Windows installer executable has an ***.exe*** file name extension. The installer will extract files into your system's temp directory and then will run

the install application from the extracted files. The installer will look for the 3rd party library zip files in the same directory that the installer executable resides in.

The Windows and Linux installers can run interactively, or can be run in silent mode. The following sections describe the installation process for both modes.

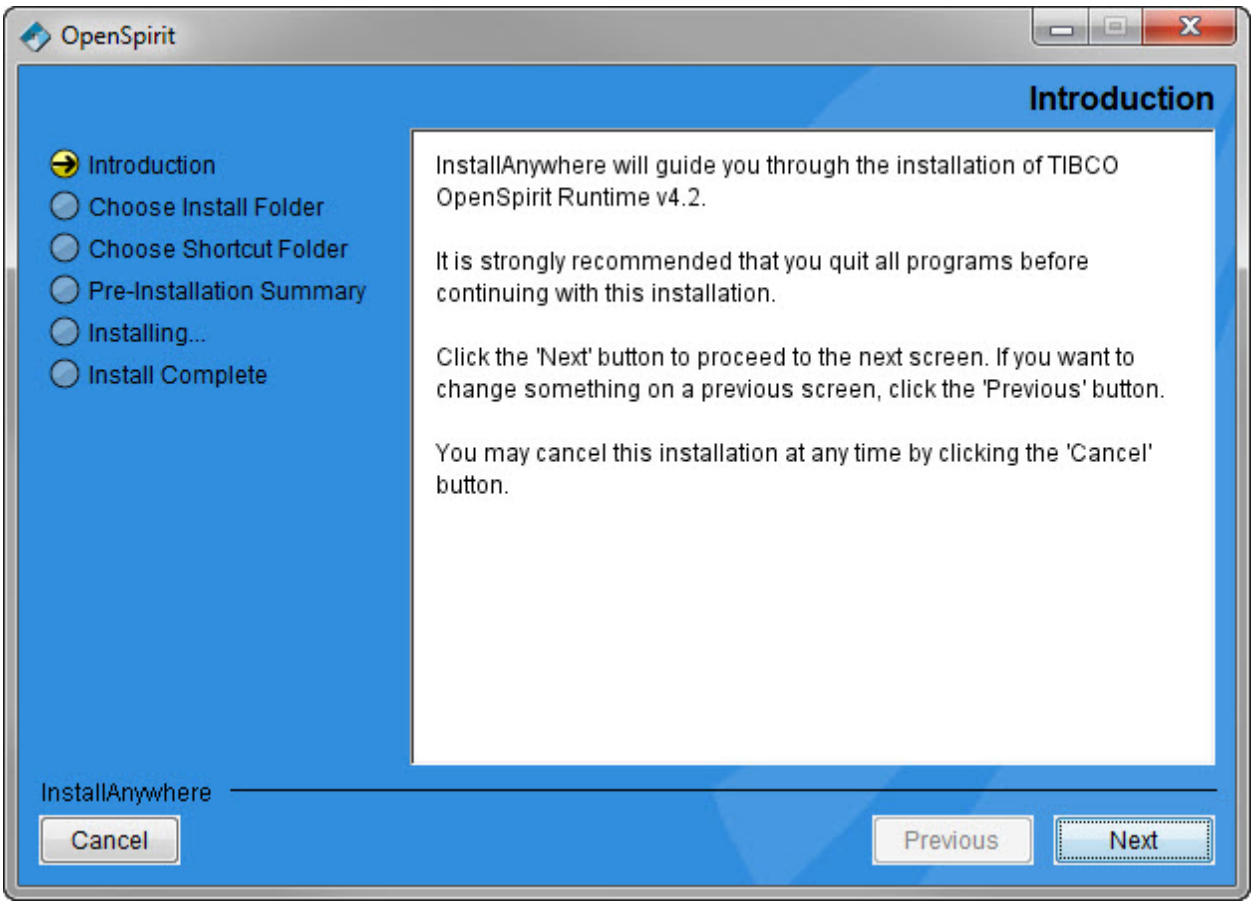
Interactive Installation

The interactive user interface mode of installation requires a graphical display. A ***DISPLAY*** environment variable must be set to a valid X Windows display in order to run the OpenSpirit installer interactively on Linux. Windows installation requires a Windows desktop display. The install steps are identical on Windows and Linux with the exception of an additional panel for creating Start menu shortcuts that appears only when installing on Windows.

The following installation panel images were taken during a Windows installation. The installation steps and installer panels are identical on Linux other than differences in file path and the additional shortcut creation panel.

Introduction

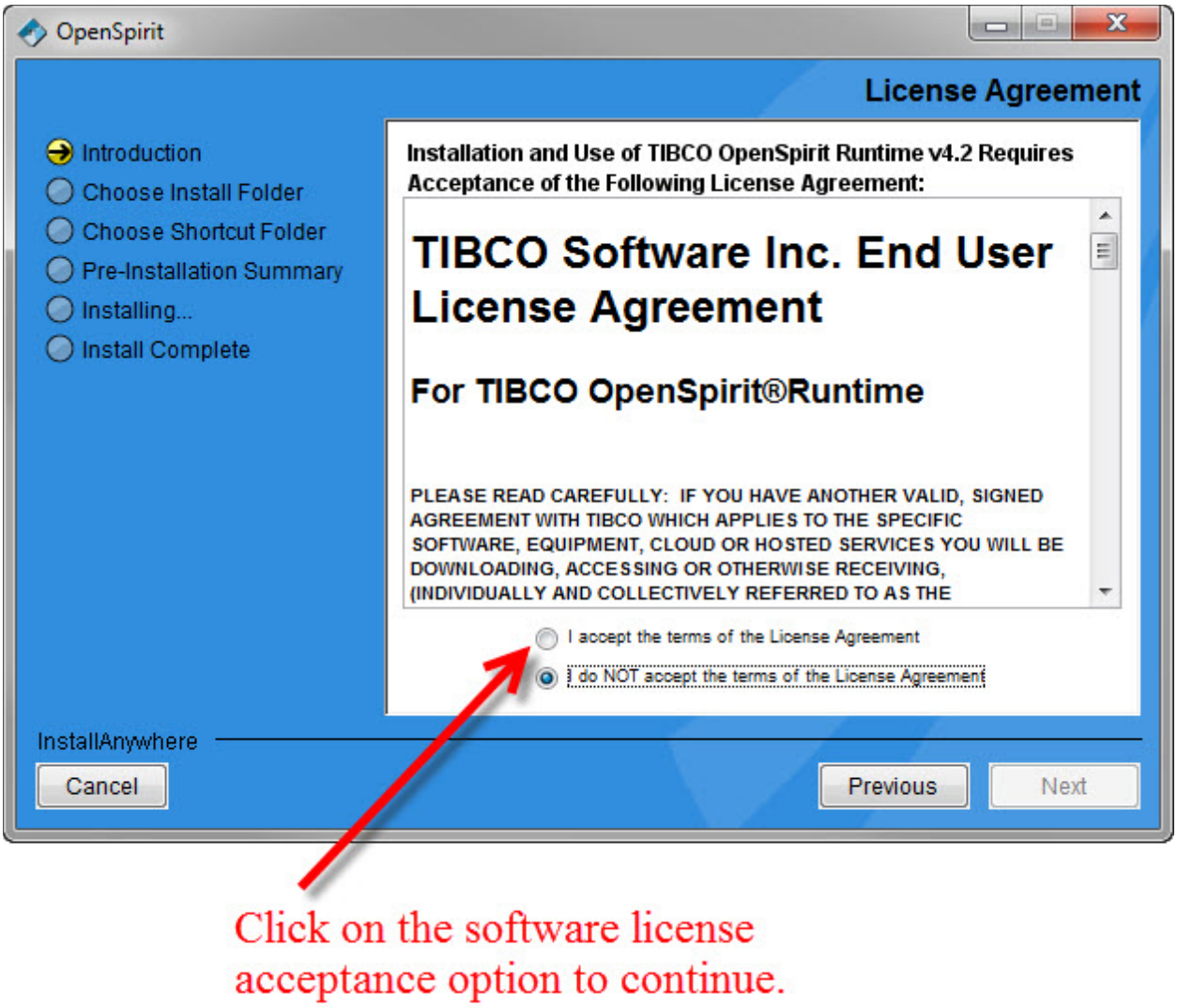
The introduction panel is the first panel displayed by the installer during interactive installation. It provides instructions on use of the Cancel, Previous, and Next buttons at the bottom of the install panels.



Click on the Next button to proceed to the next step in the installation process.

TIBCO Software License Acceptance

The next installation panel displays the TIBCO end user license agreement. Read and understand the agreement.



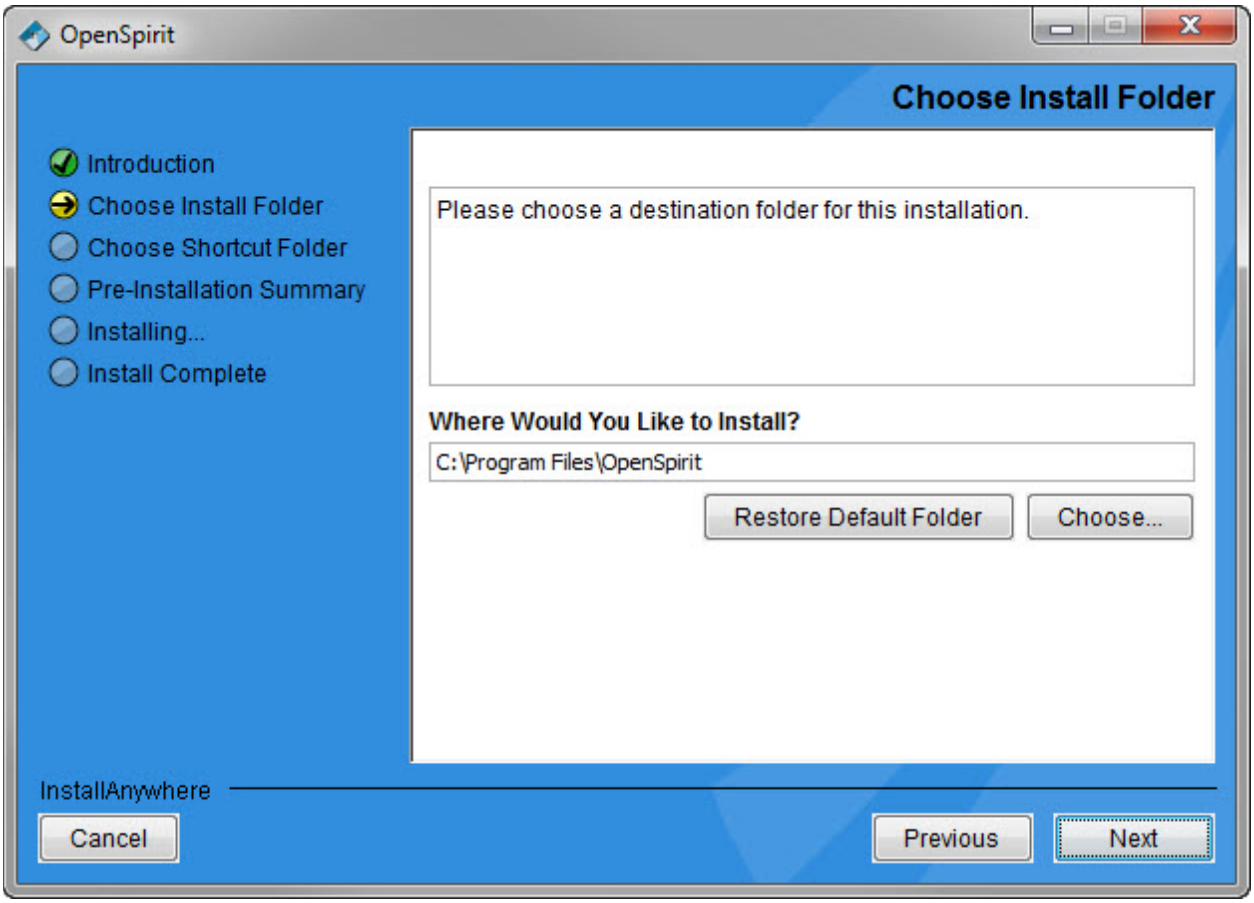
Click on the circular acceptance button to enable the Next button in order to accept the license and proceed with the installation.

Choose Install Folder

The install folder selection panel is used to select the file folder that the OpenSpirit software will be installed in. Click on the ***Choose...*** button to open a folder selection window to navigate to the folder you would like to install the OpenSpirit software into if you do not want to install into the default location. You can also type the folder location directly into the text entry field or you can paste a folder path in using the system copy/paste clipboard.

Avoid using UNC paths when installing on Windows. UNC file paths begin with a double backslash and refer to network directories. Network drives used to install OpenSpirit should be mounted with a drive letter to avoid problems running OpenSpirit ***.bat*** files.

The software will be installed into a version specific folder that is created by the installer when it begins the file unpacking phase of installation. This version number folder was not created prior to OpenSpirit version 4.0. This version folder has been added to facilitate concurrent installations of multiple version of the OpenSpirit runtime and to facilitate installation of other TIBCO OpenSpirit products. Consider omitting a version number from the file folder name you select to avoid two levels of folders with version numbers in the folder name.



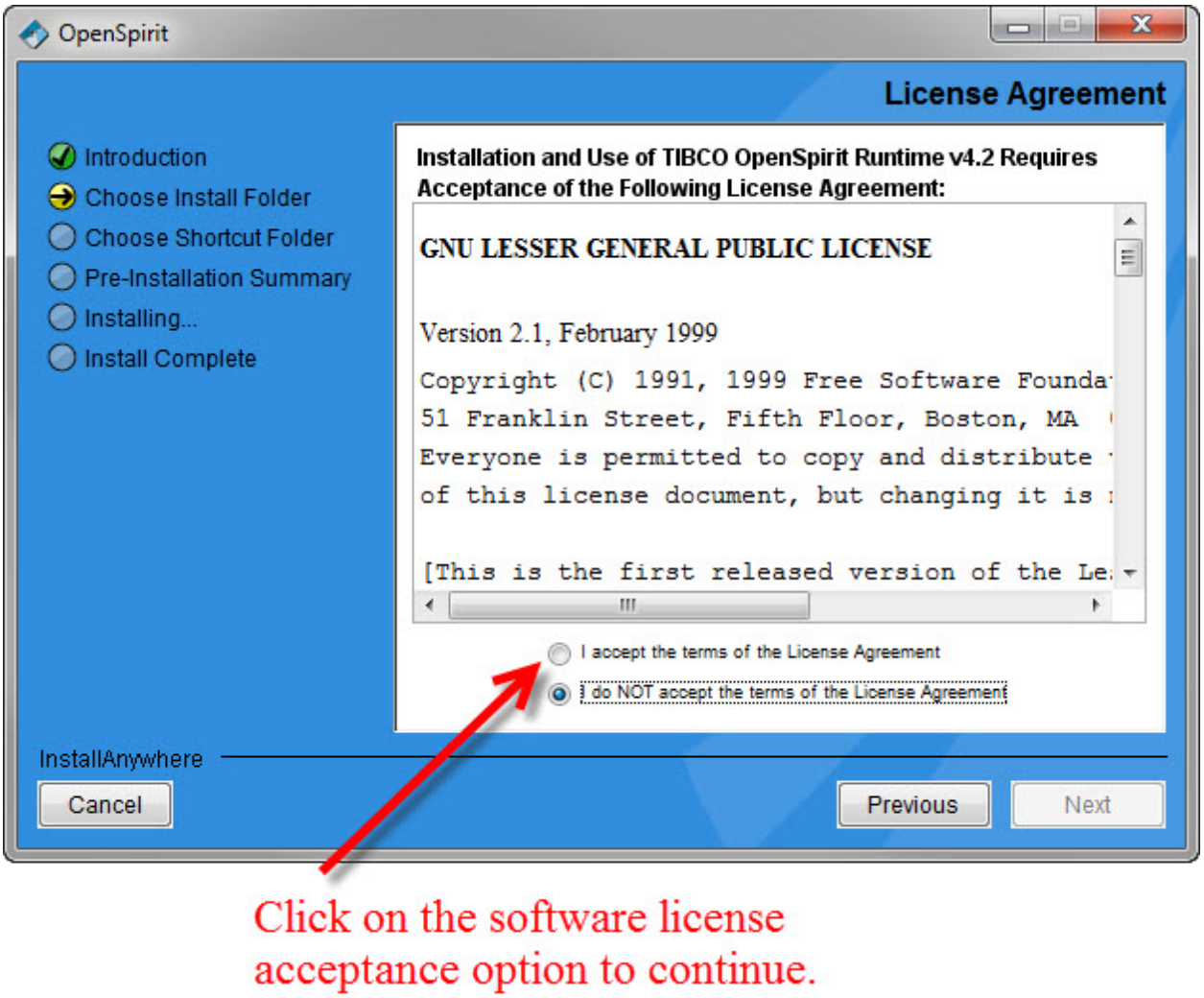
The folder selection windows displayed by clicking on the ***Choose..*** button have a different appearance depending on the operating system platform the installer is running on. Note, a folder creation button is provided in the upper right corner of the folder selection window if you would like to create a new folder to install under.

Click on the Next button to proceed to the next step in the installation process after selecting the installation folder.

GNU License Acceptance

A second license acceptance panel appears after selecting the installation folder. The TIBCO OpenSpirit Runtime software includes some third party software that is licensed under the

GNU Lesser General Public License. The GNU license must be accepted to continue with the installation.

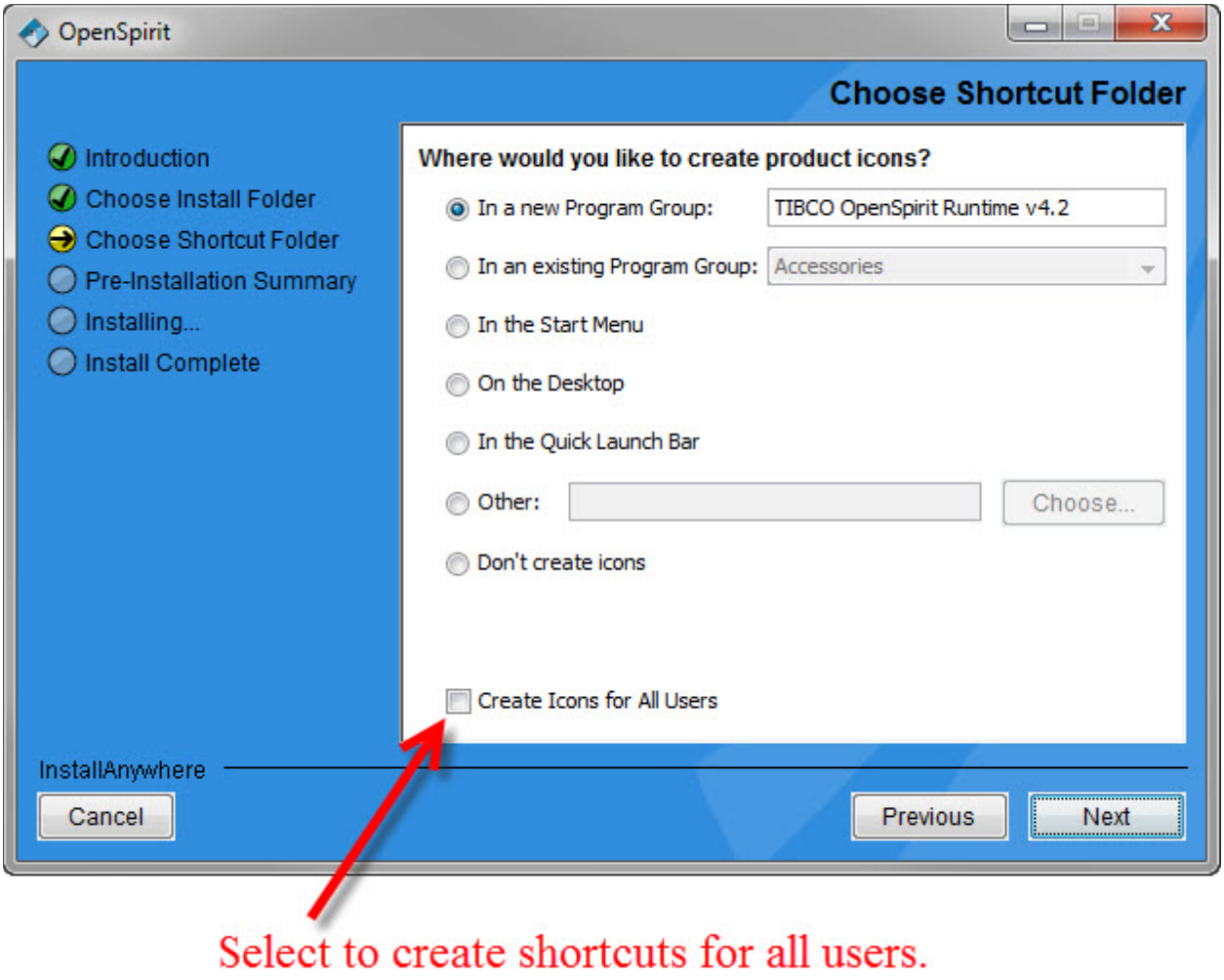


Click on the circular acceptance button to enable the Next button in order to accept the license and proceed with the installation.

Choose Shortcut Folder

The shortcut folder selection panel only appears when installing on Windows. The panel allows you to choose where you would like to install the Windows shortcut icons used to start the OpenSpirit applications that will be installed. Your choices are to create a new program group in your Windows Start menu, use an existing program group, place them in the top level of the Start menu, place them on the Windows Desktop, place them in the Windows quick launch bar, place them in a selected file system folder, or do not create start menu entries anywhere. Most users will want the shortcuts in a new program group, on the desktop, or in the quick launch bar.

The option to not create any shortcuts is discouraged. Users would have to find the ***.bat*** files under the OpenSpirit installation's ***bin*** folder to start the OpenSpirit Desktop if shortcuts are not provided.



Select the option at the bottom of the panel to create shortcuts for all users. The account you are using to run the installer may need administrator privileges on the local machine for this option to succeed.

The installer does not provide an option for creating the shortcuts in multiple locations. The Windows right mouse button popup menu can be used after the installation is completed to copy the shortcuts to other locations.

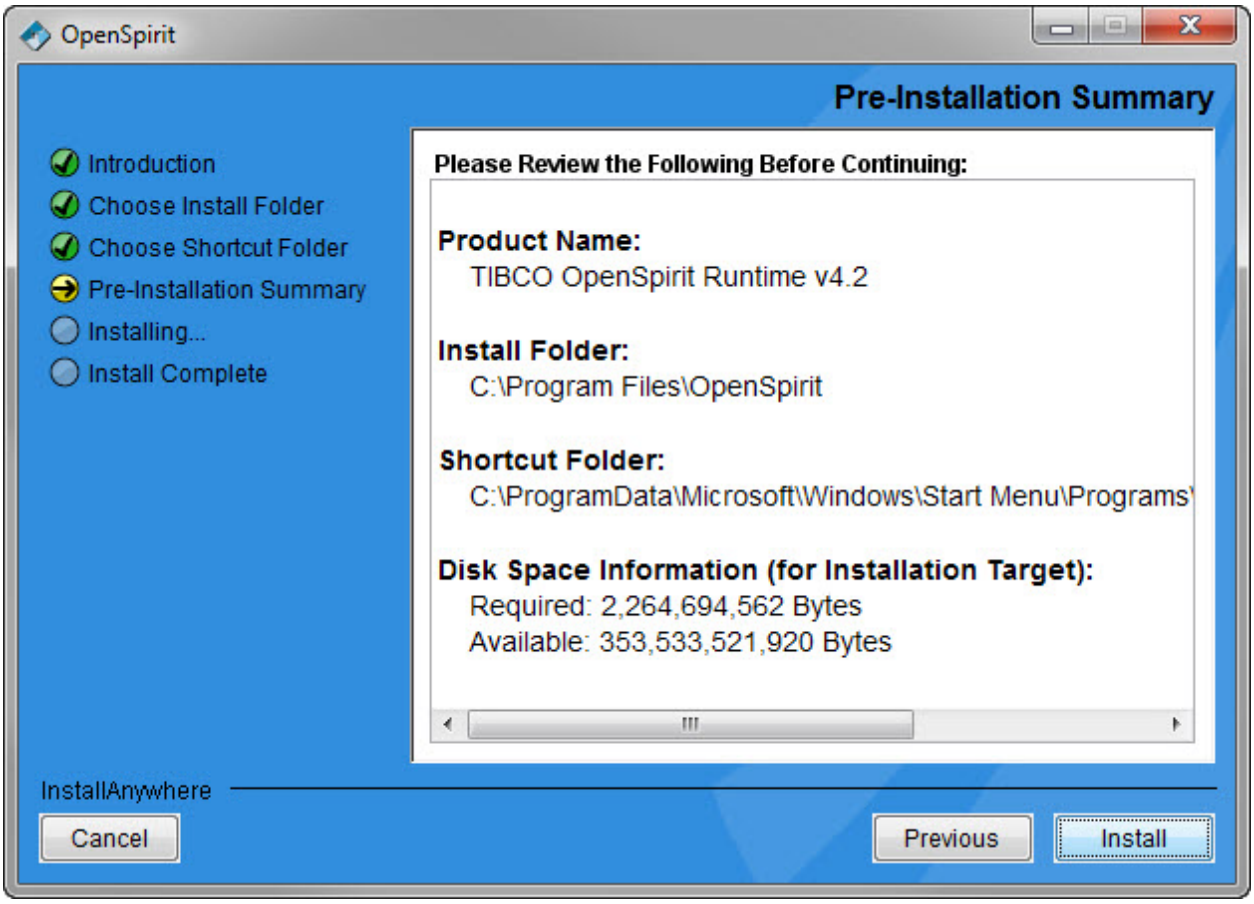
Click on the Next button to proceed to the next step in the installation process after selecting the shortcut folder option.

Pre-Installation Summary

The pre-installation summary panel shows where the OpenSpirit software will be installed and where the shortcuts will be created if installing on Windows. It also shows the amount

of disk space that is required to complete the installation. The required disk space is an estimate made by the installer. The numbers provided in the Disk_Space section of the Installation Requirements section of this guide provide a more accurate estimate of the disk space requirements.

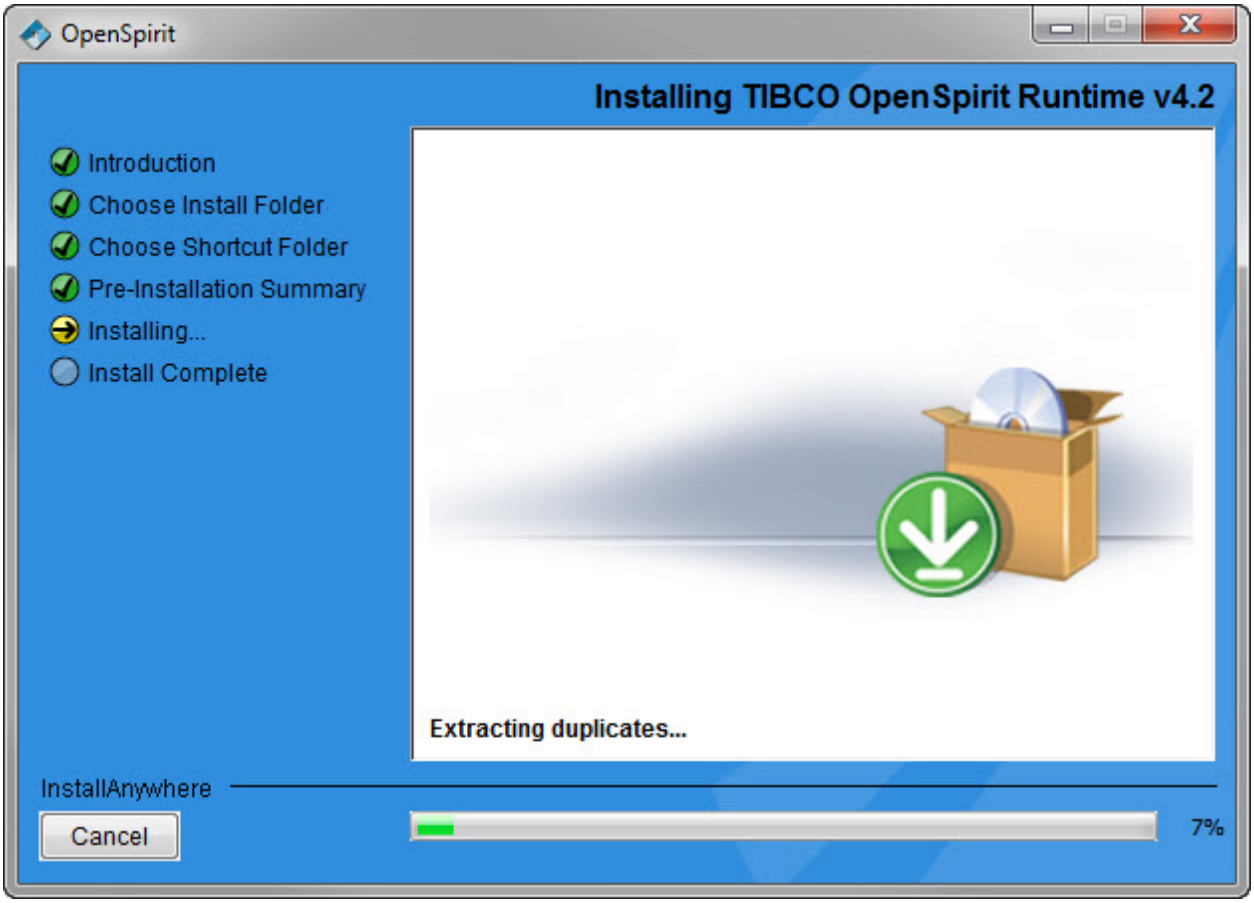
Review the information shown in the summary to make sure it matches your expectations. Click on the Previous button if you would like to go back and change any of the information entered in prior panels.



Click on the Next button to proceed with the installation process after verifying your choices.

Installing

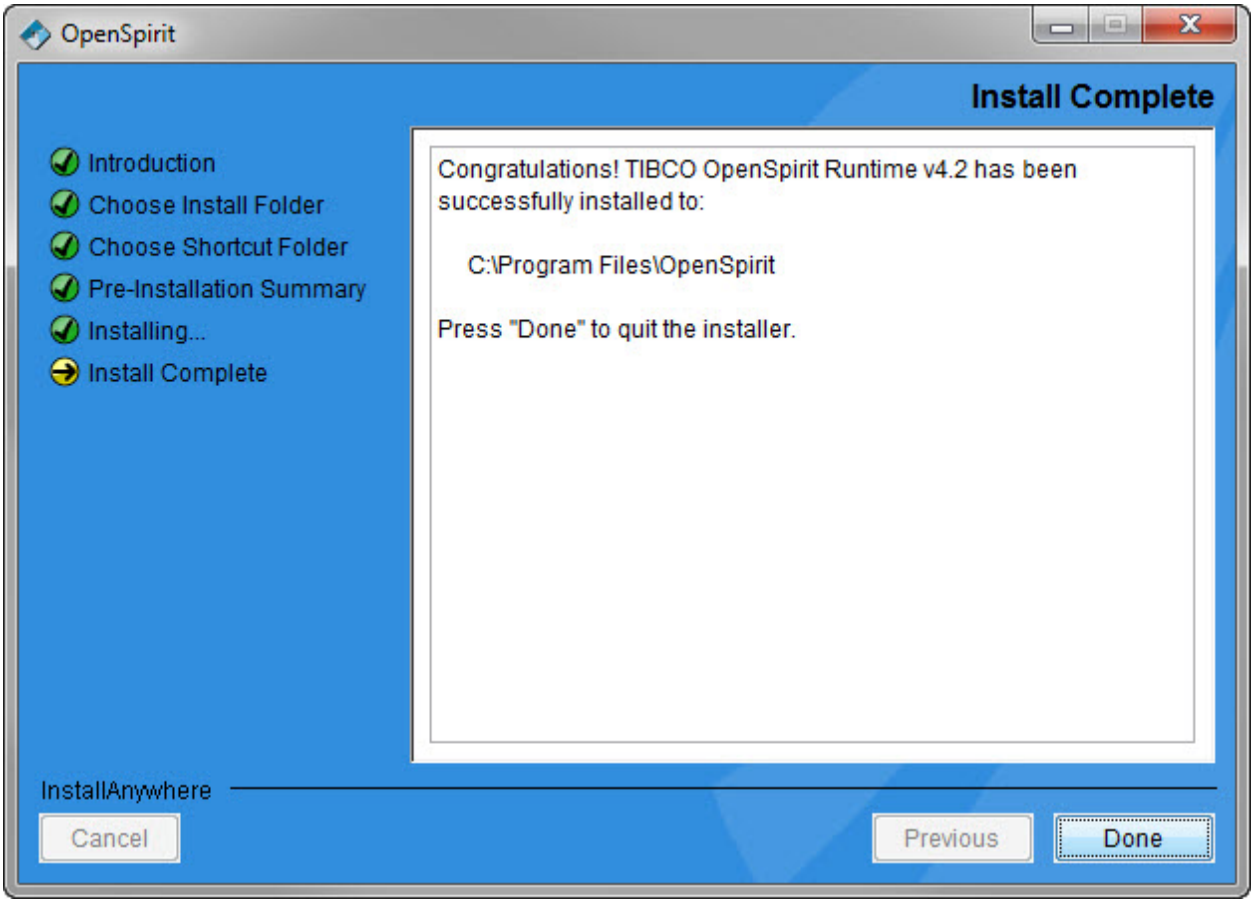
The installing panel is displayed while the files, folders, and shortcuts are being created by the installer. A progress bar is shown at the bottom of the panel. This phase of the installation may take a few minutes depending upon your system's file system performance.



The installer will advance to the final installation panel automatically when the file installation phase completes.

Install Complete

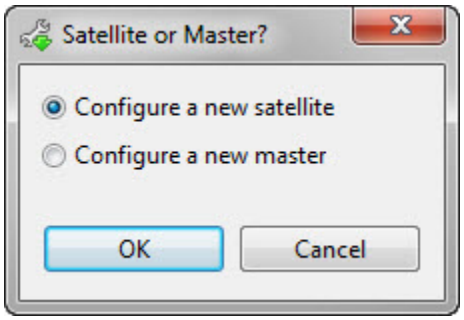
The install complete panel appears when the files have all been installed. The complete panel reminds you the folder that the software has been installed in.



Click on the Done button to exit the installer. The installation is complete, so the option to cancel or to return to the previous panel are not enabled.

Install Config Manager

The Install Config Manager tool will be started when exiting the installer to begin the next step of configuring a master or a satellite installation. A prompt window will appear asking if you wish to configure a new OpenSpirit satellite or a new OpenSpirit master. Select the type of installation you would like to configure. See the OpenSpirit Runtime Configurations section of this guide for information about satellite and master configurations if you are unsure which to pick.



Click on the Ok button to begin the configuration process. The Install Config Manager window will appear with a satellite or master configuration form opened ready to create a new configuration. See the Install Config Manager section of this guide for information about entering the satellite or master configuration information.

Click on the cancel button to dismiss the satellite or master prompt without opening a new configuration form. The Install Config Manager tool will still appear, but it can be dismissed and reopened at a later time to create satellite or master configurations.

Silent Installation

Installation can be performed without the need for a graphical display or user interaction. This is done by providing the installation settings in a text file and supplying a command line option to the installer to instruct it to run in silent mode. The installation settings must be placed in a file named ***installer.properties*** which must be located in the same directory as the install kit. Add ***-i silent*** as command line options when running the installer to perform a silent install. The ***installer.properties*** file can include options to pass to the Install Config Manager to configure a master or a satellite at the end of the install without the need to run the Install Config Manager interactively.

Templates for an ***installer.properties*** file for creating a master and for creating a satellite are provided in the TIBCO software download page for the TIBCO OpenSpirit Runtime product.

License Service

The OpenSpirit tools, application adapters, and data connectors need a software license to run. OpenSpirit software features are licensed on a per-concurrent user basis. OpenSpirit uses third party software called ***FlexNet Publisher*** to manage software license check in and check out. FlexNet Publisher runs as a service on your company's network. The license service manages the check-in and check-out of license entitlements called features. Each OpenSpirit tool, data connector, or application adapter requires one or more license feature.

 The license service was installed during installation of an OpenSpirit master prior to version 4.0 of the TIBCO OpenSpirit Runtime. The license service now has a separate installer. The license service was decoupled from the OpenSpirit runtime because many companies want to run the license service on a different computer than the one used to run the OpenSpirit shared services. Some companies already have a computer set up with a FlexNet license service for use with other software products and only need to add OpenSpirit licenses to the existing service.

Obtaining a License File

License features are provided by TIBCO Software Inc. to customers when OpenSpirit software is purchased. License features are delivered as a zipped text file attachment to an e-mail. The name and identification number of the host computer that will be used to run the license service must be provided to the TIBCO OpenSpirit license administrator when requesting your license file. The Installing_the_License_Service section below describes how the license file is installed into the license service.

The identification number of the host that will be used to run the license service is called a hostid. A hostid is represented by an eight to twelve digit hexadecimal number.

Linux Hostid

The simplest way to determine a Linux computer's hostid is to use the ***lmhostid*** command line utility that is provided with the OpenSpirit license service. The utility is located in the ***Linux_i386*** sub-directory of a Linux license service installation.

Following is an example of executing the lmhostid command. The quoted number shown in bold is the hostid that should be provided when requesting your OpenSpirit license file.

```
./lmhostid

lmhostid - Copyright (c) 1989-2007 Macrovision Europe Ltd. and/or Macrovision
Corporation. All Rights Reserved.

The FLEXnet host ID of this machine is "0018fe878b66"
```

Windows Hostid

Obtaining the hostid on Windows hosts can be more involved. A command line executable named ***lmhostid.exe*** is provided in the Windows_x86 folder of a Windows license service installation. However, it is common for the command to return several hostids. Hostids are sometimes returned for network adapters that are not always enabled such as a WIFI network adapter or a VPN connection. It is better to provide the output from the ipconfig command than from the lmhostid.exe.

Following is an example of executing the ***ipconfig /all*** command from a Windows command window.

```
C:\>ipconfig /all

Windows IP Configuration

   Host Name . . . . . . . . . . . . : win-host
   Primary Dns Suffix  . . . . . . . : tibco.com
   Node Type . . . . . . . . . . . . : Hybrid
   IP Routing Enabled. . . . . . . . : No
   WINS Proxy Enabled. . . . . . . . : No
   DNS Suffix Search List. . . . . . : tibco.com

Ethernet adapter Local Area Connection* 9:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : Juniper Network Connect Virtual
Adapter
   Physical Address. . . . . . . . . : 00-FA-B0-3B-67-0A
   DHCP Enabled. . . . . . . . . . . : Yes
   Autoconfiguration Enabled . . . . : Yes

Ethernet adapter Local Area Connection:

   Connection-specific DNS Suffix  . : tibco.com
   Description . . . . . . . . . . . : Broadcom NetXtreme 57xx Gigabit
Controller
   Physical Address. . . . . . . . . : 00-23-E7-3E-AF-5B
   DHCP Enabled. . . . . . . . . . . : Yes
   Autoconfiguration Enabled . . . . : Yes
   Link-local IPv6 Address . . . . . : fe80::30eb:10b6:e27:4ded%10(Preferred)
   IPv4 Address. . . . . . . . . . . : 192.164.20.52(Preferred)
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Lease Obtained. . . . . . . . . . : Wednesday, January 25, 2012 5:22:43 PM
   Lease Expires . . . . . . . . . . : Thursday, February 02, 2012 5:22:43 PM
   Default Gateway . . . . . . . . . : 192.164.20.1
```

```
   DHCP Server . . . . . . . . . . . : 192.164.10.41
   DHCPv6 IAID . . . . . . . . . . . : 234791472
   DHCPv6 Client DUID. . . . . . . . : 00-01-03-01-12-55-A8-DB-00-34-E8-3E-
AE-4B
   DNS Servers . . . . . . . . . . . : 192.164.10.17
                                       192.164.10.19
                                       192.97.174.20
                                       192.106.136.20
   NetBIOS over Tcpip. . . . . . . . : Enabled
Tunnel adapter isatap.openspirit.com:
   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . : tibco.com
   Description . . . . . . . . . . . : Microsoft ISATAP Adapter
   Physical Address. . . . . . . . . : 00-00-00-00-00-00-00-E0
   DHCP Enabled. . . . . . . . . . . : No
   Autoconfiguration Enabled . . . . : Yes
```

The physical address value is the information that is needed to determine the computer's hostid. Note that the ***/all*** option must be specified on the ***ipconfig*** command to display the physical address value. Also note there may be several adapters, each having a physical address. Supply all of the output from the ipconfig command to TIBCO OpenSpirit support so they can select the best physical address to use for the hostid.

Choosing the License Service Host

The OpenSpirit license service can run on any host computer in your company's network that has network connectivity to the computers that will be used to run OpenSpirit applications and data connectors. OpenSpirit master installations require the host name of the computer used to run the license service and the port that the license service was configured to use. An IP address can be used in lieu of the host name.


Your license file will contain a SERVER line near the top of the file. This line contains the host name, hostid, and port number that should be used to run the license service. The hostid portion of the SERVER line cannot be modified. The host name and port number fields may be edited. Change the host name if you rename the computer used to run the license service. A new license file is needed if the computer's hostid changes. The port number can also be changed if you would like the license service to use a different port number. The default port number that appears in the license file is 27001. The port number must be in the range of valid port numbers (1024 thru 65535) and must not be a port already in use by another service.

Multiple OpenSpirit master installations can be configured to use the same license service. Licenses will then be shared among all OpenSpirit installations configured to use the service.

 The TIBCO OpenSpirit license agreement prohibits sharing licenses across multiple sites unless a global license option was purchased. Consult with your TIBCO OpenSpirit sales representative if you are unsure of the geographic scope of your OpenSpirit licenses.

The license service requires modest amounts of memory and CPU cycles, but it does need to maintain consistent network communication. It is therefore important to choose a reliable computer to host the license service. The license service must be available to OpenSpirit applications and data connectors while they are running.

 A optional redundant host license model can be used to minimize the likelihood of a license service outage. The redundant model requires three host computers, each of which run the license service. One of the three hosts can go down without disrupting OpenSpirit applications and data connectors. The redundant model requires a special license file. Consult with TIBCO OpenSpirit support if you would like to learn more about setting up a three host redundant license service.

Installing the License Service

TIBCO OpenSpirit License Service install kits are available for download from the same location used to download the TIBCO OpenSpirit Runtime install kits. The installers are provided as self-extracting executable files. The Linux installer is a self-extracting shell script that has a ***.bin*** file name extension. The Windows installer executable has a ***.exe*** file name extension. The installer will extract files into your system's temp directory and then will run the install application from the extracted files.

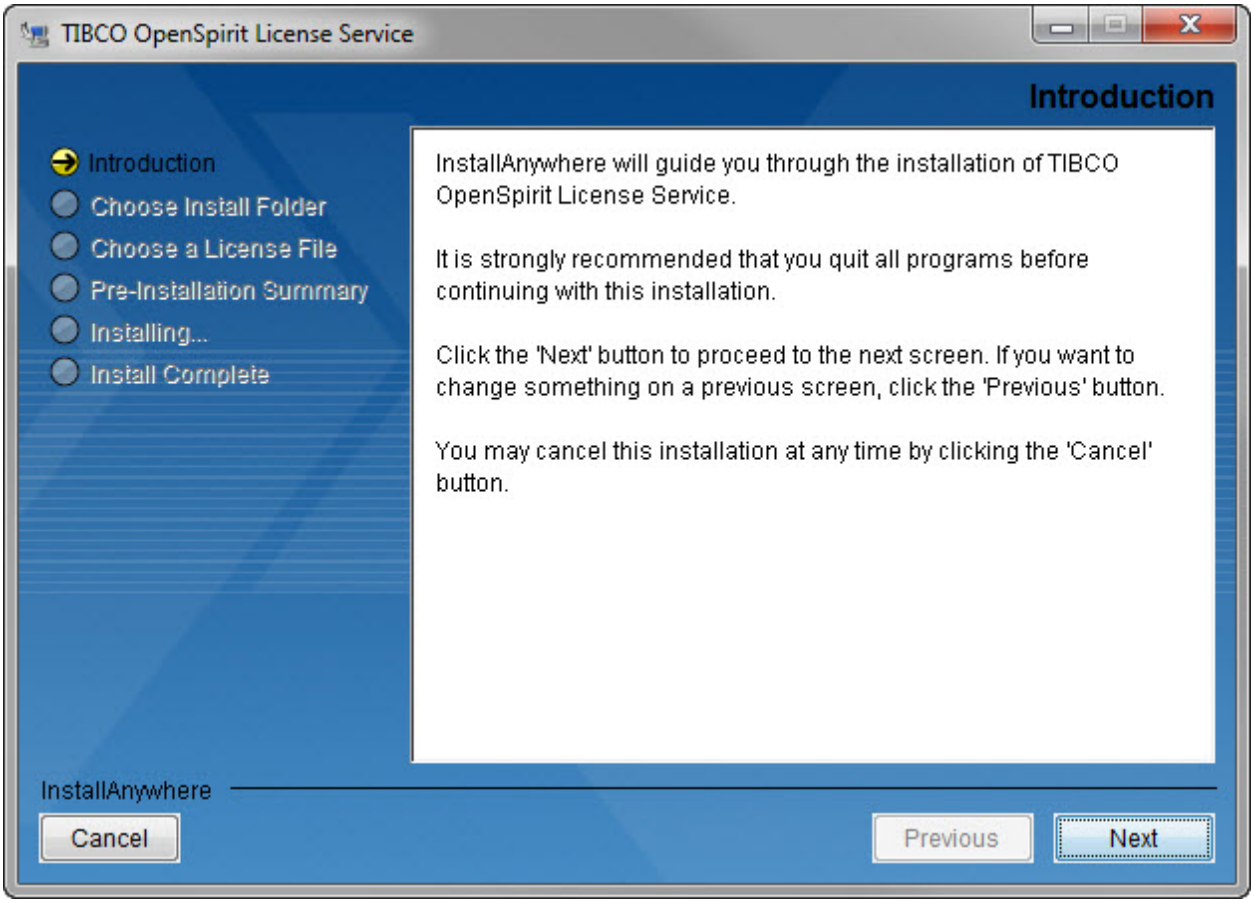
Installation requires a graphical display. A ***DISPLAY*** environment variable must be set to a valid X Windows display in order to run the OpenSpirit installer on Linux. Windows installation requires a Windows desktop display. The install steps are identical on Windows and Linux.

 Any account can be used to install the service on Linux. The account used to install on Windows must have permissions to register and start a Windows service. The license service will be configured to run as a Windows service under the ***Local System*** account.

The following installation panel images were taken during a Windows installation. The installation steps and installer panels are identical on Linux other than an additional message display panel that appears near the end of the installation on Linux.

Introduction

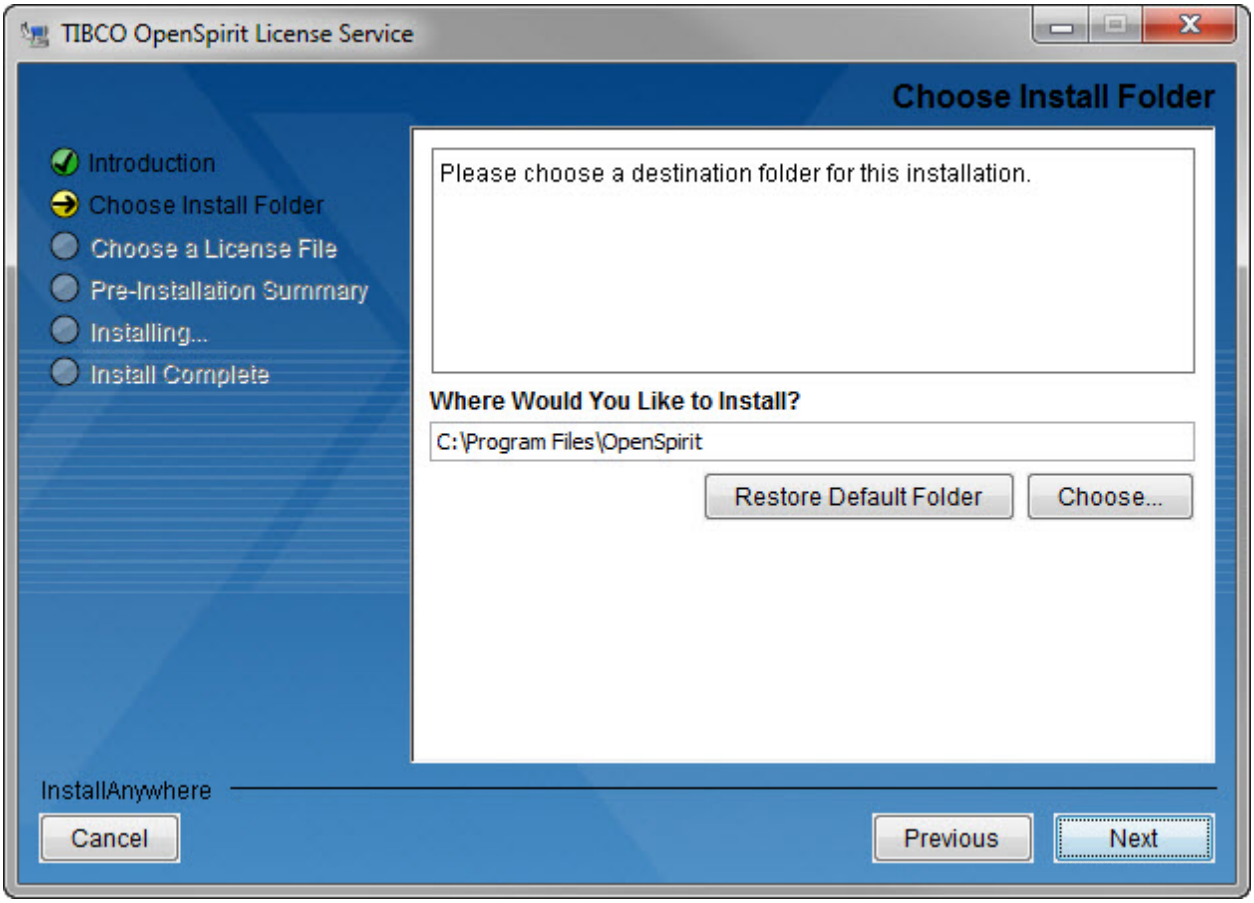
The introduction panel is the first panel displayed by the installer. It provides instructions on use of the Cancel, Previous, and Next buttons at the bottom of the install panels.



Click on the Next button to proceed to the next step in the installation process.

Choose Install Folder

The install folder selection panel is used to select the file folder that the OpenSpirit software will be installed in. Click on the ***Choose...*** button to open a folder selection window to navigate to the folder you would like to install the license service software into if you do not want to install into the default location. You can also type the folder location directly into the text entry field or you can paste a folder path in using the system copy/paste clipboard.



The folder selection windows displayed by clicking on the ***Choose..*** button have a different appearance depending on the operating system platform the installer is running on. Note, a folder creation button is provided in the upper right corner of the folder selection window if you would like to create a new folder to install under.

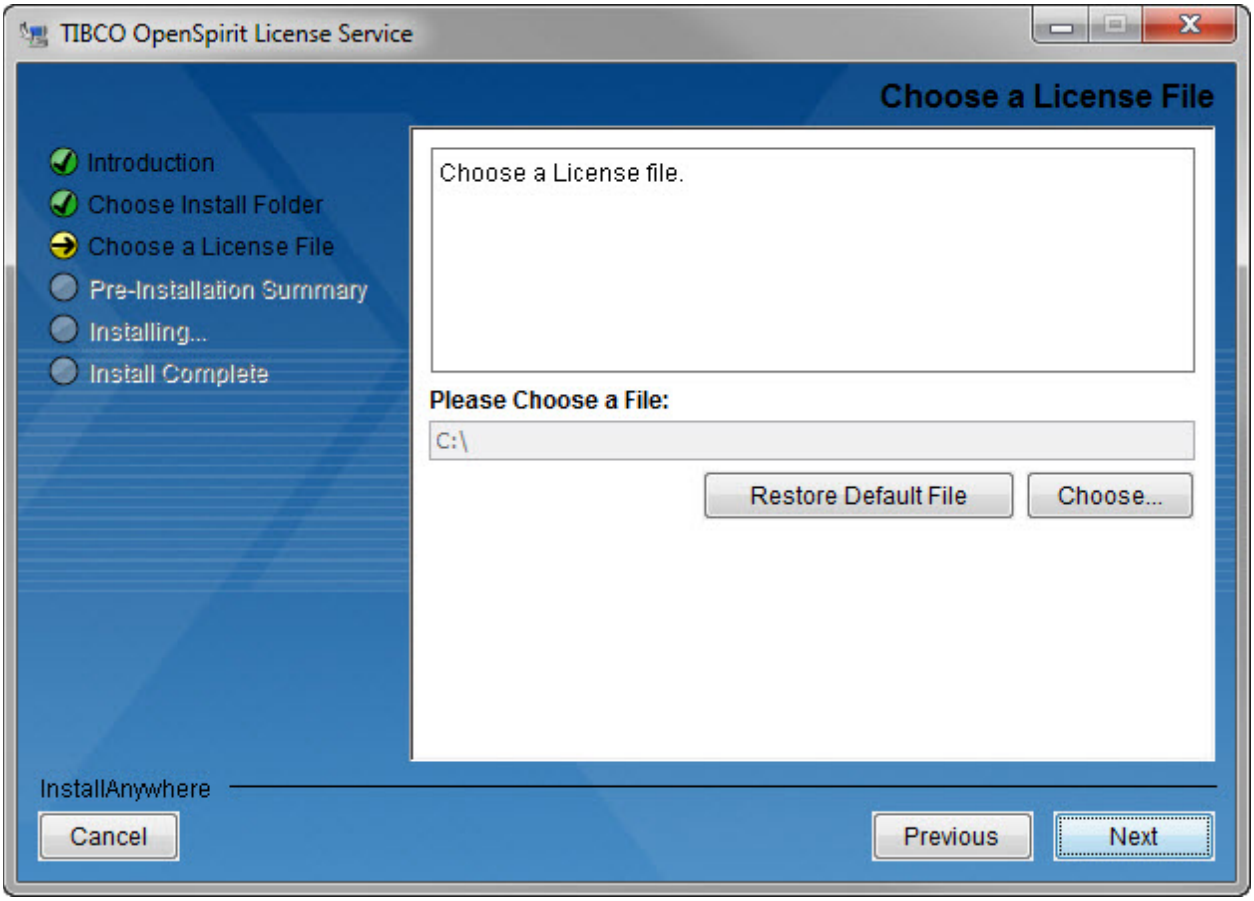
Click on the Next button to proceed to the next step in the installation process after selecting the installation folder.

Choose a License File

Select the license file that contains your OpenSpirit license features. See the Obtaining_a_License_File section above for information about obtaining the license file.

Choosing a license file is not mandatory when installing on Linux. A license file must be chosen when installing on Windows because the license service will be configured as a Windows service which is started at the completion of the installation procedure. The license server will fail to start if it does not have a license file.

Make sure the SERVER line in the license file contains the correct host name and the port you want to use for the license service. The license file can have any file name and can be located anywhere. The installer will create a copy of the file and place it in the required directory as file name ***license.dat***.

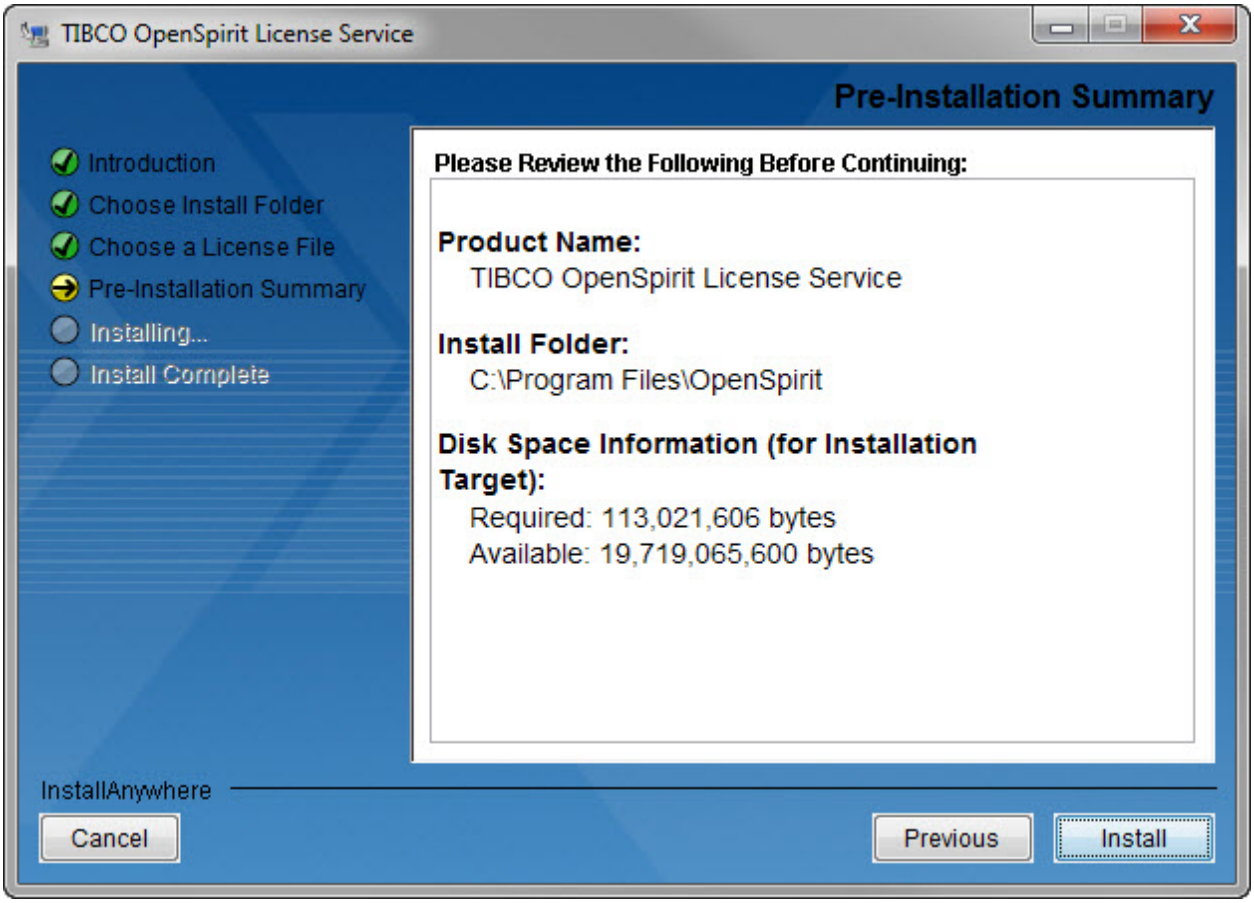


Click on the Next button to proceed to the next step in the installation process.

Pre-Installation Summary

The pre-installation summary panel shows where the license service software will be installed. It also shows the amount of disk space that is required to complete the installation. The required disk space is an estimate made by the installer.

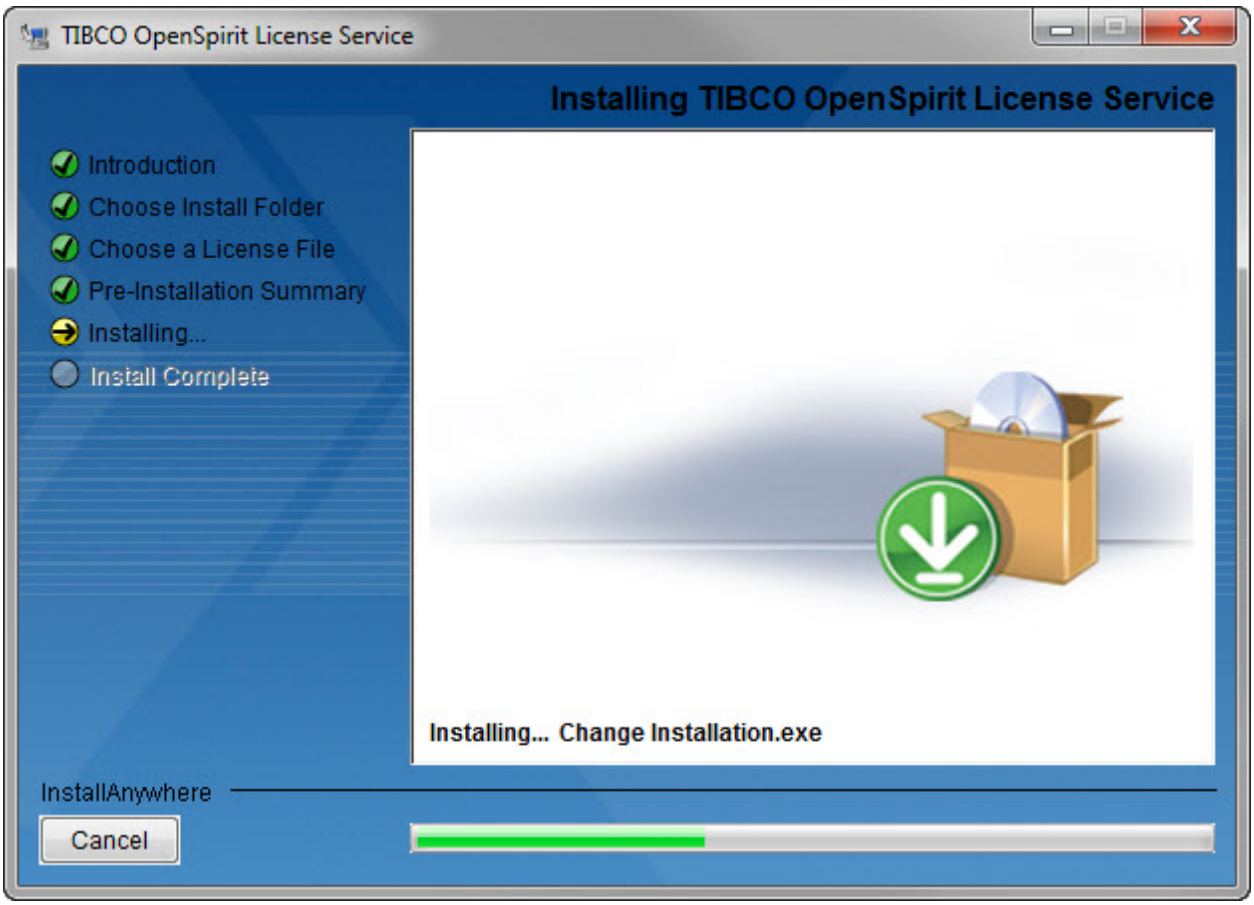
Review the information shown in the summary to make sure it matches your expectations. Click on the Previous button if you would like to go back and change any of the information entered in prior panels.



Click on the Next button to proceed with the installation process after verifying your choices.

Installing

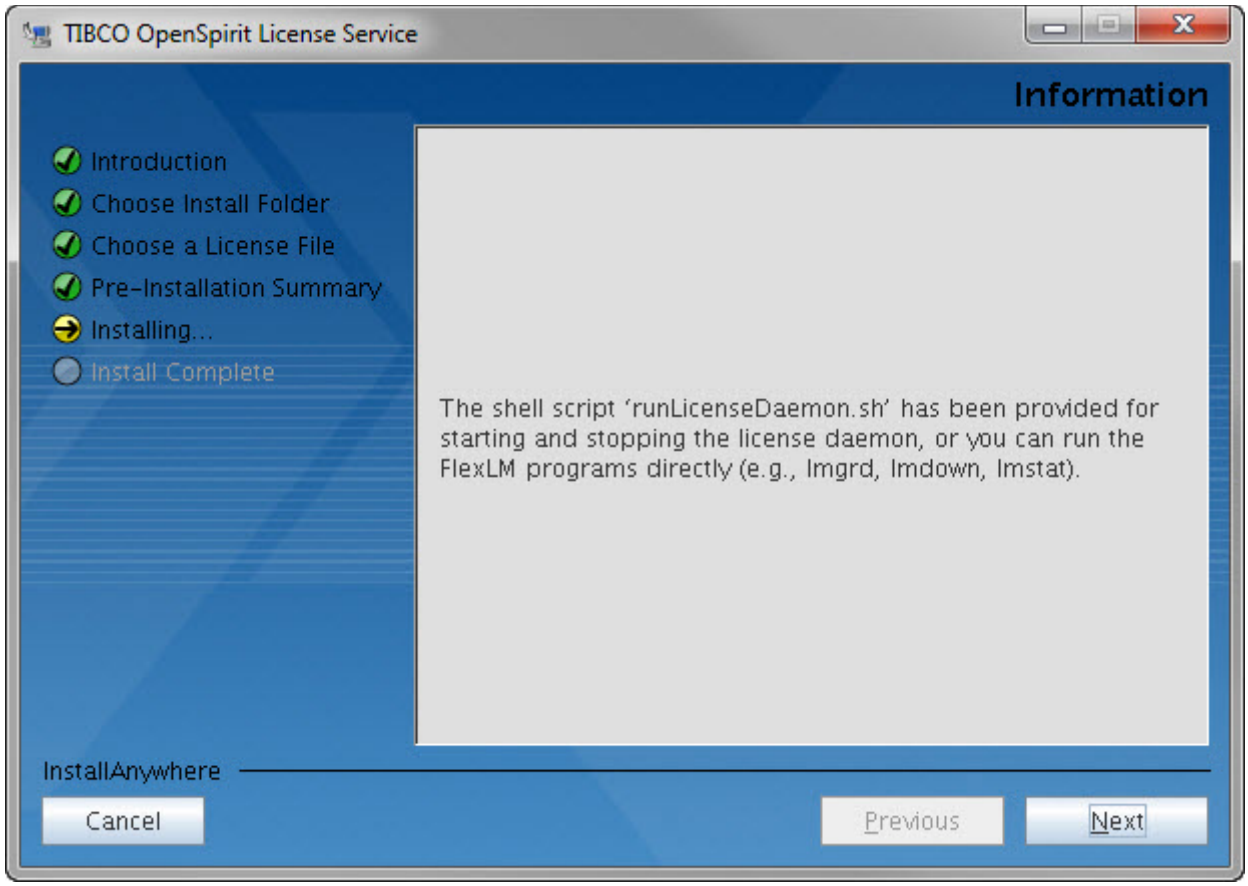
The installing panel is displayed while the files and folders are being created by the installer. A progress bar is shown at the bottom of the panel. This phase of the installation may take a few minutes depending upon your system's file system performance.



The installer will advance to the next panel automatically when the file installation phase completes.

Information

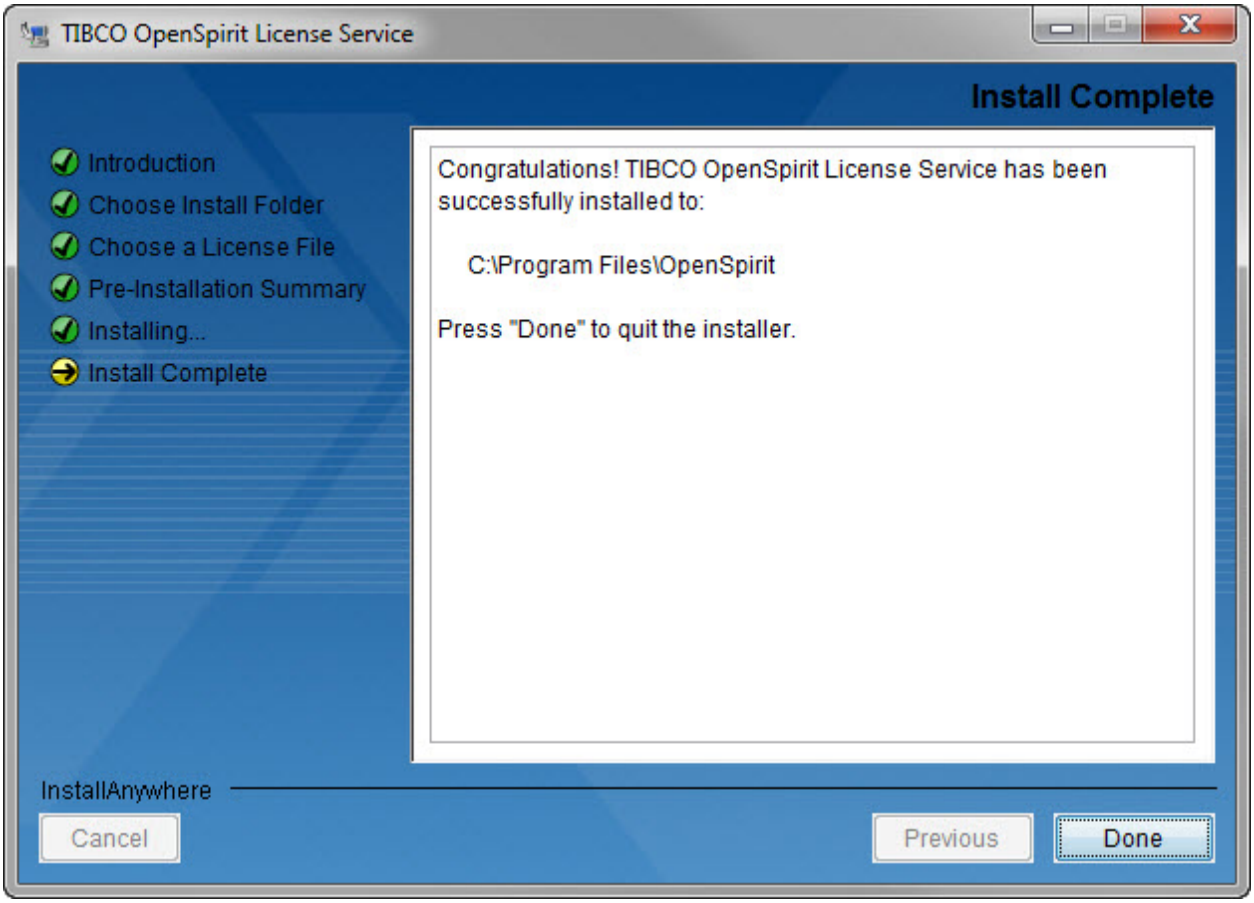
The information panel appears when installing on Linux. This panel does not appear when installing on Windows. This panel informs you about a script that can be used to start the license service.



Click on the Next button to proceed to the last step in the installation process.

Install Complete

The install complete panel appears when the files have all been installed. The complete panel reminds you the folder that the software has been installed in.



Click on the Done button to exit the installer. The installation is complete, so the option to cancel or to return to the previous panel are not enabled.

The license service must be started using the provided run script if the service was installed on Linux. The license service is started for you when installing on Windows.

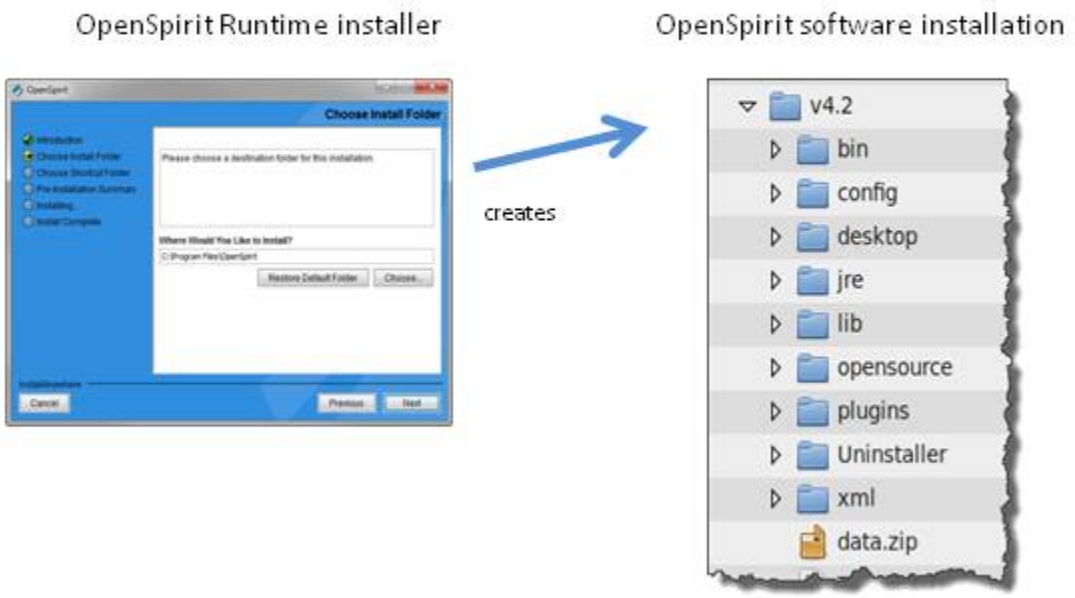
Install Config Manager Overview

The OpenSpirit Install Config Manager tool is used to create and configure OpenSpirit master installations and OpenSpirit satellite installations. The concepts of master installation and satellite installation are described in the OpenSpirit Runtime Configurations section of this document.

It is important to understand the distinction between an OpenSpirit software installation and an OpenSpirit master or satellite configuration.

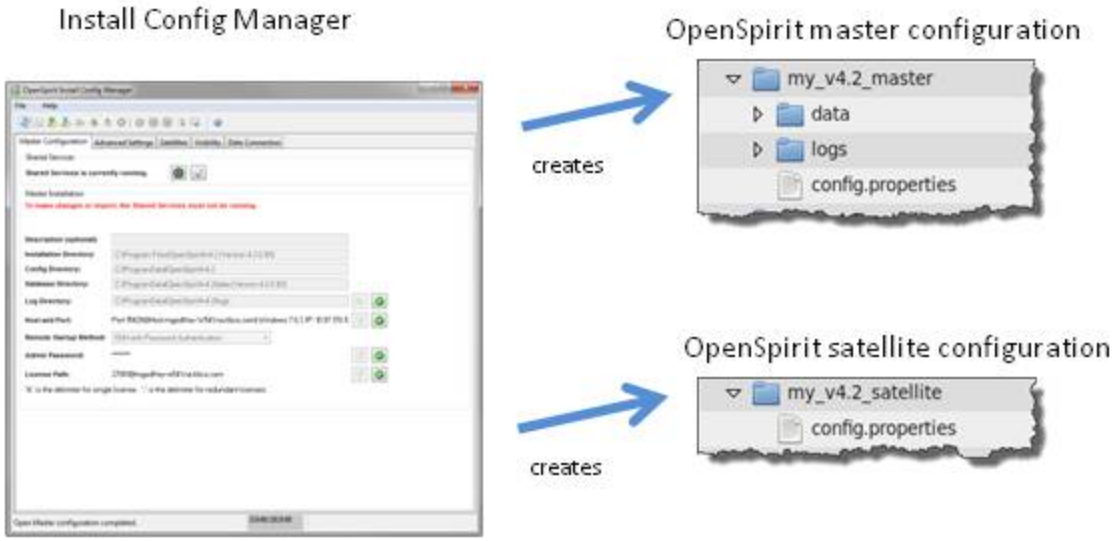
OpenSpirit Software Installation

An OpenSpirit software installation is the scripts, programs, libraries, and other files needed to run OpenSpirit enabled applications, tools, and data connectors. OpenSpirit software installations are created using the OpenSpirit runtime installer previously described in the Installing OpenSpirit section of this guide.



OpenSpirit Master and Satellite Configurations

OpenSpirit master and satellite configurations are sets of configuration files that control how OpenSpirit enabled applications, tools, and data connectors will behave. OpenSpirit master configurations and satellite configurations are created using the Install Config Manager tool.



The default location for a Linux configuration directory is a directory named ***config*** located at the top level of the OpenSpirit software installation that the Install Config Manager is being run from. Normally an ***OSP_CONFIG*** environment variable must be set to the fully qualified path to a config directory in order to run the OpenSpirit Desktop or to run third party OpenSpirit enabled applications on Linux. Selecting the default location eliminates the need to set an ***OSP_CONFIG*** environment variable prior to running the OpenSpirit Desktop. However, the ***OSP_CONFIG*** environment variable must be set for third party OpenSpirit enabled applications to connect even if the default config directory location is used. The ***OSP_CONFIG*** environment variable is not needed on Windows. The configuration directory is required to be in a fixed location on Windows.

Master Configuration

A master configuration is composed of a ***config.properties*** file, a ***data*** directory, and a ***logs*** directory.

The ***config.properties*** file is a text file that contains some of the configuration properties specified when creating the configuration using the Install Config Manager. Additional configuration properties are stored in the master's metadata repository. The purpose of the master ***config.properties*** file is to provide information needed to run the OpenSpirit shared service, to run the OpenSpirit Desktop, and to enable third party OpenSpirit enabled applications to connect to OpenSpirit.

Following is an example of the contents of a master configuration ***config.properties*** file.

```
#OpenSpirit configuration file.
#
#Wed Nov 10 10:43:11 CST 2015
HOST=osp-server.bigoil.com
DATA=/apps/OpenSpiritConfigs/offshore-group/data
LOG=/apps/OpenSpiritConfigs/offshore-group/logs
HOME=/apps/OpenSpirit/v4.2
DB_UUID=67b5c8f0-cc6c-9161-1c3d-001296b0312e
PORT=15420
```

The ***data*** directory contains the files and sub-directories that represent the OpenSpirit master's metadata repository. The ***logs*** directory is the directory that the OpenSpirit shared service will write its log files to. The default is to create the ***data*** directory and the ***logs*** directory as sub-directories under the master configuration directory. The default locations can be changed when creating the master configuration using the Install Config Manager.

Satellite Configuration

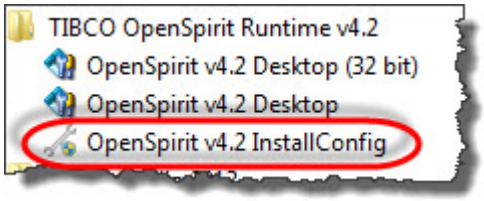
A satellite configuration is composed of a directory containing only a ***config.properties*** file. A satellite ***config.properties*** file contains a subset of the information contained in a master ***config.properties*** file. Its purpose is to indicate the OpenSpirit master that the satellite is to be associated with. The satellite ***config.properties*** file provides information needed to enable the OpenSpirit Desktop and third party OpenSpirit enabled applications to connect to the metadata repository managed by the satellite's associated master.

Following is an example of the contents of a satellite configuration ***config.properties*** file.

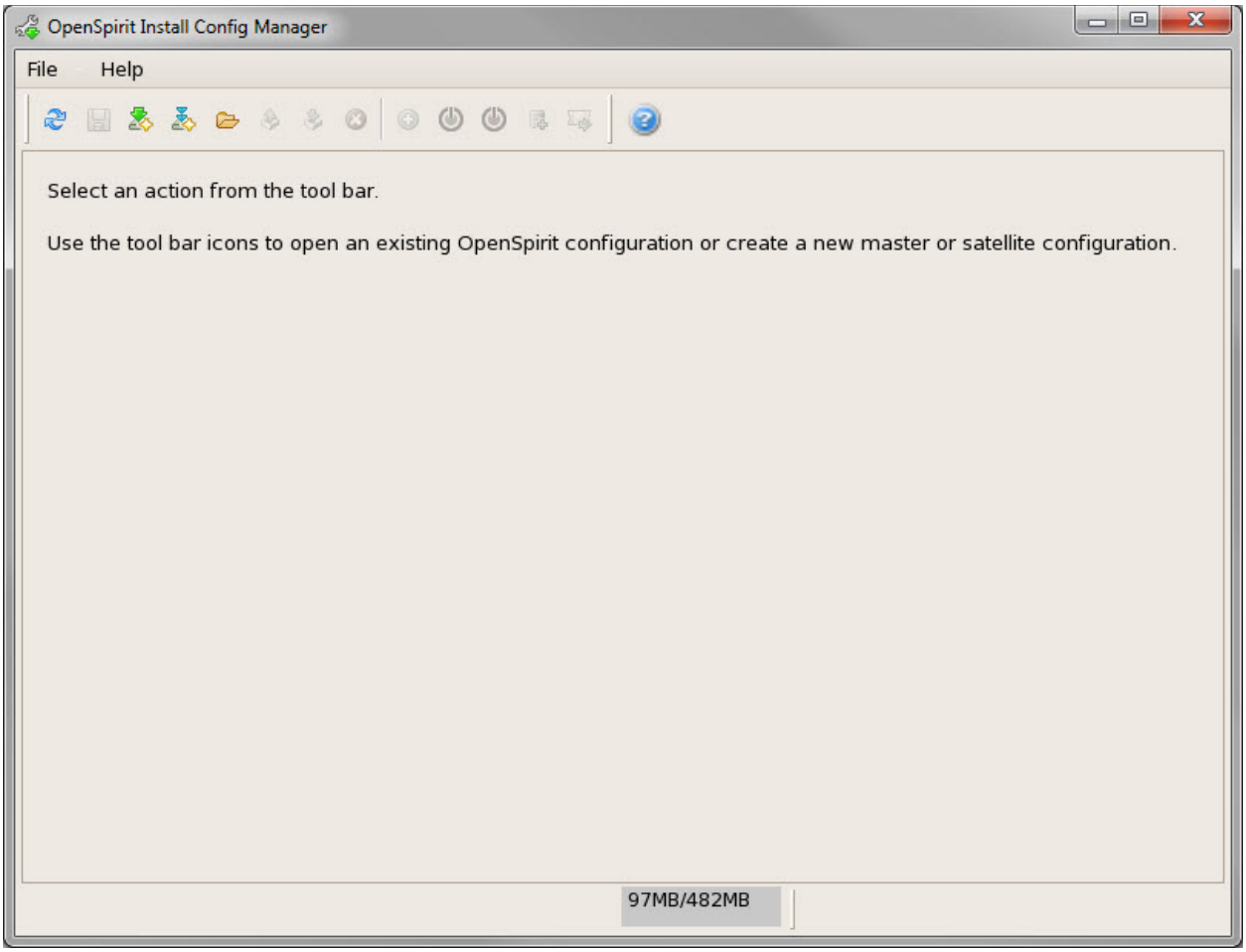
```
#OpenSpirit configuration file.
#
#Wed Nov 11:15:12 CST 2015
HOST=osp-server.bigoil.com
HOME=/apps/OpenSpirit/v4.2
PORT=15420
```

Starting the Install Config Manager

The Install Config Manager tool is automatically started at the end of an OpenSpirit software installation. It can also be started any time from a completed OpenSpirit software installation. The Install Config Manager is started on Linux by running the ***installconfig*** script found in the ***bin*** directory of the OpenSpirit software installation. The Install Config Manager is started on Windows by selecting the Install Config option created in the Windows start menu.

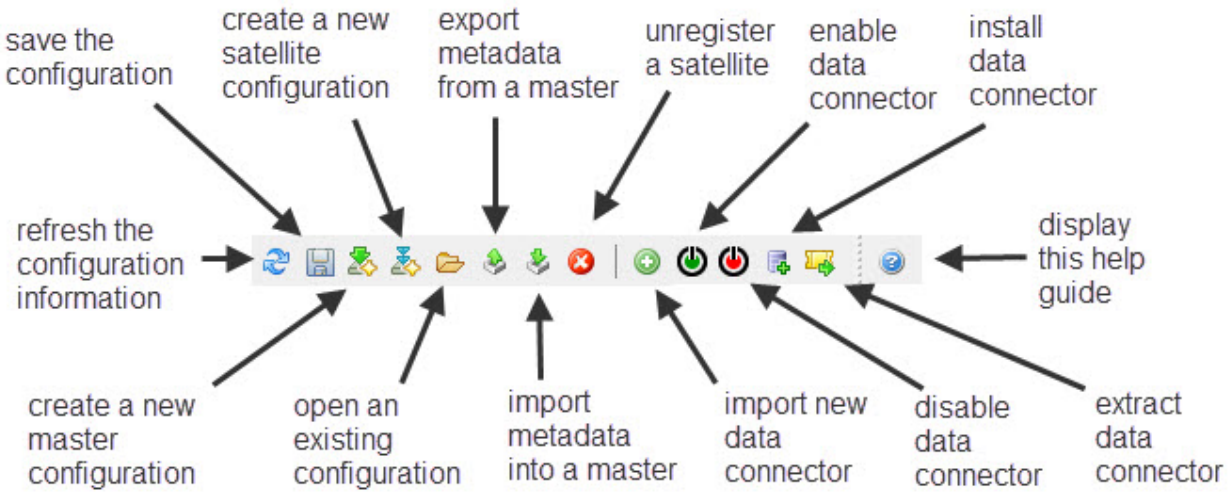


The Install Config Manager has an appearance that is quite similar to the OpenSpirit Desktop. It provides a tool bar that contains icons for each action that can be performed. Three actions can be performed when the Install Config Manager is started. You can create a new master configuration, create a new satellite configuration, or open a previously created master or satellite configuration. The following sections of this guide describe these actions in detail.


OpenSpirit Install Config Manager
File
Help
Select an action from the tool bar.
Use the tool bar icons to open an existing OpenSpirit configuration or create a new master or satellite configuration.
97MB/482MB

Install Config Manager Tool Bar

The Install Config Manager tool bar contains buttons used to create and manage OpenSpirit master and satellite configurations, and tools to manage data connectors. These actions are described below.



Refresh Button

The refresh tool bar button  will refresh the currently open master or satellite configuration by re-reading the information from the configuration's ***config.properties*** file and from the metadata repository if it is a master installation. Any unsaved changes will be lost when a refresh is performed.

Save Button

The save tool bar button  will save a new configuration that is being created or it will save changes to an existing configuration that has been modified. The save button is not enabled until all required information has been entered when creating a new configuration and it is not enabled when no changes have been made to an existing configuration that has been opened.

Create Master Button

The create master button  will open a new master configuration form. The Configuring a Master Installation section of this guide describes the master configuration form.

Create Satellite Button

The create satellite button  will open a new satellite configuration form. The Configuring a Satellite Installation section of this guide describes the satellite configuration form.

Open Button

The open button  behaves differently on Windows than it does on Linux. A config directory selection window appears when the open button is pressed and Install Config Manager is running on Linux. Use the selection window to select an existing master or satellite config directory. A master or satellite configuration form will open to display the selected configuration. The forms are described in the Configuring a Master Installation and Configuring a Satellite Installation section of this guide.

The config folder is in a fixed location on Windows, so pressing the open button will either open the existing config folder, or it will display an error informing you that a configuration does not exist. The config folder location on Windows is `%ProgramData%\OpenSpirit\v#.#` where the "**#.#**" component of the folder path is the major and minor version number of the OpenSpirit Runtime you are using.

 Individual users can manually create a config folder in `%LocalAppData%\OpenSpirit\v#.#` which will override the configuration under `%ProgramData%`.

Export Metadata Button

The export button  is enabled when a master configuration has been opened. This button is used to export some of the information that is stored in the master installation's metadata repository. The Exporting_Metadata section of this guide describes metadata export.

Import Metadata Button

The import button  is enabled when a master configuration has been opened and ***the Shared Services are not running***. This button is used to import information from another master installation into the currently opened master installation's metadata repository. The Importing_Metadata section of this guide describes metadata import.

Unregister Satellite Button

The unregister satellite button  is used to remove satellite installations that have been registered with a master. The Satellite Management section of this guide explains registering and unregistering satellites.

Import Data Connector Button

The import data connector button  is used to import new versions of a data connector or to import entirely new data connectors into the currently opened master installation's metadata repository. The Importing_Data_Connectors section of this guide describes data connector importing.

Enable Data Connector Button

The enable data connector button  is used to re-enable a previously disabled data connector. The Disabling_Data_Connectors section of this guide describes data connector enabling and disabling.

Disable Data Connector Button

The disable data connector button  is used to disable a data connector. The Disabling_Data_Connectors section of this guide describes data connector enabling and disabling.

Install Data Connector Button

The install data connector button  is used to extract the binary executable files of a data connector from the metadata repository and install the files into the OpenSpirit installation that the Install Config Manager tool is being run from. The Installing_Data_Connectors section of this guide describes data connector installation.

Extract Data Connector Button

The extract data connector button  is used to extract the binary executable files of a data connector from the metadata repository and put them in a ZIP file that can then be used to install the data connector binaries manually. The Extracting_Data_Connectors section of this guide describes data connector extraction.

Help Button

The help button  is used to open this help guide.

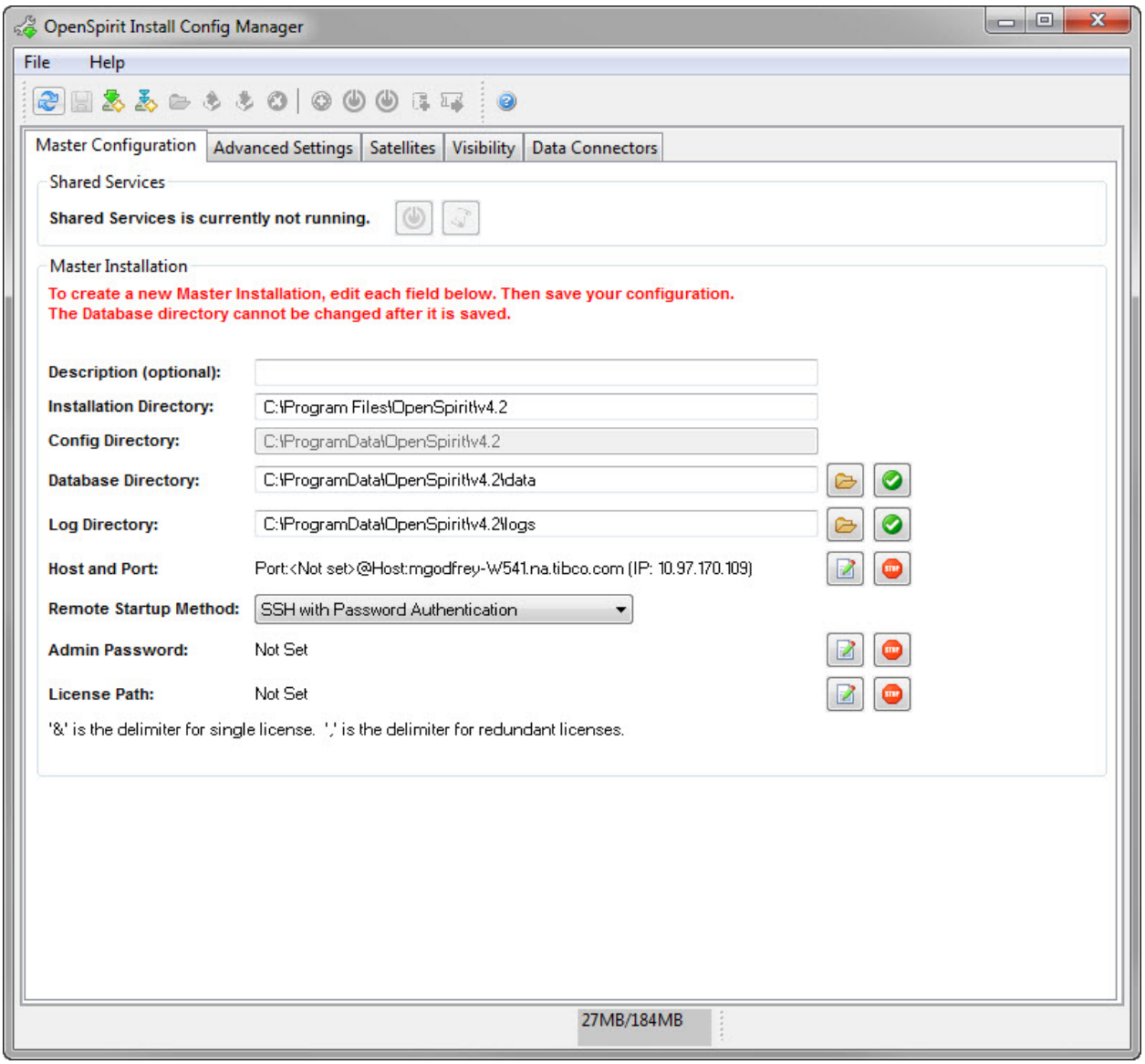
Master Configuration

Configuring a Master Installation

Master configurations are typically created by an IT administrator that has knowledge about your company's network and security infrastructure.

Click on the create master configuration button  in the Install Config Manager tool bar to open a new master configuration form. The form has some optional configuration setting fields and some mandatory fields. Each of the settings are described below. Enter the settings and press the save button  to create a new master.

A status icon is displayed to the right of each setting. The status icon appears as a green check mark  when a setting contains a valid value. The status icon appears as a red stop sign  when a required setting has not been entered, or when the value is not considered valid. Click on the red stop sign icon to display information about why it is not considered to be valid.



Each of the master configuration settings is described below.

Note: the config directory and database directory settings are not allowed to be changed once a new master configuration has been saved.

Description

The description setting is optional. The description provides a way to document the purpose for a master configuration, such as the business unit is serves. It can contain any text.

Config Directory

The directory that the configuration's ***config.properties*** file will be written to. This should be an empty directory prior to creating the master configuration. This setting is for

informational purposes only when configuring a master on Windows. The default configuration directory must be used on Windows. You must select an empty directory when configuring a master on Linux. The directory must be readable by the users that will be running applications or data connectors from the master.

The config directory cannot be changed once the master configuration has been saved.


The default directory on Linux is a sub-directory named ***config*** in the top level folder of the OpenSpirit software installation that the Install Config Manager is being run from. Using the default directory eliminates the need to have an ***OSP_CONFIG*** environment variable set prior to running the OpenSpirit Desktop on Linux. The environment variable must be set if a different name or location is used.

Database Directory

The database directory setting determines where the master's metadata repository will be created. The default it to create the database directory as a sub-directory under the config directory. The database will grow over time, so be sure to select a directory that will have enough space to accommodate your needs. The master's shared service process will read and write files in this directory, so the account used to run the shared service process must have read and write access to this directory. OpenSpirit users do not need read or write access to the database directory. See the Disk Space section of this guide for information that can help you estimate your metadata repository space requirements.

The database directory setting cannot be changed once the master configuration has been saved.

Log Directory

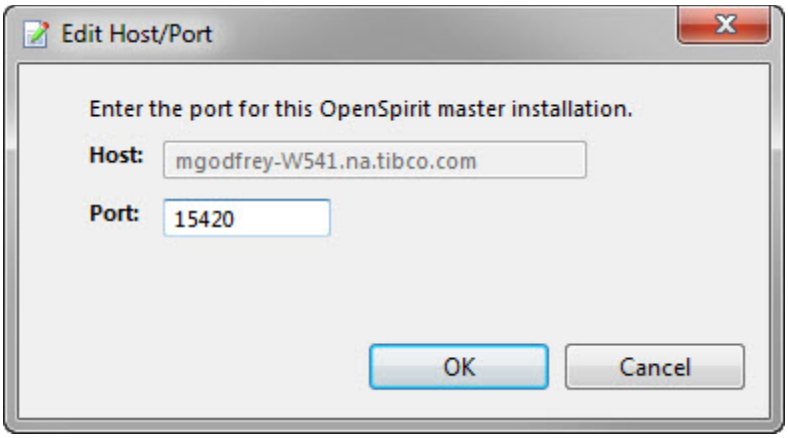
The log directory setting determines where the master's service processes will write their log files. The default is to create the log file directory as a sub-directory under the config directory. OpenSpirit users do not need read or write access to the log directory.

Installation Directory

The installation directory is shown for informational purposes only. It shows the OpenSpirit software installation directory that the Install Config Manager is being run from. This setting cannot be changed.

Host and Port

The host and port setting determines the host and port used to run the master's shared service process. Click on the edit button  to open a window used to edit this setting.



The host setting displays the name of the computer you are running the Install Config Manager on. The host name cannot be changed. You must run the Install Config Manager on the host computer that will be used to run the master's shared service processes.

The port setting has a default value that can be modified. The port setting must be an integer number between 1024 and 65535. Do not use commas, only numbers. The port number must not already be in use by another service running on your computer. You computer's security settings must allow the master's shared service process to publish a network TCP/IP socket with this port number and other computers on your network that need to access this OpenSpirit master must be allowed to connect to this port.

Anyone installing a satellite to the master will need to know this host and port setting.

Remote Startup Method

The remote startup method setting determines the network protocol that will be used by the OpenSpirit framework to create data connector processes on a different computer from the computer that is running the OpenSpirit enabled application needing to access data. For example, when a user is running the OpenSpirit Desktop on a Windows desktop computer and would like to view data that resides in a GeoFrame database, a process must be created on Linux in order to call the GeoFrame libraries required to read and write the GeoFrame data. The Linux process will be started using the network protocol selected for the remote startup method setting.

SSH with Password Authentication

This remote startup method uses the Secure Shell network protocol with account/password authentication. Users must use the User Setup Wizard in the OpenSpirit Desktop to save their login account and password in the OpenSpirit metadata repository. The OpenSpirit framework will use the saved account and password to create remote processes when they are needed.

The host computers that OpenSpirit users will use to run remote data connector processes must be running a Secure Shell daemon that permits remote command execution using account/password authentication.

SSH with Password Authentication (interactive)

This remote startup method uses the same Secure Shell network protocol as the non-interactive method described above. The only difference is the account passwords are not entered in the User Setup Wizard and are not saved in the OpenSpirit metadata repository. OpenSpirit users are prompted to enter the password at the time the OpenSpirit framework receives the request to start a remote data connector process.

 The interactive remote startup method will not work for batch work flows, such starting data connector processes during Copy Manager or Scan Utility jobs scheduled to run at night when the user is not available to respond to a password prompt. See the tip about manually starting a locator process in the Host Account Settings section of the User Setup Wizard help guide.

REXEC

This remote startup method uses the Remote Process Execution network protocol with account/password authentication. Users must use the User Setup Wizard in the OpenSpirit Desktop to save their login account and password in the OpenSpirit metadata repository. The OpenSpirit framework will use the saved account and password to create remote processes when they are needed.

The host computers that OpenSpirit users will use to run remote data connector processes must be running a REXEC daemon that permits remote command execution using account/password authentication.

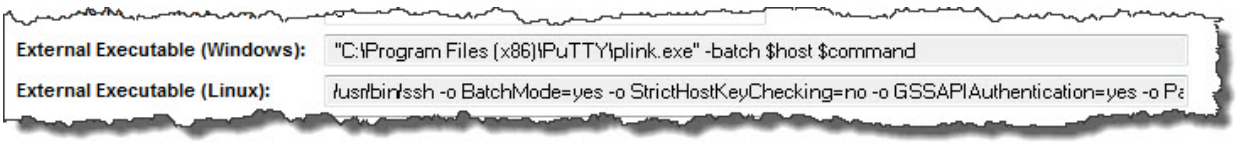
REXEC (interactive)

This remote startup method uses the same Remote Process Execution network protocol as the non-interactive method described above. The only difference is the account passwords are not entered in the User Setup Wizard and are not saved in the OpenSpirit metadata repository. OpenSpirit users are prompted to enter the password at the time the OpenSpirit framework receives the request to start a remote data connector process.

 The interactive remote startup method will not work for batch work flows, such starting data connector processes during Copy Manager or Scan Utility jobs scheduled to run at night when the user is not available to respond to a password prompt. See the tip about manually starting a locator process in the Host Account Settings section of the User Setup Wizard help guide.

External Executable

The external executable remote startup method does not select a network protocol. This remote startup method provides a way for companies to supply their own remote process creation program or script. This setting works in concert with the external executable settings found on the ***Advanced Settings*** tab of the Install Config Manager.



The ***Advanced Settings*** tab provides an external executable command setting for each operating system platform supported by the OpenSpirit framework. The external executable command settings are used to construct commands to start remote data connector processes.

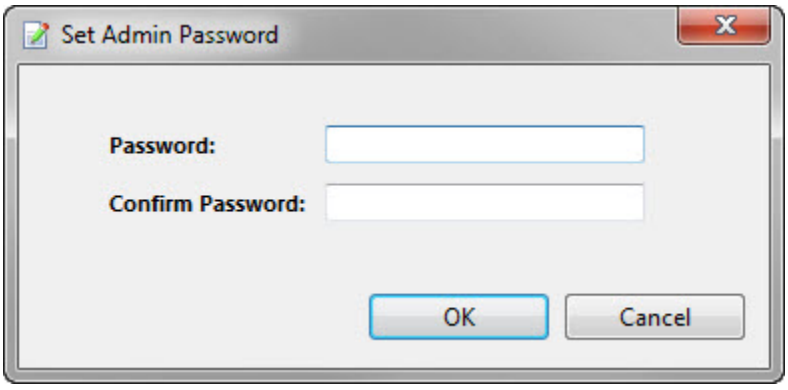
Substitution variables prefixed by a ***$*** character can be referenced in the command setting. Some variables are required and some are optional. The OpenSpirit framework will substitute values for the variables prior to executing the command. The following table describes the command substitution variables.

Variable Name	Required?	Description
host	yes	The name of the computer that the command should be executed on. The host name is determined by the user's preferences entered into the User Setup Wizard.
command	yes	The command to be executed. This will be the path to an OpenSpirit executable with command line options needed to start data connector processes
userhome	no	This will be set to $HOME on Linux and %USERPROFILE% on Windows. It is the home directory on the local computer requesting the remote process to be started, not the home directory on the remote computer.
osphome	no	This will be set to the top level directory of the OpenSpirit software installation on the local computer requesting the remote process to be started, not the OpenSpirit installation directory on the remote computer.

The default settings are provided as an example of how to specify external executable commands. It is likely that the default commands will not work without customizing them for your company's environment.

Admin Password

The admin password setting establishes the password needed to perform administrative functions in the OpenSpirit installation. The password is not needed when running under the account used to create the OpenSpirit master configuration. The password is needed to perform administrative functions using a different account. Click on the edit button  to open a window used to enter the OpenSpirit administrator password.

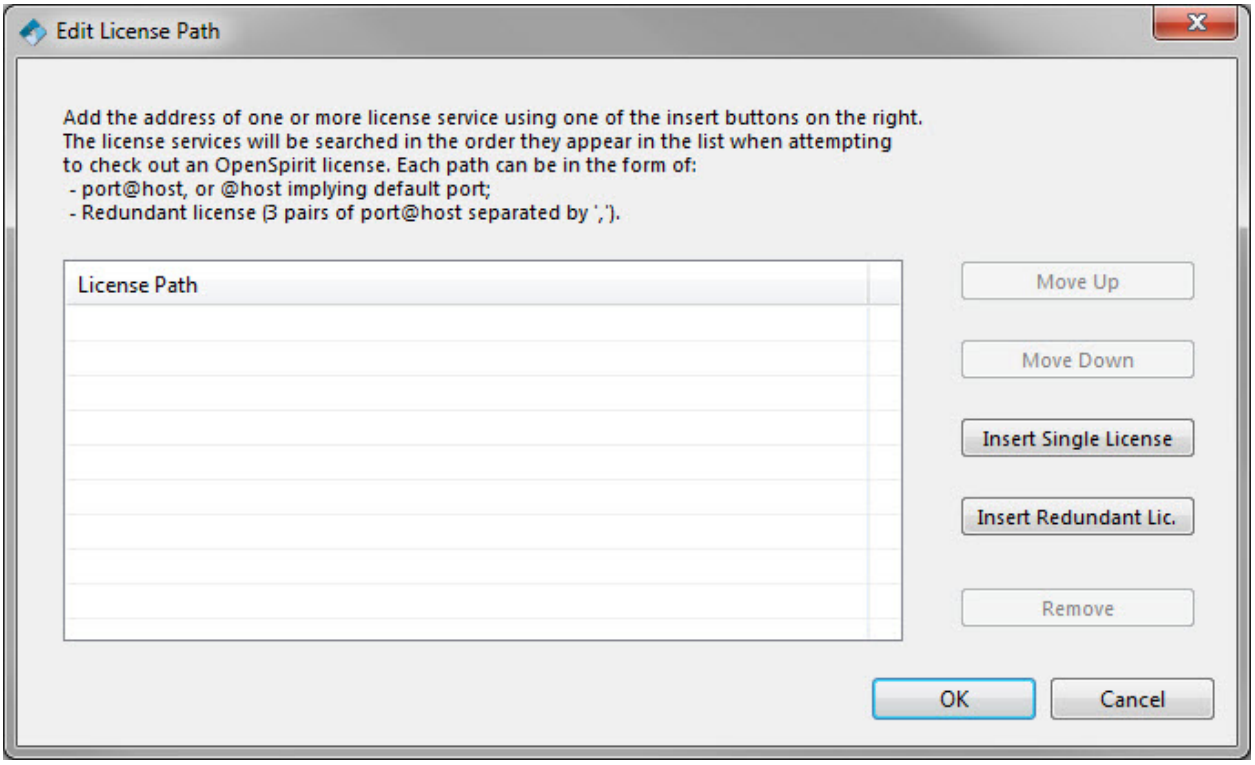


Enter and confirm the value you would like to use for the OpenSpirit administrator password.

License Path

Licenses are needed to run OpenSpirit software. OpenSpirit licenses are managed by a license service which must be installed and running somewhere on your network. The license path setting tells the OpenSpirit framework how to locate the OpenSpirit license service. See the License Service section of this guide for information about installing the OpenSpirit license service.

Click on the edit button  to open a window used to enter the license path.



A license path is an ordered list of OpenSpirit license services. OpenSpirit applications and data connectors go through the list to find a license service that has the required license

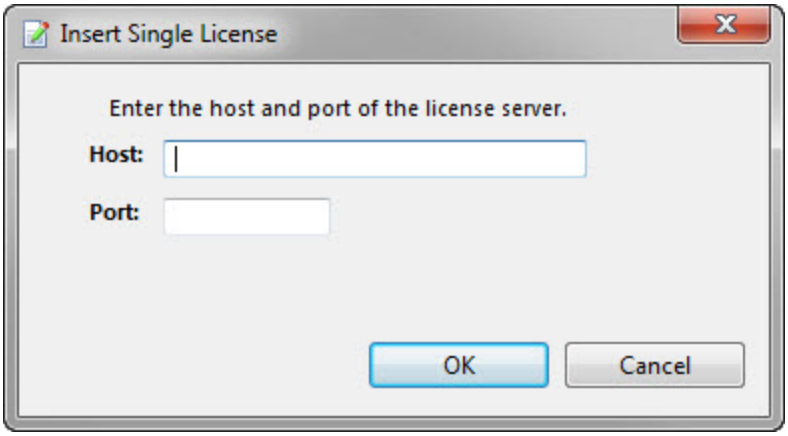
available for checkout. The list is searched in the order that it appears in the license path list. Most companies will only have a single license service in the license path.

OpenSpirit licenses can be purchased for use at a single site or for global use. It is a violation of the TIBCO OpenSpirit license agreement to use single site licenses to service users working from another site. Consult with your TIBCO OpenSpirit sales representative if you are unsure about the geographic scope of your OpenSpirit licenses.

License services are added to the license path by clicking on one of the insert buttons to the right of the license path list.

Single Host License Service

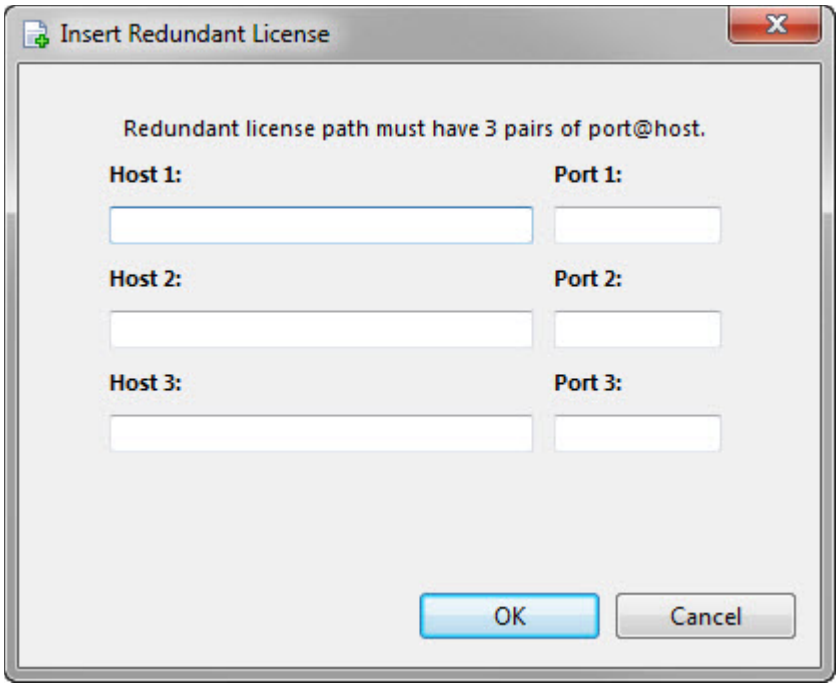
The ***Insert Single License*** button opens a window used to enter the host name and port number of the computer that is running the OpenSpirit license service configured to use a single host computer.



The host name should be a name of the computer that is running the OpenSpirit license service. The host name needs to be known to all computers that will be used to run OpenSpirit applications and data connectors. The port number should be the port specified in the OpenSpirit license file that is being used by the OpenSpirit license service. See the License Service section of this help guide for information about setting the license service port number.

Redundant Host License Service

The ***Insert Redundant Lic.*** button opens a window used to enter the host names and port numbers of an OpenSpirit license service that has been configured to run in a three host redundant mode. See the Choosing_the_License_Service_Host section of this guide for information about three host redundant license service model.



The redundant license service window requires the host names and port numbers of three hosts that have been configured to run a redundant license service. Note, the license service must be configured as a three host redundant service to use this option.

License Path Order

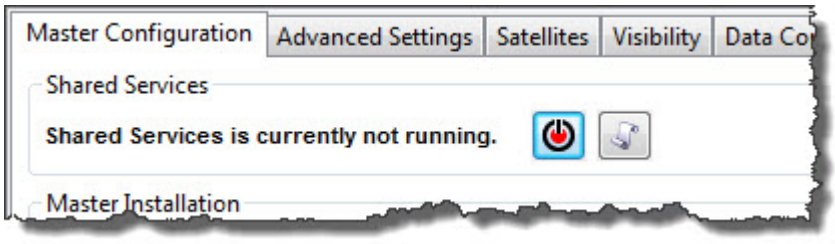
The order that license hosts appear in the license path determines the order they will be used when a request is made to check out a license. The order can be changed by selecting a path element and clicking on the ***Move Up*** or ***Move Down*** button.

Save Configuration

Click the save button  to create the master or save changes to an existing master.

Starting Shared Services

The shared service process can be started once the master configuration has been saved.



The red off button  indicates the shared service process is not currently running. Click on the button to start the services. The button will change to a green on button  when the services are running. Clicking on the green on button will stop the services.

The  button to the right of the on/off button opens the log file that the shared service process writes log messages to. The log for the currently running services is displayed. The log from the most recent run of the shared service process is displayed if the services are not running when the button is pressed.

The shared services must not be running when making changes to the master configuration settings and when importing metadata into the master. You may want to perform any imports and make advanced setting changes before starting the services.

Importing and Exporting Metadata

The Install Config Manager provides utilities for exporting and importing some of the information stored in the master installation's metadata repository. The export and import utilities are provided to enable information to be preserved when migrating to new versions of OpenSpirit and to enable information to be replicated in multiple OpenSpirit masters.

The categories of information that can be exported and imported is listed in the following table. See the Metadata_Repository section of this guide for descriptions of the categories of information listed in this table.

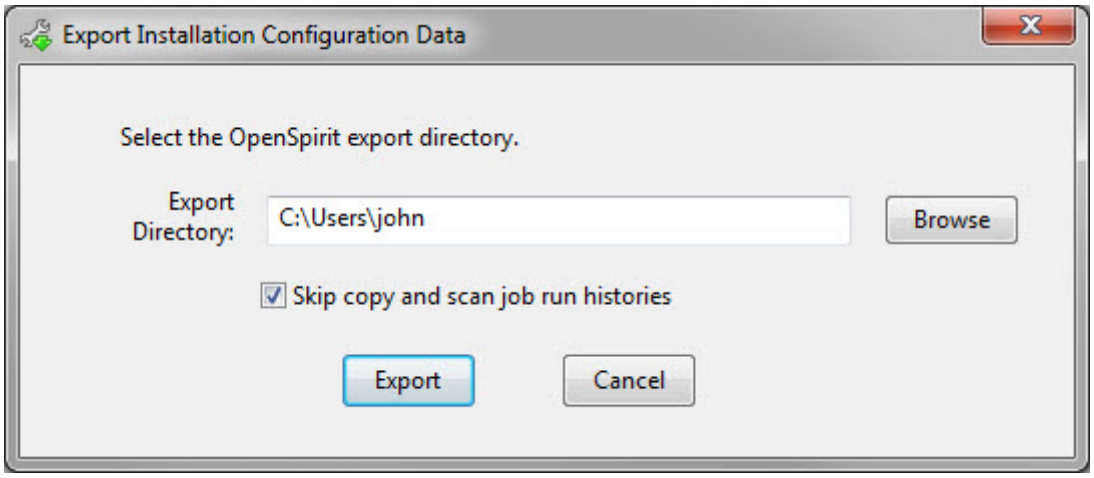
User definitions and rights.
User data source credentials
Data source configuration settings
Copy Manager rules
Copy and scan job definitions
Copy and scan job run histories
Model view definitions
Session definitions

Exporting Metadata

The export button  is enabled when a master configuration has been opened. This button is used to export some of the information that is stored in the master installation's metadata repository. The export feature provides a way for information to be copied to another master installation's metadata repository. It can also be used to save information prior to upgrading a master installation to a newer version of OpenSpirit. The exported information is loaded into a master's metadata repository using the import button.

Click on this button to export information from the master's metadata repository. A directory selection window will open prompting you to select a directory that the information will be written to. An option is provided to include or skip copy and scan job

run histories. Run histories can be large and often do not need to be copied to other master repositories. Deselect this option if you want to include run histories in the export.



Pressing the Export button creates a sub-directory named ***metadataExport*** which will contain the exported metadata.

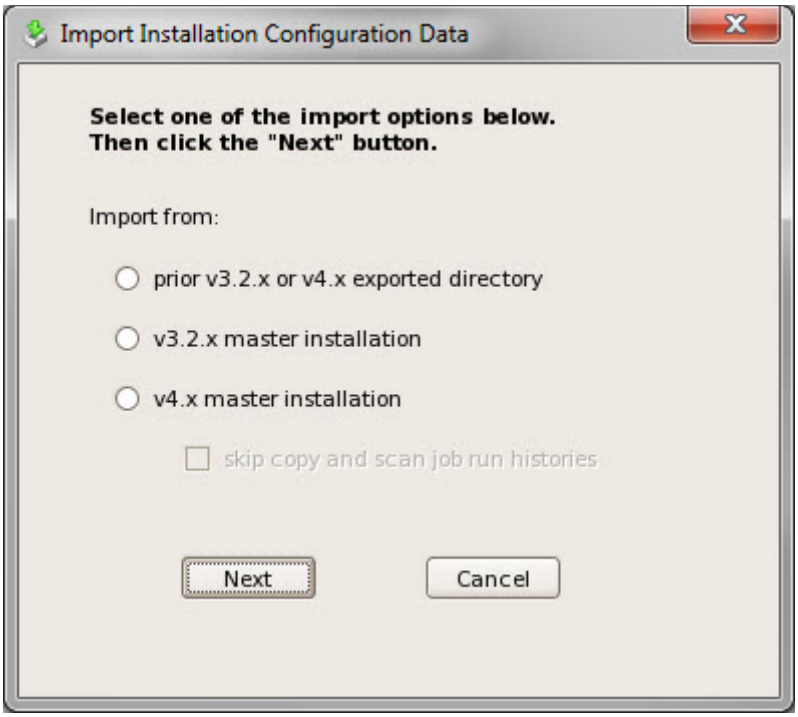
Importing Metadata

The import button  is enabled when a master configuration has been opened and ***the Shared Services are not running***. This button is used to import information from another master installation into the currently opened master installation's metadata repository. See the Export_Button section above for a description of the information that can be imported.

More options are available for importing into a Linux master than are available when importing into a Windows master.

Linux Import

Clicking on the import button when running on Linux opens a window that offers three choices for where to obtain the information to import. Each of the three choices are described below.



Prior v3.2.x or v4.x exported directory

This options imports from a ***metadataExport*** folder that was previously created by performing an export on a version 3.2 or higher master installation.

A ***metadataExport*** folder can be created from a version 4 master by using the Install Config Manager's Export_Button.

A ***metadataExport*** folder is created from a version 3.2 Linux or Solaris master using the migrate.sh script found in the version 3.2 master installation. Use the following command to create a metadataExport folder from a version 3.2 Linux or Solaris master installation, where **$OSP_HOME** points to the top level directory of the version 3.2 master.

```
$OSP_HOME/lib/migrate.sh export myExportDir
Logging to myExportDir/export.log
Complete.
```

Press the Next button on the Install Config Manager import window to open a directory selection window. Select the metadataExport directory created using the Export_Button or the migrate.sh script to import the configuration information exported from the version 3.2 or 4.x master.

v3.2.x master installation

This option imports directly from an existing OpenSpirit Linux master that is version 3.2.

Press the Next button to open directory selection window that instructs you to select the v3.2 OpenSpirit master's top level directory (referred to as ***OSP_HOME)***. It does not matter if the v3.2 master's services are running or not. Select the v3.2 master installation and press the Ok button. The import will begin and a confirmation message window appears when the import is complete.

v4.x master installation

This option imports directly from an existing Linux OpenSpirit master that is version 4.0 or higher.

Press the Next button to open directory selection window that instructs you to select the v4 OpenSpirit master's config directory. It does not matter if the v4 master's services are running or not. Select the v4 master config directory and press the Ok button. The import will begin and a confirmation message window appears when the import is complete.

Windows Import

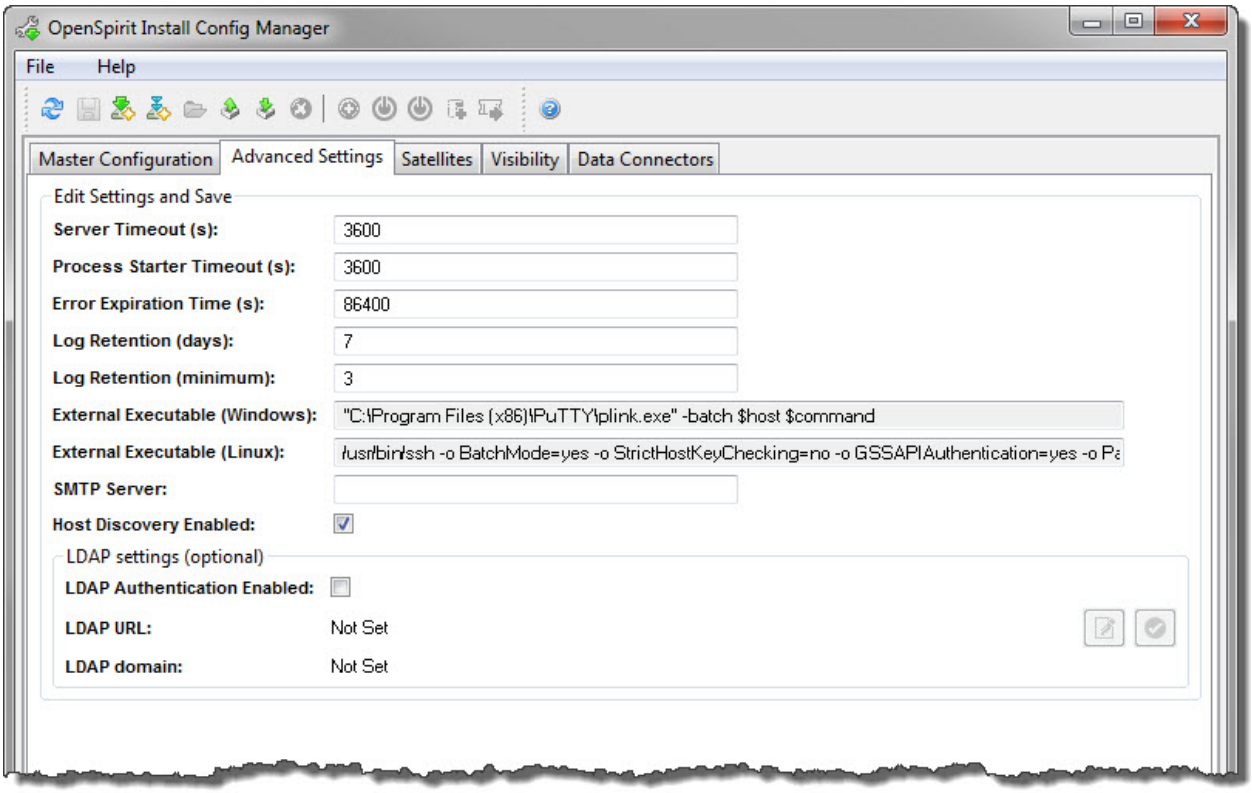
Clicking on the import button when running on Windows opens a folder selection window prompting you to select a ***metadataExport*** folder that was previously created by performing an export on a version 3.2 or higher master installation.

A ***metadataExport*** folder can be created from a version 4 Windows master by using the Install Config Manager's Export_Button.

A ***metadataExport*** folder created from a Linux or Solaris v3.2.x or v4.x master can also be imported into a Windows master. See the Prior v3.2.x or v4.x exported directory section above for instructions on how to create a ***metadataExport*** folder from a version 3.2 or version 4 Linux or Solaris master. The Linux or Solaris ***metadataExport*** folder will need to be moved or copied to a local Windows drive to import it into a Windows master.

Advanced Master Settings

The advanced settings tab is available when a master configuration is open in the Install Config Manager. The default values for the advanced settings typically meet the need of most OpenSpirit users. Make sure you fully understand the purpose of an advanced setting prior to changing the default. Each advanced setting is described below.



Server Time-out

The server time-out setting establishes the amount of time that an OpenSpirit data connector process will continue to run when no application is connected to it. This setting is sometime referred to as the ***idle time-out***.

Data connector processes are started by the OpenSpirit framework when an application requests a connection to a source of data. Data connector processes may be shared by multiple applications. Data connector processes are not shared between users, but may be shared between applications run by a single user.

Individual applications can override the server time-out setting when connecting to a data source. Consult with your application provider if you suspect the time-out is being overridden in an undesirable way. The server time-out setting of a data connector process can be viewed using the Process Manager tool.

Applications may connect and disconnect from a data connector process many times as the application is being used. Data connector processes typically take several seconds to start and some data connectors may take as much as a minute or more to start. A data connector process would start and stop repeatedly creating an unpleasant user experience if there was not a reasonable idle time-out period.

The server time-out is specified using seconds. The default server time-out value is one hour (3600 seconds). Setting the time-out to less than five minutes is strongly discouraged.

Process Starter Time-out

The process starter time-out is similar in concept to the server time-out described above. Process starter time-out is the idle time-out for process starters which are also known as locators. Process starters are described in the Process Manager section of this help guide.

The process starter time-out is specified using seconds. The default server time-out value is one hour (3600 seconds).

Error Expiration Time

The error expiration time setting determines the amount of time a data connector process start error message is retained. Data connector process start error messages are created when the OpenSpirit framework is unable to create a new data connector process to service a data request. Process start errors are stored in the OpenSpirit metadata repository and can be viewed using the Process Manager tool. Start error messages are purged from the metadata repository when the error expiration time is reached.

The error expiration time is specified using seconds. The default expiration time is 24 hours (86400 seconds).

Log Retention

The log retention settings determine when data connector, process starter, and the shared service log files are deleted. New log files are created each time a data connector, process starter, or shared service process is started. The log file names contain a date and time to prevent new process runs from replacing log files created by previous process runs. Over time this can result in accumulation of a large number of log files. The log retention settings were introduced to address this log file accumulation problem.

The ***days*** retention setting specifies the age in days that a log file must reach before it will be a candidate for deletion. The ***minimum*** retention setting is the number of versions of a log file that will be preserved. Both conditions must be met for a log file to be a candidate for deletion.

For example, assuming the days setting is 7 and the minimum setting is 3, the log files created by a specific data connector must be at least 7 days old to be a candidate for deletion, and there must be at least 3 more recent log files for a log to be a deletion candidate. Log files that meet both expiration criteria are removed when a new process is started.

External Executable

The external executable settings are used when External Executable is selected as the Remote_Startup_Method setting on the main master configuration panel. These settings specify the command to use to create a remote process. A different command can be used for Windows and Linux.


The values entered into the ***External Executable*** fields are only used when the Remote_Startup_Method setting on the main master configuration panel is set to External Executable. The values are not used for any purpose if any other Remote_Startup_Method is selected on the main master configuration panel.

For example, the external executable setting for Windows is used when an OpenSpirit enabled application running on a Windows computer needs to connect to a data source that must be accessed using a data connector process on Linux. The OpenSpirit framework will create the Linux data connector process by executing the command specified in this advanced setting to start a process starter on a Linux host. The process starter will in turn create a data connector process on the remote host.

The external executable setting should refer to a command executable or script that is capable of creating processes on a different host computer. It is expected that the command can accept command line arguments that indicate the remote host that the process is to be started on and the command to be executed on the remote host to start the process. Several variables indicated using a ***$*** character prefix can be used in the setting to indicate where information should be substituted to yield the external executable command. The substitution variables are listed in the following table.

Variable	Required?	Description
$host	yes	The name of the computer that the remote process should be started on.
$command	yes	The command to execute on the remote host.
$userhome	no	The user's home directory on the local computer ($HOME on Linux, %USERPROFILE% on Windows).
$osphome	no	The top level directory of the local OpenSpirit software installation.

Double quotes can be used around executable paths or parameters that contain whitespace but should be treated as a single command argument.


The default values for the external executable settings are provided as an example. They are not expected to work in most company environments. Have your company's IT representative work with OpenSpirit support to determine setting values that will work for your environment if you have selected the External Executable option for the Remote_Startup_Method setting on the master configuration panel.

SMTP Server

This optional setting is used to indicate the SMTP host that should be used when sending emails upon copy job or scan job completion.

Host Discovery Enabled

This option enables OpenSpirit users to type host names into the User Setup Wizard in addition to selecting hosts that have been configured with a master or satellite. The OpenSpirit framework will attempt to locate the configuration files and software installation

directory of the master or one of its satellites. This enables users to run data connectors on any host computer that has access to an OpenSpirit installation and supports the remote startup method that the master has been configured to use.

Host discovery is enabled by default. Un-check this option if you want to restrict OpenSpirit users to only start remote data connector processes on hosts that have been configured with an OpenSpirit satellite.

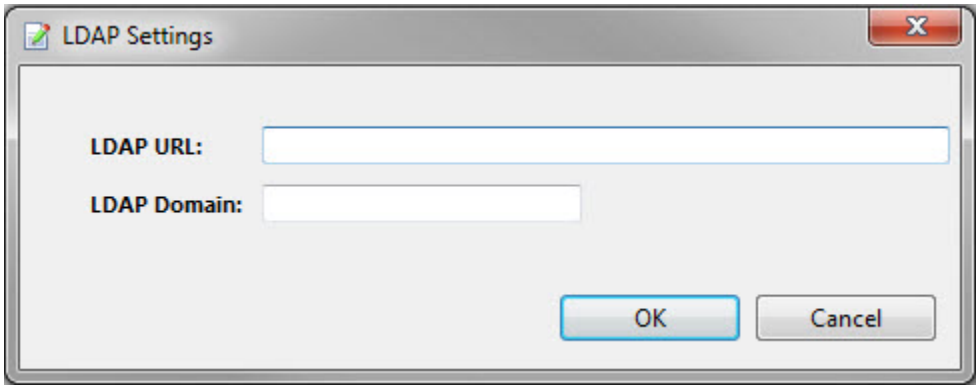
LDAP Settings

The LDAP settings are optional. The LDAP settings are used by some OpenSpirit web service workflows that require LDAP authentication to be used in a web service environment. Most OpenSpirit customers will not need to use the LDAP settings.

The LDAP settings are ***not*** used by the OpenSpirit Desktop or by the OpenSpirit Runtime when starting data connector processes.

LDAP settings are can be entered by selecting the ***LDAP Authentication Enabled*** option.

Selecting this option enables the LDAP settings edit button  . Click on the edit button to open the LDAP Settings window.



Enter the LDAP URL for your company's LDAP server into the ***LDAP URL*** field. Consult with your IT administrator for information about your company's URL.

Enter the name of the ***LDAP Domain*** that you want to authenticate users in. Consult with your IT administrator for information about your company's LDAP domain.

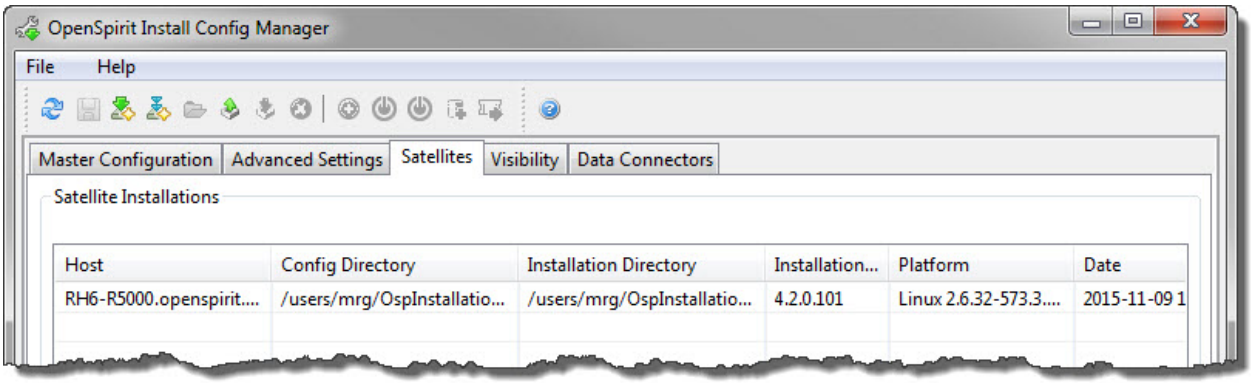
Satellite Management

Linux satellite configurations are registered with a master when the satellite configuration is saved. Satellites are registered with the master to make them available to run data connector processes to service requests from OpenSpirit tools and OpenSpirit enabled applications. Windows satellites are not registered with a master.

See the OpenSpirit Runtime Configurations section of this guide for an explanation of satellite and master configurations.

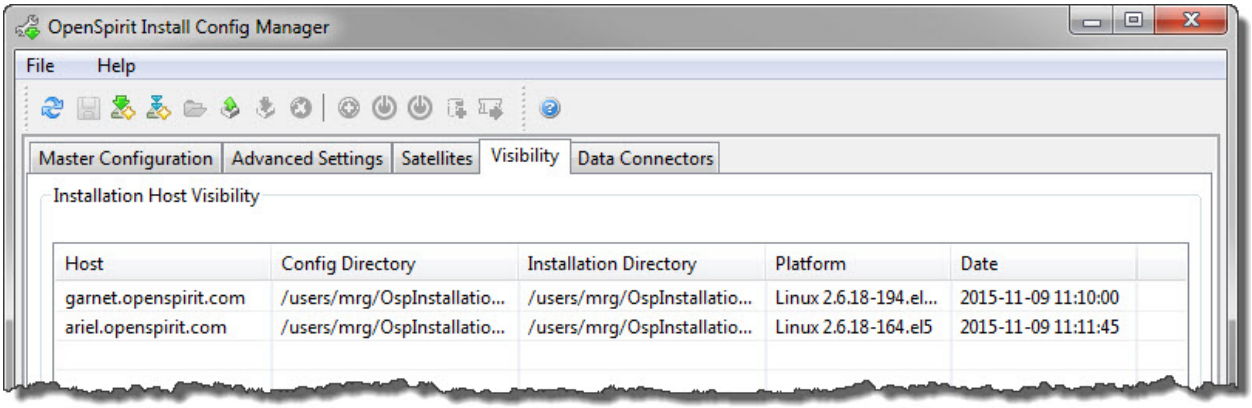
The unregister satellite button is used to remove satellite installations that have been registered with a master. Unregistering a satellite makes it unavailable for starting data connector processes from OpenSpirit enabled applications being run from the master or from another satellite. Satellites should be unregistered before they are deleted from the file system they were installed and configured on. Unregistering a satellite does not remove the satellite's configuration directory, it just removes its registration entry from the master's metadata repository.

The unregister satellite button is enabled when a master configuration is open, the Satellites tab is selected, and one or more satellites are selected. The selected satellites will be unregistered when the unregister button is pressed. A new satellite configuration must be created to restore an unregistered satellite.



Host Visibility

The Visibility tab lists hosts that have been discovered when an OpenSpirit user used the host to run an OpenSpirit data connector process. The list will only contain hosts if the OpenSpirit master has been configured to allow host discovery.



The list of hosts shown in the Visibility tab will grow over time as OpenSpirit users use new host computers to run data connector processes. The Visibility tab is provided to allow the OpenSpirit administrator a way to know which hosts are being used to run OpenSpirit data connectors and to allow a way for hosts to be removed from the list when a host is no longer available. Removing obsolete host entries can improve data connector startup times.

Obsolete hosts can be removed by selecting the obsolete host and clicking on the remove button  in the tool bar.

Master Data Connector Management

The Data Connectors tab is used to manage the OpenSpirit data connectors available in your master installation.

Data Connector Overview

Data connectors are software components that publish a data store to the OpenSpirit runtime. Publishing a data store to the OpenSpirit runtime makes its data available to OpenSpirit enabled applications. Applications can query, create, modify, and delete data residing in the data store.

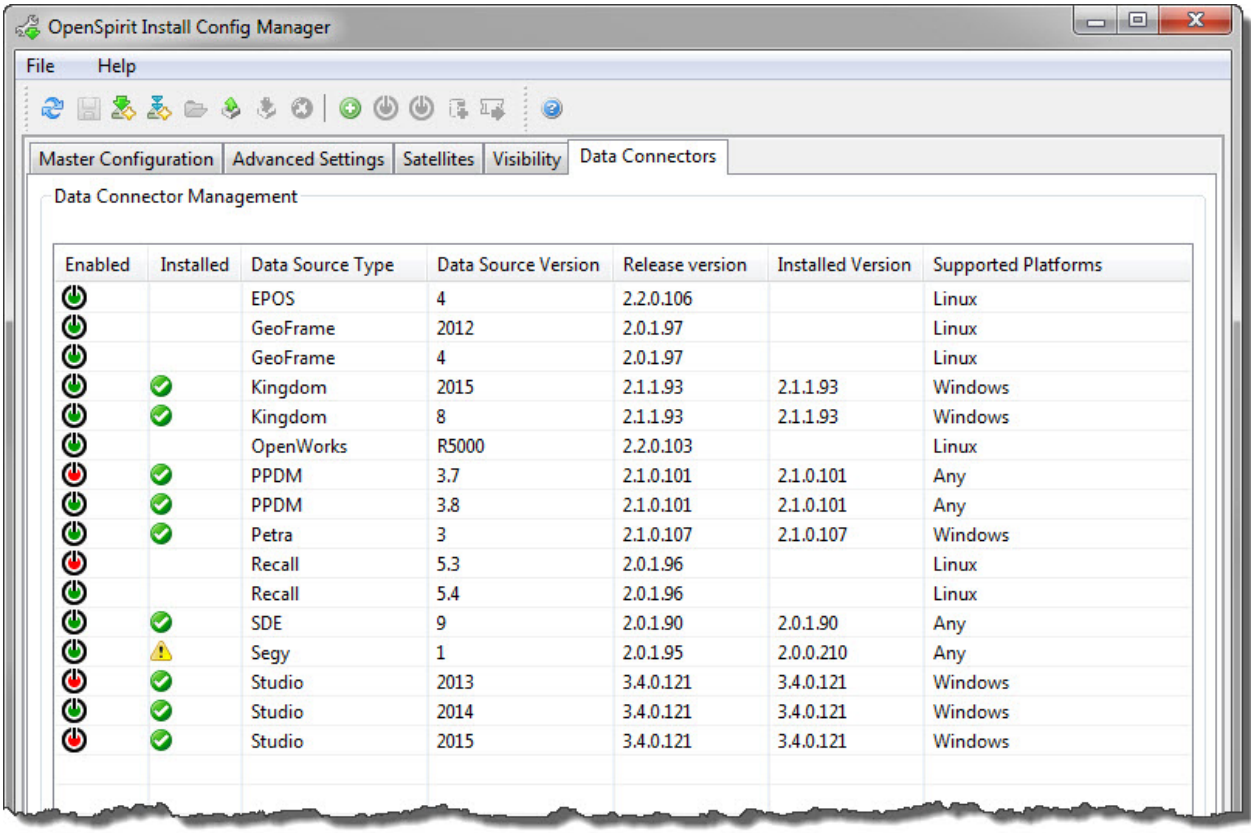
A data connector has a data source type, a data source version and a release version. The data source type indicates the type of data store the data connector can publish (e.g. OpenWorks, GeoFrame, PPDM, etc.). The data source version indicates the version of data store the data connector can publish. The release version is product version number of the OpenSpirit data connector product.

Data connectors are composed of metadata, such as data model information, unit catalogs, reference value mappings, and other information needed to publish a data store to the OpenSpirit framework. Data connectors also contain binary executable files for each operating system platform that data connector processes can be run on. The metadata and binary executable files are stored in the OpenSpirit metadata repository in the OpenSpirit master installation. The binary files must also be installed into each OpenSpirit master installation and satellite installation that will be used to run data connector processes.

The OpenSpirit Runtime is pre-populated with current versions of all OpenSpirit data connectors that are available at the time of the OpenSpirit Runtime product release. New data connectors and updates to existing data connectors may be released after an OpenSpirit Runtime is released. The new data connector releases can be imported into your OpenSpirit Runtime's master installation and managed using the Data Connectors tab.

Data Connectors Tab

The Data Connectors tab can be used to enable or disable data connectors, import new data connectors, and install data connector executable files into an OpenSpirit installation.



Enabled	Installed	Data Source Type	Data Source Version	Release version	Installed Version	Supported Platforms
		EPOS	4	2.2.0.106		Linux
		GeoFrame	2012	2.0.1.97		Linux
		GeoFrame	4	2.0.1.97		Linux
		Kingdom	2015	2.1.1.93	2.1.1.93	Windows
		Kingdom	8	2.1.1.93	2.1.1.93	Windows
		OpenWorks	R5000	2.2.0.103		Linux
		PPDM	3.7	2.1.0.101	2.1.0.101	Any
		PPDM	3.8	2.1.0.101	2.1.0.101	Any
		Petra	3	2.1.0.107	2.1.0.107	Windows
		Recall	5.3	2.0.1.96		Linux
		Recall	5.4	2.0.1.96		Linux
		SDE	9	2.0.1.90	2.0.1.90	Any
		Segy	1	2.0.1.95	2.0.0.210	Any
		Studio	2013	3.4.0.121	3.4.0.121	Windows
		Studio	2014	3.4.0.121	3.4.0.121	Windows
		Studio	2015	3.4.0.121	3.4.0.121	Windows

Importing Data Connectors

New releases of an OpenSpirit data connector are loaded into an OpenSpirit master installation's metadata repository using the import data connectors button . Clicking on this button opens a file chooser window that can be used to select an OpenSpirit data connector package file. Data connector package files have a file name extension of ***.osp_pkg***. Selecting a package file loads the data connector's metadata and executable files into the metadata repository. It will then appear in the data connector list as a new entry or as a new release version for a previous entry.

OpenSpirit data connector package files are obtained from the TIBCO software download site for each OpenSpirit data connector product.

Data connectors must then be installed into each satellite installation and master installation that you wish to use to run data connector processes for that data connector type.

Importing a new version of an existing data connector updates the OpenSpirit master installation's metadata repository. The metadata update cannot be reverted. You should backup your master installation's metadata repository prior to importing a new version of an existing data connector. The metadata repository can be backed up by shutting down the OpenSpirit master installation's shared services and then creating a backup of the master installation's database directory.

Importing a new version of an existing data connector updates the OpenSpirit master installation's metadata repository. Make sure no users are running data connectors during the data connector import.

Be sure to install the executables after importing the data connector. The executables should be installed into all OpenSpirit installations that are on an operating system platform that can be used to run the data connector. This includes the master installation. See the Installing_Data_Connectors section below for information about installing data connector executable files.

Disabling Data Connectors

Disabling a data connector causes that data source type and version to no longer appear in any OpenSpirit tool or application. Companies may wish to disable data connectors for data store types that are not used by the company. Select one or more data connectors and click on the disable icon in the tool bar to disable the selected data connectors. Disabled data connectors can be re-enabled by selecting one or more disabled data connector and clicking on the enable icon in the tool bar.

Installing Data Connectors

Data connector executable files must be installed into each satellite installation and master installation that you wish to run data connector processes from after importing a new data connector into the master installation's metadata repository. Data connectors that have been upgraded to a newer version but not yet installed in the OpenSpirit installation appear with a caution icon in the Installed column. The caution icon indicates the executable files in the OpenSpirit installation are out of date with respect to the data connector release that was imported into the metadata repository. New data connector types that have been imported but have not been installed appear with no icon in the Installed column.

Select the data connector to install and click on the install icon . This will install the executable files for the selected data connector into the OpenSpirit installation that the Install Config Manager tool was started from.

Make sure no OpenSpirit Desktop, application, or data connector is running out of the OpenSpirit installation prior to installing a data connector. Otherwise there is risk that some files will be locked and therefore cannot be overwritten by the new executable files.

No facility is provided to un-install a data connector. Your OpenSpirit installation must be re-installed in order to revert a data connector installation.

Extracting Data Connectors

The data connector extraction feature is provided to enable data connector executable files to be manually installed. Manual installation of data connectors may be required by companies that control how software is deployed into an existing OpenSpirit installation.

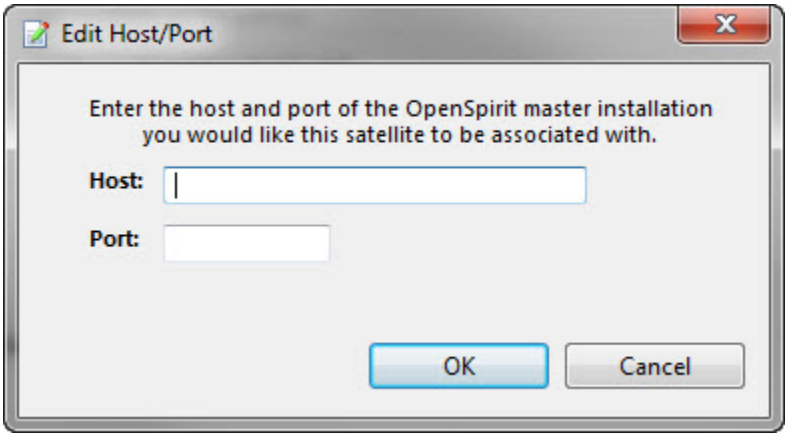
Select the data connector to be extracted and click on the extract icon  . This will open a file folder selection window. Select a file folder that you want the extracted data connector zip files to be placed in. A zip file will be created for each operating system platform supported by the data connector. The data connector can then be manually installed by unzipping the files into the top level folder of your OpenSpirit installations.

Satellite Configuration

Configuring a Satellite Installation

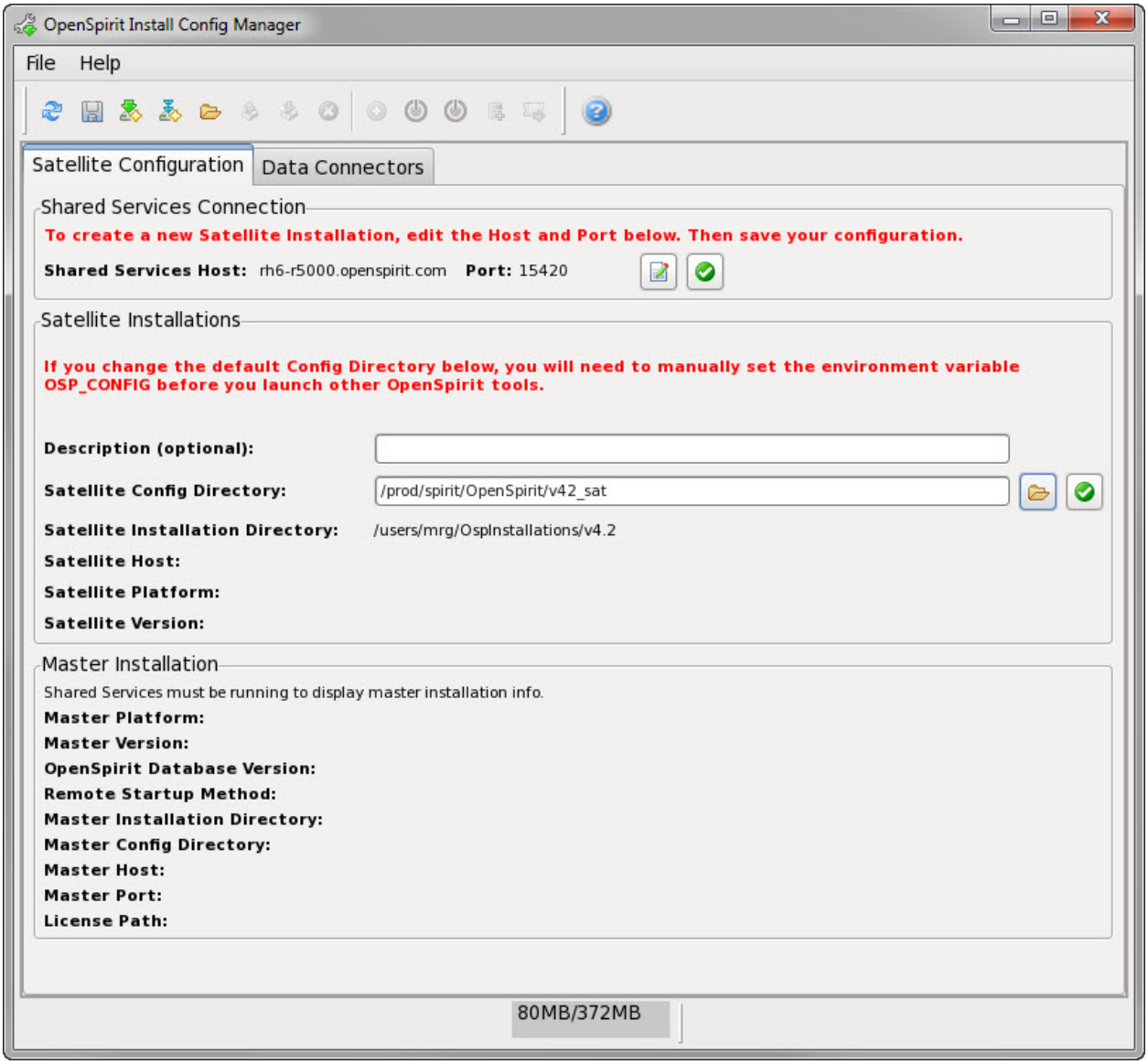
Configuring a satellite is much simpler than configuring a master. The only information needed to configure a satellite is the host and port of the master that it is to be associated with. The OpenSpirit master's administrator password is also needed to configure a Linux satellite if the Install Config Manager is not being run from the OpenSpirit administrator account.

Click on the create satellite button  to configure a new satellite. This will open a window that prompts for the host name and port number of the OpenSpirit master that the satellite is to be associated with.



Master Host and Port

The master's shared service must be running when configuring a satellite. Enter the host name and port of the master and press the Ok button. Ask your OpenSpirit administrator if you do not know the host name or port to enter.



A green check mark will appear next to the Shared Services Host and Port settings if a connection was made to the master. A red stop sign will appear if a connection could not be made to the master. Make sure the host and port settings were entered correctly and the master services are running. Click on the edit button to reopen the host and port entry window to correct the values if the stop sign is displayed.

Description

The description setting is optional and is not available on Windows. The description provides a way to document the purpose for a satellite configuration. It can contain any text.

Satellite Config Directory

The directory that the configuration's ***config.properties*** file will be written to. This should be an empty directory prior to creating the satellite configuration. This setting is for informational purposes only when configuring a satellite on Windows. The default configuration directory must be used on Windows. You must select an empty directory when configuring on Linux. The directory must be readable by the users that will be running applications or data connectors from the satellite.


The default directory on Linux is a sub-directory named ***config*** in the top level folder of the OpenSpirit software installation that the Install Config Manager is being run from. Using the default directory eliminates the need to have an ***OSP_CONFIG*** environment variable set prior to running the OpenSpirit Desktop on Linux. The environment variable must be set if a different name or location is used.

Save Configuration

Click the save button  to create the satellite or save changes to an existing satellite. The bottom portion of the satellite configuration form is filled in with information about its associated master when the satellite configuration has been saved.

Satellite Data Connector Management

The Data Connectors tab in the Install Config Manager can only be used to view data connector information and to install data connector executable files into the satellite.

Installing Data Connectors

Data connector executable files must be installed into each satellite installation and master installation that you wish to run data connector processes from after importing a new data connector into the master installation's metadata repository. Data connectors that have been upgraded to a newer version but not yet installed in the OpenSpirit installation appear with a caution icon  in the Installed column. The caution icon indicates the executable files in

the OpenSpirit installation are out of date with respect to the data connector release that was imported into the metadata repository. New data connector types that have been imported but have not been installed appear with no icon in the Installed column.

Select the data connector to install and click on the install icon  . This will install the executable files for the selected data connector into the OpenSpirit installation that the Install Config Manager tool was started from.

 Make sure no OpenSpirit Desktop, application, or data connector is running out of the OpenSpirit installation prior to installing a data connector. Otherwise there is risk that some files will be locked and therefore cannot be overwritten by the new executable files.

Glossary

A

application adapter: A software component that connects a software application to the OpenSpirit framework.

D

data connector: A software component that publishes a data store using the OpenSpirit framework making the data available for use by OpenSpirit enabled applications.

data store: A repository of data. The repository can consist of any data storage technology. It can be implemented as a relational database (e.g. Oracle), a collection of binary or text files, a web service, etcetera.

H

hostid: An number that uniquely identifies a computer. A hostid most commonly comes from an electronic component in a computer's network adapter. The number is derived from the network adapter's MAC address.

M

master installation: A configuration of OpenSpirit software used to run the OpenSpirit Shared Service and Notification Service processes. A master installation also includes a database referred to as the OpenSpirit metadata repository.

metadata repository: A database used to manage various OpenSpirit configuration parameters, reference catalog information, and user preference information. The OpenSpirit metadata repository is associated with and managed by an OpenSpirit master installation.

O

OpenSpirit enabled application: A software application that has an application adapter to the OpenSpirit framework.

S

satellite installation: A configuration of OpenSpirit software used to run OpenSpirit enabled applications and OpenSpirit data connectors.