SmartSpace

Installation Guide

For version 3.3

Contents

Installing SmartSpace

These instructions guide you through installing Ubisense SmartSpace and keeping your installation up to date. They include a description of the organization and installation of Ubisense software across server, admin and client machines; prerequisites for installation; and the stages of the installation process. They cover a number of scenarios:

- Creating a completely new SmartSpace installation

- Maintaining a SmartSpace installation by adding additional machines, installing new SmartSpace features, or upgrading existing SmartSpace software

- Migrating from Smart Factory 3.1.8 to SmartSpace 3.2

SmartSpace installations can range in size from a single computer running all SmartSpace software, for example for evaluation purposes, to several servers with associated admin and client machines in a large industrial setting. SmartSpace can be installed and run on Windows and Linux computers and an installation may include a mix of these, for example with Linux servers and Windows client machines, and the instructions that follow include information for both Linux and Windows.

> For Windows computers, installation files (.msi) are supplied. However, because of the variations between Linux distributions and between package management systems used by different Enterprise configurations, Ubisense do not provide an automatic installation method for Linux. Instead the instructions describe the necessary state of a Ubisense platform installation on Linux, prerequisites for the installation, the layout and permissions expected, and example scripts.

The sections below highlight those instructions you might find most relevant for your needs.

For information about SmartSpace features and their capabilities, log in to the SmartSpace website at http://www.ubisensesmartspace.com/.

Creating a New SmartSpace Installation

If you are installing SmartSpace for the first time, The SmartSpace installation process explains how SmartSpace is organized and describes the steps for installation. Requirements outlines hardware and software requirements for installing the software. Use this information to help in planning your installation.

When you are ready to install, work through the relevant instructions section by section.

If you have licensed SmartSpace features that are accessed through a web browser, you must also set up a web server and install the SmartSpace website. This is described in Installing SmartSpace Web.

Maintaining and Upgrading SmartSpace

Extending your installation by adding machines

For Windows computers, follow the instructions in Installing the Ubisense SmartSpace software on Windows for the type of machine required.

For Linux servers, follow the instructions in Installing the Ubisense SmartSpace software on Linux.

Installing additional features

If you have licensed additional SmartSpace features, you need to install new licenses as described in Installing licenses. In Windows, you can then run Ubisense Service Administration to install and deploy these new features. Refer to Installing features for further information.

Migrating from Smart Factory 3.1.8 to SmartSpace 3.2

Use the instructions in Migrating from Smart Factory 3.1.8 to SmartSpace 3.2 to upgrade your Smart Factory 3.1.8 installation to SmartSpace 3.2.

The SmartSpace installation process

Ubisense SmartSpace requires software to be installed on three types of machine: *server*, *admin* and *client*.

- Servers run the core and controller software, and the Ubisense platform from which you can start and stop the Ubisense servers. Ubisense servers can run on either Windows or Linux (see Requirements for supported versions).

- The software installed on an admin machine enables you to manage the installation and deployment of SmartSpace features across your entire SmartSpace installation.

- On client machines, you will find the SmartSpace applications available to users according to the SmartSpace features you have licensed.

Depending on your requirements, you might install all three SmartSpace machines on a single computer or you might spread the installation over a number of machines.

The following are the steps required to set up a new SmartSpace installation:

1. Install the Ubisense server, admin and client software onto the relevant machines. This is described in Installing the Ubisense SmartSpace software.

2. Install licenses. This is described in Installing licenses.

3. Start the core server. This is described in Starting the servers.

4. Install and deploy licensed SmartSpace features. This is described in Installing features.

5. Download SmartSpace software to client machines. This is described in Installing SmartSpace on client machines.

Depending on the features you have licensed, users may access SmartSpace via a web interface, for example to view Web maps. In this case additional steps may be required to set up set up a web server before you install the web applications. See Installing SmartSpace Web for further information.

> ℹ️ You do not need to install additional software on client machines to use only the web-enabled features of SmartSpace.

Requirements

The following are guidelines only for hardware and software requirements. Exact requirements will depend on such things as the number of sensors and tags in your installation or the number of users querying any browser-based applications you have licensed. Contact Ubisense for further guidance on the specific requirements for your installation.

Server Hardware Requirements

The following is an illustration of an installation with two servers running DIMENSION4, and SmartSpace with the Visibility component.

Feature	Server 1 (DIMENSION4 + SmartSpace core)	Server 2 (Windows server running IIS)
Processor	Quad-core Intel® Xeon® processors 3400 series	16-core Intel® Xeon® processors
Memory	8 GB	8 GB
Ethernet Interface	Gigabit Network Adapter	Gigabit Network Adapter
Virtualization	For information about virtualization, contact Ubisense Support.	For information about virtualization, contact Ubisense Support.

Server Software Requirements

Server Type	Software
All servers	One of the following operating systems (independent of 32/64 bit architecture, edition, or version): **Windows** - Microsoft Windows Server 2008 R2 - Microsoft Windows Server 2012 - Microsoft Windows 7 family (1) - Windows 8.1 Professional (1) - Windows 10 Professional (1) **Linux** Recent enterprise Linux distributions, such as SUSE Linux Enterprise Server 11+ or Red Hat® Enterprise Linux® v7

(1) Targeted only for demonstration, configuration, and testing use—not recommended for production server use

Prerequisites for Linux Installations

The following are requirements for Linux computers onto which server or admin machines are to be installed:

- Platform executables require a 32-bit libstdc++ compatible with libstdc++.so.6.0.8, which means any libstdc++.so.6.0.X where X >= 8.

- The executables also require the 32-bit (i386) /lib/ld-linux.so.2.

- The firewall should be disabled on the server.

- In order to work around kernel bind(0) behavior, the local dynamicport range should be changed.

    ○ **Either**: place the following in an init script such as /etc/rc.d/rc.local: sysctl -w net.ipv4.ip_local_port_range="32768 49978"

- ○ **Or**: place the following in /etc/sysctl.conf: net.ipv4.ip_local_port_range="32768 49978"

Platform user

A user should be configured to execute platform services. We will refer to this as the platform user.

Operations group

A group should be configured for operations. Users in this group should be able to perform production operations, including starting and stopping the platform services, making and restoring backups, and performing other diagnostic and support roles, such as license management and platform service upgrades. The platform user might be in the operations group.

Web Server Requirements

If you have also licensed features that are accessed using a web browser, for example Web maps or Web forms, you must also configure a web server. Additional requirements for the web server are:

- IIS of the installed Windows operating system installed and enabled
- Microsoft .NET Framework 4 full profile, or 4.5 or higher

Installing the Ubisense SmartSpace software

The SmartSpace software is supplied as a zipfile with the name **SmartSpace** followed by numbers indicating the version of the software, for example **SmartSpace_3_2.zip**. Before you install SmartSpace, you need to unzip this file into a distribution directory accessible to the machines on which you will be installing the software.

Installing the Ubisense SmartSpace software on Windows

For Windows computers you can install the software required to run SmartSpace using installers provided by Ubisense. You will find the installation package files (with the **.msi** file extension) in subdirectories of the distribution directory.

Follow these instructions to install Ubisense SmartSpace software onto Windows computers.

Installing on servers

To install the Ubisense server software:

1. Go to the **servers\windows** directory of your SmartSpace distribution directory.

2. Double-click the **UbisenseServers.msi** file and the Ubisense Servers Setup wizard appears.

3. Click Next.

4. Choose the Destination Folder for the software.
    You can accept the default **C:\Program Files (x86)\Ubisense 3** or change to another destination.

5. Click Next and click Install.

6. When the installation is complete, click Finish to close the Ubisense Servers Setup wizard.

You have now installed Ubisense Platform Control and the Ubisense server software onto your computer. For information on using Platform Control to start the servers, see Starting the servers.

Installing on admin machines

To install the Ubisense software for an admin machine:

1. Go to the **clients\windows** directory of your SmartSpace distribution directory.

2. Double-click the **UbisenseServiceManager.msi** file and the Ubisense Service Administration Setup wizard appears.

3. Click Next.

4. Choose the Destination Folder for the software.
   You can accept the default **C:\Program Files (x86)\Ubisense 3** or change to another destination.

5. Click Next and click Install.

6. When the installation is complete, click Finish to close the Ubisense Service Administration Setup wizard.

You have now installed Ubisense Service Administration onto your computer. For information on using Ubisense Service Administration to install and deploy SmartSpace features, see Installing features.

> Before you can install features, you must install their licenses. See Installing licenses.

Installing on client machines

To install the Ubisense software for a client machine:

1. Go to the **clients\windows** directory of your SmartSpace distribution directory.

2. Double-click the **UbisenseApplicationManager.msi** file and the Ubisense Application Manager Setup wizard appears.

3. Click Next.

4. Choose the Destination Folder for the software.
   You can accept the default **C:\Program Files (x86)\Ubisense 3** or change to another destination.

5. Click Next and click Install.

6. When the installation is complete, click Finish to close the Ubisense Application Manager Updater Setup wizard.

You have now installed the Ubisense Application Manager. For information on how to install features on client machines, see Installing SmartSpace on client machines.

Removing software from a machine

If you need to remove SmartSpace software from a machine:

- To remove a Ubisense server, run the **UbisenseServers.msi** file, click Next and then click Remove. Click Remove again to confirm.

- To remove an admin machine, run the **UbisenseServiceManager.msi** file, click Next and then click Remove. Click Remove again to confirm.

- On a client machine, run the **UbisenseApplicationManager.msi** file, click Next and then click Remove. Click Remove again to confirm.

You can also run the .msi files to change or repair installed software.

Installing the Ubisense SmartSpace software on Linux

The following describes installing Ubisense SmartSpace software onto Linux computers.

Installing on Servers

The distributed archive contains the following layout:

```
servers/linux/ubisense_core_server
servers/linux/ubisense_local_control
```

These are the two "service" executables. One or both of these services should be executed on startup of the server, depending on whether it is to act as a core server, a service controller, or both. These services should be executable by the platform user, and no other user to avoid accidental execution.

Because of the variations between Linux distributions, Ubisense does not ship standard startup scripts for these executables. Contact Ubisense Support for assistance.

Sample init.d scripts for the core and controller are provided in Sample init.d scripts, and sample systemd scripts for a RedHat Linux machine in Sample systemd scripts.

Admin Executables

The distributed archive contains the following layout:

```
tools/linux/ubisense_backup
tools/linux/ubisense_cache_service_credentials
tools/linux/ubisense_configuration_client
tools/linux/ubisense_file_downloader
tools/linux/ubisense_installer
tools/linux/ubisense_machine_id
tools/linux/ubisense_multicast_test
tools/linux/ubisense_proxyconfig_admin
tools/linux/ubisense_replication_receiver
tools/linux/ubisense_replication_sender
tools/linux/ubisense_restore_dataset
```

```
tools/linux/ubisense_save_dataset
tools/linux/ubisense_service_admin
tools/linux/ubisense_service_ping
tools/linux/ubisense_trace_receiver
tools/linux/ubisense_transfer_config
```

These are administrative executables, used to configure and maintain the running state of the Ubisense platform. They should be executable by the operations group.

Other command-line tools are available for SmartSpace. See [Installing SmartSpace on client machines](#) for further information.

Configuration Parameters

On Linux, the local configuration parameters for each core or controller machine are set, by default, in a configuration file. This file contains configuration parameters for the local platform processes, such as the location of the dataset and the networking mode. The default location expected by all platform executables is **/etc/ubisense/platform.conf**. If another location is to be used, then the environment variable **UCONFIG** should be defined: it is recommended this be set in startup scripts for all users on the server, but it certainly is required for the platform user and all users in the operations group. **UCONFIG** should be the full path of **platform.conf** in its desired location.

Configuration parameters are each on a single line in the file, with a colon and white-space separating the name of the parameter from the value. For example:

```
platform_dataset: /mnt/syn013/ubisense/production/dataset
no_multicast_mode: 1
server_unicast_addresses: 10.1.5.207,10.1.16.73
```

Warnings and Errors

Immediate warnings and errors when starting the two platform service executables are logged to the Linux syslog. On a typical Linux distribution they will either in **/var/log/messages** or **/var/log/warn**. If the services will not run, check these locations for more information.

Platform Dataset

The platform dataset is the directory where both the **ubisense_core_server** and **ubisense_local_control** services store platform state. Files in this directory comprise the configuration and ongoing operational state of the platform core, and of all the services configured to run on the local controller.

This directory should be owned by the platform user with full control. The operations group should also have read permission, to allow backup. Restore requires that the backup be copied here and all files set to have platform ownership. See Configuring Operations Permissions.

The default platform dataset location is **/home/platform/dataset**. To set a different location, set **platform_dataset** in the **platform.conf** file.

Configuring Operations Permissions

If your Linux distribution supports sudo, then the operations group can be assigned permission to start and stop the platform services, and to change ownership of files to the platform user. For example, the following lines might be added to the end of the **/etc/sudoers** file using visudo.

```
%operations ALL = (root) NOPASSWD: /sbin/service ubisense_core_
server *, \
/sbin/service ubisense_local_control *, \
/bin/chown -R platform *, /bin/chown platform *
```

With this configuration, any user who is in the operations group will be able to run **sudo /sbin/service ...** to stop, start and get the status of just the platform services. They will also be able to restore platform dataset backups and set the ownership of the restored files back to the platform user.

Starting the servers

After you have installed the server software, you need to start the core and controller.

Windows

In Windows, you start and stop the server software with the Platform Control application installed on your server.

To start the server software:

1. From a SmartSpace server, run Platform Control.

2. For a new installation, you need to choose a location for your dataset:

   In the Properties section, browse to the required location (creating a new folder, if needed) and click OK (new).

3. Start the core server and service controller by:

   a. Selecting UbisenseCoreServer 3 and then clicking Start.

   b. Selecting UbisenseServiceController 3 and then clicking Start.

      See the information below for information on starting services with a single server or multiple servers.

4. The status of each service changes to to be started.

5. Click Apply. The status of each service changes to running.

Running SmartSpace in Standalone Mode

If you want to configure SmartSpace to run on a single server, run Platform Control on the server and:

- In Properties, check run in standalone mode

- In Services, ensure you have started *both* the core server and the service controller.

Running SmartSpace on Multiple Servers

If you want to configure SmartSpace to run on more than one server, you must:

- Assign one server to be the core server and *on this machine only* run Platform Control and in Services start the core server.

- On all other server machines, run Platform Control and in Services start the service controller.

Linux

See [Installing the Ubisense SmartSpace software on Linux](#) for information on core server and local controller software and the startup scripts required to run them.

Backing up your Dataset

After you have set up your SmartSpace installation, ensure that you back up your dataset occasionally, so that you can recover your data. To take a backup, use the **Backup Dataset** option, and then compress the folder.

Installing licenses

Windows

SmartSpace feature licenses are supplied as a zipfile with the name **FeatureSetup.zip**. Before you install the licenses, you need to unzip this file into a directory accessible to an admin machine from which you can run the Ubisense Service Administration.

To install SmartSpace licenses:

1. Go to the directory where you unzipped the licenses.

2. Double-click the **FeatureSetup.msi** file and the Ubisense Feature Licenses Setup Wizard appears.

3. Click Next and the Ubisense Feature Licenses Setup wizard appears.

4. By default all licenses are selected for installation to the default location **C:\Program Files (x86)\Ubisense 3**.

   - Click on the directory tree of licenses, click on individual features and choose whether or not they are to be installed

   - Click **Reset** to return the licenses selection to its default setting

   - Click Browse to navigate to a different directory to install the licenses in

5. When you have selected the files and location you require, click Next and then click Install.

6. When installation is complete, click Finish to close the wizard.

Linux

The core server machine requires license files issued by Ubisense in order to run. The ubisense_machine_id executable is used to extract a unique id of the server, which is sent to Ubisense support, who will generate and return the appropriate license files. These license files must be placed on the server so that the platform can find them. The default location is in the directory /etc/ubisense. If a different location is required, then the license_search_path can be defined in platform.conf (see Configuration Parameters for information on the location of this file). Each program also searches for licenses in the same directory as its executable.

Licenses should be readable by both the platform user and by the operations group.

Installing features

Follow these instructions to install and deploy SmartSpace features.

Windows

> ℹ You can only install and deploy features for which you have installed licenses.

1. From a SmartSpace admin machine, run Ubisense Service Administration.

2. The Ubisense Service Administration application appears.

3. Click on INSTALL SERVICES.

4. Specify the directory from which to install. This is generally the **packages** folder in your SmartSpace distribution directory.
   Click <Recently used directories> to select previous locations of features.

5. Select the features you want to install.
   Use Select all or Clear all or click on individual features to indicate which items you want to install.

   - All SmartSpace features are listed.

   - All licensed features are selected by default.

   - Unlicensed features are shown preceded by [Unlicensed]. You cannot select these features.

6. Click Install.

7. When installation is complete, click Close to close the Installing Services dialog.

You have now installed your SmartSpace features. In Ubisense Service Administration you can see which services have been deployed by the installed features. Click on MANAGE SERVICES to display the status of installed services and manage their deployment.

Linux

See Installing the Ubisense SmartSpace software on Linux for information on deploying features on Linux.

Installing SmartSpace on client machines

Windows

In Windows, the Ubisense Application Manager allows you to perform the following configuration activities on a client machine:

- Set up Start menu shortcuts for client applications
- Download various command-line tools and SmartSpace documents to a specified location on a client machine

Follow these instructions to configure a client machine.

Managing applications

To create shortcuts to SmartSpace applications:

1. Run the Ubisense Application Manager and click on APPLICATIONS.
2. Available applications are listed, with their version numbers and, where applicable, location on the Start menu. Choose the applications you want to install.
   - Double-click a single application
   - Select several applications and press Enter
3. Click Create shortcuts for selected applications.

Shortcuts are created in the Start menu in the locations indicated.

Managing tools and documents

To download command-line tools and SmartSpace documents to a selected directory:

1. Run the Ubisense Application Manager and click on DOWNLOADABLES. Command-line tools and SmartSpace documents are listed in different categories.
2. Choose the tools or documents you want to download:
   - Double-click a single file name
   - Select several files and press Enter
3. Specify the directory to install the files in and click Start download.

The files are downloaded to the specified directory.

Linux

In order to avoid incompatible versions of SmartSpace administrative and configuration tools being used, these tools are installed into the platform along with service upgrades. Linux machines can then download the current version of each tool using the **ubisense_file_ downloader** (the command-line equivalent of the Ubisense Application Manager described above).

Run the tool with no arguments for help.

For example, to download *all* Linux tools currently available to the current directory, run:

```
> ubisense_file_downloader download --linux-only
```

To force the overwriting of existing downloads, add `--force`.

Installing SmartSpace Web

Setting up a Web Server

If you have licensed SmartSpace features that are accessed in a browser, such as Web maps or Web forms, you need to set up a web server before installing these features. Follow these instructions to set up a web server on Microsoft Windows.

To install and configure the Web Server:

1. Enable Internet Information Services and Microsoft .NET Framework 3.5.1.

2. Install Microsoft .NET Framework 4.

Enabling the Web Server (IIS) and .NET

To enable Internet Information Services (IIS) and Microsoft .NET Framework 3.5.1 on Windows 7:

1. Click **Start** > **Control Panel** > **Programs and Features** > **Turns Windows features on or off**.

2. Expand **Internet Information Services** > **Web Management Tools** and enable **IIS Management Console**.

3. Expand **Internet Information Services** > **World Wide Web Services** > **Application Development Features**, and enable **ASP.NET**.

4. Expand Internet Information Services > World Wide Web Services > Security, and enable the Windows Authentication.

5. Expand Microsoft .NET Framework 3.5.1, and enable Windows Communication Foundation HTTP Activation.

Installing Microsoft .NET Framework 4

Download the Microsoft .NET Framework 4 (Standalone Installer) from https://www.microsoft.com/net/download/framework and install using the default settings.

Installing the SmartSpace Web Software

Follow these instructions to install the SmartSpace Web application.

When you install the SmartSpace Web application, the following components are created as part of the installation process:

Application Pool: SmartSpace has its own application pool.

Website: The entry point to SmartSpace via a browser.

To install the SmartSpace Web application:

1. Go to the **web** directory of your SmartSpace distribution directory.

2. Double-click the **SmartSpaceWeb.msi**.

3. Enter a Website Name: this name will form part of the URL when accessing SmartSpace in a browser.

4. Enter an Application Pool name.

5. Click Next.

6. The Custom Setup screen allows you to choose which features to install and their location. By default, all features are installed. Click Next and Install.

To install the SmartSpace Web API:

1. Go to the **web** directory of your SmartSpace distribution directory.

2. Double-click the **SmartSpaceWebApi.msi**.

3. Enter a Website Name: this name will form part of the URL when accessing SmartSpace in a browser.

4. Enter an Application Pool name.

5. Click Next.

6. The Custom Setup screen allows you to choose which features to install and their location. By default, all features are installed. Click Next and Install.

Migrating from Smart Factory 3.1.8 to SmartSpace 3.2

The following changes have been made with the introduction of SmartSpace:

- Services have been renamed to be clearly grouped according to the component to which they belong and to use names that more clearly identify their functionality

- Services which were previously required from a separate Ubisense Platform release have been bundled into SmartSpace, and have also been renamed for clarity

When a Smart Factory dataset is upgraded to SmartSpace, the data files must be migrated to the appropriate new layout so they are found by the new services. Otherwise most data will be lost during upgrade.

To support this, a process to migrate from Smart Factory 3.1.8 to SmartSpace 3.2 has been implemented.

> ⚠️ You can only migrate services for which you have SmartSpace licenses. If you have Smart Factory services for functionality you have not licensed in SmartSpace, these services will be removed automatically during migration. Make sure you have installed SmartSpace licenses for *all* Smart Factory services you require to ensure their continued availability.

Before you begin the migration process, ensure you have met the conditions described in Upgrade requirements by installing upgraded software and SmartSpace licenses. Then you can follow the upgrade process described in Migration process

Upgrade requirements

The migration process requires the following:

1. The core and controller must be upgraded to the versions distributed with SmartSpace 3.2, as these have new features required for the migration process. See Installing the Ubisense SmartSpace software for information on installing the core and controller.

2. The **ubisense_smartspace_migration_helper** is a command-line tool distributed with SmartSpace 3.2. It does not require installation and can be run directly from the distribution folder.

3. The Ubisense Service Administration tool distributed with SmartSpace 3.2 should be

installed. This is used for cleaning the dataset and installing the new SmartSpace services. See Installing the Ubisense SmartSpace software for information on installing the Ubisense Service Administration tool.

4. Licenses for SmartSpace are required during the migration process. Before you proceed with the migration process, ensure you have obtained all necessary licenses from Ubisense and have installed them on the server. These licenses will determine which SmartSpace features are offered for installation. See Installing licenses for information on installing licenses.

> The dataset to be upgraded cannot be running Series 7000 sensors (in which case it will include "Ubisense / Location Engine / Configuration Server"). It also cannot have ACS installed (in which case it will include "Ubisense / ACS / Factory Layout" for example). In either case the migration tool will exit at the start with an error.

Migration process

After you have fulfilled the requirement described in Upgrade requirements, follow these steps to migrate to SmartSpace.

1. Back up the dataset.
   Take a backup of the dataset before you begin, so that it can be restored should any step fail.

2. Clean the dataset services (optional).
   After the old services are migrated they can no longer be cleaned up by this tool, so it is advisable to clean them up before proceeding.

   - In Ubisense Service Administration, click on CLEANUP SERVICES and, if there are services listed, click Remove.

3. Check the status of the controllers in your dataset.

   - In Ubisense Service Administration, click MANAGE SERVICES and open Controllers under Cells & Controllers:

     ○ Ensure all registered controllers are running.

     ○ If you have any controllers that are no longer used, select them and click Remove.

4. Start the migration tool.

   From the command line, run **ubisense_smartspace_migration_helper**.

   ```
   SmartSpace Migration Helper
   ---------------------------
   Have you taken a backup [y/n]
   ```

5. Press Y followed by Enter to confirm you have taken a backup and wait until you are prompted to install new services.

   ```
   ...
   Have you taken a backup [y/n]
   y
   Setting core and controller to start migration mode
     waiting for core and controller to be in correct
   state
     waiting for controller <controllername>
   Undeploying all migrated services
     waiting for all migrated services to finish
   undeploying
     waiting for all migrated services to finish
   undeploying
     waiting for all migrated services to finish
   undeploying
   Removing migrated services
   Ready for installation of new services
   Please use the Ubisense Service Administrator to
   install and deploy new services.
     NOTE: installed services will not start yet - this
   is normal
   Have the new services been installed? [y/n]
   ```

6. Install the new services.

   a. In Ubisense Service Administration, click INSTALL SERVICES and browse to the **packages** folder containing the SmartSpace distribution.
      Normally you will be offered all the components that you have licensed.

   b. Select the components to deploy and click Install.

   c. Wait for the installation dialog to finish.

7. Proceed with the migration.

   - Go back to the migration tool, and press Y followed by Enter to confirm that the services have been installed.
   The migration tool will proceed to copy service state into the correct new service locations.

   ```
   ...
   Have the new services been installed? [y/n]
   y
   Setting core and controller to finish migration mode
     waiting for core and controller to be in correct
   state
     waiting for controller <controllername>
   Saving all service state back to core
     waiting for services to finish backup
     waiting for services to finish backup
     waiting for services to finish backup
   Setting core and controller back to non-migration mode
     waiting for core and controller to be in correct
   state
     waiting for controller <controllername>
   Done
   ```

8. Remove empty folders in the dataset (optional).
   When migration is complete, you can remove any empty folders in the dataset.

   - If you have the Linux or Cygwin **find** tool you can use:
   ```
   cd <datasetfolder> find . -type d -empty -delete
   ```

   - If you have PowerShell you can use:
   ```
   Get-ChildItem -recurse | Where {$_.PSIsContainer -and ` @
   (Get-ChildItem -Lit $_.Fullname -r | Where
   {!$_.PSIsContainer}).Length -eq 0} | Remove-Item -recurse
   ```

Sample init.d scripts

Below are sample init scripts for the core and controller for Linux. For help configuring startup scripts for you installation, contact Ubisense Support.

Core Server

```
#!/bin/bash
#
# Init file for Ubisense core platform server
#
# chkconfig: 345 98 02
# description: Ubisense core platform for linux
# processname: ubisense_core_server
# config: /etc/ubisense.conf
# source function library
if [ -e /etc/rc.d/init.d/functions ]
then
. /etc/rc.d/init.d/functions
else
# steal status() from /etc/rc.d/init.d/functions on a RH box
status() {
local base=${1##*/}
local pid
# Test syntax.
if [ "$#" = 0 ] ; then
echo $"Usage: status {program}"
return 1
fi
# First try "pidof"
pid=`pidof -o $$ -o $PPID -o %PPID -x $1 || \
pidof -o $$ -o $PPID -o %PPID -x ${base}`
if [ -n "$pid" ]; then
echo $"${base} (pid $pid) is running..."
return 0
fi
# Next try "/var/run/*.pid" files
if [ -f /var/run/${base}.pid ] ; then
read pid < /var/run/${base}.pid
if [ -n "$pid" ]; then
echo $"${base} dead but pid file exists"
```

```
return 1
fi
fi
# See if /var/lock/subsys/${base} exists
if [ -f /var/lock/subsys/${base} ]; then
echo $"${base} dead but subsys locked"
return 2
fi
echo $"${base} is stopped"
return 3
}
fi

# pull in sysconfig settings
[ -f /etc/ubisense.conf ] && . /etc/ubisense.conf
PLATFORM_USER=${PLATFORM_USER:-platform}
UBISENSE_CORE_SERVER=/home/platform/bin/i586_linux_2.6/ubisense_
core_server
export UCONFIG=/etc/ubisense/platform.conf
RETVAL=0
prog="ubisense"
start()
{
echo -n $"Starting ubisense_core_server:"
if [ -e /etc/rc.d/init.d/functions ]
then
daemon --check ubisense_core_server --user=platform ${UBISENSE_
CORE_SERVER} -d
else
startproc -u platform ${UBISENSE_CORE_SERVER} -d
fi
touch /var/lock/subsys/ubisense_core_server
echo
}
stop()
{
echo -n $"Stopping ubisense_core_server:"
if [ -e /etc/rc.d/init.d/functions ]
then
killproc ubisense_core_server
else
killproc ${UBISENSE_CORE_SERVER}
fi
```

```
rm -f /var/lock/subsys/ubisense_core_server
echo
}
case "$1" in
start)
start
;;
stop)
stop
;;
restart)
stop
start
;;
status)
status ubisense_core_server
;;
*)
echo $"Usage: $0 {start|stop|restart|status}"
RETVAL=1
esac
exit $RETVAL
```

Local Controller

```
#!/bin/bash
#
# Init file for Ubisense local controller
# chkconfig: 345 99 01
# description: Ubisense local controller for linux
# processname: ubisense_local_control
# config: /etc/ubisense.conf
# source function library
if [ -e /etc/rc.d/init.d/functions ]
then
. /etc/rc.d/init.d/functions
else
# steal status() from /etc/rc.d/init.d/functions on a RH box
status() {
local base=${1##*/}
```

```
local pid
# Test syntax.
if [ "$#" = 0 ] ; then
echo $"Usage: status {program}"
return 1
fi
# First try "pidof"
pid=`pidof -o $$ -o $PPID -o %PPID -x $1 || \
pidof -o $$ -o $PPID -o %PPID -x ${base}`
if [ -n "$pid" ]; then
echo $"${base} (pid $pid) is running..."
return 0
fi
# Next try "/var/run/*.pid" files
if [ -f /var/run/${base}.pid ] ; then
read pid < /var/run/${base}.pid
if [ -n "$pid" ]; then
echo $"${base} dead but pid file exists"
return 1
fi
fi
# See if /var/lock/subsys/${base} exists
if [ -f /var/lock/subsys/${base} ]; then
echo $"${base} dead but subsys locked"
return 2
fi
echo $"${base} is stopped"
return 3
}
fi
# pull in sysconfig settings
[ -f /etc/ubisense.conf ] && . /etc/ubisense.conf
PLATFORM_USER=${PLATFORM_USER:-platform}
UBISENSE_LOCAL_CONTROL=/home/platform/bin/i586_linux_
2.6/ubisense_local_control
export UCONFIG=/etc/ubisense/platform.conf
RETVAL=0
prog="ubisense"
start()
{
echo -n $"Starting ubisense_local_control:"
if [ -e /etc/rc.d/init.d/functions ]
then
```

```
daemon --check ubisense_local_control --user=platform
${UBISENSE_LOCAL_CONTROL} -d
else
startproc -u platform ${UBISENSE_LOCAL_CONTROL} -d
fi
touch /var/lock/subsys/ubisense_local_control
echo
}
stop()
{
echo -n $"Stopping ubisense_local_control:"
if [ -e /etc/rc.d/init.d/functions ]
then
killproc ubisense_local_control
else
killproc ${UBISENSE_LOCAL_CONTROL}
fi
rm -f /var/lock/subsys/ubisense_local_control
echo
}
case "$1" in
start
start
;;
stop)
stop
;;
restart)
stop
start
;;
status)
status ubisense_local_control
;;
*)
echo $"Usage: $0 {start|stop|restart|status}"
RETVAL=1
esac
exit $RETVAL
```

Sample systemd scripts

The following example illustrates the use of sysemd scripts forSmartSpace with the core and controller executables on a single Red Hat® Linux machine.

> ℹ The instructions assume the core server and local controller executables (**ubisense_core_server** and **ubisense_local_control**) are in **/home/platform/bin/i586_linux**. If this is not the case, the service files (**ubisense_core_server.service** and **ubisense_local_control.service**) will have to be updated to reflect the location of the executable.

1. Add a target file **ubisense_service.target** in **/etc/systemd/system** containing the following:

   ```
   [Unit]
   Description=ubisense_service Target
   Requires=multi-user.target
   After=multi-user.target
   AllowIsolate=yes
   ```

2. Run the following commands:

   ```
   systemctl list-units --type service
   systemctl daemon-reload
   systemctl enable ubisense_service.target
   systemctl isolate ubisense_service.target
   ln -sf /etc/systemd/system/ubisense_service.target
   /etc/systemd/system/default.target.wants/
   ```

3. Reboot the machine.

4. Check the status of the target using the command below to make sure the target is active and running:

   ```
   systemctl list-units --type target
   ```

5. Add a service file **ubisense_core_server.service** in **/etc/systemd/system** containing the following:

   ```
   [Unit]
   Description=ubisense_core_server daemon
   After=multi-user.target
   ```

```
[Service]
Type=forking
ExecStart=/home/platform/bin/i586_linux_2.6/ubisense_core_
server -d

[Install]
WantedBy=ubisense_service.target
```

6. Add a service file **ubisense_local_control.service** in **/etc/systemd/system** containing the following:

```
[Unit]
Description=ubisense_local_control Daemon
After=multi-user.target

[Service]
Type=forking
ExecStart=/home/platform/bin/i586_linux_2.6/ubisense_local_
control -d

[Install]
WantedBy=ubisense_service.target
```

7. Run the following commands:

```
systemctl daemon-reload
systemctl enable ubisense_local_control.service
systemctl enable ubisense_core_server.service
```

8. Reboot the machine.

9. To list the status of the services run the following command:

```
systemctl list-units --type service
```