



SmartSpace[®]

Replication

From version 3.2

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Ubisense Replication

The following information guides you through the steps required to install, configure and run a simple Ubisense replication system. The system consists of a single live machine (where the platform and services are executing) and a single backup machine (which will replicate the live machine).

Installing Replication on Windows

The following provides the steps required to install, configure and run a simple Ubisense replication system on Windows. The system will consist of a single live machine (where the platform and services are executing) and a single backup machine (which will replicate the live machine).

Installing Platform

Ensure the platform software has been installed on both the system being replicated (the live system) and the replicating system (the backup system). Ensure the same version of the platform software is installed on both systems and is version 2.1.8 or newer. Ensure both systems have the required licenses installed.

On the live system, in Platform Control, the dataset setting should be set to the root directory of the Ubisense dataset. This same directory (including drive) will be used as the location of the replicated dataset on the backup system. For example, if the dataset directory on the live system is `d:\ubisense\dataset`, the replicated dataset directory will be `d:\ubisense\dataset` on the backup system. Therefore, it is important to ensure the backup system has the same hardware (drives) as the live system.

On the backup system, in Platform Control, set the dataset setting to the same as the dataset setting on the live system. Although this is not necessary for the replication to work, if the backup dataset is correctly set, it will make switching from the live system to the backup system quicker and easier if the live system fails.

See [SmartSpace Installation](#) on the Ubisense Documentation Portal for further information on installing the server software and using Platform Control.

Installing Ubisense Replication

Ubisense Replication software should be installed on both the live system and the backup system.

To install Ubisense Replication:

1. Go to the `servers\windows` directory of your SmartSpace distribution directory.
2. Double-click the **UbisenseReplication.msi** file and the Ubisense Replication 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 Replication Setup wizard.

Set Up the Backup System

A registry setting must be set to configure the backup system. On the backup machine, set the following registry setting.

Setting	Description
<code>controller_node_name</code>	The name of the controller. This must match the controller name on the live machine which is running the sender. The name can be any user-specified string, for example <code>ReplicatedSystem1</code> . The name should be unique for each live/backup setup.

See the [Registry Editor](#) section for instructions on using the Registry Editor.

There is an optional setting that should not be set unless necessary. It will only be necessary if the default port is already in use on the backup machine. If this setting is added on the backup system, it must also be added on the live system.

Setting	Description
<code>replication_receiver_port</code>	The port number on which the Replication Receiver is listening for connections. This parameter is optional and should not be set unless it is necessary. The default port, 9876, is used if it is omitted. This value must match the sender's corresponding setting.

Set Up the Live System

Three registry settings must be set to configure the live system. On the live machine, set the following registry settings.

Setting	Description
controller_node_name	The name of the controller. This must match the controller name on the backup machine which is running the receiver.
replication_directory	The directory where the Ubisense platform services should write their replication information. This is effectively a temporary directory used by the replication process. An example would be <code>c:\ubisense\replication</code> .
replication_receiver_address	The IP address of the backup machine which is running the receiver. See Get the IP address for instructions on how to get the IP address.

See the [Registry Editor](#) section for instructions on using the registry editor.

There is an optional setting that should not be set unless set on the backup system.

Setting	Description
replication_receiver_port	The port number on which the Replication Receiver is listening for connections. This parameter is optional and should not be set unless it is necessary. The default port, 9876, is used if it is omitted. This value must match the Replication Receiver's corresponding setting.

Replication and Service security

If you are installing Replication and also intend to use Service security to provide authentication on your dataset, you must ensure that you have identical copies of the **credentials.dat** file on your live machine and your backup machine.

- To achieve this, after you have generated the **credentials.dat** file on the live machine, copy the file from the root dataset folder of the live machine to the root dataset folder of the backup machine.



It is important to note that whenever any subsequent change is made to **credentials.dat**, you must repeat this step and copy the changed file to the other machine.

For further information on installing and configuring Service security, see [Introduction Ubisense Security Manager](#) on the Ubisense Documentation Portal or the *SmartSpace Ubisense Architecture: Schema Security* guide.

Starting Replication

There are two methods for starting replication:

- Using the UbisenseFailover application to control the starting and stopping of replication services. This is the preferred method of operation.
- Manually starting the backup and live systems.

Using Failover to Control Replication Services

See [Ubisense Failover](#) on the Ubisense Documentation Portal or the *SmartSpace Automated Failover Support Guide* for further information on installing and configuring Failover.



If your system is configured to use SmartSpace Failover, you must only use Failover to start your backup and live systems. Do *not* use the manual methods described below.

Manually Starting Replication

Manually Starting the Backup System

On the backup machine, start a command prompt with system administrator privileges. See [Command Prompt with System Administrator Privileges](#) for instructions on how to start a command prompt with system administrator privileges.

1. Change directory to the location where the Ubisense Replication software was installed, most likely one of
 - C:\Program Files (x86)\Ubisense 3\bin
 - C:\Program Files\Ubisense 3\bin
2. Enter the following command to start the replication service on the receiver.

```
ubisense_native_services -r
```

After running the command, the following should be displayed.

```
UbisenseReplicationReceiver 3 started
```

Service	Status
~~~~~	~~~~~
UbisenseServiceController 3	not running
UbisenseCoreServer 3	not running
UbisenseSiteConnectorClient 3	not installed (or not running)
UbisenseReplicationSender 3	not running
UbisenseReplicationReceiver 3	running

## Manually Starting the Live System

On the live machine, start a command prompt with system administrator privileges. See [Command Prompt with System Administrator Privileges](#) for instructions on how to start a command prompt with system administrator privileges.

1. Change directory to the location where the Ubisense Replication software was installed, most likely one of
  - C:\Program Files (x86)\Ubisense 3\bin
  - C:\Program Files\Ubisense 3\bin
2. Enter the following command to start the replication service on the sender.

```
ubisense_native_services -c -t -s
```

After running the command, the following should be displayed.

```
UbisenseReplicationSender 3 started
```

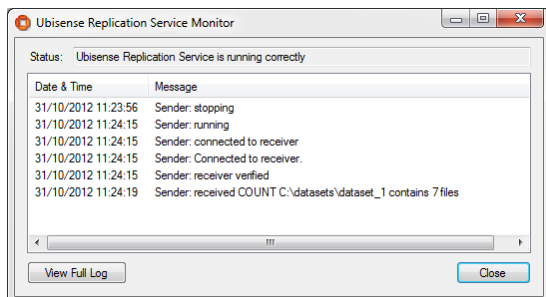
Service	Status
~~~~~	~~~~~
UbisenseServiceController 3	running
UbisenseCoreServer 3	running
UbisenseSiteConnectorClient 3	not installed (or not running)
UbisenseReplicationSender 3	running
UbisenseReplicationReceiver 3	not running

Checking the System is Working

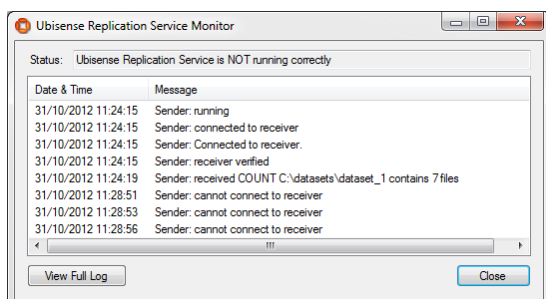
To check the system is working, start the Ubisense Replication Service Monitor. This can be found where the Ubisense Replication software was installed, most likely one of:

- C:\Program Files (x86)\Ubisense 3\bin
- C:\Program Files\Ubisense 3\bin

Double-click **UbisenseReplicationMonitor.exe** to start the application.



If the replication system is working correctly, the status will show **Ubisense Replication Service is running correctly**. You should also be able to see directories and files being stored in the dataset directory on the backup system, although this may take a little time to complete.



If the replication system is not working correctly, the status will show **Ubisense Replication Service is NOT running correctly**. If this is the case, the messages should be checked to find the cause of the problem.



When your replication system is live, it is important to ensure that the replication receiver is not taken out of use for any length of time. Not only does this leave you without an available backup system but you also run the risk of eventually filling up the disk-based buffers and causing the sender services to fail.

Switching to the Backup System

If the live system fails for some reason, the backup system must take over. It is possible to do this manually but the preferred method of switching to the backup system is to use the Ubisense Failover application. See Ubisense Failover on the Ubisense Documentation Portal or the *SmartSpace Automated Failover Support Guide* for further information on installing and configuring Failover.

Installing Replication on Linux

The following provides the steps required to install, configure and run a simple Ubisense replication system on Linux. The system will consist of a single live machine (where the platform and services are executing) and a single backup machine (which will replicate the live machine).

Installing Platform

Ensure the platform software has been installed on both the system being replicated (the live system) and the replication system (the backup system). Ensure the same version of the platform software is installed on both systems and is version 2.1.8 or newer. Ensure both systems have the required licenses installed.

On the live system, the dataset setting should be set to the root directory of the Ubisense dataset. This same directory will be used as the location of the replicated dataset on the backup system.

On the backup system, set the dataset setting to the same as the dataset setting on the live system. Although this is not necessary for the replication to work, if the backup dataset is correctly set, it will make switching from the live system to the backup system easier if the live system fails.

See SmartSpace Installation on the Ubisense Documentation Portal for further information on installing the server software.

Installing Ubisense Replication

Ubisense Replication software should be installed on both the live system and the backup system.

There is no installation package for Linux. The `ubisense_replication_sender` and `ubisense_replication_receiver` should be copied to the live and backup machines, as required.

Set up the Backup System

A configuration setting must be set to configure the backup system. On the backup machine, set the following setting in the `platform.conf` file which is normally found in `/etc/Ubisense`.

Setting	Description
<code>controller_node_name</code>	The name of the controller. This must match the controller name on the live machine which is running the sender. The name can be any user-specified string, for example <code>ReplicatedSystem1</code> . The name should be unique for each live/backup setup.

There is an optional setting that should not be set unless necessary. It will only be necessary if the default port is already in use on backup machine. If this setting is added on the backup system, it must also be added on the live system.

Setting	Description
<code>replication_receiver_port</code>	The port number on which the receiver is listening for connections. This parameter is optional and should not be set unless it is necessary. The default port, 9876, is used if it is omitted. This value must match the sender's corresponding setting.

Set up the Live System

Three configuration settings must be set to configure the live system. On the live machine, set the following settings in the `platform.conf` file which is normally found in `/etc/Ubisense`

Setting	Description
<code>controller_node_name</code>	The name of the controller. This must match the controller name on the backup machine which is running the receiver.
<code>replication_directory</code>	The directory where the Ubisense Platform Services should write their replication information. This is effectively a temporary directory used by the replication process. An example would be <code>/home/ubisense/rep</code> .
<code>replication_receiver_address</code>	The IP address of the backup machine which is running the Replication Receiver.

There is an optional setting that should not be set unless set on the backup system.

Setting	Description
<code>replication_receiver_port</code>	The port number on which the receiver is listening for connections. This parameter is optional and should not be set unless it is necessary. The default port, 9876, is used if it is omitted. This value must match the receiver's corresponding setting.

Replication and Service security

If you are installing Replication and also intend to use Service security to provide authentication on your dataset, you must ensure that you have identical copies of the **credentials.dat** file on your live machine and your backup machine.

- To achieve this, after you have generated the **credentials.dat** file on the live machine, copy the file from the root dataset folder of the live machine to the root dataset folder of the backup machine.



It is important to note that whenever any subsequent change is made to **credentials.dat**, you must repeat this step and copy the changed file to the other machine.

For further information on installing and configuring Service security, see [Introduction Ubisense Security Manager](#) on the [Ubisense Documentation Portal](#) or the *SmartSpace Ubisense Architecture: Schema Security* guide.

Starting the Backup System

On the backup machine, change to the directory where the replication files were installed. Enter the following command to start the replication service on the receiver.

```
ubisense_replication_receiver &
```

Alternatively, the service can be started and stopped as any other service, for example with an **init.d** script. The service can be started as daemon by providing the **-d** command line argument.

Starting the Live System

On the live machine, change to the directory where the replication files were installed. Enter the following command to start the replication service on the sender.

```
ubisense_replication_sender &
```

Alternatively, the service can be started and stopped as any other service, for example with an **init.d** script. The service can be started as daemon by providing the **-d** command line argument.

Checking the System is Working

The Linux services produce the same error and progress messages as the Windows services (except for the omission of Windows-specific messages). The Linux services log their messages to syslog. On most Linux systems `/etc/syslog.conf` will indicate where syslog output is written to. For example, on some systems, it is written to `/var/log/messages`. In this case the most recent messages can be seen, as they arrive, with the following command:

```
tail -f /var/log/messages
```



When your replication system is live, it is important to ensure that the replication receiver is not taken out of use for any length of time. Not only does this leave you without an available backup system but you also run the risk of eventually filling up the disk-based buffers and causing the sender services to fail.

Switching to the Backup System

If the live system fails for some reason, the backup system must take over. It is possible to do this manually, as described below, but the preferred method of switching to the backup system is to use the Ubisense Failover application. See [on the Ubisense Documentation Portal](#) or the *SmartSpace Automated Failover Support Guide* for descriptions of failover in use.

To manually switch to the backup system, on the backup machine, stop (kill) the `ubisense_replication_receiver` process and then start the core server and local controller by entering the following commands.

```
/etc/init.d/ubisense_core_server start  
/etc/init.d/ubisense_local_control start
```

Registry Editor

The following give instructions on how to add and edit Ubisense registry settings.

Ubisense registry settings are stored under one of:

- **HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\Ubisense 3\Config**
- **HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\Ubisense 2.1\Platform\Config**

1. Start the registry editor. (Click start, type **regedit.exe**, and press Enter).
2. In the tree on the left, from the top, expand HKEY_LOCAL_MACHINE, then expand SOFTWARE, and so on down the tree until you select Config.
3. With the registry editor open and config selected in the tree on the left, the registry settings are displayed in the panel on the right.
 - To add a new setting, select the "Edit" menu, select "New" and select "String Value". A new value will appear in the panel on the right and the value's name is being edited. Enter the name of the setting (e.g. controller_name_node).
 - To edit a settings value, select the setting in the panel on the right. Select the "Edit" menu, then select "Modify...". This will display an editor window where the setting can be edited. Type in the setting value (e.g. ReplicationSystem1) and press Enter. The registry setting has now been set.

Get the IP address

The following give instructions on how to get the IP address of a Windows PC.

1. Start a command prompt. Click start, then type **command** and press Enter.
2. Enter the command **ipconfig** and press Enter.
3. For the output of this command, look for the section "Ethernet adapter Local Area Connection". Find the line that starts with IPv4. The end of the line will be four numbers like 12.34.56.78. This is the IP address. See the example output below where the IP address is highlighted.

```
Windows IP Configuration
Ethernet adapter Local Area Connection:
    Connection-specific DNS Suffix  . : ubisense.local
    Link-local IPv6 Address . . . . . : fe80::d529:b237:e3e8:ec43%13
    IPv4 Address. . . . . : 10.42.5.126
    Subnet Mask . . . . . : 255.255.0.0
    Default Gateway . . . . . : 10.42.1.1
```

Command Prompt with System Administrator Privileges

The following give instructions on how to start a command prompt with system administrator privileges.

In Windows, click Start, then type **command**. At the top of the list being displayed you should find "Command Prompt". Right click on "Command Prompt" and select Run as administrator.