

# 1 Integrate

## Installation Guide

### Oracle Weblogic Server

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# 1 Introduction

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This guide explains how to install 1Integrate.

The procedures apply to both Windows and Linux environments, unless specifically indicated.

For more information about new features and changes in this release, and hardware and software requirements, refer to the *1Integrate Release Notes*.

## Audience

This guide is intended for personnel responsible for the installation, configuration, and administration of software.

The procedures detailed in the guide should be performed by a system administrator who is familiar with the application environment of the organisation.

## Licenses

1Integrate licences will be issued via email.

## 1Spatial product support

If assistance is required while installing 1Integrate, please call 1Spatial support on +44 (0)1223 423069, or visit the support section of the 1Spatial website via the Services menu at [www.1spatial.com](http://www.1spatial.com).

# 2 Prerequisites

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Before installing 1Integrate, please ensure you have met all system requirements and installed all necessary prerequisite components:

- » Check "System Requirements" below (including the version of Java required)
- » "Configuring the Database Server" below
- » "ICU Libraries (Linux only)" on page 7
- » "Open Motif Libraries (Linux only)" on page 7
- » "Loading non-Oracle spatial data using FME" on page 19

## System Requirements

Please see the *1Integrate Release Notes* for specific system requirements for this release.

## Configuring the Database Server

1Integrate requires access to an *Oracle* or *SQL Server* database to store configuration data such as rule and session definitions, and conformance results. This is referred to as the "1Integrate repository".



**Note:** Please refer to the relevant product documentation when installing your chosen database server.



**Note:** If creating a SQL Server database, follow the process through Microsoft SQL Server Management Studio (MSSMS). The name should be "1Integrate" and all other defaults should be used.

## Creating a Database User

A database user is required for the 1Integrate repository.



**Note:** When deploying 1Integrate to multiple servers, one database user is required per environment.

### Create an Oracle Database User:

To create a database user, run the following SQL\*Plus commands and specify the location of the datafile (including the full file name and extension) as

recommended by your Database Administrator:

```
Prompt:> sqlplus [your_system_user_name]/[your_
password]@[tnsname]

SQL> create tablespace [repository_tablespace_name]
datafile '[datafile_location]' size 10m reuse
autoextend on next 10m maxsize unlimited;

SQL> create user [repository_username] identified by
[repository_password] default tablespace [repository_
tablespace_name];

SQL> GRANT create procedure, create sequence, create
session, create table, create view, create trigger,
unlimited tablespace, create type TO [repository_
username];

SQL> ALTER user [your_system_username] quota unlimited
on [repository_tablespace_name];
```

### Create a SQL Server Database User:

1. Create a new user following the **New Login** process in MSSMS.
2. Set the login name to `rsuser`.
3. Select **SQL Server Authentication**, set the password to `rsuser` and de-select **Enforce Password Policy**.
4. Set the default database to 1Integrate.
5. In **User Mapping**, select 1Integrate.
6. Specify the user as `rsuser` and select all database role memberships except `db_denydatareader` and `db_denydatawriter`.
7. In the MSSMS, select the root node of SQL Server and change the security authentication to **SQL Server and Windows Authentication mode**.



**Note:** To allow the application server to log in to the database, the TCP/IP protocol must be enabled. You can enable this in the SQL Server Configuration Manager in the SQL Server Network Communication section.

## ICU Libraries (Linux only)

ICU libraries are required for data and timestamp support in Linux.

A root user (or a user with root access privileges) is required to copy the files from the installation CD and run the `ld_config` command.

### Install the ICU libraries:

1. Run the `su` command to switch to the root user.
2. Copy the `.so` files from the installation folder (within Linux/ICU) to the `/usr/local/lib64/` folder.
3. Rename the `.so` files, removing any “\_64” suffix.
4. Create a new configuration file: `/etc/ld.so.conf.d/integrate.conf`



**Note:** Both the `.so` files and the `.conf` file must have read permissions for all users.

5. Inside the configuration file, reference the location of the ICU libraries, for example: `/usr/local/lib64/*`
6. Enter the following `ld_config` command:

```
/sbin/ldconfig -v /usr/local/lib64/
```

Alternatively, edit `~/.bashrc` or similar for the user used to run 1Integrate to include `/usr/local/lib64` on the `LD_LIBRARY_PATH`, as in the following example:

```
# User specific
if [ -z "$LD_LIBRARY_PATH" ]; then
export LD_LIBRARY_PATH="/usr/local/lib64"
else
export LD_LIBRARY_PATH="/usr/local/lib64:$LD_
LIBRARY_PATH"
fi
```

## Open Motif Libraries (Linux only)

The 64-bit Open Motif libraries are a prerequisite for Linux installations of 1Integrate.

The required Open Motif libraries are as follows:

- » libX11.so.6
- » libm.so.6
- » libpthread.so.0

- » libnsl.so.1
- » libdl.so.2
- » libc.so.6
- » libcrypt.so.1
- » libXau.so.6
- » libXdmcp.so.6



# 3 Installing 1Integrate on Weblogic

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**Note:** Before proceeding, ensure you have completed all pre-requisite steps (see "Prerequisites" on page 5).

Installing 1Integrate on an Oracle Weblogic Server consists of the following tasks:

- » Running the Installation Wizard using the "1Integrate Installation Wizard Parameters" on page 11
- » "Configuring 1Integrate Users and Roles" on page 17
- » "Testing the Installation" on page 22

## 1SMS Installation Wizard

The 1Spatial Management Suite Installation Wizard guides you through the product installation.

### Launching the wizard

The wizard can be run on both Windows and Linux operating systems.

#### Launch the installation wizard on Windows:

1. Copy and unzip the installation folder on the target server machine.
2. Double-click the **1sms\_installer-[version].jar** file.

#### Launch the installation wizard on Linux:


1. Copy and unzip the installation folder on the target server machine.
2. Run the **installer.jar** file using a Java 1.7 JVM.


For example, from the command line enter: `Java -jar ./1sms_installer-[version].jar`

## Installation of 1Integrate




**Note:** Ensure that the WebLogic Node Manager and Admin Server are running before proceeding with the installation.

 **Note:** If you have your own custom data stores or built-ins, you will need to add these to the installation directory before running the installation wizard.

 **Note:** If you are running the installation on an existing domain, roles and users may already exist in that domain. Only new users and new role mappings will be created in this situation. Existing mappings will be preserved.

Install 1Integrate using the Installation Wizard:

1. Launch the Installation Wizard (see "Launching the wizard" on the previous page).
2. Select **WebLogic Installation**, then click **Next**.
3. In the Product Selection page, tick **Install** for all components, then click **Next**.
4. Complete each page of the installation wizard, entering parameters as required.
5. On the Summary page, click **Next**, then click **Begin** to run the installation.



 **Note:**  
If you encounter the following when clicking **Begin** to run the installation, restart the Admin Server then re-run the installation wizard.  
All previously entered data will be preserved.

```
#####  
# Server "AdminServer" must be restarted to  
activate all configuration changes.  
#####
```

# 1Integrate Installation Wizard Parameters

The following parameters are given in the order displayed in the Installation Wizard, and split by the page within which they appear.


## Common Settings

Parameter	Description	Typical Value
<b>WebLogic</b>		
WebLogic Home		C:/oracle/weblogic1213
WebLogic Domain Home		user_project/domains
<b>WebLogic 64-bit Domain With SOA Components</b>		
Host	Host name	[machine name]
Port	Port number	7001
Protocol	Protocol type to use (t3 or t3s).	
	 <b>Note:</b> If using t3s, you must ensure that the server's certificate(s) are added to the cacerts trust store for the Java version used <i>when WebLogic was installed</i> .	
Admin Username	Admin username for the WebLogic domain.	
Admin Password	Admin password for the WebLogic domain.	
Admin Server Name	Name of the WebLogic domain's Administration Server	AdminServer
	 <b>Note:</b> This should be the same for each domain.	


Parameter	Description	Typical Value
Domain Name	Name of the domain	sms_domain
Node Manager Machine Name	Name of the node manager machine	[machine name]
Node Manager Host	Host of the node manager	localhost
Node Manager Port	Port of the node manager	5556
Node Manager Type	Type of node manager	ssl


## 1Integrate Interface

Item	Description	Typical Value
<b>General</b>		
Service Port	The port to use to host the 1Integrate interface web service	7004
Listen Address		[machine name]
Server Name	The name of the server to host the 1Integrate interface web service	[server name]
<b>1Integrate Repository</b>		
JDBC Connection string	The connection details of the schema in the form <code>jdbc:oracle:thin:@[hostname]:[port]:[service_name]</code>	
Username	User name for the schema	
Password	Password for the schema	

Item	Description	Typical Value
<b>Cache Data</b>		
Directory	<p>The location of the cache directory.</p> <p>When a session is run, a folder is created called "1Integratecache", within which the cache is stored.</p> <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;">  <b>Note:</b> This stores the data cache from data read by 1Integrate. This may require large amounts of disk space depending on the size of data being read into sessions and the number of concurrent sessions. </div> <p>For Linux, if left blank this will default to /tmp.</p> <p>For Windows, if left blank this will default to C:\Users\[user]\AppData\Local\Temp.</p>	C:/1spatial/data
License	The location of the provided product licence file	C:/1spatial/[licence name].lic
<b>Interface JVM Settings</b>		
Initial Heap Size		256MB
Maximum Heap Size		1024MB
<b>Custom Extensions</b>		
Include Custom Extensions	Tick this box to include custom extensions.	
Selected Custom Extensions	Browse for custom extensions to be included.	

## 1Integrate Session Queue

Parameter	Description	Typical Value
<b>General</b>		
Number of Nodes	Number of Session Queues to be created (limited by your licence agreement).	2
Service Port(s)	A list of ports that should be used to host the processing services. This can either be a comma separated list or a range, such as 8022, 8023, or 8024-8027.  Ensure the ports are not already in use.	
Listen Address		
<b>1Integrate Repository</b>		
 <b>Note:</b> These settings must be entered the same as for the 1Integrate Interface.		
JDBC Connection String	The connection details of the schema in the form <code>jdbc:oracle:thin:@[hostname]:[port]:[service_name]</code>	
Username	User name for the schema	
Password	Password for the schema	

Parameter	Description	Typical Value
<b>Cache Data</b>		
Directory	<p>The location of the cache directory.</p> <p>When a session is run, a folder is created called "1Integratecache", within which the cache is stored.</p> <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;">  <b>Note:</b> This stores the data cache from data read by 1Integrate. This may require large amounts of disk space depending on the size of data being read into sessions and the number of concurrent sessions.         </div> <p>For Linux, if left blank this will default to /tmp.</p> <p>For Windows, if left blank this will default to C:\Users\[user]\AppData\Local\Temp.</p>	C:/1spatial/data
License	The location of the provided product licence file	C:/1spatial/[licence name].lic
<b>Session Queue JVM Settings</b>		
Initial Heap Size	<p>This Initial Heap Size value specifies how much memory a 1Integrate session queue node uses on startup.</p> <p>If it requires more memory, it will grow up to the Maximum Heap size.</p>	256MB

Parameter	Description	Typical Value
Maximum Heap Size	<p>This is the maximum amount of Java memory that can be allocated to the 1Integrate Session Queue node.</p> <p>If this number is too small then very complex or large processes may fail by running out of memory. The amount of memory is required not directly related to the amount of feature loaded (because they are cached to disk) but is related to the size of individual entities being handled, such as restoring large XML backups or processing very large geometries.</p>	1024MB
<b>Custom Extensions</b>		
Include Custom Extensions	Tick this box to include custom extensions.	
Selected Custom Extensions	Browse for custom extensions to be included.	
<b>Clustering</b>		
Clustered		
Cluster Name		
Cluster Address (optional)		
Cluster Load Algorithm		
Cluster Messaging Mode		
Cluster Broadcast Channel (optional)		



# Configuring 1Integrate Users and Roles

Users and roles can be configured for the 1Integrate interface to enable users to log in to 1Integrate.

Roles determine the privileges and the menus to which users have access.

1Integrate users and roles should be configured using the WebLogic Server Administrator Console.

The following 1Integrate users are created by default:

User	Password
intadmin1	intadmin#1
intadmin2	intadmin#2
intuser1	intuser#1



**Note:** The default setup assigns the default users to some of the default groups, allowing you to log in and start using 1Integrate without having to change any of the security configuration. If you wish to customise the users, then group assignment can be altered.

1Integrate groups are created by default. However, unlike the default users that are created, the group names set up by installer must not be altered.

The groups are used as roles, with group membership determining a user's access to application features as listed below:

Group	Description
int_admins	This role allows the user to perform administrative tasks and has all the privileges of the other roles
int_users	This role only allows the user to browse the 1Integrate interface
int_data_engineers	This role allows the user to create and modify actions and action maps and define and run sessions
int_data_quality_stewards	This role allows the user to define and run sessions
int_rule_definers	A role that can create and modify rules, data stores and sessions

Group	Description
int_data_loaders	This role allows the user to upload data and should be used in conjunction with the int_rule_definer role
rswsuser	This role allows the user to connect to the 1Integrate Web service

## NIC/Network Adaptor Configuration

The Grid discovery used to find session queues by default uses the first found non-loopback address, for example a machine with Ethernet adaptors "eth0" and "eth1" and Local Loopback "lo" will likely use "eth0".



**Note:** If you do not need to override the adaptor default behaviour, then the following properties do not need to be included.

Within the WebLogic Server Administration Console, include the following in the Server Start Arguments:

```
-Dgrid.local.address=[NIC Address]
-Dgrid.discovery.tcp.port=[default: 51300]
-Dgrid.communication.tcp.port=[default: 51401]
```

Where:

- » **Dgrid.local.address** - specifies the IP address of the network adaptor used for grid communication.
- » **Dgrid.communication.tcp.port** and **Dgrid.discovery.tcp.port** - allows environments to specify known ports (for example, when using a firewall).



**Note:** The communication port must be a minimum of 100 greater than the discovery port, in order to avoid conflict.

# Loading non-Oracle spatial data using FME

1Integrate, by default, loads spatial data from an Oracle database. To load spatial data from other sources (e.g. Shapefile, Tab files, MS SQL Server) 1Integrate uses functionality from Safe Software's FME.

To use this capability, you must have FME Desktop installed on the server or on a local file system location available to the server, with an FME license available for use.



**Note:** In order to be editable, tables must have a primary key defined. You can read data from tables that do not have primary keys, but you will not be able to write data back to those tables.

To allow 1Integrate to access non-Oracle data sources, use the following procedure, depending on your operating system:

## Configure FME on Windows:



**Note:** The following steps are only necessary if FME has not already been added to the system or user's PATH environment variable in Windows.

1. Stop the WebLogic server(s).
2. Create a new file called **setUserOverrides.cmd** within the **bin** directory of your domain, if it does not already exist (i.e. **[domain name]/bin/setUserOverrides.cmd**).
3. Edit the contents of the file to contain the following:
 

```
@rem add FME to LD_LIBRARY_PATH
export LD_LIBRARY_PATH="[FME path]:$LD_LIBRARY_PATH"
```

Where **[FME path]** is the location where FME is installed (e.g. **C:\PROGRA~1\FME**).
4. Alter the permissions on **setUserOverrides.cmd** to allow the weblogic user to execute the file (e.g. `chmod 750 setUserOverrides.cmd`).
5. Start the WebLogic server(s).

## Configure FME on Linux:

1. Stop the WebLogic server(s).

2. Create a new file called **setUserOverrides.sh** within the **bin** directory of your domain (i.e. **[domain name]/bin/setUserOverrides.sh**).
3. Edit the contents of the file to contain the following:
 

```
# add FME to LD_LIBRARY_PATH
export LD_LIBRARY_PATH="[FME_CORE_PATH]:$LD_LIBRARY_PATH"
```

Where **[FME\_CORE\_PATH]** is the location of the **fme/fmecore/** directory.
4. Alter the permissions on **setUserOverrides.sh** to allow the weblogic user to execute the file (e.g. **chmod 750 setUserOverrides.sh**).
5. Start the WebLogic server(s).

## SQL Server spatial data

An additional driver is required in order for FME to read Microsoft SQL Server data on WebLogic 12.1.3.

### Configure SQL Server for spatial data support:

1. Download the following driver from Microsoft, and place it in an accessible location: **sqljdbc4-4.0.2206.100.jar**
2. In the **bin** directory of the 1Integrate WebLogic domain, create a file called **setUserOverrides.cmd**
3. Edit the **setUserOverrides.cmd** file, adding the location of the sqljdbc driver as part of the PRE\_CLASSPATH:
 

```
@rem include the sqljdbc driver as part of the pre
class path
set PRE_CLASSPATH=%locationOfTheDriver%\sqljdbc4-
4.0.2206.100.jar
@rem set FME path as part of the path
set PATH=C:\PROGRA~1\FME\;%PATH%
```
4. Restart all servers, including Admin Server and Node Manager for the pre-class path to be loaded.

## Offline Help

By default, clicking the Help button within 1Integrate opens the online WebHelp. However, this button can be configured to open local offline documentation instead.



**Note:** The configuration of offline help is only advised for environments without access to the internet, as local help files will not receive updates as often as the online help.

Before performing the configuration, ensure your local help files are places somewhere accessible on your local network. If the help files have not been provided with your release, please contact your vendor or 1Spatial Support.

### Configure Offline Help:

1. Log into your WebLogic console as administrator.
2. Navigate to your 1Integrate Interface server.
3. Open the **Server Start** tab.
4. Click **Lock & Edit** to enable modifications to be made to your configuration.
5. Add the following parameter to the **Arguments** text field (include a space at the beginning, but do not add any new lines).

```
-Dhelp_base_url=[location of help files]
```

Where `[location of help files]` is replaced with the path to your local help files.

6. Click **Save**.
7. Click **Release Configuration**.
8. Restart your 1Integrate Interface server.



**Note:** Offline help can also be configured before installation by adding the following parameter to the **config.properties** file (generated by the installer once it is opened): `1Integrate_par_user_defined=-Dhelp_base_url=[location of help files]` (where `[location of help files]` is replaced with the path to your local help files).

# 4 Testing the Installation

---



**Note:** Empty your browser cache before testing your installation.

1Integrate can be accessed through the following site:

[http://\[machine\]:\[service\\_port\]/1Integrate](http://[machine]:[service_port]/1Integrate)



**Note:** Use the port number specified during installation, by default this is 7004.

Log in as a user with administrator permissions. The home page displays a traffic light system:

- » If the status traffic light icon displayed on the page is green, 1Integrate has been successfully installed.
- » If the traffic light icon is amber or red, click on it to display information for any configuration errors.

To verify the session queue installations, click the **Admin** tab and check that the Grid Topology matches the number of interfaces and session queues installed.

If you need to access the 1Integrate Web Services API, then a web page with documentation and a link to the WSDL document can be found at:

[http://\[machine\]:\[service\\_port\]/soap](http://[machine]:[service_port]/soap)

# 5 Upgrading an Installation



**Note:** Before performing an upgrade to an existing installation, ensure **all sessions are stopped** and perform a **backup** of your repository.



**Note:** These instructions apply when upgrading from one version to the immediately subsequent release only (e.g. from 1.1 to 1.2). If you are performing an upgrade from any older version, please consult your release notes or contact 1Spatial Support.

## Upgrade an Installation:

Upgrading an installation on WebLogic consists of un-installing your current product version, copying across your **config.properties** file, and then re-installing your new product version.



**Note:** The following instructions use an example where currently version 1.A is installed, and we want to upgrade to 1.B. We have used **C:\Program Files\1Spatial** as a directory within which to store our installation package files, organised into **C:\Program Files\1Spatial\Product-1.A** and **C:\Program Files\1Spatial\Product-1.B**.

1. Launch the 1SMS Installation Wizard for your *current* installation (e.g. **C:\Program Files\1Spatial\Product-1.A\1sms\_installer.jar**).
  - i. Select **WebLogic Installation**, then click **Next**.
  - ii. In the Product Selection page, tick **Uninstall** for the components to be upgraded, then click **Next**.
  - iii. On the Summary page, click **Next**, then click **Begin** to run the un-installation.
2. Copy the **config.properties** file from your old installation directory (e.g. **C:\Program Files\1Spatial\Product-1.A**) to your new installation directory (e.g. **C:\Program Files\1Spatial\Product-1.B**).
3. Launch the 1SMS Installation Wizard for the *new* product version (e.g. **C:\Program Files\1Spatial\Product-1.B\1sms\_installer.jar**).

- i. Select **WebLogic Installation**, then click **Next**.
- ii. In the Product Selection page, tick **Install** for the components to be upgraded, then click **Next**.
- iii. Check the parameters on each page of the installation wizard. These will be pre-populated from the **config.properties** file that was copied from the previous installation.
- iv. On the Summary page, click **Next**, then click **Begin** to run the installation.