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1Integrate

WebLogic

Installation Guide

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1 Introduction

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.

Licences

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.

2 Prerequisites

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

- Check the release notes to find the system requirements for your 1Integrate version.
- "Microsoft Visual C++ Redistributable (Windows only)" on the next page
- "Configuring a Database Server for 1Integrate's repository" on the next page
- "ICU Libraries (Linux only)" on page 4
- "Required Packages (Linux only)" on page 4
- "Additional Data Format Configuration" on page 19

Sizing a Server for 1Integrate

There are a number of minimum requirements for server size in order to install 1Integrate

Depending on your intended configuration you will need, as a minimum:

PER INTERFACE

- 2 CPU Cores
- 2GB RAM

PER ENGINE

- 1 CPU Core
- 1GB RAM

> **Note**: In order to achieve optimal performance, a dedicated core per engine is recommended.

While being processed, data is stored on disk. So the recommended available storage varies on a case by case basis.

While improving CPU and memory will increase performance, the biggest gains can be made from using fast disk storage, e.g. SSDs.

Storage Requirements

The database storage requirements for the 1Integrate repository (1Integrate's internal usage, not the source of spatial data to be processed) depend on the usage of 1Integrate.

- The size and number of 1Integrate entities (rules, actions, data stores and sessions).
- How many sessions will be running in parallel, and how many non-conformances or reports they will generate, before they are stopped/reset.
- The size of any data that is uploaded as files to a data store or via 1Data Gateway when 1Integrate is configured to store uploaded files in the repository.

A small set of rules and actions which read data from a database or service and do not run many sessions in parallel will need much less repository database storage (e.g. 500 MB) than one in which many huge data files are uploaded in parallel (which might need 500GB).

Microsoft Visual C++ Redistributable (Windows only)

Microsoft Visual C++ 2015-2019 64-bit Redistributable packages are required for Windows installations of 1Integrate.

These can be downloaded from the Microsoft website (**vcredist_x64.exe**).

For more information about the version numbers of pre-requisites, please refer to the relevant release notes for your installation.

Configuring a Database Server for 1Integrate's repository

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

Supported Database Servers

The following additional Database Servers are supported:

- *Oracle* Enterprise
- *PostgreSQL (WildFly only)*
- *Microsoft SQL Server (WildFly only)*

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

Creating the repository

You will need to create a database and user (Oracle only requires a User) for your 1Integrate repository on your selected server.

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

ORACLE

Using Oracle, 1Integrate requires a database user. The setup should be performed as recommended by your Database Administrator who must grant the user access to the database and at least the following permissions:

- `create session`
- `create sequence`
- `create table`

Required Packages (Linux only)

The following package is a prerequisite for Linux installations of 1Integrate:

- **libX11**

You must install **libX11** via the system's package manager.

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 package 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 the ICU folder) to the `/usr/local/lib64/` folder.
3. 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.

4. Inside the configuration file, reference the location of the ICU libraries, for example: `/usr/local/lib64/*`
5. 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
```

Data Store Prerequisites

1Integrate supports the following types of Data Stores for Read and Commit mapping and Copy To mapping. Pay particular attention to the prerequisites attached to certain Data Store types.

There are two methods for writing data in 1Integrate, however these are not supported by all Data Store types:

- Commit Task
- Copy To Task

Data Store Type	Read	Write	
		Commit	Copy To
Autodesk DWG	✓	✗	✓
Bentley Microstation Design V8 DGN	✓	✗	✗
Contextual Data Store	✓[1]	✓	✓
Delimiter Separated Values (DSV)	✓	✗	✓
Esri ArcGIS Services	✓	✓	✓
Esri File Geodatabase	✓	✓	✓
Esri Shapefile	✓	✗	✓
FME Flow	✓	✗	✗
GeoJSON	✓	✗	✓
Geography Markup Language (GML)	✓	✗	✗
Google BigQuery	✓[2]	✗	✓[3]
MapInfo TAB	✓	✗	✓
MariaDB	✓	✓	✓

[1]This format is only available as an Extension.
[2]This format is only available as an Extension.
[3]This format is only available as an Extension.

Data Store Type	Read	Write	
		Commit	Copy To
Microsoft Access	✓	✗	✗
Microsoft SQL Server	✓	✓	✓
Non-Conformance Report	✓	✗	✗
OGC GeoPackage	✓	✓	✓
OGC Web Feature Service (WFS)	✓[1]	✗	✗
Oracle	✓	✓	✓
PostgreSQL/PostGIS	✓	✓	✓
Schema Only	✓	✗	✗

[1] This format only supports 2D geometries.

3 Installing 1Integrate on WebLogic

> **Note:** Before proceeding, ensure you have completed all pre-requisite steps (see "Prerequisites" on page 2).

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

- Running the Installation Wizard using the "1Integrate Installation Wizard Parameters" on page 10
- "Configuring Users and Permissions" on page 16
- "Testing the Installation" on page 26

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 1.8 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 "1SMS Installation 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
WebLogic 14c		
WebLogic Home		`C:/oracle/Middleware`
WebLogic Domain Home	This can be an absolute directory or one relative to WebLogic home (relative directories will be converted into absolute directories automatically).	`user_project/domains`
WebLogic Domain With SOA Components		
Host	Host name	[machine name]
Port	Port number	7001
Protocol	Protocol type to use (t3 or t3s). **Note:** If using t3s, you must ensure that the server's certificate(s) are added to the cacerts trust store for the Java version used *when WebLogic was installed*.	
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 **Note:** This should be the same for each domain.	AdminServer
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 of the node manager	5556

Parameter	Description	Typical Value
Port		
Node Manager Type	Type of node manager	ssl
WebLogic Domain Without SOA Components		
Host	Host name	[machine name]
Port	Port number	7001
Protocol	Protocol type to use (t3 or t3s). **Note:** If using t3s, you must ensure that the server's certificate(s) are added to the cacerts trust store for the Java version used *when WebLogic was installed*.	
Admin Username		
Admin Password		
Admin Server Name	Name of the WebLogic domain's Administration Server **Note:** This should be the same for each domain.	AdminServer
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
Feature Schema		
JDBC Connection String	The connection details of the schema in the form `jdbc:oracle:thin:@hostname:port/service_name`or `jdbc:oracle:thin:@hostname:port:sid`	

Parameter	Description	Typical Value
User		
Password		
Security Schema		
JDBC Connection String	The connection details of the schema in the form `jdbc:oracle:thin:@hostname:port/service_name` or `jdbc:oracle:thin:@hostname:port:sid`	
User		
Password		
JMS Schema		
JDBC Connection String	The connection details of the schema in the form `jdbc:oracle:thin:@hostname:port/service_name` or `jdbc:oracle:thin:@hostname:port:sid`	
User		
Password		

1Integrate Interface

Item	Description	Typical Value
General		
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]
1Integrate Repository		
JDBC Connection string	The connection details of the schema in the form `jdbc:oracle:thin:@hostname:port/service_name` or `jdbc:oracle:thin:@hostname:port:sid`	
Username	User name for the schema	
Password	Password for the schema	

Item	Description	Typical Value
Data Store Encryption Key	The encryption key to be used when connecting to your repository. For more information, see "Data Store Parameter Security" on page 21.	Optional
Cache Data		
Directory	The location of the cache directory. When a session is run, a folder is created called "1Integratecache", within which the cache is stored. **Note:** 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. For Linux, if left blank this will default to `/tmp`. For Windows, if left blank this will default to `C:\Users\[user]\AppData\Local\Temp`.	`C:/1spatial/data`
License	The location of the provided product licence file	**C:/1spatial/[licence name].lic**
Interface JVM Settings		
Initial Heap Size		256MB
Maximum Heap Size		1024MB
Custom Extensions		
Include Custom Extensions	Tick this box to include custom extensions.	
Selected Custom Extensions	Browse for custom extensions to be included.	

1Integrate Engines

Parameter	Description	Typical Value
General		
Number of Nodes	Number of Engine(s) to be created (limited by your licence agreement).	2

Parameter	Description	Typical Value
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.	
Engine Label(s)	Select Edit and enter labels for each engine. A new line represents a new Engine, and each line can contain multiple labels in the form of a comma separated list. **Note:** You will be unable to proceed until the number of lines matches the number of Engine(s) deployed during installer. Lines can be left blank to indicate no label required for certain engines.	label1,label2 label3 label4,label5
Listen Address		
1Integrate Repository **Note:** These settings must be entered the same as for the 1Integrate Interface.		
JDBC Connection String	The connection details of the schema in the form `jdbc:oracle:thin:@hostname:port/service_name` or `jdbc:oracle:thin:@hostname:port:sid`	
Username	User name for the schema	
Password	Password for the schema	
Data Store Encryption Key	The encryption key to be used when connecting to your repository. For more information, see "Data Store Parameter Security" on page 21.	Optional
Cache Data		
Directory	The location of the cache directory. When a session is run, a folder is created called "1Integratecache", within which the cache is stored.	`C:/1spatial/data`

Parameter	Description	Typical Value
	Note: 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. For Linux, if left blank this will default to `/tmp`. For Windows, if left blank this will default to `C:\Users\[user]\AppData\Local\Temp`.	
License	The location of the provided product licence file	`C:/1spatial/[licence name].lic`
Engine JVM Settings		
Initial Heap Size	This Initial Heap Size value specifies how much memory a 1Integrate Engine node uses on startup. If it requires more memory, it will grow up to the Maximum Heap size.	256MB
Maximum Heap Size	This is the maximum amount of Java memory that can be allocated to the 1Integrate Engine node. 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.	1024MB
Custom Extensions		
Include Custom Extensions	Tick this box to include custom extensions.	
Selected Custom Extensions	Browse for custom extensions to be included.	
Clustering		
Clustered		
Cluster Name		

Parameter	Description	Typical Value
Cluster Address (optional)		
Cluster Load Algorithm		
Cluster Messaging Mode		
Cluster Broadcast Channel (optional)		

Configuring Users and Permissions

Users, their passwords, and Permissions can be edited within 1Integrate.

> **Note:** Access to the different sections of 1Integrate is controlled by a series of Permissions. Changing these permissions is achieved by altering the **Roles** in your chosen Application Server (WebLogic or WildFly)

> **Warning:** By default, 1Integrate is deployed with example users and passwords included. This enables a quick set-up process, but for security reasons it is HIGHLY RECOMMENDED that:
>
> - As a minimum, on installation, change all passwords from the default to unique values.
> - Change the user names to ones relevant to your organisation.
> - Do not store users and passwords in plain text
>
> For stronger security and management, consider using other authentication mechanisms such as using your organisation's Lightweight Directory Access Protocol (LDAP) Service e.g. Microsoft Active Directory. This ensures that passwords and usernames are not stored in the application server but managed, as normal, by an IT department.

Permissions

Each user is assigned one or more Permission. These permissions determine a user's privileges and the areas of the functionality to which they have access.

When configuring Permissions in the application server they will be interchangeably known as "Roles", but the two terms are interchangeable.

Permission	Description
1int-datastores-read	Grants the ability to read Data Store objects and folders at the endpoint.
1int-datastores-write	Grants the ability to write Data Store objects and folders at the endpoint..
1int-rules-read	Grants the ability to read *Rule* objects and folders at the endpoint..
1int-rules-write	Grants the ability to write Data *Rule* objects and folders at the endpoint..
1int-actions-read	Grants the ability to read *Action* objects and folders at the endpoint.
1int-actions-write	Grants the ability to write *Action* objects and folders at the endpoint.
1int-actionmaps-read	Grants the ability to read *Action Map* object and folders at the endpoint.
1int-actionmaps-write	Grants the ability to write *Action Map* objects and folders at the endpoint.
1int-sessions-read	Grants the ability to read *Session* objects and folders at the endpoint.
1int-sessions-write	Grants the ability to write and edit the *Session* objects and edit folders.
1int-sessions-control	Grants the ability to control a session with the "Play", "Pause", "Rewind" and "Stop" functions.
1int-sessions-results	Grants the ability to access all Session results, including both Task and Session results i.e. Validation errors.
1int-grid-read	Grants the ability to view the engine grid.
1int-grid-write	Grants the ability to edit the engine grid.
1int-api-keys	Grants the ability to manage the API Key functionality in the Administration section.
1int-access-groups	Grants the ability to manage and configure Access Groups.
1int-repository	Grants the ability to access the Repository Administration functions and to see the Environment and System Properties.

Group Permissions

There are two sets of group permissions available that can be used to quickly assign a common set of permissions to a user.

Group Permission	Description
`1int-user`	The User is designed to be applied to standard users, this role includes: • `1int-datastores-read` • `1int-datastores-write` • `1int-rules-read` • `1int-rules-write` • `1int-actions-read` • `1int-actions-write` • `1int-actionmaps-read` • `1int-actionmaps-write` • `1int-sessions-read` • `1int-sessions-write` • `1int-sessions-control` • `1int-sessions-results` • `1int-grid-read`
`1int-admin`	The Admin to includes all permissions and is designed for those that will be performing administrative functions. Includes all the permissions of 1int-user with the addition of: • `1int-grid-write` • `1int-api-keys` • `1int-access-groups` • `1int-repository`

Default Users

The following users are created by default upon installation:

Username	Password	Assigned permissions
INTFull	integrate1	This default User has the **1int-admin** Group Permission applied.
INTAdmin	integrate101	This default User has the **1int-admin** Group Permission applied.
INTUser	integrate102	This default User has the **1int-user** Group Permission applied.

Note: You will need to restart 1Integrate for any changes to user and permissions to take effect.

WebLogic Users

1Integrate Users and the Permissions they are assigned should be configured using the WebLogic Server Administrator Console.

Unlike the default Users that are created, the Permission names (known as roles in WebLogic) set up by installer must not be altered.

> **Note**: The default setup assigns the default users to some of the default Permissions (known as roles in WebLogic), 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 WebLogic role assignment can be altered.

LDAP

For stronger security and management, Consider using other authentication and authorisation mechanisms such as your organisation's Lightweight Directory Access Protocol (LDAP) Service e.g. Microsoft Active Directory. This ensures that passwords and usernames are not stored in the application server but managed, as normal, by an IT department.

Authenticate using LDAP

For information on configuring WebLogic in this way, please refer to the Oracle documentation:

https://docs.oracle.com/en/middleware/standalone/weblogic-server/14.1.1.0/secmg/atn.html#GUID-46CB94C0-BF0A-4788-8E93-0D322DA67462

Additional Data Format Configuration

1Integrate can handle spatial data from a number of sources such as an Oracle database, Esri Shapefiles or MapInfo TAB files.

> **Note**: For more details on the formats supported, please see the 1Integrate online help.

PostGIS prerequisite (WebLogic only)

If you are planning on using PostGIS to read data, an additional driver is required:

postgresql-[version].jar

For specific versions, please refer to the Release Notes for your installation.

INSTALLING THE DRIVER

1. Download the driver **postgresql-[version].jar** from the PostgreSQL website.
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 postgresql driver as part of the `PRE_CLASSPATH`:

   ```
   set PRE_CLASSPATH=%locationOfTheDriver%\postgresql-[version].jar
   ```

4. Restart all servers, including Admin Server and Node Manager for the pre-class path to be loaded.

Custom Extensions

1Integrate can be extended in the following ways:

Custom Built-ins
For information on creating custom built-ins, please refer to the

Custom data stores
For information on custom data stores, please contact 1Spatial support.

> **Note:** When upgrading your installation of 1Integrate, ensure you follow the upgrade steps so that your custom extensions persist.

Including Custom Extensions

Including the custom extensions differs for installations of 1Integrate.

For WebLogic, custom extensions can be added using the 1SMS Installation Wizard, or by including the custom extension **.jar** files in the `extensions` directory in the WebLogic domain root.

> **Note:** Ensure that the list of .jar files you supply to the interface and the engine match.

Tick the **Include Custom Extensions** parameter and then use the **Selected Custom Extensions** parameter to browse to your Custom Extensions **.jar** file (s).

> **Note:** If you need to replace Custom Extensions for any reason, you will need to uninstall 1Integrate and then re-install it using the 1SMS Installation Wizard.

Parameter	Description
Custom Extensions	
Include Custom Extensions	Tick this box to include custom extensions.
Selected Custom Extensions	Browse for custom extensions to be included.

Data Store Parameter Security

1Integrate stores all Data Store configuration in the repository, including sensitive parameters, such as database passwords. Sensitive information is encrypted, with two options available:

- **Advanced Encryption Standard (AES)**

  This is the standard method of encryption in 1Integrate and will be used as default.

- **AES with a custom key**

  This method requires additional configuration. For more see Configuring AES with a custom Key below.

> **Note:** AES with a custom key is the most secure method of encryption in 1Integrate. Be aware that sensitive information (e.g. passwords) created on a custom key installation will be invalidated if the key is removed or changed. Sensitive information will also only be compatible with other 1Integrate installations configured with the same key.

Configuring AES with a Custom Key

AES with custom key can be configured both at the point of installation or after.

> **Note:** It is recommended you carry out the implementation of a custom key at the point of installation to avoid invalidating already stored passwords.

1. Launch the WebLogic installer
2. Navigate to the **Repository** configuration section of the installer.
3. Enter your custom key in the **Datastore Encryption Key** parameter.

Additional Configuration

It is recommended that you carry out any additional configuration during the installation process to ensure that settings persist between 1Integrate installations and updates.

To do this, each additional parameter will need to be entered in the **config.properties** file under the user defined system parameter: `1Integrate_par_user_defined`.

> **Note:** The `1Integrate_par_user_defined` system parameter can only be entered once. Ensure all additional parameters are under this. Each should be entered as a space separated list of `parameter=value` pairs.

The **config.properties** file is generated when the installer file is opened.

> **Example:** `1Integrate_par_user_defined=-DloginDanner=C\:\\1Spatial\\loginBanner.html -Dgrid.local.address=[address location]`

> **Note:** Colons and backslashes need to be prefixed with a \ character.

The following additional configuration should be carried out during installation to ensure settings persist between installs and upgrades:

- "Login Banner Configuration" below
- "NIC/Network Adaptor Configuration" on page 24

> **Note:** Alternatively additional configuration can be implemented after installing 1Integrate by entering the parameters as JVM Arguments in the Server Start tab of your WebLogic console.

Login Banner Configuration

You can configure a login banner to appear at the top of the login page to include additional text for your users. This banner will not replace the

1Integrate login graphics or logo, but will appear above it, at the top of the page.

Login page with an example banner

The banner is defined by a file that includes a snippet of text or other HTML.

> **Note:** The Login box will remain at the same location and in the foreground, so if the banner is too large it will appear behind the login box.

HTML tags, while not required, can be included for further customisations. For a full list of supported tags, see the drop-down below.

SUPPORTED HTML TAGS

<h1> <h2> <h3> <h4> <h5> <p>
 <text> <body> <title> <html> <head> <meta> <b> <i> <mark> <small> <del> <ins> <sub> <sup>

The file can have any extension and must be placed on the filesystem accessible to all interface servers in the deployment.

Configuration

1. Create your HTML file.
2. In the installer's **config.properties** file, add the following:

Parameter	Description
`1Integrate_`	Enter a file path to a HTML document you have defined e.g: `1Integrate_par_user_defined= <other`

Parameter	Description
par_user_ defined= -DloginBanner	parameter=value pairs> -DloginBanner=C\:\/Apps\/1Spatial\ /1Integrate\/Banner%20Folder\/Heading_ Banner.html **Note**: The HTML file must be accessible by each Interface server.

Note: The `1Integrate_par_user_defined` system parameter can only be entered once. Ensure all additional parameters are under this. Each should be entered as a space separated list of `parameter=value` pairs. Colons and backslashes need to be prefixed with a \ character, even on Windows and use %20 for spaces in file or folder names.

NIC/Network Adaptor Configuration

The Grid discovery used to find engines 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.

CONFIGURE NIC/NETWORK ADAPTOR

Within the **config.properties** file, include the following in the parameters within the `1Integrate_par_user_defined` system parameter (see "Additional Configuration" on page 22 for more):

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

Note: Only one `1Integrate_par_user_defined` system parameter can be defined. Ensure all additionally configured parameters are under this. See "Additional Configuration" on page 22

> **Note:** It is possible to configure the above by navigating to the WebLogic Server Administration Console and including the Server Start Arguments. This will have to be carried out after installation and will not persist between installations and upgrades.

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.

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

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

Log in as a user with administrator permissions.

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

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.