Ops Server Installation Guide

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# Introduction

This installation guide walks you through the installation of the Esri ArcGIS for Military Operations Server (Ops Server). An Ops Server consists of software, data, services, portal content and web applications.



The process of installing/configuring Ops Server and publishing ArcGIS Server services and portal items is automated using batch files and Python scripts; installation of the chat server is a manually process, which is also described in the installation guide.

# Ops Server System Requirements

|  |  |  |  |
| --- | --- | --- | --- |
| **Ops Server System Requirements** | | | |
| **Operating System (OS)** | Microsoft Windows Server 2008 R2 Standard SP1 | | |
| **Memory** | 16 GB | | |
| **Disk space** | | **Size (GB)** | **Drive location** | |
| **OS** |  | 60 (minimum) | C:\ | |
| **Ops Server** | Software/Databases/Portal content | 26 (approximate) | C:\ | |
| Data (OpsServer\Data folder) | 95 | Can be stored on any drive (see note below) | |
| Service Caches (arcgisserver\arcgiscache folder) | 42 | Can be stored on any drive (see note below). | |
| **Total disk space:** | 163 (approximate) |  | |
| **OS + Ops Server** | **Total disk space (single drive configuration):** | 223 (minimum) |  | |

NOTEs:

* **(OS) The Ops Server installation scripts have only been tested on Windows Server 2008 R2 using a system locale of “English (United States)”**
* **(Memory)** Memory requirements for Server machine is partial based on having a minimum of two instances per service.
* **(Disk space)** You can install Ops Server on a single drive or multiple drives.
  + The Ops Server install scripts are configured to install software and databases only to the system drive (C:\).
  + The Ops Server data (i.e. OpsServer\Data folder) and service cache (i.e. arcgisserver\arcgiscache folder) folders, which are created by the install scripts, can be located on any drive. The drives where these folders are created is specified by the variable “ops\_dataDrive” and “ops\_cacheDrive” located in the InstallSettings.bat file.

# Prepare for Ops Server Installation

## Installation Prerequisites

* The server you are installing Ops Server on has to have internet access to complete the installation and configuration process.
* Uninstall existing software; see section below for more information.
* A web browser must be installed. Certain elements of the installation require you to configure software through a web browser. We have encountered a few issues with Internet Explorer. Chrome or Firefox is preferred.
* An Advanced Enterprise license for ArcGIS Server 10.2.2 (must include license for GeoEvent Processor Extension for ArcGIS Server).
* A license for Portal for ArcGIS 10.2.2 to support up to 100 users.
* A SSL certificate for Portal (ether CA-signed certificate or domain certificate).
* (Optional) Code signing certificate for your organization for use in Ops Server Deployment Utility. A certificate has been provided, but you may want to use certificate signed by your organization (see topic [Install software](#_Install_software)).
* Microsoft .NET Framework 4.5 must be installed. This is required to run the Operations Dashboard Deployment Utility (executed by the InstallOpsServer.bat file). The installer for .NET 4.5 can be found at the [Microsoft Download Center](http://www.microsoft.com/en-us/download/details.aspx?id=30653).
* ArcGIS for Desktop 10.2.2 is installed on a client machine; used to manually republish the Road Network network analysis service (see topic [Publish the ArcGIS Server services](#_Publish_the_ArcGIS)).

CAUTION: Make sure that the account that you are logged in with and using for the Ops Server installation is a member of the local administrator group.

## Uninstall existing software

The Ops Server installation process assumes that you are installing on a clean server and certain software need to be installed in a particular way or location; therefore, before running the installation scripts you should uninstall the following software if they are already installed: ArcGIS Server, ArcGIS WebAdaptor for IIS, Portal, GeoEvent Server for ArcGIS[GeoEvent Processor] (make sure the C:\ ProgramData\Esri\GeoEventProcessor folder), Chat Server (Open Fire), PostgreSQL (make sure the “postgres” user is deleted and the C:\Program Files\PostgreSQL folder is deleted), IIS (make sure the C:\inetpub folder is deleted).

## Change “Command Prompt” Layout Properties

The install scripts do not capture output to log files, so to make it easier to review the output from the installation scripts and to make sure screen output is not lost because of an insufficient screen buffer size, increase the Screen Buffer Size of the command window. Recommended screen buffer width is at least 140; set the screen buffer height to the maximum value of 9999.

Steps:

1. Open a Command Prompt window.
2. Right-click on the Command Prompt title bar and click “Properties”. Click the “Layout” tab and modify the Width and Height Screen Buffer Size values.



## “Install” and configure the Ops Server installation scripts

1. Copy the ops-server-config folder located under the OPSServerInstall\Software folder on your external drive to the C:\ drive of the server where you are installing the Ops Server (i.e. C:\ops-server-config).

**CAUTION**: The ops-server-config folder must be located directly under C:\; certain sections of code expect this folder to be located at this location.

1. Edit the variables in the DOS batch file C:\ops-server-config\Install\InstallSettings.bat. These variables are used by various install scripts, such as the InstallIIS.bat and InstallOpsServer.bat and control various aspects of the installation.

**CAUTION**: The InstallSettings.bat file contains important information about what the variables store and any restrictions or limitations about the variable values; please read thoroughly.

The first half of the variables are for setting the name of the server, paths to the license files for the Esri software, the root folder of the installers on your external drive, the installed web browser, etc.

|  |  |
| --- | --- |
| Variable name | Purpose |
| ops\_FQDN | Defines the fully qualified domain name (FQDN) of the server that ArcGIS Server and Portal for ArcGIS are being installed. |
| ops\_softwareRoot | Defines the path of the OPSServerInstall\Software folder on your external drive. |
| ops\_agsServiceAccount | Defines the account that will run the ArcGIS Server windows service. Default set to “AFMAGS” (i.e. ArcGIS for the Military ArcGIS Server). |
| ops\_userName | Defines the user name for the ArcGIS Server site administrator user and the Portal for ArcGIS’s initial administrator account. Default set to “admin”. |
| ops\_passWord | Defines the following passwords: PostgreSQL superuser, PostgreSQL service account, ArcGIS Server service account, ArcGIS Server site administrator, Portal for ArcGIS initial administrator account, and the "sde" user password that owns the ops server geodatabases. |
| ops\_cacheDrive | Defines the drive where the ArcGIS Server site cache directory will be created. |
| ops\_dataDrive | Defines the drive where the Ops Server Data directory will be created. |
| ops\_AGSAuthFile | Defines the path and name of the ArcGIS Server (AGS) authorization file |
| ops\_PortalAuthFile | Defines the path and name of the Portal for ArcGIS authorization file |
| ops\_webBrowserExePath | Defines which web browser to use for installation steps which require you to work within a web browser. Default set to path of Chrome.exe. |

The second half of the variables are for defining which install or configuration processes that the InstallOpsServer.bat will execute, which are listed in the table below.

The variables are listed in the order that the processes are executed in the InstallOpsServer.bat file. All processes should be executed, and executed in the order that they are defined in the InstallOpsServer.bat file.

NOTE: some of the installation/configuration processes that are executed by the InstallOpsServer.bat will require human interaction and are identified in the table below. When interaction is required, the appropriate interface/dialog will be opened for you and instructions provided in the command window.

|  |  |  |  |
| --- | --- | --- | --- |
| Variable name | Purpose | Human interaction required during execution | Execution dependencies |
| ops\_install\_rdbms | Install the rdbms (PostgreSQL) | No |  |
| ops\_install\_server | Install and authorize ArcGIS Server | No | ops\_install\_rdbms |
| ops\_create\_ags\_site | Create the ArcGIS Server site, create the SDE geodatabases, SDE connection files | No | ops\_install\_server |
| ops\_install\_geoevent | Install GeoEvent Processor Extension for ArcGIS Server and copy various Ops Server configured GeoEvent files. | No | ops\_install\_server, ops\_create\_ags\_site |
| ops\_install\_webadaptor | Install the ArcGIS WebAdaptor for IIS | No | InstallIIS.bat |
| ops\_change\_ags\_security | Change the ArcGIS Server security configuration to "HTTPS Only" | Yes | ops\_install\_server, ops\_create\_ags\_site |
| ops\_register\_ags\_https | Register ArcGIS Server with the WebAdaptor (using https) | No | ops\_install\_server, ops\_create\_ags\_site, ops\_install\_webadaptor |
| ops\_install\_portal | Install Portal for ArcGIS | No |  |
| ops\_create\_opsdashboard \_installer | Create Operations Dashboard ClickOnce Application and deploy to portal folders | Yes | ops\_install\_portal |
| ops\_create\_portal\_admin \_account | Create the Portal for ArcGIS initial administrator account | Yes | ops\_install\_portal |
| ops\_register\_portal | Register Portal for ArcGIS Server with the WebAdaptor | No | ops\_install\_webadaptor, ops\_install\_portal, ops\_create\_portal\_admin \_account |
| ops\_federate\_ags | Federate the ArcGIS Server with portal, set SSL properties, set Utility Service URLs | Yes | ops\_install\_server, ops\_create\_ags\_site, ops\_install\_webadaptor, ops\_change\_ags\_security, ops\_register\_ags\_https ops\_install\_portal, ops\_create\_portal\_admin \_account |
| ops\_configure\_geoevent | Configure GeoEvent Processor Extension for ArcGIS Server - create new administrator user, reset ArcGIS Server connection for registered data store | Yes | ops\_install\_server, ops\_create\_ags\_site, ops\_install\_webadaptor, ops\_change\_ags\_security, ops\_register\_ags\_https |

# Install Internet Information Services (IIS) and enable SSL

## Install Internet Information Services (IIS)

The ArcGIS Web Adaptor for IIS requires that Microsoft Internet Information Services (IIS) is installed with specific IIS components and that the .NET Framework 3.5 is installed. You will use the included InstallIIS.bat batch file to:

* Enable the IIS role and specific IIS components.
* Enable the .NET Framework 3.5 feature.
* Configure the IIS default document.
* Add a MIME type for .json files (required by certain Ops Server web applications).

*Prerequisites*:

* All previously installed software has been removed (see topic [Uninstall existing software](#_Uninstall_existing_software)).

Steps:

1. Open a command window (cmd.exe) with administrator privilege (i.e. “Run as administrator” context menu).
2. Within the command window, change directory to the C:\ops-server-config\Install folder and run the InstallIIS.bat file by typing the following at the prompt:

InstallIIS.bat

1. At the “Enter the number of your choice:” prompt, enter 1 to start script execution (or 0 to quit).

**NOTE**: When the installation is complete, the .bat file will open the Microsoft Server Manager console so that you can enable SSL on the web server (see section [Enable SSL on the web server](#_Enable_SSL_on) below).

## Enable SSL on the web server

To enable SSL on the web server you will need to obtain a SSL certificate and bind the certificate to the website that will host the ArcGIS Web Adaptor for IIS.

There are three types of SSL certificates: Certificate authority (CA) signed certificates, domain certificates, and self-signed certificates. For Ops Server you should only use CA signed or domain certificates.

The Internet Information Services (IIS) Manager provides dialogs/wizards for you to manage the certificates and bind the certificate to a web site. The general process is outlined below, based on the type of certificate you are going to use.

* **CA signed certificate**:

For more detailed information see <http://www.sslshopper.com/article-installing-an-ssl-certificate-in-windows-server-2008-iis-7.0.html>.

* + Use the “Create Certificate Request” to generate a certificate request file (CSR).
  + Use the information in the CSR file to order a SSL certificate from a Certificate Authority (CA).
  + Use the “Complete Certificate Request” to install the SSL certificate you have received from the Certificate Authority.
  + Bind the certificate to the website that is going to host the web adaptor (bind to port 443).
* **Domain certificate**

For more detailed information see the “Enabling SSL on your web server” topic in the Portal for ArcGIS Installation Guide, located on your external drive (i.e. OPSServerInstall/Software/Portal/SetupFiles/Documentation/install\_guides/portal/index.html)

* + Use the “Create Domain Certificate” to create a domain certificate.
  + Bind the certificate to the website that is going to host the web adaptor (bind to port 443).

# Install Ops Server software

In this section you will be installing and configuring the majority of the software required by Ops Server using the InstallOpsServer.bat file. As mentioned in the topic [“Install” and configure the Ops Server installation scripts](Install#_), the variables in the InstallSettings.bat file control which install/configuration processes are executed by the InstallOpsServer.bat file.

## Install software

Listed below are all the installation and configuration processes executed by the InstallOpsServer.bat:

* Install the rdbms (PostgreSQL).
* Install the ArcGIS WebAdaptor for IIS.
* ArcGIS Server:
  + Install and authorize ArcGIS Server.
  + Create the ArcGIS Server site, create the SDE geodatabases, and create the SDE connection files.
  + Install GeoEvent Processor Extension for ArcGIS Server and copy various Ops Server configured GeoEvent files.
  + Change the ArcGIS Server security configuration to "HTTPS Only".
  + Register ArcGIS Server with the WebAdaptor (using https).
  + Configure GeoEvent Processor Extension for ArcGIS Server - create new administrator user, reset ArcGIS Server connection for registered data store.
* Portal for ArcGIS:
  + Install Portal for ArcGIS.
  + Create Operations Dashboard ClickOnce Application and deploy to portal folders
  + Create the Portal for ArcGIS initial administrator account.
  + Register Portal for ArcGIS Server with the WebAdaptor.
  + Federate the ArcGIS Server with portal, set SSL properties, set Utility Service URLs.

*Prerequisites*:

* You have edited the InstallSettings.bat file (see topic [“Install” and configure the Ops Server installation scripts](Install#_)).
* Internet Information Services (IIS) is installed and any other ArcGIS Web Adaptor for IIS prerequisites have been met; and SSL has been enabled on your server (see topic [Install Internet Information Services (IIS) and enable SSL](#_Install_Internet_Information)).
* (Optional) A code signing certificate has been provided for use in the Operations Dashboard Deployment Utility, but if you want/need to use a certificate created for your organization then you will made to make the following modifications before you run the InstallOpsServer.bat script.
  + Copy your code signing certificate to the OPSServerInstall\Software\OpsDashboardUtility\Certificate folder on your external drive.
  + Edit the parameters of the OperationsDashboardUtility.exe under the “Run the Operations Dashboard Deployment Utility” section in the C:\ops-server-config\Install\OpsDashboardUtility\CreateOneClickInstaller.bat file:
    - Edit the name of the .pfx file specified in the “/certpath %ops\_softwareRoot%\OpsDashboardUtility\Certificate\DefenseSolutions.pfx” to match your code signing certificate.
    - Edit the “/password” parameter to match the password of your code signing certificate.

Steps:

1. Open a command window (cmd.exe) with administrator privilege (i.e. “Run as administrator” context menu).
2. Within the command window, change directory to the C:\ops-server-config\Install folder and run the InstallOpsServer.bat file by typing the following at the prompt:

InstallOpsServer.bat

1. At the “Enter the number of your choice:” prompt, enter 1 to start the installation process (or 0 to quit).

**NOTEs**:

* Some of the installation/configuration processes that are executed by the InstallOpsServer.bat will require human interaction (see variable table in topic [“Install” and configure the Ops Server installation scripts](Install#_). When interaction is required, the appropriate interface/dialog will be opened for you and instructions provided in the command window.
* With this version of the Ops Server installation we have included functionality to “trap” for errors and pause script execution when errors are encountered. When script execution has been paused, you will see the following dialog:



At this time you can assess the error and take corrective action. After you have fixed the issue you can then press any key and the execution of the InstallOpsServer.bat file will continue. If you can’t fix the issue and want to halt execution, enter Ctrl-C within the command prompt or just close the command prompt window.

**CAUTION**: although error trapping has been provided, we can’t guarantee that all errors will be identified and trapped. It is recommended that you review the script output for errors.

## Validate software installation

After the execution of the InstallOpsServer.bat file has completed, you should validate the installation using the following check list (note that many of these checks have already been completed during the software install, but have been included in this list for completeness).

*Prerequisites*:

* Software has been installed and configured using the InstallOpsServer.bat file (see topic [Install software](#_Install_software)).

Steps:

**NOTE**: unless otherwise specified the user and password values to use in the validation steps are the ops\_userName and ops\_passWord variable values set in the InstallSettings.bat file

1. Open Control Panel > Programs > Programs and Features and verify that the following software programs are listed:
   1. ArcGIS 10.2.2 for Server
   2. ArcGIS 10.2.2 GeoEvent Processor for Server
   3. ArcGIS 10.2.2 Web Adaptor (IIS) – ags
   4. ArcGIS 10.2.2 Web Adaptor (IIS) – arcgis
   5. Portal for ArcGIS 10.2.2
   6. PostgreSQL 9.2
2. PostgreSQL
   1. Verify that you can log in to the PostgreSQL administrator management console (Start > All Programs > PostgreSQL 9.2 > pgAdmin III).



Also expand the “Databases” node and verify that databases other than “postgres” exist. **NOTE**: your list of databases may differ from the screenshot shown below.



1. ArcGIS Server
   1. Verify that you can login to the ArcGIS Server manager (i.e. https://server.domain/ags/manager).
   2. Verify that you can login to the ArcGIS Server REST API (https://server.domain/ags/rest). Click the “Login” link and follow the instructions.
   3. Verify that you can login to the ArcGIS Server Administrator Directory (i.e. https://server.domain/ags/admin).
   4. Verify that you can login to the ArcGIS GeoEvent Processor Manager (i.e. https://server.domain:6143/geoevent/manager)
2. Portal for ArcGIS
   1. Verify that you can login to the Portal for ArcGIS home page (https://server.domain/arcgis/home).
   2. Verify that you can login to the Portal for ArcGIS REST API (https://server.domain/arcgis/sharing).

# Publish Ops Server content

In the context of this installation guide, Ops Server content refers to the portal items, ArcGIS Server services and data to support these services.

There are three major steps in publishing content to the Ops Server:

* Copy the Ops Server data to your server.
* Publish the ArcGIS Server services to your server using the provided service definition files.
* Publish the provided portal items to your portal.

Instructions for completing these steps are described in the sections below.

## Copy Ops Server data

The instructions below describe how to copy the Ops Server data from the external drive to your server using the Python script CopyData.py.

*Prerequisites*:

* Software has been installed/configured using the InstallOpsServer.bat file and installation has been validated (see topic [Install Ops Server software](#_Install_Ops_Server)).

Steps:

1. Open a command window (cmd.exe) with administrator privilege (i.e. “Run as administrator” context menu).
2. Within the command window, change directory to the C:\ops-server-config\Publish\Server folder and run the CopyData.py Python script using the parameters described below.

CopyData.py <SourceDataFolder> <SourceCacheFolder> <SourceDatabaseFolder> <AGSServiceAccount> <DataDriveLetter> <CacheDriveLetter>

*Where*:

<SourceDataFolder> (required parameter): path to the source data folder **(i.e. the OPSServerInstall\Server\Staging\Data folder on the external drive)**.

<SourceCacheFolder> (required parameter): path to the source caches folder **(i.e. OPSServerInstall\Server\Staging\Caches folder on the external drive)**.

<SourceDatabaseFolder> (required parameter): path to the source 'DistributionEntGDBs' folder **(i.e. OPSServerInstall\Server\DistributionEntGDBs folder on the external drive)**.

<AGSServiceAccount> (required parameter): ArcGIS Server service account **(i.e. what the variable “ops\_agsServiceAccount” is set to in the InstallSettings.bat file)**

<DataDriveLetter> (required parameter): the drive letter where the destination OpsServer\Environment\Data folder is located **(i.e. what the variable “ops\_dataDrive” is set to in the InstallSettings.bat file)**.

<CacheDriveLetter> (required parameter): the drive letter where the destination arcgisserver\arcgiscache folder is located **(i.e. what the variable “ops\_cacheDrive” is set to in the InstallSettings.bat file)**

Example (G is the drive letter of the external drive in this example):

CopyData.py G:\OPSServerInstall\Server\Staging\Data G:\OPSServerInstall\Server\Staging\Caches G:\OPSServerInstall\Server\DistributionEntGDBs AFMAGS c c

1. After Python script has finished, review script output for errors.

## Publish portal content

The instructions below describe how to publish the Ops Server portal content contained on your external drive to your portal using the Python script PortalContentPost.py.

*Prerequisites*:

* Software has been installed/configured using the InstallOpsServer.bat file and installation has been validated (see topic [Install Ops Server software](#_Install_Ops_Server)).
* Write access to the OPSServerInstall\Portal\PortalContent folder on your external drive (the PortalContentPost.py script requires write access to this folder).

NOTEs:

* Portal content can be published independently of the ArcGIS Server services (i.e. before or after publishing services).
* Deleting portal content:
  + If you need to republish the portal content you can use the Python script PortalContentDestroyer.py to delete the existing portal content.
  + If you have published the ArcGIS Server services, but haven’t run the RemapIDsOnServices.py script (see topic [Re-map portal item ids on ArcGIS Server services](#_Re-map_portal_item)) you will need to manually delete the portal items owned by the user that published the services.
* If you need to re-run the PortalContentPost.py script, make sure to delete the OPSServerInstall\Portal\PortalContent\PortalPostLogs\”*ServerName”* folder on the external drive (the PortalContentPost.py script creates files in this folder that store the mapping between the original portal item ids and the new ids).

Steps:

1. Change passwords for portal users.

The portal user names and their associated passwords are stored within the userfile.txt file located in the OPSServerInstall\Portal\PortalContent folder on your external drive. The PortalContentPost.py script used to publish the OpsServer portal items to your Portal uses the information in this file to create the users in your portal.

* 1. Open Windows Explorer and navigate to the OPSServerInstall\Portal\PortalContent folder on your external drive.
  2. Open the userfile.txt file in a text editor.



* 1. Change the TargetPassword values for the users by searching for and replacing the default value “MyDefault4Password!”.
  2. Save the file and exit the text editor.

1. Open a command window (cmd.exe) (do not need to “Run as administrator).
2. Within the command window, change directory to the C:\ops-server-config\Publish\Portal folder and run PortalContentPost.py Python script using the parameters described below.

PortalContentPost.py <PortalURL> <AdminUser> <AdminPassword> <ContentFolderPath> {UsersToPost} {OpsServerTypesToPost}

Where:

<PortalURL> (required parameter): URL of Portal to post content (i.e. https://fully\_qualified\_domain\_name/arcgis) **(where “fully\_qualified\_domain\_name” is the variable “ops\_FQDN” value set in the InstallSettings.bat file; also include the port number 7443, i.e. https://fully\_qualified\_domain\_name:7443/arcgis)**

<AdminUser> (required parameter): Portal user that has administrator role. **(i.e. what the variable “ops\_userName” is set to in the InstallSettings.bat file)**

<AdminPassword> (required parameter): Password for AdminUser.**(i.e. what the variable “ops\_passWord” is set to in the InstallSettings.bat file)**

<ContentFolderPath> (required parameter): Folder path containing portal content to post. **(i.e. this is the OPSServerInstall\Portal\PortalContent folder on the external drive)**

{UsersToPost} (optional parameter): allows you to publish only portal items owned by specific users by specifying a list of users. **(NOTE: do NOT use this parameter until a future release of the Ops Server portal content and ArcGIS Services)**

{OpsServerTypesToPost} (optional parameter): allows you to publish portal items for specific OpsServer types (Land, Maritime, etc). **(NOTE: do NOT use this parameter until a future release of the Ops Server portal content and ArcGIS Services)**

1. When script has completed, review script output for errors.

NOTE: Please ignore the error “ERROR:portalpy:Item ‘nnnnnnnnnnnn’ does not exist in this folder.“

## Publish the ArcGIS Server services

The instructions below describe how to publish the Ops Server ArcGIS Server services using the Python script PublishToOpsServer.py.

*Prerequisites*:

* The Ops Server data has been copied to your server (see topic [Copy Ops Server data](#_Copy_Ops_Server)).

Steps:

1. Open a command window (cmd.exe) with administrator privilege (i.e. “Run as administrator” context menu).
2. Within the command window, change directory to the C:\ops-server-config\Publish\Server folder and run the PublishToOpsServer.py Python script using the parameters described below.

PublishToOpsServer.py <Server\_FullyQualifiedDomainName> <Server\_Port> <User\_Name> <Password> <Use\_SSL: Yes|No> <Service\_Definition\_Root\_Folder\_Path> {OwnersToPublish} {OpsServerTypesToPublish}

*Where:*

<Server\_FullyQualifiedDomainName> (required parameter) Fully qualified domain name of ArcGIS Server.

<Server\_Port> (required parameter) ArcGIS Server port number; if not using server port enter '#' **(specify the port number 6443)**

<User\_Name> (required parameter) ArcGIS Server site administrator user name **(i.e. what the variable “ops\_userName” is set to in the InstallSettings.bat file)**

<Password> (required parameter) ArcGIS Server site administrator password **(i.e. what the variable “ops\_passWord” is set to in the InstallSettings.bat file)**

<Use\_SSL: Yes|No> (required) Flag indicating if ArcGIS Server requires HTTPS. **(the install scripts have you configure the ArcGIS Server security configuration as “HTTPS Only” so enter Yes for this parameter)**

<Service\_Definition\_Root\_Folder\_Path> (required parameter) is the path of the root folder containing the service definition (.sd) files to upload (publish) **(i.e. this is the OPSServerInstall\Server\ServiceDefinitions folder on the external drive)**

{OwnersToPublish} (optional parameter) allows you to publish only ArcGIS Server service owned by specific users by specifying a list of users. **(NOTE: do NOT use this parameter until a future release of the Ops Server portal content and ArcGIS Services)**

{OpsServerTypesToPublish} (optional parameter) allows you to publish ArcGIS Server services for specific OpsServer types (Land, Maritime, etc). **(NOTE: do NOT use this parameter until a future release of the Ops Server portal content and ArcGIS Services)**

Example (G is the drive letter of the external drive in this example):

PublishToOpsServer.py MyAGSServer.esri.com 6443 admin MyPassword Yes G:\OPSServer\Server\ServiceDefinitions

**NOTE:** if you are prompted with the following “Security Alert”, click “Yes”.



1. After Python script has finished, review script output for errors.

|  |  |
| --- | --- |
| **Known Publishing Issues** | |
| **Service** | **Comments** |
| Environment/RoadNetwork | This service will not publish from the .sd file. See the PDF OPSServerInstall\Server\SupportFiles \Republishing\Environment\RoadNetwork\Republish.pdf located on the provided external drive for more information on republishing. |
| Operations/FriendlySituation | Occasionally this service won’t publish on the first attempt. See the PDF OPSServerInstall\Server\SupportFiles \Republishing\Operations\FriendlySituation\Republish.pdf located on the provided external drive for more information |

1. Start the services using the provided StartStopServices.py Python script.

**NOTE**: you no longer need to run this script; all services should now start when they are published. In 10.1 there was an issue where some types of services would not automatically start after publishing, requiring you to manually start the services.

* 1. Open a command window (cmd.exe) with administrator privilege (i.e. “Run as administrator” context menu).
  2. Within the command window, change directory to the C:\ops-server-config\Publish\Server folder and run StartStopServices.py Python script using the parameters described below.

StartStopServices.py <Server\_Name> <Server\_Port> <User\_Name> <Password> <Use\_SSL: Yes|No> <Start|Stop> {{folder//}service.type}

*Where:*

<Server\_Name> (required) ArcGIS Server server name.

<Server\_Port> (required) server port; if not using server port enter # **(specify the port number 6443)**

<User\_Name> (required) user with admin or publisher permission. **(i.e. what the variable “ops\_userName” is set to in the InstallSettings.bat file)**

<Password> (required) user password **(i.e. what the variable “ops\_passWord” is set to in the InstallSettings.bat file)**

<Use\_SSL: Yes|No> (required) Flag indicating if ArcGIS Server requires HTTPS. **(specify ‘Yes’ because security on the ArcGIS Server is configured as ‘HTTPS only’)**

<Start|Stop> (required) action to perform **(use “Start” in this particular case)**.

{{folder//}service.type} (optional) to Start|Stop specific services, specify comma delimited list of services using.

Where:

‘folder’ – (optional) is the name of folder service resides’

‘service’ – (required) is name of service’

‘type’ – (required) is the type of service; valid values are:

["MapServer", "ImageServer", "GeometryServer", "GeocodeServer", "GPServer"]

Example:

StartStopServices.py MyAGSServer.esri.com # admin MyPassword Yes Start

* 1. After Python script has finished, review script output for errors.

## Re-map portal item ids on ArcGIS Server services

In a federated server, the ownership and access permissions of ArcGIS Server services are based on the user that owns the associated portal service items and the sharing settings on those items. The association between the service and it’s service item(s) is stored within the service json information, an example is shown below. Note that the owner value is not stored within the json, just the portal item types and the itemID’s of the portal items.



When you published the services using the PublishToOpsServer.py script you used the portal administrator user, so this user currently “owns” the services and the associated portal items (default items were created during the publishing of the services). We now want to assign the ownership back to the original portal users that owns the portal items that you posted to your portal using the PublishContentPost.py script earlier. We will re-assign the services using the RemapIDsOnServices.py script. This script will reset the portal item ids in the service json to match the corresponding portal service item for all of the ArcGIS Server services.

*Prerequisites*:

* The ArcGIS Server services have been published (see topic [Publish the ArcGIS Server services](#_Publish_the_ArcGIS)).
* The portal content has been published (see topic [Publish portal content](#_Publish_portal_content)).

Steps:

1. Open a command window (cmd.exe) with administrator privilege (i.e. “Run as administrator” context menu).
2. Within the command window, change directory to the C:\ops-server-config\Publish\Portal folder and run the RemapIDsOnServices.py Python script using the parameters described below.

RemapIDsOnServices.py <Server\_FullyQualifiedDomainName> <Server\_Port> <User\_Name> <Password> <Use\_SSL: Yes|No>

Where:

<Server\_FullyQualifiedDomainName> (required): the fully qualified domain name of the ArcGIS Server/Portal for ArcGIS machine. **(i.e. what the variable “ops\_FQDN” is set to in the InstallSettings.bat file)**

<Server\_Port> (required): the port number of the ArcGIS Server (specify # if no port). **(Specify the port number 6443)**

<User\_Name> (required): ArcGIS Server/Portal for ArcGIS site administrator. **(i.e. what the variable “ops\_userName” is set to in the InstallSettings.bat file)**

<Password> (required): Password for ArcGIS Server/Portal for ArcGIS site administrator user. **(i.e. what the variable “ops\_passWord” is set to in the InstallSettings.bat file)**

<Use\_SSL: Yes|No> (required) Flag indicating if ArcGIS Server requires HTTPS. **(the install scripts have you configure the ArcGIS Server security configuration as “HTTPS Only” so enter Yes for this parameter)**

Example:

RemapIDsOnServices.py MyAGSServer.esri.com 6443 admin MyPassword Yes

1. **IMPORTANT**: After executing this script, log into the portal as the admin user and share all portal items owned by the admin (i.e. the items that could not be remapped to original owner) with “Everyone”.

# Deploy and configure web applications

The following section describes the steps required to deploy the Ops Server web applications to the Internet Information Services (IIS) installation on your Ops Server.

*Prerequisites*:

* The portal content has been published (see topic [Publish portal content](#_Publish_portal_content)).

Steps:

1. Copy the folder OPSServerInstall\WebApps\wwwroot from your external drive to a temp location on your OpsServer, for example C:\temp\_wwwroot.
2. Update the server names and portal application IDs in the URLs of the web application with the the server name and portal applications IDs on your Ops Server using the UpdateWebApps.py script.
   1. Open a command window (cmd.exe).
   2. Within the command window, change directory to the C:\ops-server-config\SupportFiles folder and run the UpdateWebApps.py Python script using the parameters described below.

UpdateWebApps.py <RootFolderToSearch> <OldServerName> <NewServerName> <IDJsonFile>

Where:

<RootFolderToSearch> (required): the path of the root folder to search for web files to edit. **(i.e. the temporary location where you copied the “wwwroot” folder from the external drive, for example C:\temp\_wwwroot)**

<OldServerName> (required): the old server name **(use “afmiedev.esri.com” for this parameter)**

<NewServerName> (required): the new server name where web apps will running on **(i.e. what the variable “ops\_FQDN” is set to in the InstallSettings.bat file)**

<IDJsonFile> (required): the file path to the .json file containing the old and new portal item ids. (i.e. the file named "oldID\_newID.json" that is created by the PublishContentPost.py script within the source portal content folder) **(the “oldID\_newID.json” file is created when you run the PublishContentPost.py script to publish the portal items to your OpsServer; the file can be found in the OPSServerInstall\Portal\PortalContent\PortalPostLogs\”*ServerName”* folder on the external drive)**

1. Copy the contents of the temporary wwwroot folder (i.e. C:\temp\_wwwroot) to the wwwroot folder of your OpsServer’s Internet Information Services (ISS) wwwroot folder (i.e. C:\inetpub\wwwroot)

# Configure portal settings

After you have published the portal items configure your portal settings using the following steps.

*Prerequisites*:

* The portal content must have already been published (see topic [Publish portal content](#_Publish_portal_content)).
* The web applications must have already been deployed (see topic [Deploy and configure web applications](#_Deploy_and_configure)).

Steps:

1. Open a web browser and enter the URL to your portal machine (i.e. https://portal.domain/arcgis/home).
2. Sign in to the portal using the administrator user **(i.e. the “ops\_userName” and “ops\_passWord” variable values set in the InstallSettings.bat file)**
3. Click on “Edit Settings”



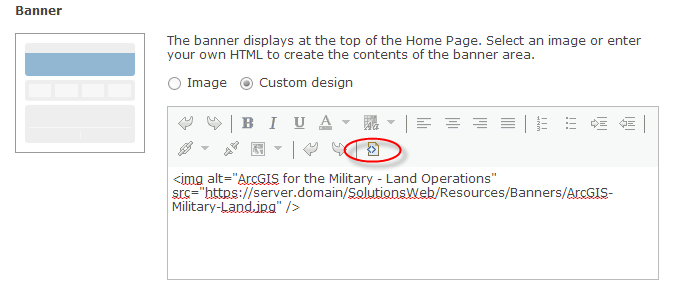
1. Click on the “General” tab on the left side of the page.
   1. Edit the “Logo and Name”.
      1. The Thumbnail image (thumbnail.png) can be found in OPSServerInstall\Portal\PortalResources folder on your external drive.
   2. Edit the “Description”.
      1. The description text can be found in the description.txt file in the in OPSServerInstall \Portal\PortalResources folder on your external drive. Or use your own description.
      2. Check the “Show description toward bottom of Home Page” checkbox.
   3. Edit the default language and set to “English - English”.
2. Click on the “Home Page” tab on the left side of page.
   1. Edit the “Banner”.
      1. Click “Custom design” radio button



* + 1. Click the “View HTML Source” button, and paste in the following HTML into the text box:

<img alt="ArcGIS for the Military - Land Operations" src="<https://server.domain/SolutionsWeb/Resources/Banners/ArcGIS-Military-Land.jpg>" />

* Change the “alt” property to an appropriate value.
* Change the “server.domain” to your server (i.e. the variable “ops\_FQDN” value set in the InstallSettings.bat file).
* Change the .jpg file name to an appropriate file name as shown below:
  + ArcGIS-Emergency-Management.jpg
  + ArcGIS-Intelligence-.jpg
  + ArcGIS-Military-Air.jpg
  + ArcGIS-Military-Domestic.jpg
  + ArcGIS-Military-Land.jpg
  + ArcGIS-Military-Maritime.jpg



* 1. Set “Featured Content” group to the “AFMI Featured Maps and Apps” group.

1. Click on the “Map” tab on the left side of page.
   1. Set the “Basemap Gallery” group to “AFMI Basemaps”.
   2. Make sure the “Default Basemap” is set to “Topographic”.
   3. Set the “Web App Templates” group to “AFMI Web Application Templates”.
2. Click on the “Groups” tab on the left side of the page/
   1. For “Featured Groups” make sure the “AFMI Featured Maps and Apps” group is listed under the “Feature Groups” list (you can set this to whatever groups you need to support your demos).
   2. Set the “Gallery Applications” group to “AFMI Gallery Templates”.
3. Click on the “Save” button on the top left of the page.

# Message Simulator

The Message Simulator is an application used to simulate message broadcasts. It reads in a XML file containing messages structured in the GeoMessage format and broadcasts these messages using the UDP protocol. The GeoEvent Processor services process these messages and updates/inserts features in various feature services.

## Install Message Simulator

Install the Message Simulator on the Ops Server or on a client machine.

*Prerequisites*:

* None.

NOTEs:

* The message simulator must be run on a machine on the same subnet as GeoEvent Server.

Steps:

1. Copy the OPSServerInstall\Software\MessageSimulator folder from your external drive to the local C:\ drive (i.e. C:\MessageSimulator).

## Run Message Simulator

A DOS batch file (.bat) has been included which will run an instance of the Message Simulator for each message file required for Ops Server. You can either execute the .bat file manually, or create a scheduled task to execute the .bat file automatically.

To run the Message Simulator manually (i.e. DOS console):

*Prerequisites*:

* The Message Simulator has been installed (see topic [Install Message Simulator](#_Install_Message_Simulator)).

Steps:

1. Open a command window (cmd.exe) with administrator privilege (i.e. “Run as administrator” context menu).
2. Change directory to C:\MessageSimulator.
3. At the command prompt, type the following:

afmmessages\_simulation.bat

1. To stop the .bat file execution, enter Ctrl+C within the command window.

To run the Message Simulator as a Windows scheduled task:

*Prerequisites*:

* The Message Simulator has been installed (see topic [Install Message Simulator](#_Install_Message_Simulator)).

Steps:

1. Go to Start > Administrator Tools > Task Scheduler and click “Create Task”.



1. On the “Create Task” dialog:
   1. Set the Name to “MessageSimulator”.
   2. Set the Description to “Run the AFM Message Simulation batch file”.
   3. Select the option to “Run whether user is logged on or not”.
   4. Check the “Run with highest privileges” checkbox.



1. Click the “Triggers” tab and click “New”.



1. On the “New Trigger” dialog:
   1. Set the “Begin the task” property to “At startup”.
   2. Check the “Delay task for” checkbox and select “15 Minutes”.
   3. Click OK.



1. Click the “Actions” tab and click New.



1. On the “New Action” dialog:
   1. Set “Action” property to “Start a program”
   2. Set “Program/script” property to:

C:\MessageSimulator\afmmessages\_simulation.bat

* 1. Set “Start in” property to :

C:\MessageSimulator

* 1. Click “OK”.



1. The new action should now be listed in the “Actions” list. Click OK to exit the “Create Task” dialog.



1. When prompted, enter the credentials for the account that will run this task.
2. “The MessageSimulator” task should now be listed in your Task Scheduler Library. Click “Run” if you would like to start task right now; otherwise, you will need to reboot the system to start the task.



## Verify that GeoEvent Processor is updating feature services

You can verify by visually checking that features are moving in the map display using either Operations Dashboard or the portal map viewer.

*Prerequisites*:

* The Ops Server software is installed (see topic [Install Ops Server software](#_Install_Ops_Server)).
* The Ops Server content (ArcGIS Server services and portal content) has been published (see topic [Publish Ops Server content](#_Publish_Ops_Server)).
* The Message Simulator has been installed (see topic [Install Message Simulator](#_Install_Message_Simulator)).
* The Message Simulator is running (see topic [Run Message Simulator](#_Run_Message_Simulator)).

To verify by visually checking if features are moving in the map display using a web map:

Steps:

1. Open a web browser to your portal home page and search for the “Friendly Operations Dashboard” web map.
2. Click “OPEN” and click “Open in Portal for ArcGIS map viewer”.



1. When the map viewer open, change the “Refresh Interval”.
   1. Click “Content”.
   2. Click drop-down arrow control on the “Friendly Equipment” layer, and click “Refresh Interval”.
   3. Check the “Refresh…” checkbox and specify a refresh interval value.



1. Verify that Friendly Equipment features are moving on the map display.

To verify by visually checking if features are moving in the map display using Operations Dashboard:

Steps:

1. Uninstall any existing installations of Operations Dashboard on your machine.
2. Open a web browser to your portal home page and search for the “Watchkeeper Basic” operation view.
3. Click “OPEN” and click “Open in Operations Dashboard”.



1. The Operations Dashboard ClickOnce application will open and install Operations Dashboard.
2. After signing in, the “Watchkeeper Basic” operation view will automatically open if you are using Internet Explorer; if you are using Chrome or Firefox you will have to manually search for and open the view.
3. When the view opens, verify that features are moving on the map display (features in the Friendly Equipment layer in the Friendly Situation feature service should be moving).



# Chat Server

The chat server is used to demonstrate the chat capability within Operations Dashboard for ArcGIS. The chat server included with the Ops Server installation package is Openfire, an open source chat server from Igniterealtime (<http://www.igniterealtime.org/projects/openfire/index.jsp>).

## Install and configure Openfire

You can install Openfire on the Ops Server or on a client machine.

*Prerequisites*:

* None.

NOTEs:

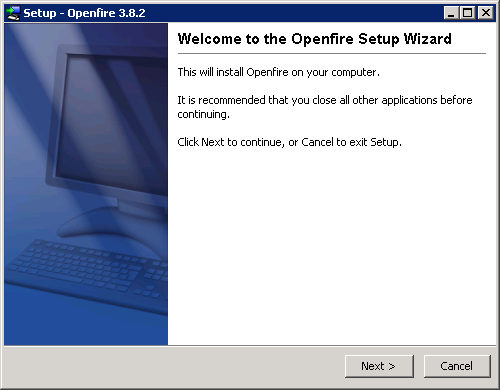
* There is a port conflict between Portal for ArcGIS and Openfire; both use port 7443 for SSL communication. If you install Openfire on your Ops Server, make sure to modify the SSL port number (see instructions below).

Steps:

1. Open Windows Explorer and navigate to the folder OPSServerInstall\Software\ChatServer\OpenFire on your external drive.
2. Double-click the openfire\_3\_8\_2.exe file to start the install process.
3. On Installer language dialog, please select “English” and click “OK” button.



1. On welcome dialog, click “Next” button.



1. On the license agreement dialog, select “I accept the agreement” and click “Next” button.



1. On the Select Destination Directory dialog, leave as the default and click “Next” button.



1. On the Select Start Menu Folder dialog, leave all the default values and click “Next” button. The installation will begin.



1. On the Completing the Openfire Setup Wizard dialog, make sure “Run Openfire” checkbox is checked and click the “Finish” button.



1. On the Openfire dialog, click the “Launch Admin” button (it will take a few seconds for the button to be enabled), which will open the default web browser.



1. In the web browser, add <http://127.0.0.1> to the Trusted sites.
2. On the Choose Language dialog, select “English” and click “Continue”.



1. On the Server Settings dialog, edit the “Domain” parameter so that it contains the fully qualified domain name of your server (i.e. the ops\_FQDN variable value set in the InstallSettings.bat file) and then click “Continue”.



1. On the Database Settings dialog, select the “Embedded Database” option and click “Continue”.



1. On the Profile Settings dialog, select the “Default” option and click “Continue”.



1. On the Administrator Account dialog, specify an email account, and a password (for consistency with other passwords on the server use the ops\_passWord variable value set in the InstallSettings.bat file) and then click “Continue”.



1. On the Setup Complete dialog click “Login to the admin console”.



1. Log into the administration console. The username is “admin”, the password is the password you specified on the Administrator Account dialog above.



1. Change the “Idle Connections Policy”.
   1. Click “Server Settings” tab and click “Client Connections”.



* 1. Click on “Do not disconnect clients that are idle.” and then click “Save Settings”.



1. Change the “HTTP Bind Settings”.
   1. Click “HTTP Binding”.

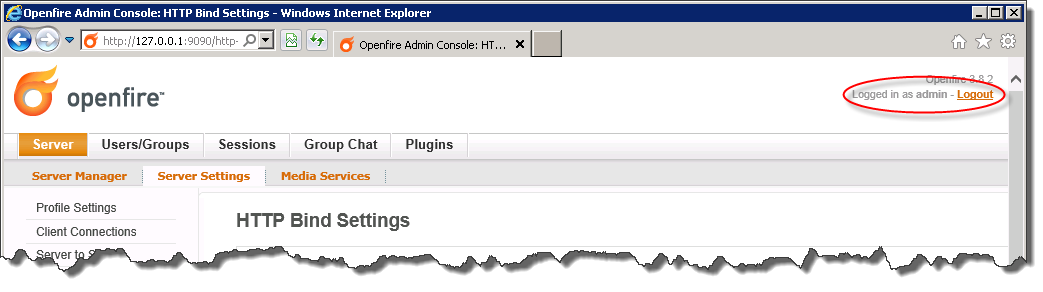


* 1. Click the “Enabled – Clients can connect to this server using HTTP binding.” option and modify the “SSL Port” to a port that isn’t used by other applications, for example 7444 (the default port used by Openfire for SSL connections is 7443, which is the same port that Portal for ArcGIS uses for SSL communications). For more information on ports used by ArcGIS Server and Portal for ArcGIS, see the topics “Ports used by ArcGIS Server” and “Ports used by Portal for ArcGIS in the respectively administration guides.

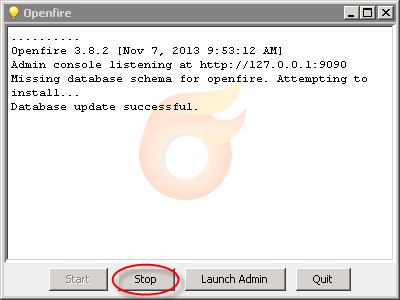
Then click “Save Settings”.

1. Logout of the Admin console.



1. Restart Openfire.
   1. Click “Stop”.



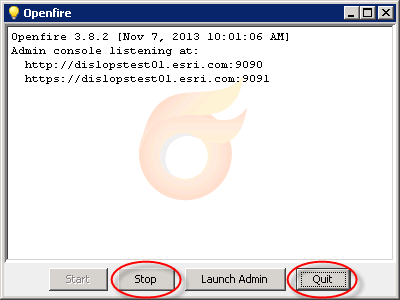
* 1. Click “Start”.



1. Test the https connection by typing in the following URL in a web browser and make sure you can login to the admin console (NOTE: Openfire installs a self-signed certificate so you will receive security exception warnings in your browser):

https://<fully\_qualified\_server\_name>:9091

1. Create Openfire windows service.
   1. Stop Openfire. Click “Stop” then “Quit”.



* 1. Open a command window (cmd.exe) with administrator privilege (i.e. “Run as administrator” context menu).
  2. Within the command window, change directory to C:\Program Files (x86)\Openfire\bin
  3. From the command prompt run the following commands (the /install switch will create the windows service; the /start switch will start the windows service):

openfire-service /install

openfire-service /start

|  |  |
| --- | --- |
| Other Openfire window service commands | |
| Uninstall the windows service | openfire-service /uninstall |
| Stop the windows service | openfire-service /stop |

* 1. Verify that the Openfire windows service is working by logging into the admin console through a web browser with the following URL:

https://<fully\_qualified\_server\_name>:9091

## Create Openfire users

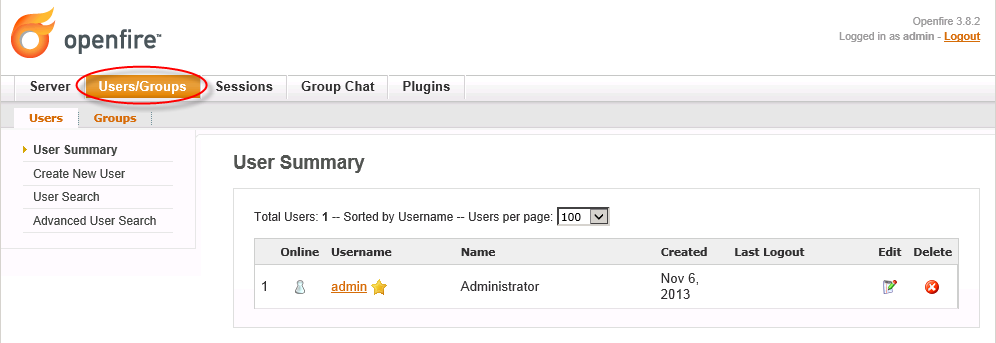
Create Openfire users as necessary for your demonstrations. For example, the “Operations Center” has the capability to consume chat server feeds; in order to support this capability you will need to create Openfire users.

To create Openfire users:

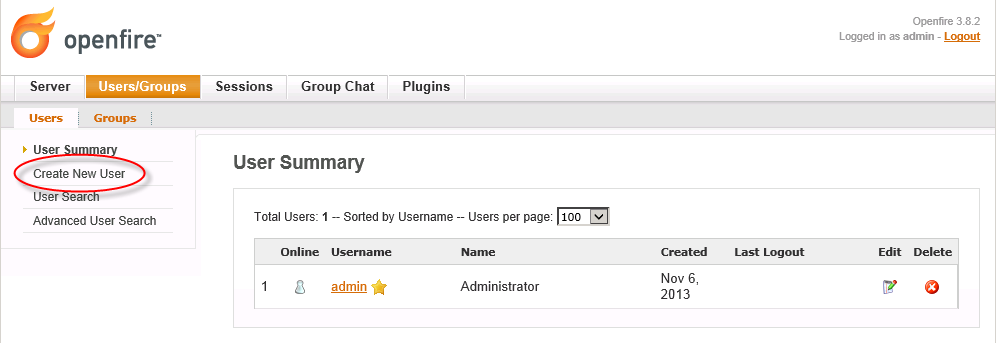
1. Log into the Openfire Admin Console by typing in the following URL in a browser. The username is “admin”; the password is the password you specified on the Administrator Account dialog when you installed Openfire.

https://<fully\_qualified\_server\_name>:9091/login.jsp

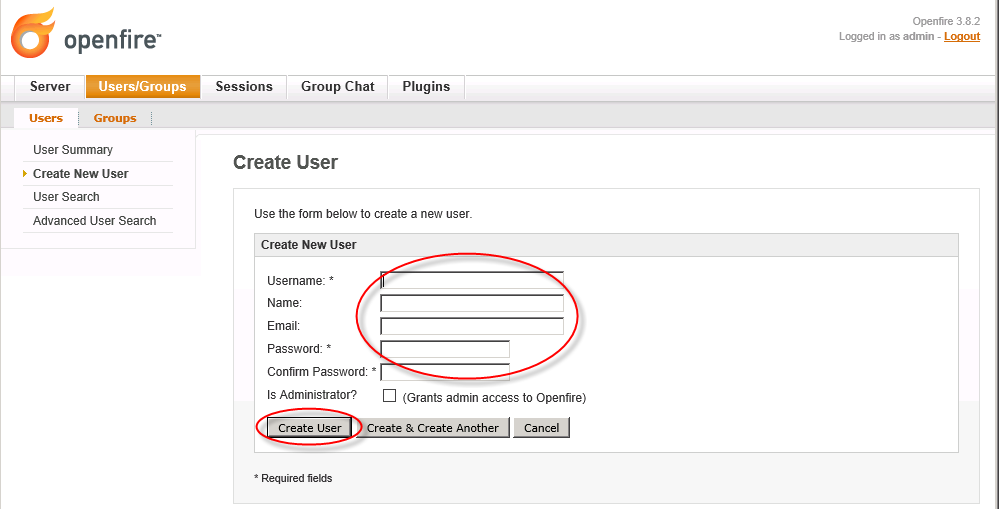
1. Click on the “Users/Groups” tab at the top of the page.



1. Click on the “Create new User” link on the left side of the page.



1. Enter values for the new user and click “Create User”.



# Operations Dashboard for ArcGIS

## Install on client machines

Install “Operations Dashboard” on your client machines as necessary.

*Prerequisites*:

* Portal for ArcGIS is installed on your OpsServer (see section “Install ArcGIS Software”).
* The portal items are published to your OpsServer; more specifically the “Operations Dashboard for ArcGIS” item owned by the user ‘OpsServer’ (see section “Publish portal items”).
* The Operations Dashboard “ClickOnce” application has been created and deployed to the portal on your OpsServer (see section “Install ArcGIS Software”).
* Microsoft .NET Framework 4.5 is installed on your client machine. You can download the installer from the [Microsoft Download Center](http://www.microsoft.com/en-us/download/details.aspx?id=30653).

With this version of OpsServer, you no longer install Operations Dashboard by unzipping a zip file, running an .exe and configuring the .exe.config file to point to your portal. The Operations Dashboard is now installed by running the “Click Once” application which can be found on your portal by searching for “Operations Dashboard for ArcGIS”. The Operations Dashboard that is installed by the “Click Once” application is already configured to point to your portal. An additional feature of the Operations Dashboard is that if a user accesses a dashboard view without the Operations Dashboard being installed, it will detect this and automatically install Operations Dashboard. If you are running Internet Explorer, the dashboard view will be opened after Operations Dashboard has finished installing.



# Appendices

## Appendix A: URLs and Passwords

|  |  |  |  |
| --- | --- | --- | --- |
| Software | Interface | URL | User/password |
| Portal | To sign in as the initial administrator | https://<server.domain>/arcgis/home | User=ops\_userName variable value.  Password=ops\_passWord variable value. |
| ArcGIS Server | Manager | https://<server.domain>/ags/manager  https://<server.domain>:6443/arcgis/manager | User=ops\_userName variable value.  Password=ops\_passWord variable value. |
| ArcGIS Server | REST | https://<server.domain>/ags/rest  https://<server.domain>:6443/arcgis/rest | User=ops\_userName variable value.  Password=ops\_passWord variable value. |
| GeoEvent Processor | Manager | https://<server.domain>:6143/geoevent/manager | arcgis/manager (default after install).  User=ops\_userName variable value.  Password=ops\_passWord variable value. |
| PostgreSQL | pgAdmin | N/A | Password=ops\_passWord variable value. |
| Openfire | Administration Console | http://<server.domain>:9090  https://<server.domain>:9091 | User=admin.  Password=ops\_passWord variable value. |

NOTEs:

* Varaibles noted in table are set in the C:\ops-server-config\Install\InstallSettings.bat file.
* <server.domain>=ops\_FQDN variable value