**Ops Server Installation Guide**

# 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, and services. There are two types of Ops Server installation configurations supported, a single machine, and a two machine configuration, as shown in the diagram below.



Note: The current ArcGIS WebAdaptor for IIS can’t be installed on same machine as portal.

The process of installing/configuring Ops Server and publishing ArcGIS Server services and portal items is automated using batch files and Python scripts, except for installing ArcGIS GeoEvent Server and the Chat Server; the installation/configuration of these components is performed manually and is described in this guide.

# Ops Server System Requirements



NOTE: Memory requirements for Server machine is partial based on having a minimum of two instances per service.

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**NOTE: The Ops Server installation scripts have only been tested on Windows Server 2008 R2 using a system locale of “English (United States)”**

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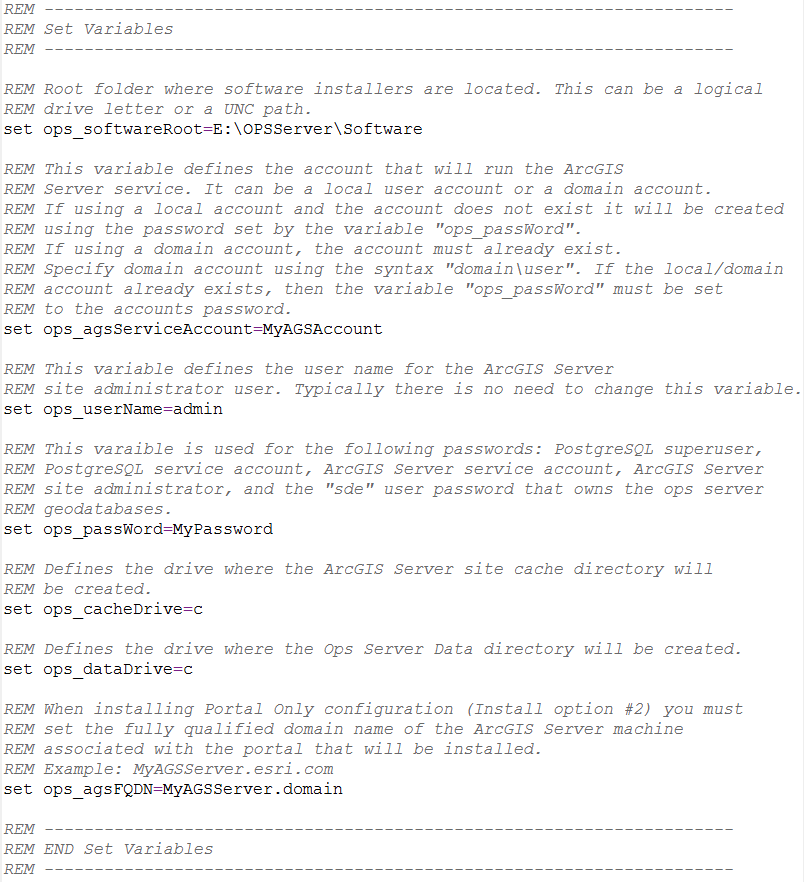
# Uninstall the following software if they are already installed

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, GeoEvent Server for ArcGIS, Chat Server (Open Fire), PostgreSQL (make sure the “postgres” user is also deleted), IIS.

# Install ArcGIS Server and Portal

The InstallOpsServer.bat file that you will be running in this section will install and configure: ArcGIS Server, ArcGIS WebAdaptor for IIS, PostgreSQL, IIS, and the .Net framework.

1. Copy the ConfigureOpsServer folder located under the OPSServer\Software folder on your external drive to the C:\ drive of the server you are installing Ops Server on (i.e. C:\ConfigureOpsServer).
2. Edit the variables under the “Set Variables” section in the DOS batch file C:\ConfigureOpsServer\Install\InstallOpsServer.bat. These variables control various aspects of the installation. See the screenshot below.

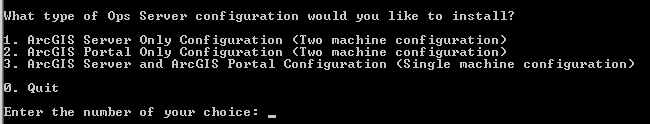


1. ArcGIS Server authorization file.
   1. Copy your ArcGIS Server Enterprise (Advanced) license file (.ecp) to the OPSServer\Software\Authorization\_Files\Version10.1\ArcGIS\_Server\Advanced folder on your external drive.
   2. If your .ecp file is not called “Server\_Ent\_Adv.ecp”, edit the file name under the “Authorize ArcGIS Server Software” section in the file C:\ ConfigureOpsServer\Install\Server\ArcGISServer\InstallArcGISServer.bat
2. Open a command window (cmd.exe) with administrator privilege (i.e. “Run as administrator” context menu).
3. The install scripts do not capture output to a log file, so change the Screen Buffer Size of the command window so that you can review the progress of the install using the command window. Recommended screen buffer width is at least 140; set the screen buffer height to 9999.
4. Within the command window, change directory to the C:\ConfigureOpsServer\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, specify the number (1, 2, 3 or 0 to Quit) of the type of Ops Server configuration that you would like to install.

NOTE: if you are installing a two machine configuration you would run the InstallOpsServer.bat file on one machine to install ArcGIS Server and then run on the second machine to install portal.



1. After the execution of the InstallOpsServer.bat file has been completed, review the script output in the command window and check for any errors before hitting any key to exit (which will close the window). Some things to check:
   1. PostgreSQL appears as an installed program.
   2. ArcGIS Server appears as an installed program.
   3. Using a browser, login to the ArcGIS Server manager (i.e. [http://*servername:*6080/arcgis/manager](http://servername:6080/arcgis/manager)) using the credentials provided in the batch file; check the data stores and validate them.
   4. (If portal was installed) Using a browser, login to the portal admin account (i.e. [http://*servername*](http://servername)) to confirm portal installation.

# Publish ArcGIS Server Services

1. Copy the required data from the external drive to the server where ArcGIS Server was installed using the provided CopyData.py Python script.
   1. Open a command window (cmd.exe) with administrator privilege (i.e. “Run as administrator” context menu).
   2. The install scripts do not capture output to a log file, so change the Screen Buffer Size of the command window so that you can review the progress of the install using the command window. Recommended screen buffer width is at least 140; set the screen buffer height to 9999.
   3. Within the command window, change directory to the C:\ConfigureOpsServer\Publish\Server folder and run the CopyData.py Python script using the parameters described below.

**NOTE:** the parameters for the source paths refer to the paths on the external drive for the particular type of Ops Server you are installing (i.e. LandOps or MaritimeOps). For this example, they point to the LandOps folder structure.

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

*Where*:

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

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

<SourceDatabaseFolder> (required parameter): path to the source 'DistributionEntGDBs' folder **(i.e. OPSServer\LandOps\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 InstallOpsServer.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 InstallOpsServer.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 InstallOpsServer.bat file)**

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

CopyData.py G:\OPSServer\LandOps\Server\Staging\Data G:\OPSServer\ LandOps\Server\Staging\Caches G:\OPSServer\LandOps\Server\DistributionEntGDBs MyAGSAccount c c

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

1. Publish the ArcGIS Server services using the provided PublishToOpsServer.py Python script.
   1. Open a command window (cmd.exe) with administrator privilege (i.e. “Run as administrator” context menu).
   2. The install scripts do not capture output to a log file, so change the Screen Buffer Size of the command window so that you can review the progress of the install using the command window. Recommended screen buffer width is at least 140; set the screen buffer height to 9999.
   3. Within the command window, change directory to the C:\ConfigureOpsServer\Publish\Server folder and run the PublishToOpsServer.py Python script using the parameters described below.

**NOTE:** the parameter for the service definition root folder path refers to the path on the external drive for the particular type of Ops Server you are installing (i.e. LandOps or MaritimeOps). For the examples in this install guide, they point to the LandsOps folder structure.

PublishToOpsServer.py <Server\_Name> <Server\_Port> <User\_Name> <Password> <Service\_Definition\_Root\_Folder\_Path>

*Where:*

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

<Server\_Port> (required parameter) ArcGIS Server port number **(i.e. 6080)**

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

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

<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. for LandOps, this is the OPSServer\LandOps\Server\ServiceDefinitions folder on the external drive)**

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

PublishToOpsServer.py MyAGSServer 6080 admin MyPassword G:\OPSServer\LandOps\Server\ServiceDefinitions

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

NOTE: on occasion, the Geonames and MGRS locator services will not publish successfully from a service definition file. If these services do not publish from the service definition, you will have to manually publish these services using ArcGIS for Desktop (which is not installed on the OpsServer) from the locator files (i.e. .loc files) stored under the external drives’ OpsServer\LandOps\Server\Staging\Data\Locators folder (or OpsServer\MaritimeOps\Server\Staging\Data\Locators). These locator services must be published to a folder on ArcGIS Server called “Locators”.

1. Start the services using the provided StartStopServices.py Python script.
   1. Open a command window (cmd.exe) with administrator privilege (i.e. “Run as administrator” context menu).
   2. The install scripts do not capture output to a log file, so change the Screen Buffer Size of the command window so that you can review the progress of the install using the command window. Recommended screen buffer width is at least 140; set the screen buffer height to 9999.
   3. Within the command window, change directory to the C:\ConfigureOpsServer\Publish\Server folder and run StartStopServices.py Python script using the parameters described below.

StartStopServices.py <Server\_Name> <Server\_Port> <User\_Name> <Password> <Start|Stop>

*Where:*

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

<Server\_Port> (required parameter) ArcGIS Server port number **(i.e. 6080)**

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

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

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

Example:

StartStopServices.py MyAGSServer 6080 admin MyPassword Start

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

# Sanity Test ArcGIS Server Services

Included on the external drive are a set of tests utilizing Selenium IDE (a framework that provides web browser automation); <http://seleniumhq.org/projects/ide/>), which you can use to perform a sanity test of the ArcGIS Server services you published above (tests all services except for locator and geoprocessing services). These tests do not provide comprehensive testing, they simply confirm whether the service is available and data can be returned from the service.

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**NOTES:**

* **These tests should NOT be run from your Ops Server machine (run from client machine).**
* **Requirements:** 
  + **Java SDK 1.6 must be installed (1.7 or higher may not work); installer provided on external drive.**
  + **Firefox must be installed (installer not provided).**

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To install the tests:

1. Copy the Selenium folder located on the external drive under the OPSServer\Testing folder to a local drive (in this

# Install Portal Certificates

See the help topic “Requesting and configuring SSL certificates” in the *Portal for ArcGIS Administrators Guide* at the following URL: http://<URL\_to\_Portal>/help/en/admin/help/#/Requesting\_and\_configuring\_SSL\_certificates/017s0000000q000000/

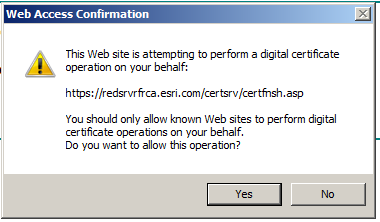
NOTE: If you have access to the Esri certificate server see the section below for installing the portal certificate.

# Install Portal Certificates (if you have access to the Esri certificate server)

1. Install JavaJDK.
   1. Open a Window Explorer and navigate to the OPSServer\Software\JavaJDK folder on your external drive.
   2. Double-click on the jdk-7u7-windows-x64.exe to launch the installer; follow the instructions to finish the install (accept all the defaults).
2. Copy the OPSServer\Software\Portal\PortalCertsInstall folder from your external drive to the C drive on the portal server (C:\PortalCertsInstall).
3. Create and install the portal certificate.
   1. Open a command window (cmd.exe) with administrator privilege (i.e. “Run as administrator” context menu).
   2. Change directory to folder C:\PortalCertsInstall and run the Certs.bat file by typing the following at the command prompt:

Certs.bat

* 1. When prompted, enter “1” to Install Portal Certificates.
  2. If you are prompted in the command window for a password, just hit return key.
  3. Notepad will open with certificate request text. Copy the complete contents of the file (i.e. Windows buffer) and then close Notepad.
  4. A web browser will open pointing to the Esri certificate server <https://redsrvrfrca.esri.com/certsrv/certrqxt.asp>.
  5. Enter your credentials when prompted.
  6. Add the site into the Trusted Sites list of your browser.
  7. In the “Saved Request” textbox, paste the certificate request text that was copied into Windows buffer.
  8. In the “Certificate Template” drop-down list box, select “Web Server” and click “Submit”.
  9. If you see the following “Web Access Confirmation” prompt, click Yes.



* 1. On the “Certificate Issued” page, ensure that the “DER encoded” option is selected and click the link “Download certificate **chain**”
  2. When prompted, save the “certnew.p7b” file to the folder C:\portal\glassfish3\glassfish\domains\domain1\config
  3. Close the web browser.
  4. In the command window, when you are prompted with “Press any key to continue…” enter any key.
  5. In the command window, anytime you are prompted with “Trust this certificate?” type “yes” and hit return.
  6. In the command window, if you are prompted with “Install reply anyway?” type “yes” and hit return.
  7. The portal database and application server will stop and then restart.
  8. Press any key to close the command window.

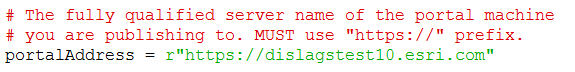
# Publish Portal Items

The C:\ConfigureOpsServer folder contains scripts to import Ops Server portal content from your external drive into your Ops Server portal. The following instructions step you through the import process.

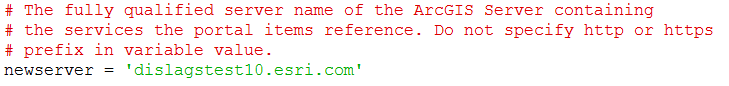
1. Open a Windows explorer and navigate to the C:\ConfigureOpsServer\Publish\Portal folder, which contains the Python scripts used to publish (import) the provided portal content.
2. Before running the publishing script, you will need to make modifications to two scripts.
   1. In a text editor open the Python script “publishinfo.py”.
      1. Set the variable “isLandOps” to True if you are publishing the Lands Ops portal content; set this variable to False if will be publishing the Maritime Ops portal content.



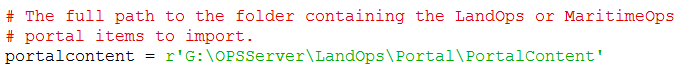
* + 1. Save and exit the text editor.
  1. In a text editor open the Python script “publishPortalInfo.py”.
     1. Set the “portalAddress” variable to the URL of the server where you installed portal. Make sure to specify “https” protocol prefix.



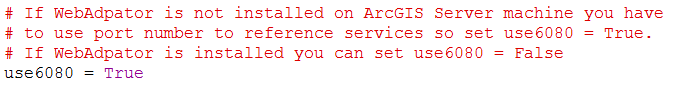
* + 1. Set the “newserver” variable to the fully qualified server name of the server where you installed ArcGIS Server. Do not specify the “http” or “https” protocol prefix.



* + 1. Set the “portalcontent” variable to the path of the folder containing the portal items you are publishing. This folder is located on your external drive at the following location: OPSServer\LandOps\Portal\PortalContent (**NOTE**: substitute “MaritimeOps” for “LandOps” in path if necessary).



* + 1. Set the “use6080” variable to True if the Web Adaptor for IIS was not installed on the ArcGIS Server machine. If the Web Adaptor is installed you can set this variable to False, since the Web Adaptor will route requests to the ArcGIS Server port 6080.



* + 1. Save and exit the text editor.

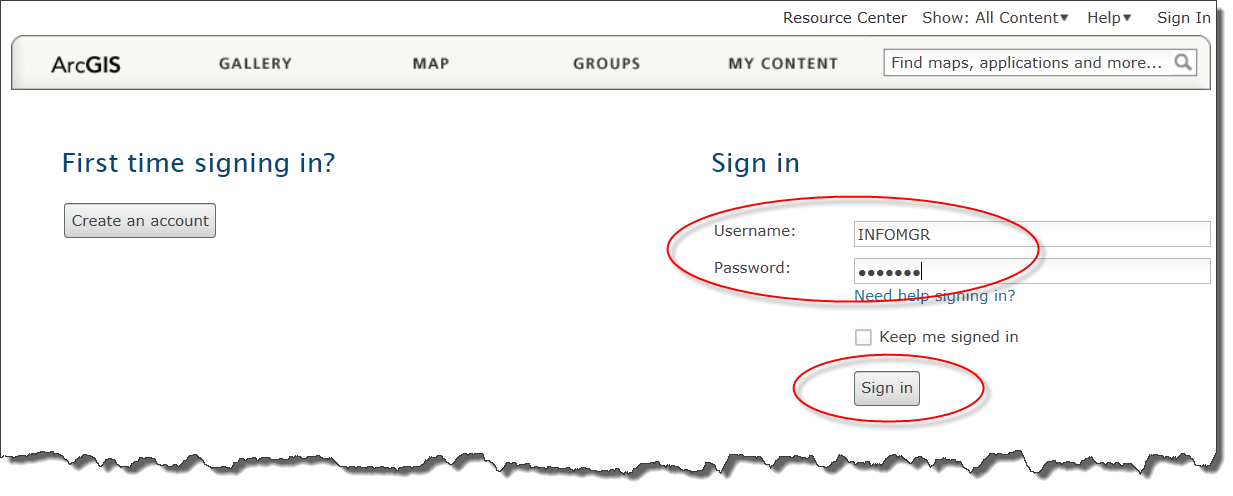
1. Run the publishPortalInfo.py Python script.
   1. Open a command window (cmd.exe) (does not need to be run as administrator).
   2. Change directory C:\ConfigureOpsServer\Publish\Portal
   3. At the command prompt type:

publishPortalInfo.py

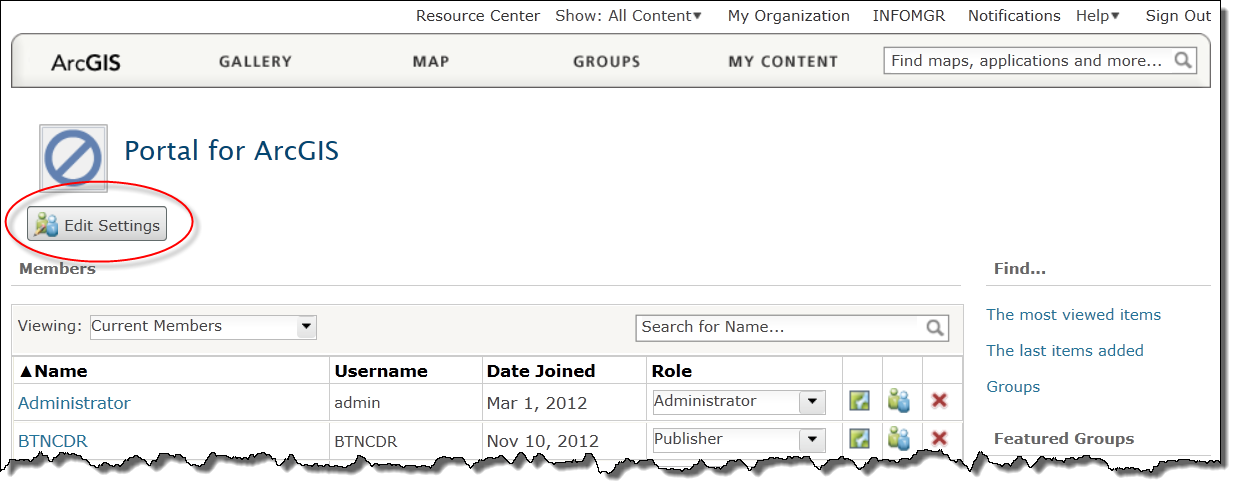
1. Edit portal settings.
   1. Open a web browser and specify the fully qualified URL of the portal machine.
   2. Click on “Sign In” on the top right of the portal home page.



* 1. Sign into the portal as a user who is an Administrator on the portal, can use “admin” (password “esri.agp”) or the INFOMGR user (password “INFOMGR”). Enter Username and Password and click “Sign in” button.



* 1. Click on “Edit Settings”



* 1. Click on the “General” link on the left side of the page.
     1. Edit the “Logo and Name” using the values in the following table.

|  |  |
| --- | --- |
| For Lands Ops | |
| Name | 2nd Stryker Brigade |
| Logo thumbnail | Click on thumbnail button and browse to the following file on your external drive: OPSServer\LandOps\Portal\PortalResources\icon.png |
| For Maritime Ops | |
| Name | Maritime Operations |
| Logo thumbnail | Click on thumbnail button and browse to the following file on your external drive: OPSServer\MaritimeOps\Portal\PortalResources\iconmaritime.png |

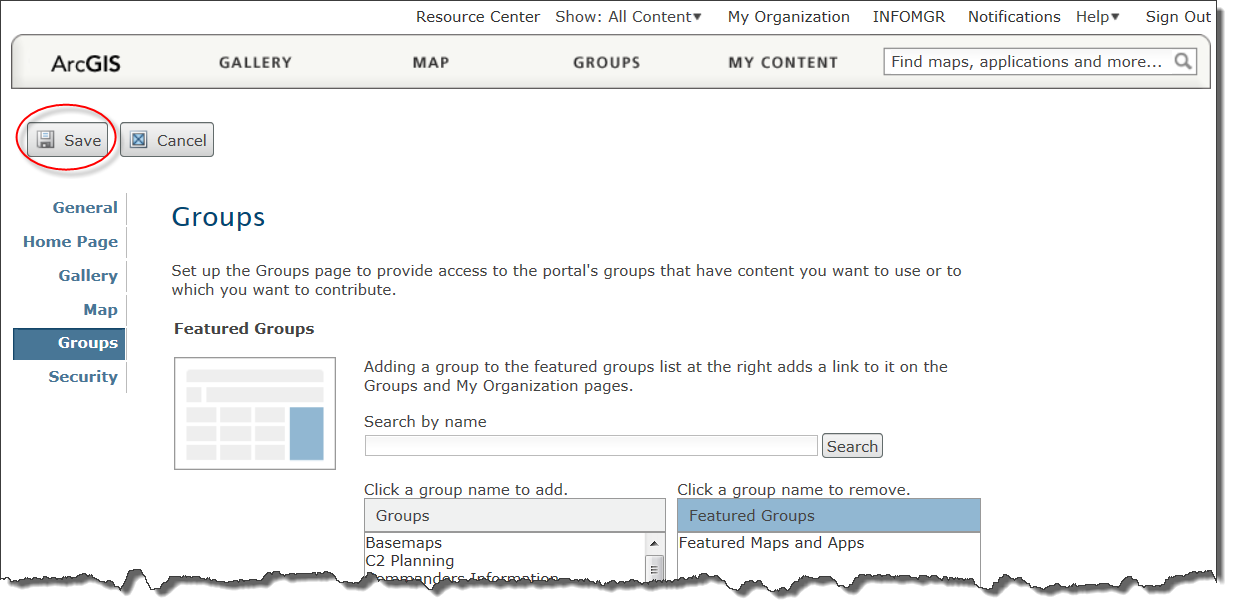
* + 1. Edit the “Description” using the values in the following table.

|  |
| --- |
| For Lands Ops |
| ArcGIS for Land Operations provides maps and apps, tools and workflows for Land Operations. A key element of ArcGIS for Land Operations is the Land Operations Server and Portal, which would typically be located at a brigade headquarters. It is connected to a geospatial data appliance, presented through the Portal, served out over the Brigade IP-network. The data appliance carries numerous large geospatial datasets. Intelligence analysts and operational planners collaboratively work on geo-referenced datasets, with maps, workflows, and tools from the server via the Portal. The command staff combines status reports and current intelligence in maps to make decisions and synchronize friendly force actions. Maps communicate progress and assist in developing situational understanding during daily briefings. Field operators use maps on mobile devices to collect information about local infrastructure, enemy disposition, or key terrain. They make and view reports, navigate, and get information about nearby events or observations. Mobile apps allow mounted and dismounted soldiers to share a common operating picture and exchange information in the field. Operations templates allow you to view and add current positions and reports from blue forces. They also are used to display current red force intelligence and METOC weather alerts. These layers aid in the conduct of a military operation and are designed to be used in conjunction with basemaps, standard operational layer templates, and apps to complete successful operations. |
| For Maritime Ops |
| ArcGIS for Maritime Operations provides charts, maps and apps, tools and workflows for Naval Operations. A key element of ArcGIS for Maritime Operations is the Maritime Operations Server and Portal, which could be located at a headquarters ashore or afloat. It is connected to a geospatial data appliance, presented through the Portal, served out over the Fleet IP-network. The data appliance carries numerous large geospatial datasets. Intelligence analysts and operational planners collaboratively work on geo-referenced datasets, with charts, maps, workflows, and tools from the server via the Portal. The command staff combines status reports and current intelligence in maps to make decisions and synchronize friendly force actions. Maps communicate progress and assist in developing situational understanding during daily briefings. Operators use maps on mobile devices to collect information about local infrastructure, enemy disposition, or key terrain. They make and view reports, navigate, and get information about nearby events or observations. Mobile apps allow Sailors and Marines the flexibility to effectively operate away from their units, aloft, afloat and ashore, and still share a common operational picture and exchange information. Operations templates allow you to view and add current positions and reports from blue forces. They also are used to display current red force intelligence and METOC weather alerts. These layers aid in the conduct of a military operation and are designed to be used in conjunction with basemaps, standard operational layer templates, and apps to complete successful operations. |

* + 1. Edit the default language and set to “English - English”.
  1. Click on the “Home Page” link at the left side of page.
     1. Edit the “Banner” using the values in the following table.

|  |
| --- |
| For Lands Ops |
| Click on “Image” radio button, then click “Click here to upload custom image” radio button and browse to OPSServer\LandOps\Portal\PortalResources\banner.jpg |
| For Maritime Ops |
| Click on “Image” radio button, then click “Click here to upload custom image” radio button and browse to OPSServer\MaritimeOps\Portal\PortalResources\bannermaritime.jpg |

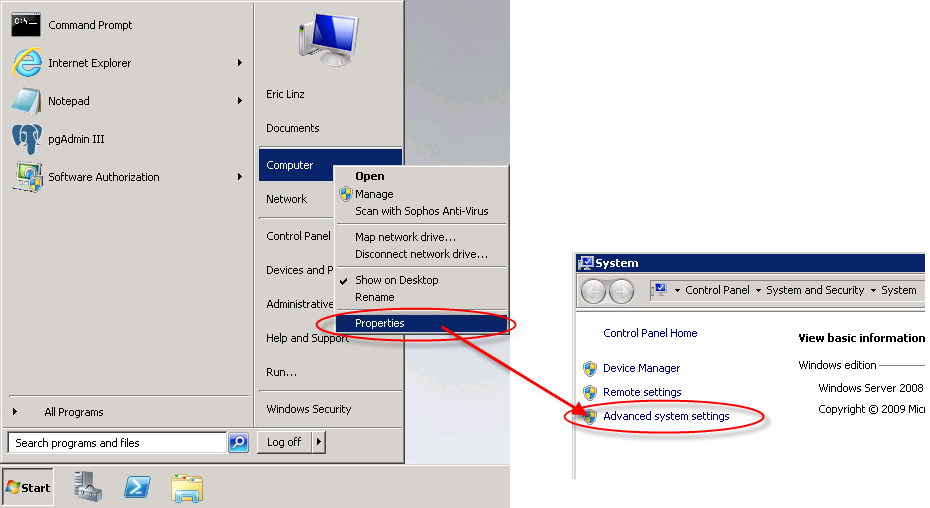
* + 1. Set “Featured Content” group to “Featured Maps and Apps (INFOMGR)” (you can set this to whatever group you need to support your demos).
  1. Click on the “Gallery” link at the left side of the page and set the “Show in Gallery” group to “Featured Maps and Apps (INFOMGR)”.
  2. Click on the “Map” link at the left side of page.
     1. Set the “Basemap Gallery” group to “Basemaps”.
     2. Make sure the “Default Basemap” is set to “Topographic”.
  3. Click on the “Groups” link at the left side of the page make sure the “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).
  4. Click on the “Save” button on the top left of the page.



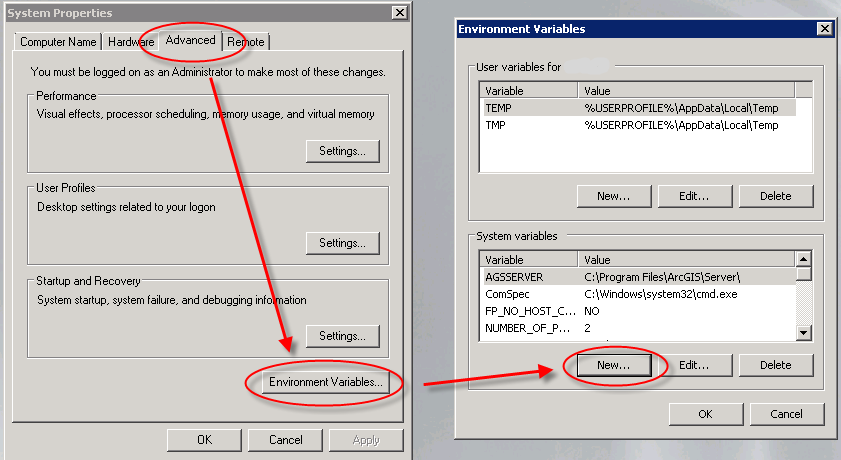
1. Share whatever maps and apps you would like to display in the Gallery and Feature Maps and Apps on the home page, with the “Feature Maps and Apps” group.
2. Copy all folders from your external drive that located under OPSServer\LandOps\Portal\DocRootFiles (or OPSServer\MaritimeOps\Portal\DocRootFiles) to the Portal’s docroot folder (i.e. C:\portal\portal\webapps\docroot). These folders/files support various demo’s.

# Install ArcGIS GeoEvent Server (on ArcGIS Server machine)

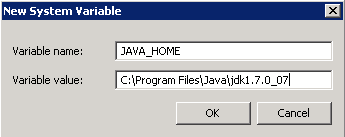
1. Install JavaJDK (if you did not install the JavaJDK when you installed the portal certificate).
   1. Open a Window Explorer and navigate to the OPSServer\Software\JavaJDK folder on your external drive.
   2. Double-click on the jdk-7u7-windows-x64.exe to launch the installer; follow the instructions to finish the install.
2. Define an environment variable to specify where Java has been installed.
   1. Open the ‘Start Menu’, right-click on ‘Computer’, and click ‘Properties’. In the ‘System’ window click on ‘Advanced System Settings’.



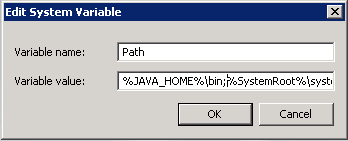
* 1. In the ‘System Properties’ window select the ‘Advanced’ tab and click on ‘Environment Variables’ button. Click the ‘New’ button under “System variables” to define a new environment variable.



* 1. In the ‘New System Variable’ window create a Variable named ‘JAVA\_HOME’ with a value of ‘C:\Program Files\Java\jdk1.7.0\_07’ and click “OK”



* 1. Find the ‘System Variable’ named ‘Path’ and click the ‘Edit’ button. Scroll to the beginning of the ‘Variable value’ and add ‘%JAVA\_HOME%\bin;’ to the front of the ‘PATH’.



* 1. Click the ‘OK’ button on the ‘New System Variable’ window, click the ‘OK’ button on the ‘System Properties’ window, and close the ‘System’ window.

1. Unzip ages-0.8.2.zip to C:\ (i.e. C:\ages-0.8.2).
2. Navigate to C:\ages-0.8.2\ages\arcgisServerConnections and edit the OpsServer.json file in a text editor to point to the ArcGIS Server; edit the server URL, user name and password (these must match the “ops\_userName” and “ops\_passWord” variable values in the InstallOpsServer.bat file. **NOTE**: do not change the “name” parameter value; this value must be “OpsServer”.
3. Open a **new** command window (cmd.exe) with administrator privilege (i.e. “Run as administrator” context menu). **NOTE**: you must open a new command window in order for the changes you made to the environment variables above to take effect.
4. Change directory to C:\ages-0.8.2\bin
5. Start GeoEvent Server for ArcGIS by typing “karaf.bat” at the command prompt and hit enter.

Useful commands include:

* list - shows list of services and GeoEvent Server components installed and their status
* log:display - shows the log
* log:clear - clears the log
* log:set ERROR - only log errors
* log:set WARN - show warnings or errors
* shutdown -f - forces shutdown

1. Create a windows service to run GeoEvent Server.
   1. Install the GeoEvent “wrapper” feature by typing the following at the “AGES” command prompt:

features:install wrapper

* 1. Use the wrapper feature to “wrap” the GeoEvent installation with windows service “fluff” by typing the following at the “AGES” command prompt:

wrapper:install –s AUTO\_START –n “ArcGIS GeoEvent Server” –d ages –D “Enables processing of GIS data streams”

* 1. Stop GeoEvent Server by typing the following at the “AGES” command prompt:

shutdown –f

(note: when GeoEvent Server has shutdown, the command prompt will return to the “standard” windows command prompt)

* 1. Install the GeoEvent Server windows service by typing the following at the command prompt (make sure you are still located within the folder C:\ages-0.8.2\bin):

“ArcGIS GeoEvent Server-service.bat” install

* 1. Open the windows “Server Manager”. Navigate to the “Services” node and start the GeoEvent server service “ages” by right-clicking on the service and clicking “Start”. Note that when GeoEvent server is running as a windows service, the log files will still be written to the c:\ages-0.8.2\data\log folder.

1. Check status of GeoEvent Server.
   1. Log into GeoEvent manager using a browser with the following URL: http://[host]:8182/ages-manager (username: ArcGIS, password: password)
   2. From the GeoEvent manager select Inbound Streams, GeoEvent Services and Outbound Stream “tabs” and examine each services’ status.

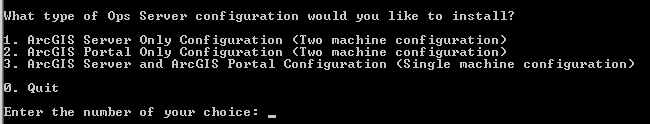
**NOTE:** By default, all Inbound and Outbound Stream services should have started. All GeoEvent services, except for the “log” services (i.e. service names appended with “log”), should have started. The “log” GeoEvent services have been intentionally turned off, because the current status of units is usually being demonstrated and therefore it is not necessary for features to be written by GeoEvent Server to the ArcGIS Server “log” feature services.

# Install Message Simulator (ArcGIS Server machine or client machine)

The message simulator requires Microsoft Visual C++ 2008 Redistributable Package (both x64 and x86) be installed.



These packages are installed by the PostgreSQL installer, which is run when you perform the “ArcGIS Server Only Configuration” or the “ArcGIS Server and ArcGIS Portal Configuration” types of installs (i.e. number 1 and 3 shown in screenshot below).



If you are running the message simulator on a machine other than the ArcGIS Server machine, you will need to install these redistributables (downloadable from www.microsoft.com).

**NOTEs**:

* If you are running the message simulator on a client machine, you will need to manually install the Microsoft Visual C++ 2008 redistributables (downloadable from [www.microsoft.com](http://www.microsoft.com)).
* The message simulator must be run on a machine on the same subnet as GeoEvent Server.

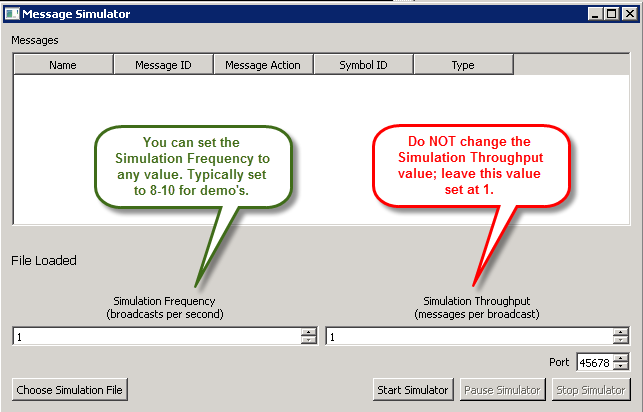
To install the message simulator, copy the OPSServer\Software\MessageSimulator folder from your external drive to the C:\ drive of your ArcGIS Server (i.e. C:\MessageSimulator).

# Run Message Simulator

There are three different ways that the Message Simulator can be run: through the GUI, in console mode (i.e. DOS console), or as a Windows scheduled task.

The Message Simulator has four parameters:

* **Simulation File** - The xml message file which contains the messages to broadcast. The message files are located under the folder C:\MessageSimulator\MessageFiles, and are organized based on Ops type (LandOps, or MaritimeOps).
* **Port** - The port number on which the messages are broadcast. You only need to change this value if there is a conflict with the default port number of 45678.
* **Simulation Frequency** – The number of broadcasts per second. You can set this parameter to any value. Typically set between 8 – 10 for demo’s.
* **Simulation Throughput** – The number of messages per broadcast. Do NOT change this value; leave it set at 1.



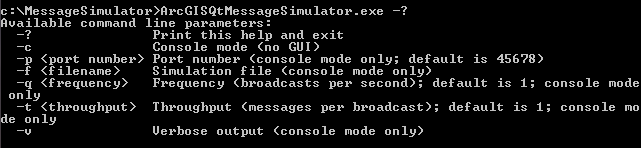
To run the Message Simulator through the GUI:

1. Open a command window.
2. Change directory to C:\MessageSimulator\MessageSimulator.
3. Double-click on the executable ArcGISQtMessageSimulator.exe.

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

1. Open a command window.
2. Change directory to C:\MessageSimulator\MessageSimulator.
3. At the command prompt, type the following to examine the executable parameters:

ArcGISQtMessageSimulator.exe -?

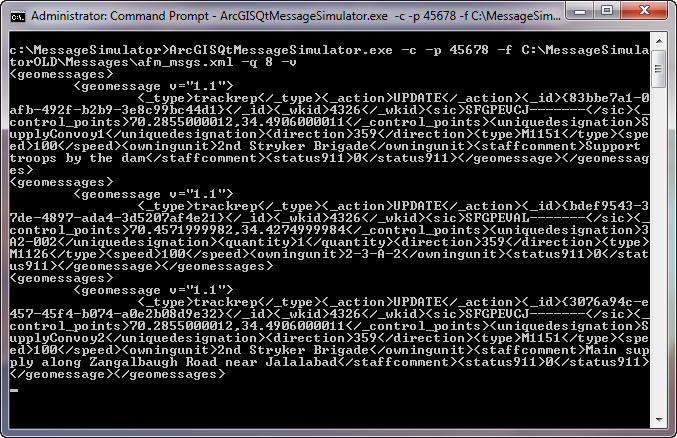


**NOTE: For demonstration purposes a frequency value (-q flag) between 8 -10 is recommended.**

**Also, the flag –v was added to show the verbose output; remove this flag to broadcast silently.**

1. Example of running the Message Simulator in verbose mode:

ArcGISQtMessageSimulator.exe –c –p 45678 –f C:\MessageSimulator\MessageFiles\LandOps\afm\_msgs.xml -q 8 -v

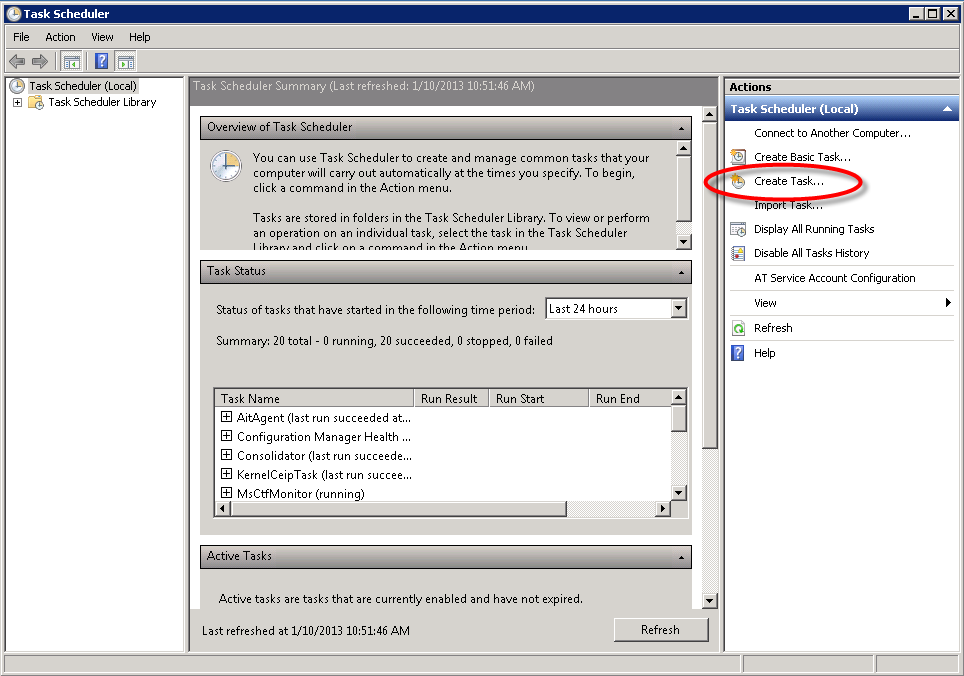


To stop the Message Simulator, press “Ctrl + C” within the command window.

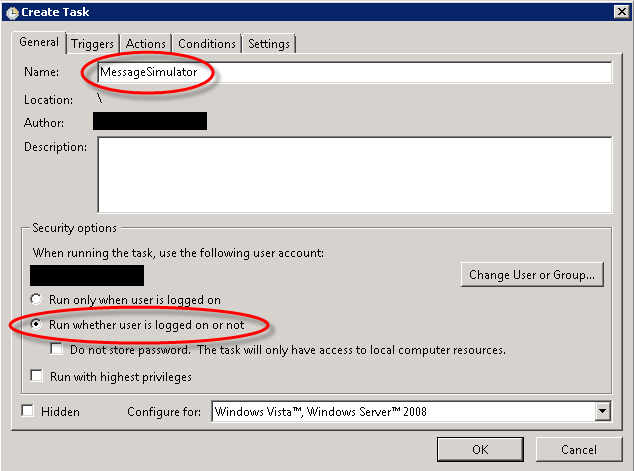
To run the Message Simulator as a Windows scheduled task:

**NOTE: you will need to specify an account that will run this task. This account must have “Log on as batch job” rights, which by default is only assigned to the LocalSystem account. For more information, review the “Task Security Context” topic in the task scheduler Help.**

1. Go to Start > Administrator Tools > Task Scheduler.
2. Click “Create Task”.



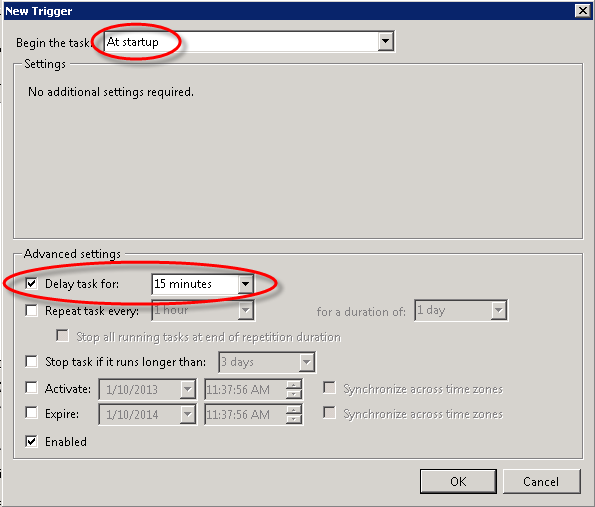
1. On the “Create Task” dialog, set the Name of the application to “MessageSimulator” and select the option “Run whether user is logged on or not”.



1. Click the Triggers tab and click New.



1. On the “New Trigger” dialog, change the “Begin the task” property to “At startup”, and select the “Delay task for” option and select “15 Minutes”. Click OK.



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

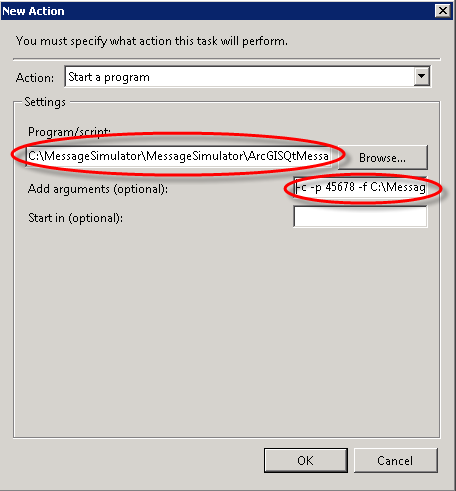


1. On the “New Action” dialog set the following values, then click OK.

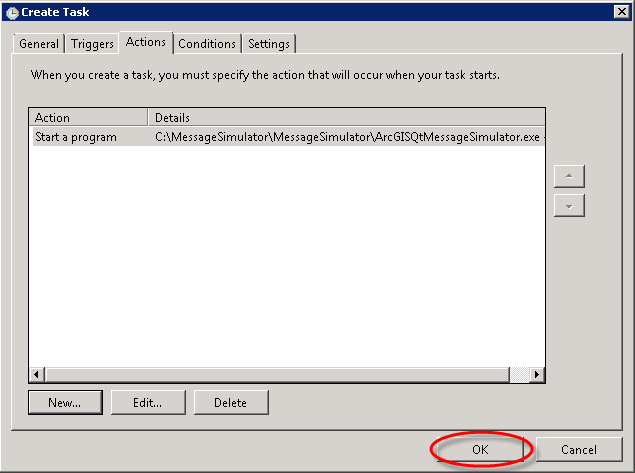
Program/script: C:\MessageSimulator\MessageSimulator\ArcGISQtMessageSimulator.exe

Add arguments: -c -p 45678 -f C:\MessageSimulator\MessageFiles\LandOps\afm\_msgs.xml -q 8

For MaritimeOps Server set the –f flag in the “Add agruments” to C:\MessageSimulator\MessageFiles\MaritimeOps\afm\_msgs\_soh.xml



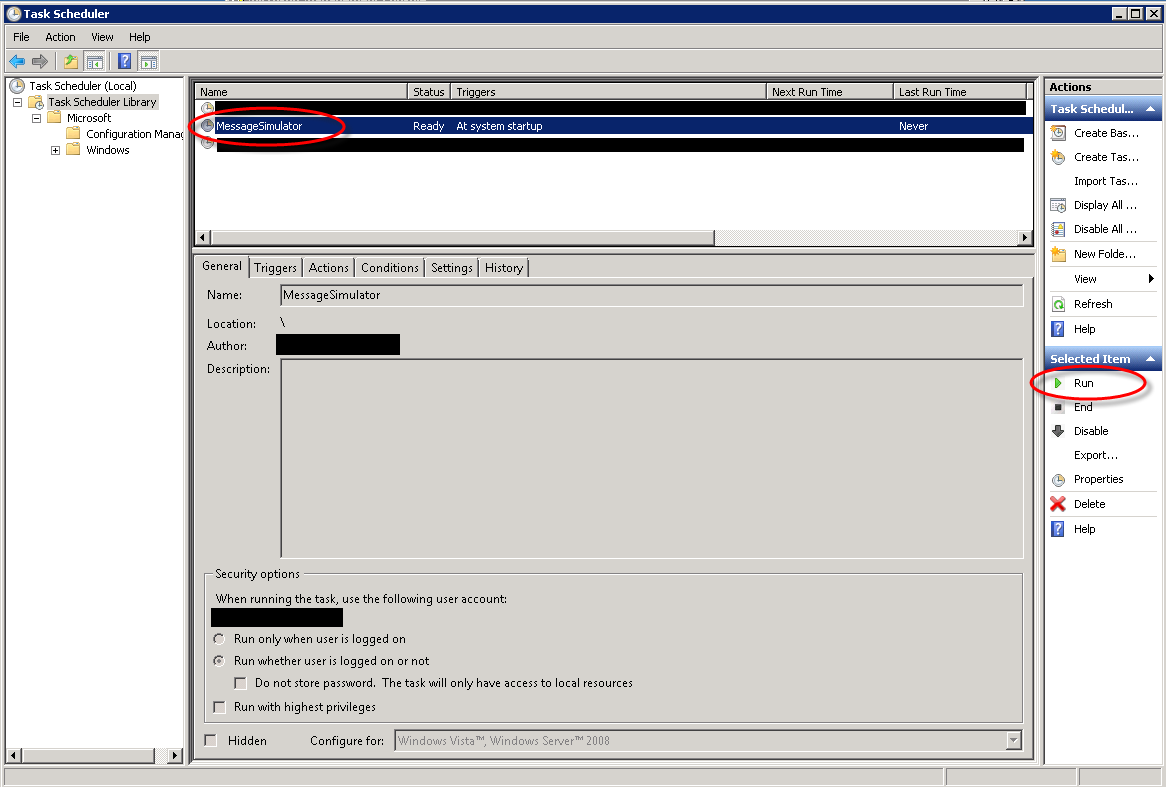
1. The new action should now be present. Click OK to exit the “Create Task” dialog.



1. Enter the necessary windows credentials when prompted.

**NOTE: the account specified to run the task must have “Log on as batch job” rights. For more information, review the “Task Security Context” topic in the task scheduler Help.**

1. The Message Simulator task should now be listed in your Task Scheduler Library. Click “Run” if you would like to start the message simulator right now; otherwise, you will need to reboot the system to start the simulator.



# Test ArcGIS GeoEvent Server

Test GeoEvent Server by running the message simulator and check if features are being written to the Operations feature services.

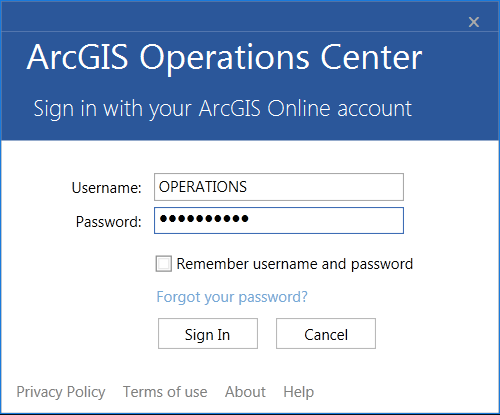
1. Start message simulator by double-clicking the file C:\MessageSimulator\MessageSimulator\ArcGISQtMessageSimulator.exe.
2. Click “Choose Simulation File”, and browse to and select the file C:\MessageSimulator\MessageFiles\LandOps\afm\_msgs.xml (**ONLY** use this .xml file for this test, because the messages in this file will populate the feature service specified in the URL below.
3. Open a browser and cut/paste the following URL into the browser (make sure to edit the ArcGIS Server machine name in the URL). This URL will query the SPOTREPs layer within the Operations\Reporting feature service and return the total number of features in the service at the bottom of the web page:

http://<Fully\_Qualified\_ArcGISServer\_ServerName>:6080/arcgis/rest/services/Operations/Reporting/FeatureServer/5/query?where=objectid+%3E+0&objectIds=&time=&geometry=&geometryType=esriGeometryEnvelope&inSR=&spatialRel=esriSpatialRelIntersects&relationParam=&outFields=&returnGeometry=true&maxAllowableOffset=&geometryPrecision=&outSR=&gdbVersion=&returnIdsOnly=false&returnCountOnly=true&orderByFields=&groupByFieldsForStatistics=&outStatistics=&returnZ=false&returnM=false&f=html

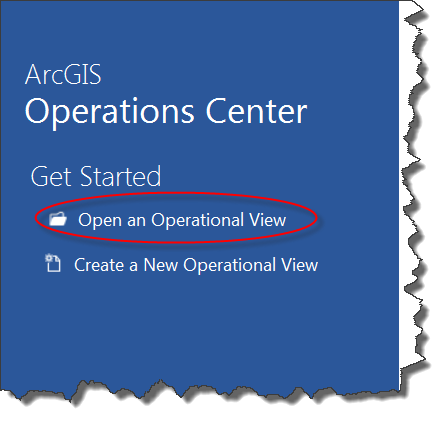
1. Rerun the URL query above a couple of times to verify that the number of features reported is increasing. If the Simulation Frequency value is low, you will need to wait a couple of minutes between executing the queries to see an increase in the number of features; increasing the Simulation Frequency value will decrease the time you have to wait between queries.

Another test you could perform is to install “Operations Center” and visual check that features are moving in the map display.

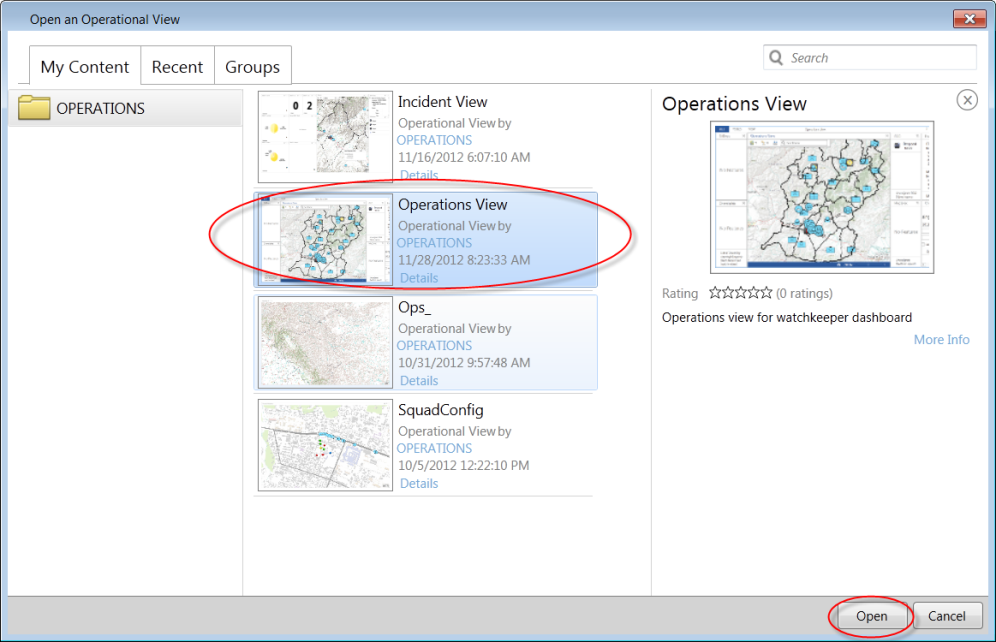
1. Install “Operations Center” using instructions in the “Install Operations Center on client machines” section of this guide.
2. Open “Operations Center” by double-clicking on C:\OperationsCenter\OperationsCenter.exe.
3. When prompted for login, login as the “OPERATIONS” user (password “OPERATIONS”).



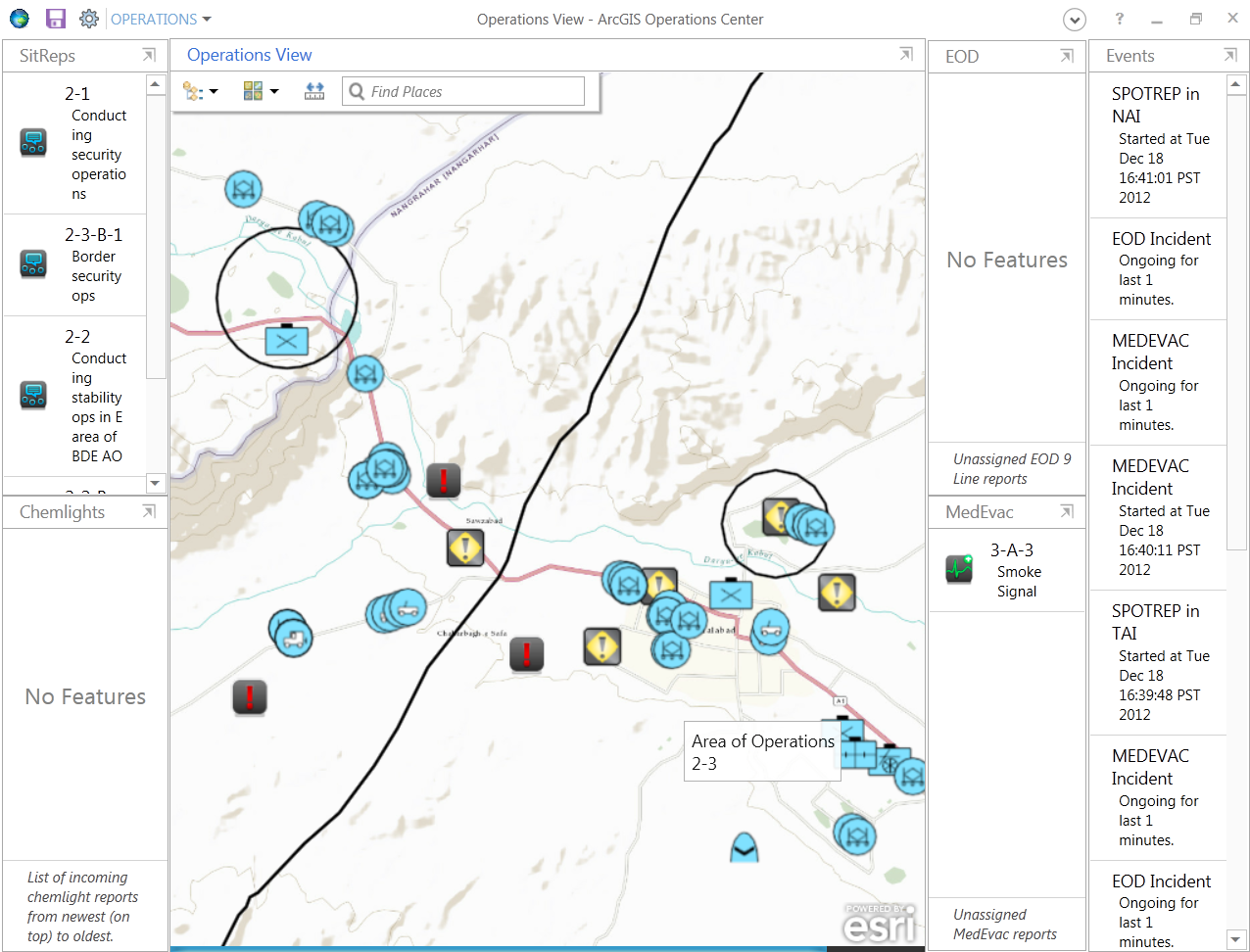
1. Click “Open an Operational View”.



1. Click on “Operations View” and click “Open”.



1. Within the map display, verify that features are moving.



# Feature Service “Clean-up” script

While the message simulator is running, features will be inserted into the ArcGIS Server features services. A clean-up Python script has been provided that will delete the features that were inserted.

1. To “install” the clean-up script:
   1. Copy the OPSServer\Software\GeoEventServerForArcGIS\cleanOpsServer\_localhost.py file to a location on the ArcGIS Server, such as C:\MessageSimulator\CleanUp (you need to create the CleanUp folder manually).
   2. Because this script users “localhost” as the server name, if you are going to run the script on a server other than the ArcGIS Server, edit the URL’s in the Python script to point to the ArcGIS Server.
   3. The script was created for use against LandOps Ops Server Operations feature services (i.e. Operations\Reporting, Operations\FriendlySituation, and Operations\Log). If necessary edit the Python “uri\_list.append” statements to match your particular configuration.
2. To run the clean-up script (to run as a Windows scheduled task, see section below):
   1. Open a windows command window.
   2. Change directory to C:\MessageSimulator\CleanUp (or wherever else you installed the script).
   3. Run the script by typing the following at the command prompt:

cleanOpsServer\_localhost.py

1. You can check that the features were deleted from the feature services by running a query such as the following from a browser (make sure to edit the ArcGIS Server machine name in the URL; change the service names as necessary to match your Ops Server configuration):

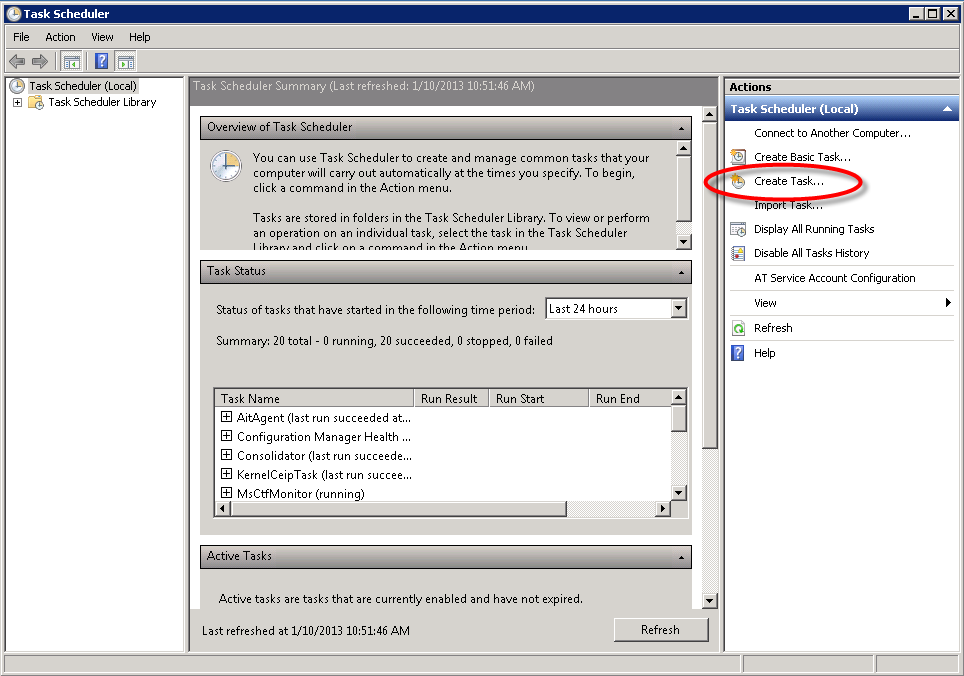
http://<Fully\_Qualified\_ArcGISServer\_ServerName>:6080/arcgis/rest/services/Operations/Reporting/FeatureServer/5/query?where=objectid+%3E+0&objectIds=&time=&geometry=&geometryType=esriGeometryEnvelope&inSR=&spatialRel=esriSpatialRelIntersects&relationParam=&outFields=&returnGeometry=true&maxAllowableOffset=&geometryPrecision=&outSR=&gdbVersion=&returnIdsOnly=false&returnCountOnly=true&orderByFields=&groupByFieldsForStatistics=&outStatistics=&returnZ=false&returnM=false&f=html

**NOTE:** If the message simulator is going to be left running for extended periods you can configure the cleanOpsServer\_localhost.py script to run as a scheduled task in Windows (executing approximately every 30 minutes would be appropriate).

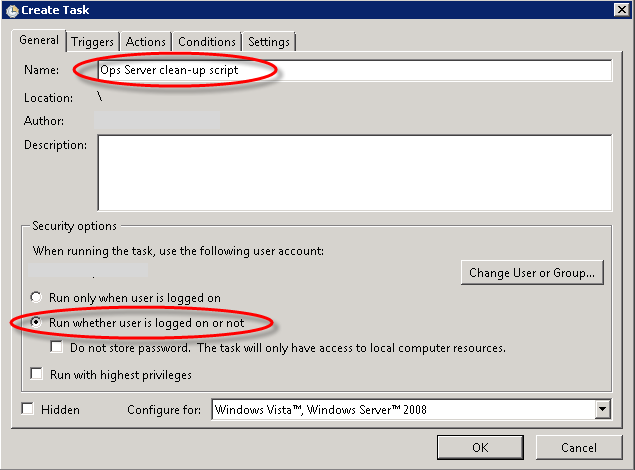
To run the “clean-up” script as a Windows scheduled task:

**NOTE: you will need to specify an account that will run this task. This account must have “Log on as batch job” rights, which by default is only assigned to the LocalSystem account. For more information, review the “Task Security Context” topic in the task scheduler Help.**

1. Go to Start > Administrator Tools > Task Scheduler.
2. Click “Create Task”.



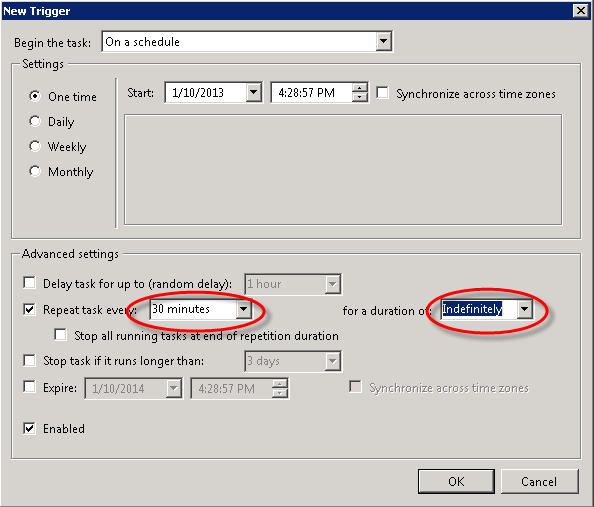
1. On the “Create Task” dialog, set the Name of the application to “Ops Server Clean-up script” and select the option “Run whether user is logged on or not”.



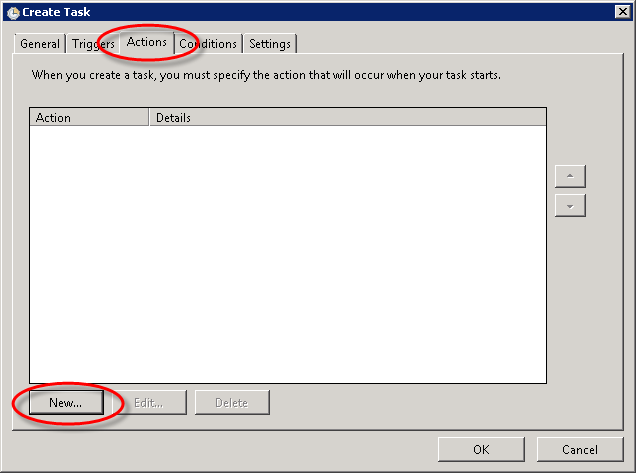
1. Click the Triggers tab and click New.



1. On the “New Trigger” dialog, check the “Repeat task every” option and select “30 minutes”; for the “for a duration of” property select “Indefinitely” and click OK.



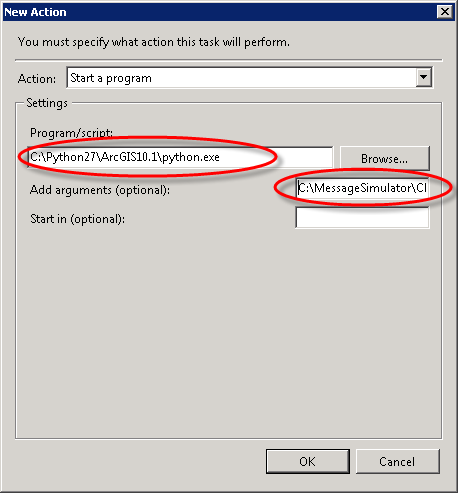
1. Click the “Actions” tab and click New.



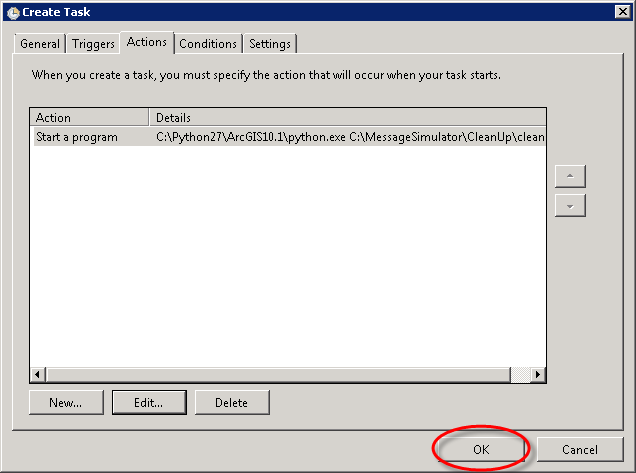
1. On the “New Action” dialog set the following values, then click OK.

**Program/script:** Set this property to the location of the python.exe executable, may be C:\python27\python.exe or may be C:\Python27\ArcGIS10.1\python.exe depending on how the OpsServer was configured.

**Add arguments:** C:\MessageSimulator\CleanUp\cleanOpsServer\_localhost.py



1. The new action should now be present. Click OK to exit the “Create Task” dialog.



1. Enter the necessary windows credentials when prompted.

**NOTE: the account specified to run the task must have “Log on as batch job” rights. For more information, review the “Task Security Context” topic in the task scheduler Help.**

1. The clean-up task should now be listed in your Task Scheduler Library. Right-click on the newly created scheduled and click “Run”.

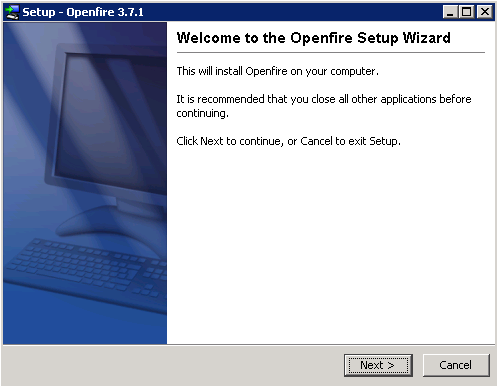
# Install Chat Server - Openfire 3.7.1 (on ArcGIS Server machine)

For more information about Openfire please reference the open fire website: <http://www.igniterealtime.org/projects/openfire/>

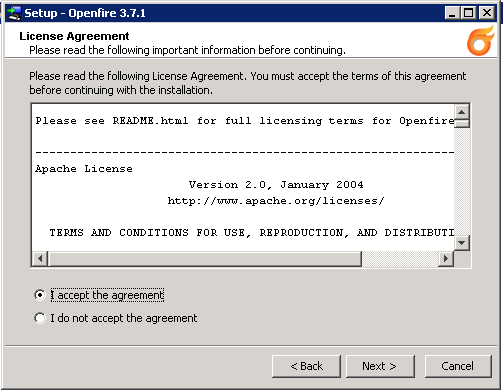
1. Install JavaJDK (if not already installed from previous steps).
   1. Open a Window Explorer and navigate to the OPSServer\Software\JavaJDK folder on your external drive.
   2. Double-click on the jdk-7u7-windows-x64.exe to launch the installer; follow the instructions to finish the install.
2. Install and configure OpenFire.
   1. Open Windows Explorer and navigate to the folder OPSServer\Software\ChatServer\OpenFire on your external drive.
   2. Double-click the openfire\_3\_7\_1(1).exe file to start the install process.
   3. On Installer language dialog, please select “English” and click “OK” button.



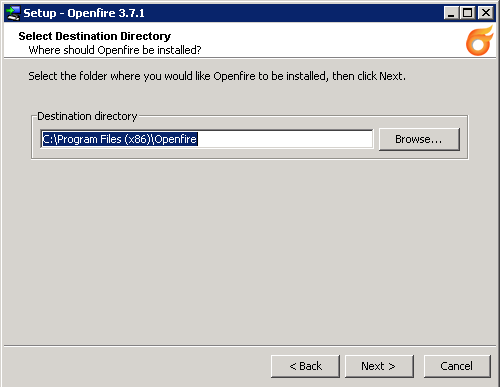
* 1. On welcome dialog, click “Next” button.



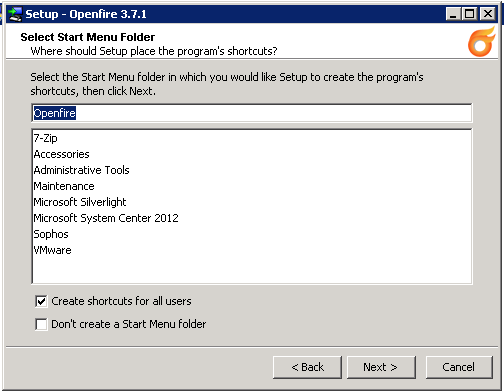
* 1. On the license agreement dialog, select “I accept the agreement” and click “Next” button.



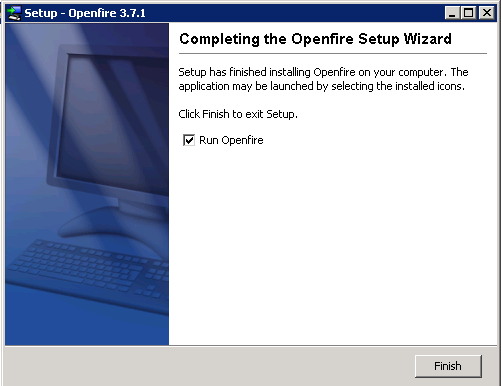
* 1. On the Select Destination Directory dialog, leave as the default and click “Next” button.



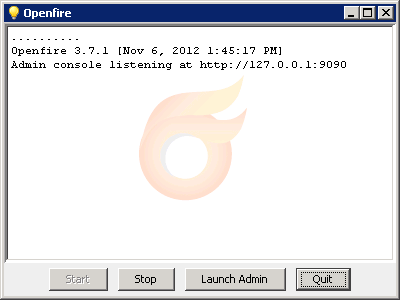
* 1. On the Select Start Menu Folder dialog, leave all the default values and click “Next” button.



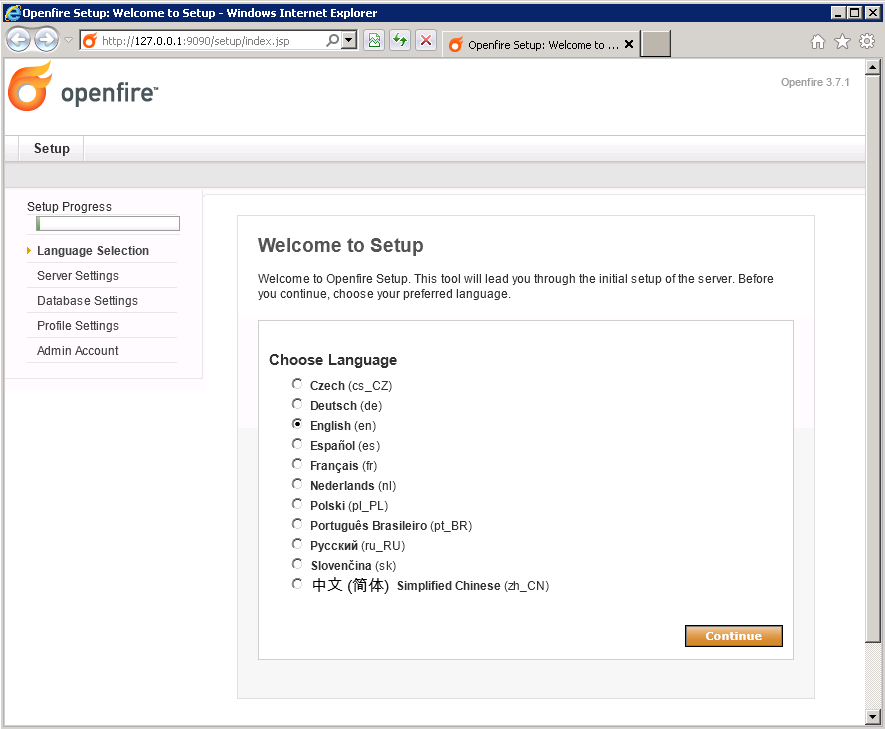
* 1. On the Completing the Openfire Setup Wizard dialog, make sure “Run Openfire” checkbox is checked and click the “Finish” button.



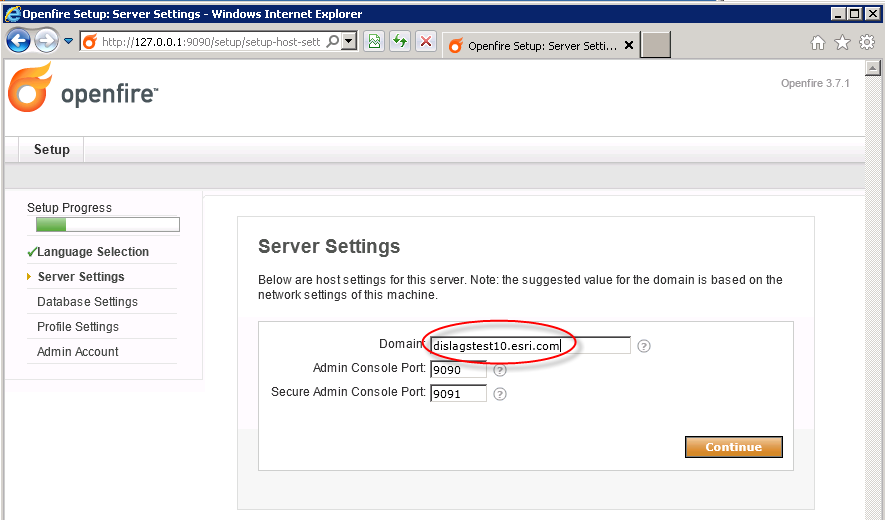
* 1. On the Openfire dialog, click the “Launch Admin” button (it will take a few seconds for the button to be enabled), which will open the default web browser.



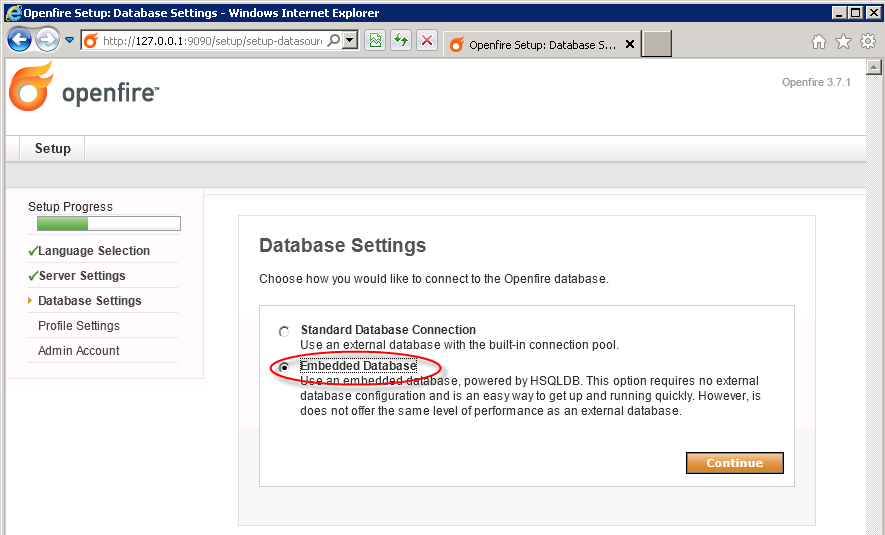
* 1. In the web browser, add <http://127.0.0.1> to the Trusted sites.
  2. On the Choose Language dialog, select “English” and click “Continue”.



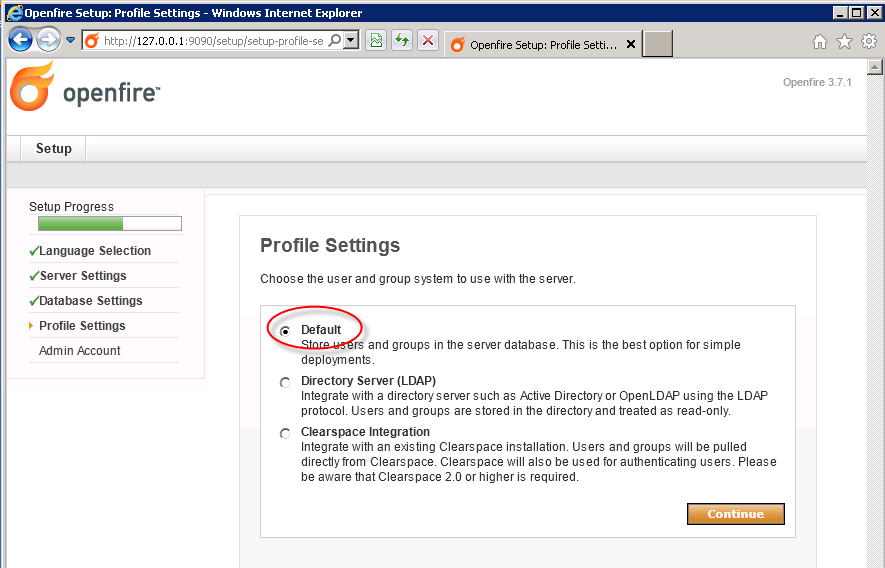
* 1. On the Server Settings dialog, edit the “Domain” parameter so that it contains the fully qualified domain name of your server and then click “Continue”.



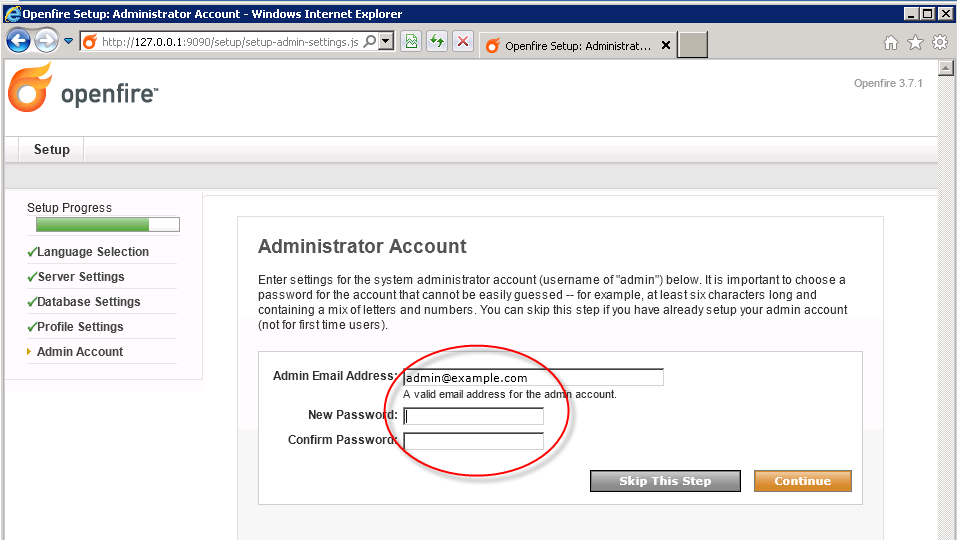
* 1. On the Database Settings dialog, select the “Embedded Database” option and click “Continue”.



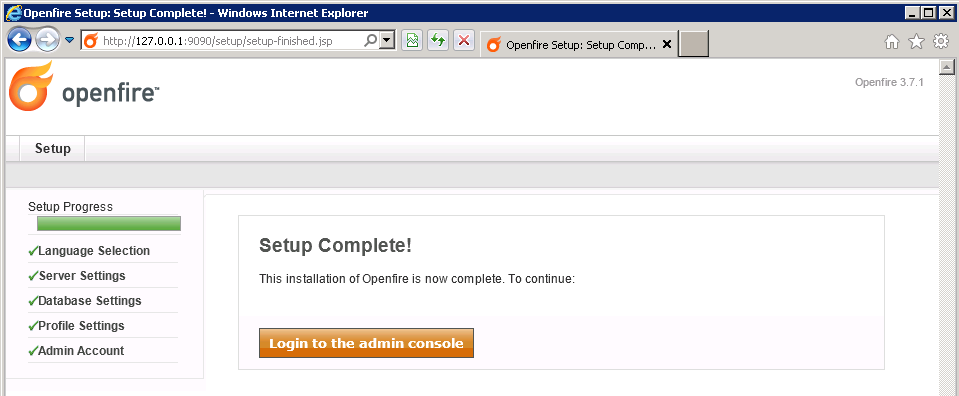
* 1. On the Profile Settings dialog, select the “Default” option and click “Continue”.



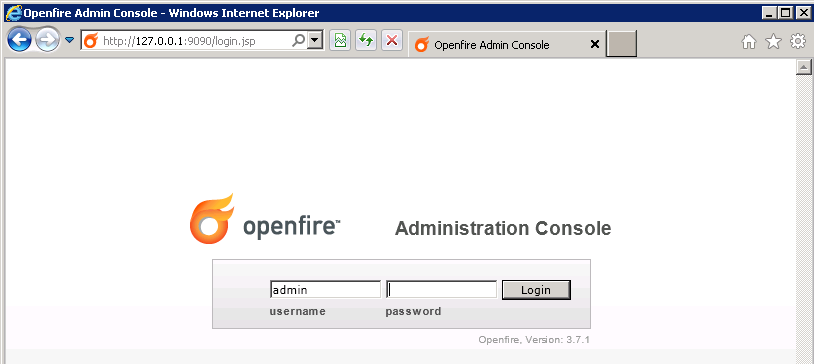
* 1. On the Administrator Account dialog, specify an email account, and a password and then click “Continue”.



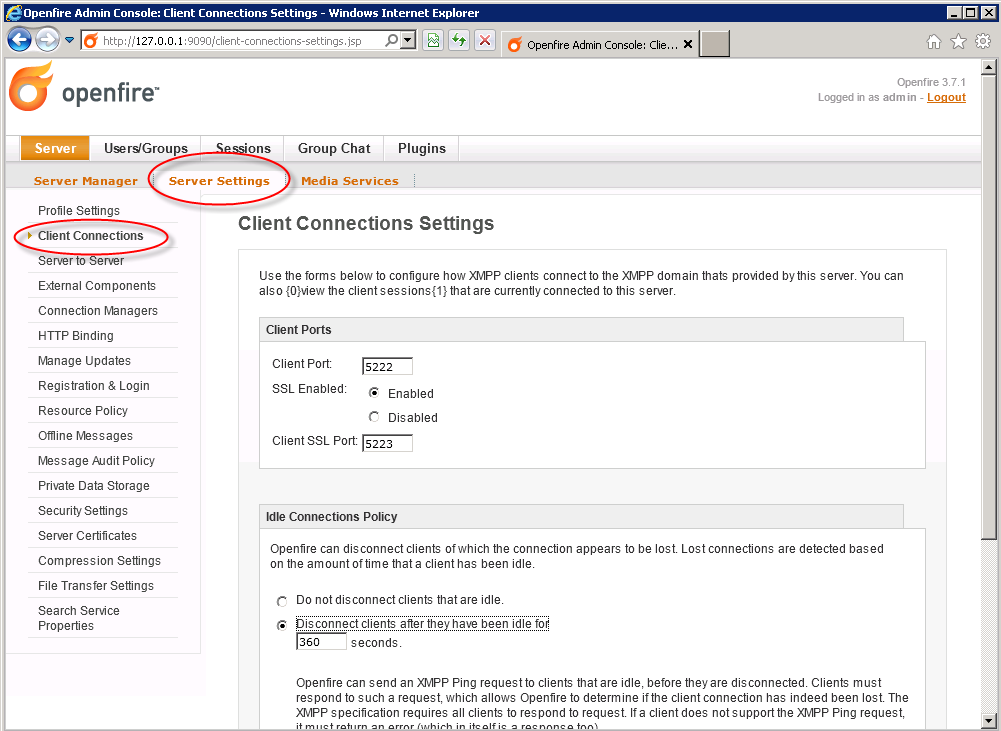
* 1. On the Setup Complete dialog click “Login to the admin console”.



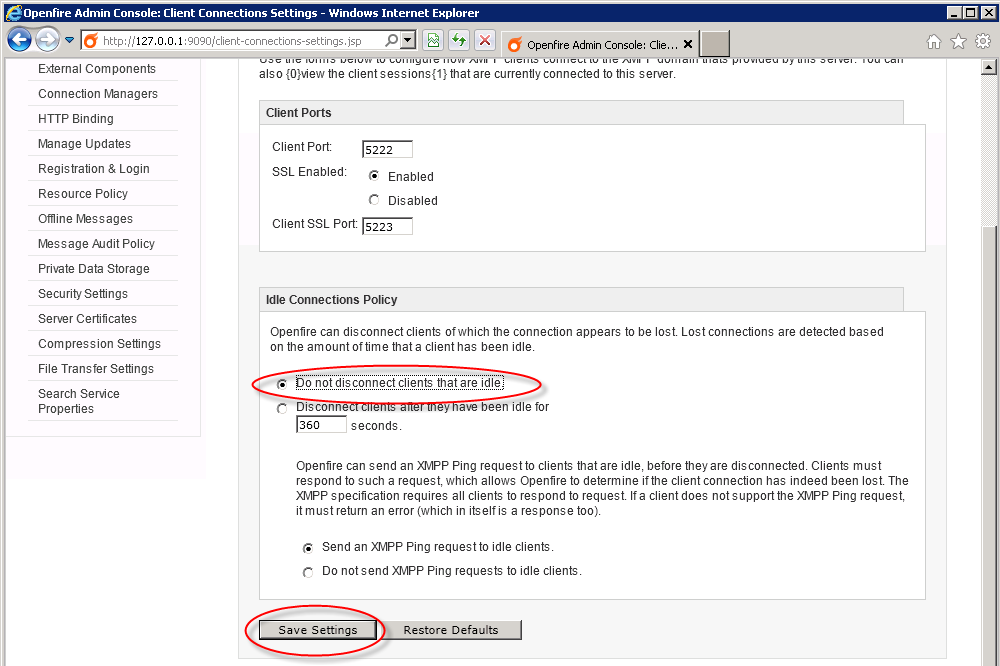
* 1. Log into the administration console. The username is “admin”, the password is the password you specified on the Administrator Account dialog above.



* 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. Create and install chat server certificate.

If you don’t have access to the Esri certificate server then see the link <http://www.igniterealtime.org/builds/openfire/docs/latest/documentation/ssl-guide.html> for more information about setting up the certificate; otherwise, follow the instructions below.

* 1. Open a command window (cmd.exe) with administrator privilege (i.e. “Run as administrator” context menu).
  2. Change directory to C:\Program Files (x86)\Openfire\resources\security
  3. Test to see if the “keytool” works by typing keytool at the command prompt.
  4. If the “keytool” command is not recognized as a command, type the following at the command prompt to add the path the Java runtime engine to the system path variable:

path=path;"C:\Program Files\Java\jre7\bin"

* 1. List the current values (should be two) in the keystore by typing the following at the command prompt (you will be prompted for the password, which is “changeit” (default password):

keytool –list –keystore keystore

* 1. Delete the current keystore values by typing the following at the command prompt (use “changeit” for the password):

keytool –delete –keystore keystore –alias <fully\_qualified\_server\_name>\_rsa

keytool –delete –keystore keystore –alias <fully\_qualified\_server\_name>\_dsa

* 1. Verify that the keystore is now empty by typing the following at the command prompt:

keytool –list –keystore keystore

* 1. Open a web browser and go to the Esri certificate server at the following URL: <https://redsrvrfrca.esri.com/certsrv/>
  2. Click the link “Download a CA certificate, certificate chain, or CRL”
  3. Under “CA certificate” listbox, leave the certificate that is selected by default selected.
  4. Under “Encoding method”, make sure “DER” is selected.
  5. Click “Download CA certificate” and save the “certnew.cer” file to the folder C:\Program Files (x86)\Openfire\resources\security
  6. From the command prompt (make sure that it is still in the “security” folder), type the following commands:

keytool -import -keystore keystore -alias cacert -file certnew.cer

(you will be prompted for password: changeit; when prompted “Trust this certificate?” enter yes. If command was successful this message “Certificate was added to keystore”)

keytool -genkey -keystore keystore -alias <fully\_qualified\_server\_name>-rsa -keyalg RSA -dname "CN=<fully\_qualified\_server\_name>, OU=ESRI, O=ESRI, L=Redlands, S=California, C=US"

(you will be prompted for the keystore password: changeit; when prompted “Enter key password for <fully\_qualified\_server\_name-rsa>?” enter return)

keytool -certreq -keystore keystore -alias <fully\_qualified\_server\_name>-rsa -file <server\_name>-rsa.csr -keyalg RSA

(you will be prompted for the keystore password: changeit)

* 1. Open the <server\_name>-rsa.csr file that was created in the previous step (created in C:\Program Files (x86)\Openfire\resources\security) in Notepad and copy the complete contents of the file (i.e. place in Windows buffer).
  2. Open a web browser and go to the Esri certificate server at the following URL <https://redsrvrfrca.esri.com/certsrv/>
  3. Click the link “Request a certificate”.
  4. Click the link “Submit a certificate request by using a base-64-encoded CMC…”
  5. In the “Saved Request” textbox, paste the contents of the <server\_name>-rsa.csr file.
  6. In the “Certificate Template” drop-down list box, select “Web Server” and click “Submit”.
  7. Ensure that the “DER encoded” option is selected and click the link “Download certificate **chain**”
  8. When prompted, save the “certnew.p7b” file to the folder C:\Program Files (x86)\Openfire\resources\security
  9. Install the certificate by issuing the following command in the command prompt:

keytool –import –keystore keystore –alias <fully\_qualified\_server\_name>-rsa –file certnew.p7b –keyalg RSA

(you will be prompted for the keystore password: changeit; if the command was successful the message “Certificate reply was installed in keystore” will be displayed).

* 1. Stop Openfire server if it is running, by double-clicking on the Openfire icon in the taskbar, then click “Stop”.
  2. Delete the file C:\Program Files (x86)\Openfire\embedded-db\openfire.lck
  3. Start Openfire server.
  4. Test the https connection by typing in the following URL and ensure you do not receive any security exception warnings:

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

1. Create Openfire windows service.
   1. Open a command window (cmd.exe)
   2. Change directory to C:\Program Files (x86)\Openfire\bin.
   3. From the command prompt run the following commands:

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 |

# Create Openfire Users

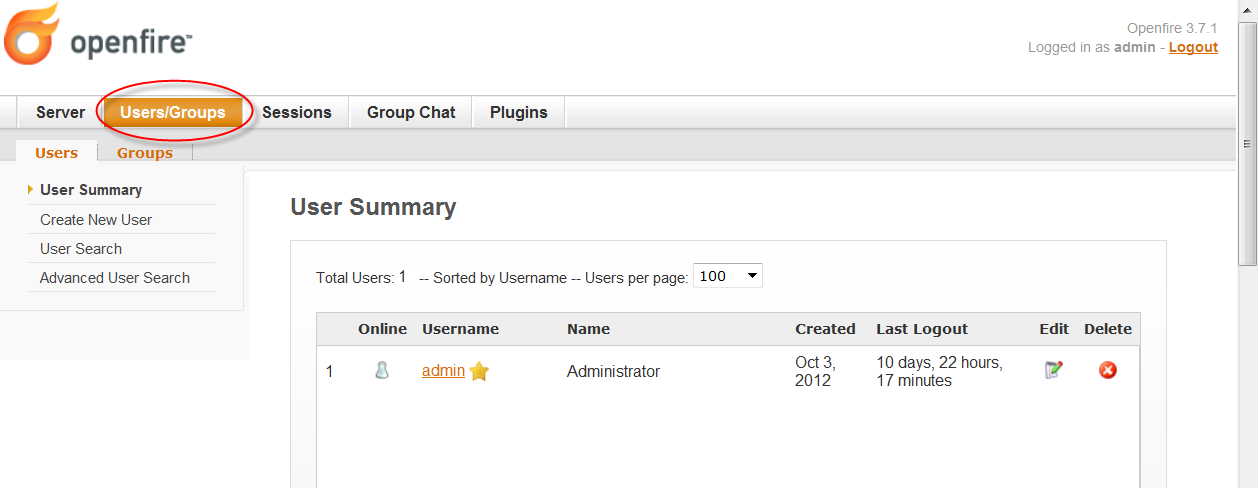
Create Openfire users as necessary for your demonstrations. For example, the “Operations Center” has the capability to consume chat server feeds; in order to support this capability you will need to create Openfire users.

To create Openfire users:

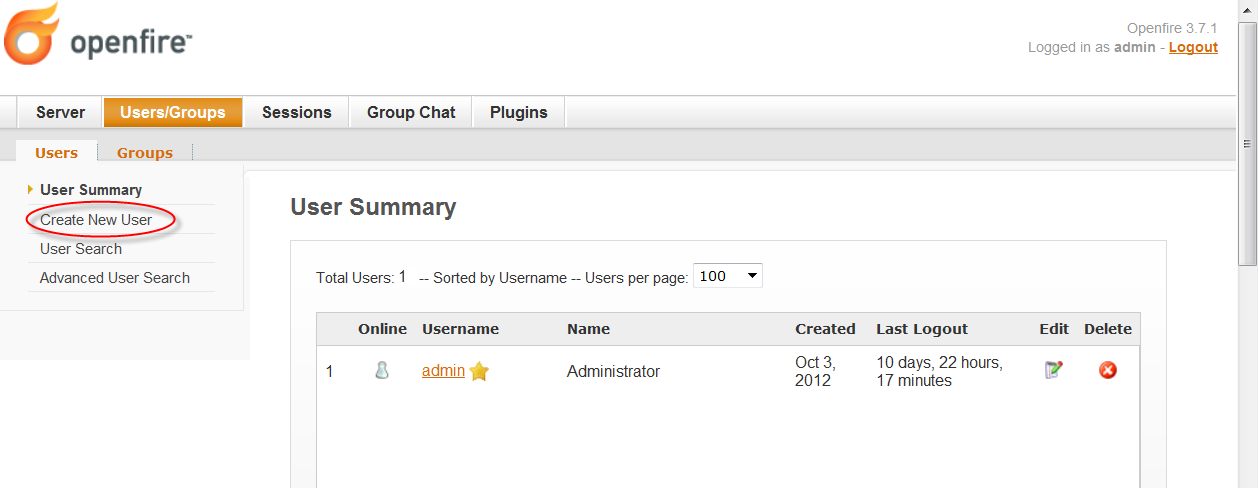
1. Log into the Openfire Admin Console by typing in the following URL in a browser. The username is “admin”; the password is the password you specified on the Administrator Account dialog when you installed Openfire.

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

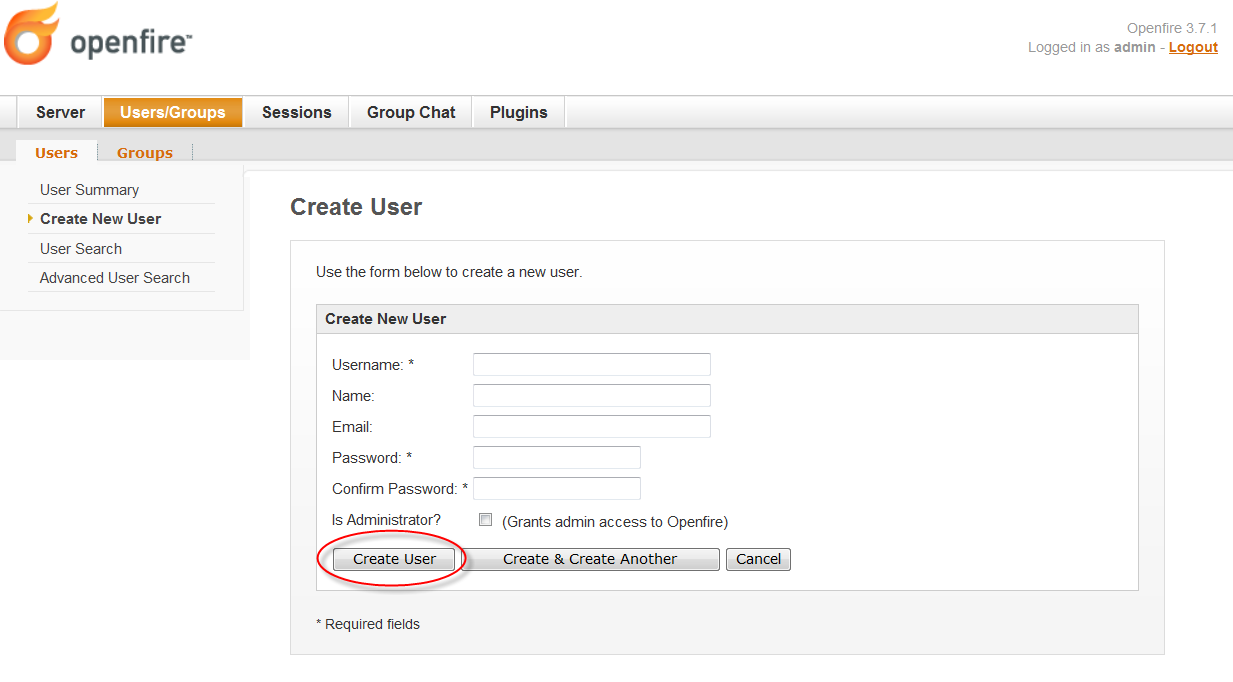
1. Click on the “Users/Groups” tab at the top of the page.



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”.

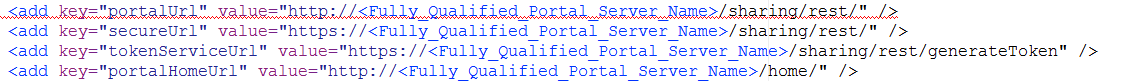


# Install Operations Center on client machines

Install “Operations Center” on your client machines as necessary (the name has changed on newer builds to “Operations Dashboard”).

**NOTE**: do not install newer builds of the Operations Center/Operations Dashboard, as these newer builds will not work with the version of Portal included with this version of Ops Server.

1. Install Microsoft .NET Framework 4.5, if this is not already installed on your client machine. You can download the installer from [www.microsoft.com](http://www.microsoft.com) (search for “download .Net Framework 4.5”).
2. Copy the zip file OperationsCenter.zip from your external drive located in the folder OPSServer\Software\OperationsCenter to your local C drive.
3. Extract the contents of the OperationsCenter.zip to C:\OperationsCenter.
4. Configure Operations Center to connect to the Ops Center portal and ArcGIS Server.
   1. Open the file C:\OperationsCenter\OperationsCenter.exe.config in a text editor.
   2. Replace the text “<Fully\_Qualified\_Portal\_Server\_Name>” with the fully qualified server name of the Ops Server Portal machine.



* 1. Replace the text “<Fully\_Qualified\_AGS\_Server\_Name>” with the fully qualified server name of the Ops Server ArcGIS Server machine.



* 1. Save changes and exit the text editor.

# URLs/Passwords

|  |  |  |  |
| --- | --- | --- | --- |
| Software | Interface | URL | User/password |
| ArcGIS Server | Manager | http://<server.domain>:6080/arcgis/manager | < ops\_userName variable value set in InstallationOpsServer.bat> /<ops\_passWord variable value set in InstallationOpsServer.bat> |
|  | Rest | http://<server.domain>:6080/arcgis/rest | N/A |
| GeoEvent Server for ArcGIS | Manager | http://<server.domain>:8182/ages-manager | ArcGIS/password |
| Openfire | Administration Console | http://<server.domain>:9090  https://<server.domain>:9091 | admin/<what you specified during the installation> |
| Portal | To sign in as the site administrator | http://<server.domain> | admin/esri.agp |
|  | To sign in as various users |  | Password is same as user name. |