Cross Directorate Services

Johnson Space Center

Abstract

This document steps through the procedure of setting up and installing the NASA Solutions Mechanism Guide web application.

NASA Solutions Mechanism Guide (SMG) InstalLation

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# Personnel Needed

* Microsoft Windows Systems Administrator or Server Administrator

# Minimum System Requirements

* Windows Server 2012 R2 64bit
* 4 GB of system memory
* Dual core or Two processors
* Internet access
* 50 GB Hard Drive (C:\) for OS
* 40 GB Hard Drive (W:\) for SMG website and SQL database

# Application Technologies

* Windows Server 2012 R2
* GraphicMagic – Version 1.3.21-Q16-win64
* IISnode – Version 0.2.18x64
* Node.js – Version 0.10.43
* MySQL – Version 5.7.11.0
* URL-Rewrite – Version 2.0 x64

# Prerequisites

* Server 2012 R2 64bit with updates installed
* NOCA Certificate for SMG Website (Obtain after SMG build)
* NASA Server 2012 R2 Security Benchmark applied
* Two static IP’s for server and website
* DNS for server and DNS for the SMG website
* Server joined to the Domain
* Recommend using Wordpad for editing

# User Accounts

There needs to be an account created with rights to run SMG in IIS. Create a user ``smg-iis`` with a password of 14 or more charters to follow NASA security standards. Check the User cannot change password and Password does not expire options. Deny the user Remote Access and add the user to the Administrators group.

# IIS Installation

Open server manager

1. Select manage,
2. Click Add Roles and Features.
3. Click next until you get to the add Role Services section.
4. Then select the following IIS features and install.
   * Security
     + URL Authorization
     + Windows Authentication
   * Expand Application Development
     + .NET Extensibility 3.5
     + .NET Extensibility 4.5
     + Application Initialization
     + ASP
     + ASP.NET 3.5
     + ASP.NET 4.5
     + ISAPI Extensions
     + ISAPI Filters
     + Server Side Includes
     + WebSocket Protocol

# IIS system configuration file

Open the applicationHost.config file, located here:

%windir%\system32\inetsrv\config\applicationHost.config

Edit the "handlers" section (under <sectionGroup name =”system.webServer”>)

* Change this line: <section name="handlers" overrideModeDefault="Deny" />

To: <section name="handlers" overrideModeDefault="Allow" />

Edit the "authentication" section group

* Change this line: <section name="anonymousAuthentication" overrideModeDefault="Deny" />

To: <section name="anonymousAuthentication" overrideModeDefault="Allow" />

* Change this line: <section name="windowsAuthentication" overrideModeDefault="Deny" />

To: <section name="windowsAuthentication" overrideModeDefault="Allow" />

Save the file

# Windows Update

Run Windows Update to install patches for the new roles and features that were just installed

Reboot the server

# Graphic Magic Installation

Download the GraphicMagic x64 application from the following link

<https://sourceforge.net/projects/graphicsmagick/files/graphicsmagick-binaries/1.3.21/>

Download version 1.3.21-Q16-win64. This version is known to work for this SMG installation, newer versions may work but have not been tested.

Run the installer and Install the software to W:\GraphicMagick.

After the install Run the command ``gm`` from the command prompt to test that GraphicMagic is working.

# URL-Rewrite Installation

Download URL Rewrite version 2.0 x64 from the following link (located at the bottom of the web page under Download URL Rewrite Module 2.0)

<http://www.iis.net/downloads/microsoft/url-rewrite>

Run the installer to install the software using default settings.

# Node.js Installation

Download node.js version 0.10.43 from the following link

<https://nodejs.org/en/download/releases/>

Node.js v0.10.43 is the version known to work for this SMG installation. Newer versions were tried with no success due to the older code for SMG.

Run the installer and Install the software to W:\nodejs.

# IISnode Installation

Download iisnode for IIS, version 0.2.18x64, from the following link (located under Installing for IIS 7.x/8.x)

<https://github.com/tjanczuk/iisnode>

IISnode version 0.2.18x64 is the version known to work for this SMG installation, newer versions may work but have not been tested

* Run the installer to install the software.
* After the software is installed copy the iisnode folder from ``C:\Program Files\`` to ``W:\``.
* To set up samples, from the administrative command prompt run the following command. ``W:\iisnode\setupsamples.bat`` Press Enter and then Enter again.
* Restart IIS by running the command ``iisreset``
* Browse to <http://localhost/node>
  + Make Sure that the helloworld and hello.js endpoints are working.

# MySQL Installation

Download the MySQL installer, version 5.7.11 from the following link (read notes on web page to select correct installer). Scroll down and click No thanks, just start my download.

<http://dev.mysql.com/downloads/installer/>

Version 5.7.11.0 was used in this SMG installation newer versions may work but have not been tested.

During the install a password will need to be created for the root user. The password needs to be 14 characters or longer to satisfy the NASA IT security policy.

Accept the defaults except for the following

* Select Server only
* Config Type: Select server machine
* Set the root password you created earlier

# MySQL Database and User Setup

A database user needs to be created for the SMG application to connect to the SQL database. The password needs to be 14 characters or longer per NASA IT security policy. Replace the *new\_password* with the password that you create.

Open command prompt as an administrator and run the following commands.

* ``set path=%PATH%;C:\Program Files\MySQL\MySQL Server 5.7\bin;``
* ``mysql -u root -p``
* ``CREATE DATABASE nasasmg;``
* ``USE nasasmg;``
* ``CREATE USER 'smguser'@'localhost' IDENTIFIED BY '*new\_password*';``
* ``GRANT ALL ON nasasmg.\* TO 'smguser'@'localhost';``
* ``exit``

# SMG Installation

Download the SMG software from the following link (select Download Zip)

<https://github.com/NASA-Tournament-Lab/NTL-Solution-Mechanism-Guide>

* Right click the folder NTL-Solution-Mechanism-Guide-master
* Select Extract All…
* Click Extract
* On the window that pops up after the extraction is complete select the folder NTL-Solution-Mechanism-Guide-master
* Rename NTL-Solution-Mechanism-Guide-master to nasa-smg.
* Copy the nasa-smg folder to ``W:\iisnode\www``

Open up command prompt as an Administrator

* Type ``W:`` to change to the W:\ drive
* Change to the nasa-smg folder by using this command ``cd \iisnode\www\nasa-smg``
* Type ``..\..\..\nodejs\npm install`` to install the smg software
* Restart IIS by ``iisreset``

# SMG IIS Setup

* Open the IIS Manager
* Expand Computer Name
* Right click on “Sites” and click “Add Website”
* Set the name to smg, choose physical path (W:\iisnode\www\nasa-smg) and set the ip to the website IP and port 80.
* Click Connect As… button and enter the smg-iis userid and password you created earlier.

# Web.config setup

Edit the web.config file at ``W:\iisnode\www\nasa-smg. Find the section under “appSettings”

* Change the Database name (db\_name) from nasa-smg to nasasmg
* Change MySQL login (db\_user) from root to smguser
* Change MySQL password (db\_password) from “” to the ‘*new\_password*’ that you set in the MySQL Database and User Setup section
* Save the file and exit

# env\_sample.bat Setup

Edit the env\_sample.bat file at ``W:\iisnode\www\nasa-smg.

* Change the Database name (db\_name) from nasa-smg to nasasmg
* Change MySQL login (db\_user) from root to smguser
* Change MySQL password (db\_password) from 1234 to the ‘*new\_password*’ that you set in the MySQL Database and User Setup section
* Save the file and exit

# SMG Database Setup

Open a command prompt as Administrator

Change to the smg install location

* Type ``W:`` to change to the W:\ drive
* Change to the nasa-smg folder by using this command ``cd \iisnode\www\nasa-smg``
* Run the ``env\_sample.bat`` file to set environment variables needed to set up the database.
* Run the script to create the database ``..\..\..\nodejs\node.exe resetDb.js``
* Run the script to install the tables ``..\..\..\nodejs\node.exe generateRealFrontendData.js

# SMG Login

You can view the site at http://``SiteDnsName``/, to access admin portal use http://`` SiteDnsName``/admin/smg

# Manage Authorization and Users

Open IIS

Select the application from left side panel

On the main panel, navigate down to "IIS" section and right click on "Authorization Rules" then click "Open Feature"

Current settings that it allows all users to do "GET" call to the SMG API, and give full access to users with "Administrators" role. Users with "Administrators" role can access http://”SiteDNSName”/admin/smg

You can add other rule to allow other groups to get full access to manage the API, when adding a rule or editing "Administrators" rule you will use only two options, either to specify a group or a role, or specify set of users.

# Assign a Windows User or Group to a Role

Follow this documentation <http://technet.microsoft.com/en-us/library/cc731411.aspx>

# Mapping between $ legend and SMG cost characteristics values

Since cost characteristics values might change in database, we added a new configuration section under Admin portal (Configuration tab) i.e. http://:/admin/help#configuration . The section will list current cost characteristics values, and next to each value there is a drop down that contains three values $, $$ and $$$. By default all values are mapped to single dollar sign legend. When you are done with mapping, make sure to save changes.

# Mapping between time legend and SMG cost characteristics values

Similar to $ mapping. You can map characteristic value to Low, Med or High. By default all values are mapped to Low.