Insights Foundation for Energy
Version 1.6.0

Installing IBM Insights Foundation for Energy

IBM

Product Information

This document applies to Industry Solutions Insights Foundation for Energy Version 1.6.0 and may also apply to subsequent releases.

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Contents

Chapter 1. Preparing for the solution

This guide gives instruction to install IBM® Insights Foundation for Energy V1.6.0 for Asset Health and for Connectivity Model.

Asset Health and Connectivity Model are separate applications that are installed as part of IBM Insights Foundation for Energy, you do not need to install both if one application is not required.

IBM Insights Foundation for Energy is installed on Predictive Maintenance and Quality v2.5.3. The order of installation is:

1. Predictive Maintenance and Quality v2.5.3.

   Attention: Predictive Maintenance and Quality v2.5.3 has a hot fix. If you apply the hot fix, do not install the Predictive Maintenance and Quality APAR that is part of the download package.

2. IBM Insights Foundation for Energy v1.6.0. The Asset Health and Connectivity Model applications are part of IBM Insights Foundation for Energy.

This guide gives the necessary links and instruction to do a complete installation.

Installing Predictive Maintenance and Quality for Insights Foundation for Energy

Predictive Maintenance and Quality is the foundation on which IBM Insights Foundation for Energy is installed.

The links to the installation procedures are:

1. Description of Predictive Maintenance and Quality on a multiple server configuration.
2. Software and Hardware prerequisites and installation planning..
3. Installing the Predictive Maintenance and Quality servers.
4. Installing the Predictive Maintenance and Quality server artifacts.
5. Installing the artifact for a deployment that contains an Oracle Database.
6. Starting and stopping the solution software services.

Removing artifacts

You must clean the client artifacts and remove the solution installer from every computer that has IBM Predictive Maintenance and Quality installed.

Procedure

Do the steps in the link, http://www.ibm.com/support/knowledgecenter/en/ SSTNNL_2.5.2/com.ibm.swg.ba.cognos.pmq_installation_guide.2.5.2.doc/ t_inst_pmq_uninstallthesolutioninstaller.html

Checking that a Java instance is present on each server

Java™ Runtime Environment must be available on each server that is used by IBM Insights Foundation for Energy.

About this task

You must check that Java Runtime Environment is available for each of the servers used by IBM Insights Foundation for Energy.

The nodes are:
- DB node - data node
- ANA node - Predictive Analytics node
- IIB node - Integration Bus node
- BI node - Business Intelligence node

Procedure

1. Make sure that Java Runtime is available. On each node, type the command to check that Java Runtime Environment is available:

   ```
   ls /usr/bin | grep java
   ```

   If present, the command returns the version of Java Runtime Environment that is on the server, if the /usr/bin/java doesn't work the installation will fail. If Java Runtime Environment is not present, then do these steps.

2. On the DB node, type in the command:

   ```
   ln -s /opt/ibm/db2/V10.5/java/jdk64/jre/bin/java
   /usr/bin/java
   ```

   Note: `/opt/ibm/db2/V10.5` is the default install path. Change the path to the actual path used if different.

3. On the ANA node, type in the command:

   ```
   ln -s 'find / -name jre_* | grep InstallationManager/eclipse'/jre/bin/java
   /usr/bin/java
   ```

4. On the IIB node, type in the command:

   ```
   ln -s 'find / -name jre_* | grep InstallationManager/eclipse'/jre/bin/java
   /usr/bin/java
   ```

5. On the BI node, type in the command:

   ```
   ln -s /opt/ibm/cognos/analytics/jre/bin/java
   /usr/bin/java
   ```

   Note: `/opt/ibm/cognos/analytics/` is the default install path. Change the path to the actual path used if different.

Start the services for IBM Preventative Maintenance and Quality

You must start the services for IBM Preventative Maintenance and Quality.

Procedure

1. Open the link, and start the solution services on all the nodes, http://www.ibm.com/support/knowledgecenter/SSTNNL_2.5.3/ com.ibm.swg.ba.cognos.pmq_installation_guide.2.5.3.doc/ c_inst_pmq_startsolutionservices.html.

2. Do the preparation for the Asset Health or the Connectivity Model application of Insights Foundation for Energy.

Preparing for the Asset Health application

IBM® Insights Foundation for Energy with the asset health application is installed on a four server configuration.

Each of the four servers must satisfy minimum hardware requirements. The minimum requirements for the four servers that are used by IBM Insights Foundation for Energy are shown in Table 1.

IIB node
> The Installation Integration Bus server where the WebSphere Liberty server and IBM HTTP servers are installed.

BI node
> The business intelligence server where IBM Cognos Analytics is installed.

ANA node
> The analytic server where IBM Insights Foundation for Energy and the Asset Health application are installed.

DB node
> The database server where the Common Information Model and Asset Health databases are installed.

Table 1. Minimum server hardware requirements for the asset health application

Resource	IIB node	BI node	ANA node	DB node
Disc space	500 GB	500 GB	500 GB	500 GB
Memory	8 GB	8 GB	8 GB	8 GB
Processor CPU	4	4	4	4

If you are installing the Asset Health application, on the ANA server where IBM SPSS is installed, you must also install Model Batch and also update the IBM DB2 client.

Updating the IBM DB2 clients

If IBM SPSS® is installed on the analytic server, you must update the IBM DB2® client for IBM Insights Foundation for Energy.

Procedure

1. Get the IBM DB2 installation image from PMQ Server installer:
   `/media/PMQ_2.5.3_linux/SolutionInstaller/NodeRoot/Downloads/Software/DB2/v10.5fp6_linuxx64_server_t.tar.gz`

   You can also get the IBM DB2 image from the server `PMQ_253_part1.tar.gz` package.
2. Copy the DB2 installation image onto the analytic server media directory: `/media`.
3. Extract the package.
4. Run the `db2setup` command in the `server_t` folder that is extracted from the package.
5. On the DB2 setup launchpad, select **Install a product** > **IBM Data Server Client Version 10.5 Fix Pack 6**, click **Work with Existing**, select the existing DB2 Copy under **/opt/ibm/db2/V10.5 by default**, and then launch the DB2 setup wizard.
6. Click **Next** to apply the default setting until Step 5 in the launchpad, then select **Configure new function for an existing DB2 instance**, and select the instance name: **db2inst1 by default**, and click **Next**.

7. Click **Finish** to start the installation.

Installing the IBM SPSS Modeler Batch

IBM SPSS Modeler Batch enables long-running and repetitive tasks to be performed without user intervention. It supports the complete analytical capabilities of SPSS Modeler without accessing the regular user interface.

Procedure

1. Get IBM SPSS Modeler Batch from the server package in `PMQ_2.5.3_part3.tar.gz` in `SPSS_Modeler_Server/Batch/` `spss_mod_btch_18.0_Lx86_ml.bin` file, and upload it to the analytic server.

2. Locate the directory where the install package is located and run the following command:

```
chmod +x spss_mod_btch_18.0_Lx86_ml.bin
  ./spss_mod_btch_18.0_Lx86_ml.bin
```

3. Change the location to where Modeler Batch is installed to `/opt/IBM/SPSS/ModelerBatch/18.0` and accept all other default settings.

4. Note the path where Modeler Batch is installed, because the same location is used for the Asset Health installation.

   Note: This location will also be used for the Asset Health installation.

Preparing for the Connectivity Model application

If you plan to install the Connectivity Model application, you must install IBM Open Platform and create user groups.

IBM Open Platform must be installed on additional servers specific for IBM Open Platform. Different topologies can be chosen according to the requirement.

The supported operating system is 6.5 or higher with a `/root` disk space of at least 250GB for each server. If the database is large, more disk space is required.

You must install the following services:
- HDFS
- MapReduce2
- YARN
- Hive
- HBase
- Pig
- Sqoop
- ZooKeeper
- Spark

The suggested IBM Open Platform topology is a six node environment, one Ambari server, two management servers and three data base or slave servers.

The following table lists the configuration requirements for a six-node topology:

Table 2. The configuration requirements for six node topology

Server	Disk space	RAM	Number of CPU Cores
Ambari	400 GB	16 GB	4

Table 2. The configuration requirements for six node topology (continued)

Server	Disk space	RAM	Number of CPU Cores
Management	1 TB	48 GB	16
Slave	1 TB	32 GB	8

The configuration for a single node configuration is 250 GB disk space, 32GB RAM, and 8 CPU cores.

Configuring password-less SSH connections for IBM Open Platform

You set password-less SSH connections between the Ambari server host and all other cluster hosts so that the Ambari server can install the Ambari agent automatically on each host.

Procedure

1. Log in to the Ambari server as root or a user with root privileges.
2. On the Ambari server host, generate the public and private SSH keys by using the following command:

   `ssh-keygen`
3. When you are asked to enter a passphrase, click the Enter key to make sure the passphrase is empty.

   Note: If you do not make sure the passphrase is empty, the host registration at Ambari fails with the following error: .

   Permission denied (publickey,gssapi-keyex,gssapi-with-mic,password).
4. Copy the SSH public key that is in the `id_rsa.pub` file to the root account on the IBM Open Platform cluster hosts by using the following command where hostname01 is the Ambari server host:

   ```
   ssh-copy-id -i ~/.ssh/id_rsa.pub root@hostname01
   ssh-copy-id -i ~/.ssh/id_rsa.pub root@hostname02
   ssh-copy-id -i ~/.ssh/id_rsa.pub root@hostname03
   ```
5. Ensure that the permissions on your `.ssh` directory are set to 700 and the permissions on the `authorized_keys` file in that directory are set to either 600 or 640.
6. From the Ambari server host, connect to each host in the cluster using SSH. For example, enter the following command:

   `ssh root@abc.com`
7. If you are prompted to continue, enter **Yes** to continue.
8. Save a copy of the SSH private key (id_rsa) on the machine where you will run the Ambari installation wizard. The file is in `$HOME/.ssh/`, by default.
9. Run the following commands in succession to disable the firewall (iptables) on all nodes in your cluster.

   ```
   chkconfig iptables off
   /etc/init.d/iptables stop
   ```

   Important:

   Ensure that you are enable the firewall on all nodes in your cluster after installation.

10. For each client node in your cluster, disable the transparent huge pages. To do this, run the following command on each Ambari client node:

```
echo never > /sys/kernel/mm/transparent_hugepage/enabled
```

Because this change is temporary, add the following command to your /etc/rc.local file to run the command automatically when you reboot.

```
if test -f /sys/kernel/mm/transparent_hugepage/enabled; then
    echo never > /sys/kernel/mm/transparent_hugepage/enabled
fi
```

Creating the YUM repository

If the environment has limited access the to the internet, you must create a mirror host.

About this task

The mirror host can be the same as the Ambari server or you can choose a different one. In this task, the Ambari server is used as the mirror server.

Procedure

1. Login to the mirror server.
2. Create an HTTP server. For Apache HTTP daemon, start it by using the following command:

   ```
   apachectl start
   ```

3. Create a directory for your IBM Open Platform repository, such as <document root>/repos. For Apache HTTP daemon with the document root /var/www/html, type the following command:

   ```
   mkdir -p /var/www/html/repos
   ```

4. Obtain the following compressed files for the IBM Open Platform repository.
   - https://ibm-open-platform.ibm.com/repos/Ambari/rhel/6/x86_64/2.1.x/ Updates/2.1.0_Spark-1.5.1/BI-AMBARI-2.1.0-Spark-1.5.1- 20160105_1211.el6.x86_64.tar.gz

   for IBM Open Platform:
   - https://ibm-open-platform.ibm.com/repos/IOP/rhel/6/x86_64/4.1.x/ Updates/4.1.0.0_Spark-1.5.1/IOP-4.1-Spark-1.5.1- 20151210_1028.el6.x86_64.tar.gz

   for IBM Open Platform utilities
   - https://ibm-open-platform.ibm.com/repos/IOP-UTILS/rhel/6/x86_64/1.1/ iop-utils-1.1.0.0.el6.x86_64.tar.gz

5. Extract the IBM Open Platform repository compressed files in the repository directory under document root. For Apache HTTP daemon, type the following commands:

   ```
   cd /var/www/html/repos
       tar xzvf <path to downloaded tarballs>
   ```

6. Test your local repository by browsing to the web directory:

   ```
   http://<your.mirror.web.server>/repo
   ```

   More details can be found here:

   ```
   http://www.ibm.com/support/knowledgecenter/SSPT3X_4.1.0/
   com.ibm.swg.im.infosphere.biginsights.install.doc/doc/
   bi_install_create_mirror_repo.html?lang=en
   ```

Installing the IBM Open Platform

Install the IBM Open Platform to the Ambari server.

Procedure

1. Download the IBM Open Platform repository definition to the Ambari server.
   https://www-01.ibm.com/marketing/iwm/iwm/web/reg/
   download.do?source=iopah4&S_PKG=ov42473&S_TACT=M1610ESW
   &lang=en_US

2. Run the following command on the Ambari server.
   ```
   yum install iop-4.1.0.0-1.el6.x86_64.rpm
   ```

3. If you are using a mirror repository, configure the URL values.

   a. Edit the file `/etc/yum.repos.d/ambari.repo` or the `/etc/zypp/repos.d/ambari.repo`.

   b. Replace the value for the base URL with your mirror URL and replace `<mirror server>` with the actual value. For example:
   ```
   ambari:baseurl=http://<mirrorserver>/repos/Ambari/rhel/6/x86_64/2.1.x/Updates/2.1.0_Spark-
       enabled=1
       gpgcheck=1
   gpgkey=http://<mirrorserver>/repos/Ambari/rhel/6/x86_64/2.1.x/Updates/2.1.0_Spark-1.5.1/BI
       IOP:
   baseurl=http://<mirror server>/repos/IOP/RHEL6/x86_64/4.1-Spark-1.5.1
       IOP-UTILS:
   baseurl=http://<mirror server>/repos/IOP-UTILS/rhel/6/x86_64/1.1
   ```

4. Install the Ambari Server by using the following command:
   ```
   yum install ambari-server
   ```

5. Update the `/var/lib/ambari-server/resources/stacks/BigInsights/4.1/repos/repoinfo.xml` file with the mirror repository URL.

6. Edit the `/etc/ambari-server/conf/ambari.properties` file to use the repository mirror for the `openjdk1.8.url` and `jdk1.7.url` properties.

7. Set up the Ambari server by using the following command:
   ```
   sudo ambari-server setup
   ```

8. Start the Ambari server by using the following command:
   ```
   sudo ambari-server start
   ```

9. Start the Ambari web user interface from a web browser by using the server name with the fully qualified domain name on which you installed the software, and port 8080, for example, enter `redhat6:8080`.

10. Log in to the Ambari server `http://<server-name>:8080` with the default username and password: `admin/admin`. The default username and password is required only for the first login. You can configure users and groups after the first login to the Ambari web interface.

11. On the Welcome page, click **Launch Install Wizard** to complete the service installation:

12. On the Get Started page, type a name for the cluster you want to create. The name cannot contain blank spaces or special characters. Click **Next**.

13. On the Install options page, specify the required host information.

    a. In Target Hosts, add the list of hosts that the Ambari server will manage and the IBM Open Platform with Apache Hadoop software will deploy. Specify one node per line, for example:
    ```
    host1.company.com
    host2.company.com
    host3.company.com
    host4.company.com
    ```
    The host name must be the fully qualified domain name.

    b. On the Host Registration Information page, select one of the two options:
       - Provide your SSH Private Key to automatically register hosts.

- Click **SSH Private Key**. If the root user is installed on the Ambari server, then the private key is in the /root/.ssh/id_rsa file.

    Note: If you installed the Ambari server as a non-root user, then the default private key is in the .ssh directory in the non-root home directory. Click **Choose File** to find the private key file that you installed previously. Copy and paste the key into the text box manually. Click the **Register** and **Confirm** button.

  c. Select and install the service step by step.

What to do next

Complete the steps http://www.ibm.com/support/knowledgecenter/en/ SSPT3X_4.1.0/com.ibm.swg.im.infosphere.biginsights.install.doc/doc/ bi_install_validate_installation.html to verify the IBM® Open Platform with Apache Hadoop installation as the ambari-qa user.

Starting the services
All services must be running before you can install the Connectivity Model application.

Procedure
1. Start the HTTP service on the mirror server.

   ```
   apachectl start
   ```
   or
   ```
   service httpd start
   ```
2. Start the IBM Open Platform services. Log in to the Ambari server http://<server-name>:8080, and navigate to Services from the menu. Click **Action** > **Start All**.
3. Ensure all services are running and there are no alerts.

Creating users and groups for the Connectivity Model on IBM Open Platform

Procedure
1. Navigate to the Insights Foundation for Energy build

   ```
   IFE_SolutionInstaller/NodeRoot/Downloads/Software/IFEConnectivityModelArtifact
   ```
2. Unzip the IFE_CM_Artifact.zip file, and get the scripts from the unzipped bin folder:
   - IOP_createUserGroup.sh
   - IOP_createUtility.sh
   - IOP_test.sh
3. Copy the scripts to the IBM Open Platform management server, for example: /opt/IBM/CM
4. Login in to the IOP Mgmt server.
5. Run the command ,

   ```
   IOP_createUserGroup
   ```

   Note: For example, you can use the following command to create an administration group and an administration user for HDFS.
   The command

```
cd /opt/IBM/CM
chmod a+x IOP_*.sh
./IOP_createUserGroup.sh <ife_admin_group> <ife_admin_user>
```

```
./IOP_createUserGroup.sh ibmife ibmife
```

6. Optional: To create a sample utility. The `ife_admin_group` value is the same as
   the previous step. It will create a utility user with the user name of
   `SampleUitility`.

```
./IOP_test.sh <ife_admin_group>
```

For example:

```
./IOP_test.sh <ibmife>
```

Chapter 2. Installing IBM Insights Foundation for Energy

IBM Insights Foundation for Energy has two separately installable applications: Connectivity Model and Asset Health. You install the application according to your requirements.

Installing Foundation for Energy for the Asset Health application

Servers for IBM Insights Foundation for Energy must be set up for the Asset Health application.

About this task

Insights Foundation for Energy with the Asset Health application is installed in a four server configuration.

Procedure

1. In the `IFE_SolutionInstaller` directory where you decompressed the solution installer files enter the following command:

   `sh setup.sh`

2. Open a web browser on another computer, and open the solution installer in a web browser by using the following URL: https://*servername*:8080/UI/index.html.

   where *servername* is the name of the computer or IP address from where the solution installer was run.

3. Accept the licence notice.

4. On the welcome page, click **New Configuration**.

5. From the **Mandatory Software** list, drag the **Node** object to the Configuration Editor pane. If you have a four sever configuration, drag the Node object four times, one for each server. If you have a single server configuration, you need to drag the **Node** object only once.

6. Select each **Node** object and in the Property Editor pane complete the following information:

   - The name of the node, `IIB node`, `BI node`, `ANA node`, and `DB node` for a four server configuration.
   - The name of the server.
   - The user password.

7. From the **Optional Software** list, drag the **CIM DB** and **Asset Health DB** objects to the **DB node**.

8. Drag the **CIM APP**, **Asset Health APP**, and **IHS Configuration** objects to the **IIB node**.

   By default, the IBM HTTP server is also installed on the IIB node along with Liberty, but if you customize the server install topology, drag the **IHS Configuration** component to the node where the IBM HTTP server installed.

9. Drag the **Asset Health Analysis** object to the **ANA node**.

10. Drag the **Asset Health Cognos Report and ASK** object to the **BI node**.

Configuring the Asset Health parameters for each component

The configuration parameters are described for the Asset Health application in IBM Insights Foundation for Energy.

CIM DB and Asset Health DB

Table 3. Parameters for the database objects

Field	Description	Example value
DB2 instance user	IBM DB2 instance user.	db2inst1

CIM APP

Table 4. Parameters for the CIM Application objects

Field	Description	Example value
Liberty install location	The WebSphere Liberty server location.	/opt/IBM/WebSphere/Liberty

IHS Configuration

Table 5. Parameters for the IHS configuration objects

Field	Description	Default or example value
Cognos® Node Full Host Name	The full host name of the BI server	
IHS install location	The location where the IBM HTTP server is installed.	/opt/IBM/HTTPServer

Asset Health Application

Table 6. Parameters for the Asset Health application objects

Field	Description	Example value
Liberty install location	The install location of the WebSphere Liberty server.	/opt/IBM/WebSphere/Liberty
Data Node Full Host Name	The full host name of the DB Node.	
DB2Port	The value of the IBM DB2 port.	50000
DB2 instance user	The IBM DB2 instance user.	db2inst1
Password of DB2 instance user	The same password used for the IBM DB2 instance user provided during PMQ253 installation.	
Password of Bob, Admin User of Framework	The password used for the Bob user provided during installation.	
ASK Server Full Host Name	Yet to be installed input the BI Node full hostname, because it will be installed on the BI Node.	

Table 6. Parameters for the Asset Health application objects (continued)

Field	Description	Example value
ASK Server HTTP Port Number	Yet to be installed , input the same value you provided for the Asset Health Cognos Report and ASK component.	9080
Analysis Server Full Host Name	The full hostname of the **ANA node**.	

Asset Health Analysis

Table 7. Parameters for the Asset Health Analysis objects

Field	Descripion	Example value
Liberty Node Full Host name	The full host name of the location of the Liberty server.	
Password of Bob, Admin User of Framework	The password used for the Bob user provided during the installation.	
Data Node Full Host Name	The full host name of the database node.	
DB2 Port	The value of the IBM DB2 port.	50000
DB2 instance user	The IBM DB2 instance user.	
DB2 instance user home directory	The home directory of the owner of database instance.	
Password of DB2 instance user	The same password used for the IBM DB2 instance user provided during installation.	
SPSS Model Server user	The user credentials to log in onto the SPSS Model server that runs the SPSS model.	root
SPSS Model Server user password	The user password for the SPSS Model server.	

Asset Health Cognos Report And ASK

Table 8. Parameters for the • Asset Health Cognos Report And ASK objects

Field	Description	Example value
Cognos Install Location	The location of IBM Cognos Analytics.	/opt/ibm/cognos/analytics
Data Node Full Host Name	The full host name of the **DB node**.	
DB2 Port	The value of the IBM DB2 port.	50000
DB2 instance user	The IBM DB2 instance user.	
Password of DB2 instance user	The same password used for the IBM DB2 instance user provided during installation.	

Table 8. Parameters for the • Asset Health Cognos Report And ASK objects (continued)

Field	Description	Example value
Password of Bob, Admin User of Framework	The password used for the Bob user provided during the installation.	
Password of user1, sample user of Framework	Use the password for user 1 provided during the installation.	
Password of user2, sample user of Framework	Use the password for user2 provided during the installation.	
HTTP Port for controller server on Liberty Node	Input the HTTP port value for the controller_server provided during installation. To check the port value, login to the IIB node, and check/opt/IBM/WebSphere/ Liberty/usr/servers/ controller_server/ server.xml	
HTTPS Port for controller server on Liberty Node	Input the HTTP port value for the controller_server provided during installation. To check the port value, login to the IIB node, and check /opt/IBM/WebSphere/ Liberty/usr/servers/ controller_server/ server.xml	
Keystore password for controller server on Liberty Node	Input the keystore password for the controller_server provided during installation.	
Password for admin user of controller server	Input the password for the admin user for the controller_server provided installation.	
Liberty Node Full Host Name	The full host name of the **DB node**	
Specify HTTP Port for Ask Server	Input the HTTP port for the ask_server. Make sure it is not used on **BI node**.	9080

Installing the Connectivity Model application

If you plan to install the Connectivity Model application, the servers for IBM Insights Foundation for Energy must be set up.

About this task

Insights Foundation for Energy with the Connectivity Model is installed on a single server configuration

IIB node

The Installation Integration Bus server where the WebSphere Liberty server and IBM HTTP servers are installed.

After completing the install of the Connectivity Model application, if you get a fail message, you can refer these logs for details.

Installation logs:

You can find the installation log from the Chef UI and in `/opt/IBM/energy/cm/cm_install_<date>_<time>`.logETL related logs: `/home/<utility id>`

Analysis logs:

You can find the analysis logs in `/home/<utility id>`/cm/logs and logs on HDFS/user/`<utility id>`/cm/job

Procedure

1. In the `IFE_SolutionInstaller` directory where you decompressed the solution installer files enter the following command:.

   `sh setup.sh`

2. Open a web browser on another computer, and open the solution installer in a web browser URL: `https://servername:8080/UI/index.html`

   where *servername* is the name of the computer or IP address from where the solution installer was run.

3. Accept the licence notice.

4. On the welcome page click **New Configuration**.

5. From the **Mandatory Software** list, drag the **Node** object to the Configuration Editor pane.

6. Select the **Node** object and in the Property Editor pane complete the following information:

   - The name of the node.
   - The name of the server.
   - The user password.

7. From the Optional Software list, drag the Connectivity Node Artifact and IHS Configuration objects to the IIB node.

   By default, the IBM HTTP server is also installed on the IIB node with the WebSphere Liberty server, but if you customize the server install topology, drag the IHS Configuration component to the node where the IBM HTTP server is installed.

8. After completing the parameters for the Connectivity Model application, click **Validate**, and **Run** to install.

Configuring the Connectivity Model artifact parameters

The configuration parameters are described for the Connectivity Model application in IBM Insights Foundation for Energy.

The parameters that need to be completed for each object from the Optional Software List are described.

Table 9. Parameters for the Connectivity Model artifact

Field	Default or example value	Description
Liberty install location	`/opt/IBM/WebSphere/Liberty`	The WebSphere Liberty server location.

Table 9. Parameters for the Connectivity Model artifact (continued)

Field	Default or example value	Description
HDFS Server		The long hostname for the IBM Open Platform management server.
HDFS Server Port	8020	Input the HDFS port value.
HBASE Server		The long hostname for the IBM Open Platform management server.
HBASE Server Port	2181	Type the value of the HBASE port.
HBASE Server Root	/hbase-unsecure	`Zookeeper.znode.parent` value in the HBase configuration. The value can be found here `http://<Ambari Server>:8080`**Service** > **Hbase** > **Configs** > **Advanced** > **Advanced hbase-site** > **zookeeper.znode.parent**
CM Admin User	ibmife	Must be the same user as the one when running **IOPlatform_createUserGroup** in the section Create Users and Group for the Connectivity Model on IBM Open Platform.
CM Admin Group	ibmife	Must be the same user as the one when running **IOPlatform_createUserGroup** in the section Create Users and Group for the Connectivity Model on IBM Open Platform.
Install Sample Utility	true	Installs the sample utility. Set to *false* if you do not want to install sample utility. The command **IOP_test.sh** in the section Create Users and Group for the Connectivity Model on IBM Open Platform must be run first if you want to install sample utility.

Verifying the installation of the Connectivity Model

You need to verify that the Connectivity Model is correctly installed by starting the IBM Foundation for Energy and making sure the map displays.

Procedure

1. Copy the link `https://<IHS Server>/ibm/pageLoader.jsp?pageId=page_cm` to your browser and make sure the map displays correctly.

2. If you have Sample Utility, click **Select a utility** and the list of utilities show with a map of the corresponding regions.
3. Make sure you enable the firewall on all your nodes after installation.

Chapter 3. Post installation for the Connectivity Model

You can create and initialize other utilities other than the sample utility and install the option for a sample utility.

Create and initialize a utility

To create and initialize utilities other than sample utility.

Procedure

1. Login to the IBM Open Platform management server, and open the directory /opt/IBM/CM and run the file: IOP_createUtility. ./IOP_createUserUtility.sh *<ife_admin_group>* *<utility_id>*

   The *<ife_admin_group>* is the same administration group that you created in Creating users and groups for the Connectivity Model on IBM Open Platform. The *<utility_id>* needs to be identical to the name of the IIB server.

2. Login to the IIB server root and run the commands:

   ```
   cd /opt/IBM/energy/cm
   ./bin/APP_createUtility.sh <utility_id>
   ```

   The *<utility_id>* needs to be identical to the name of the IIB server.

3. On IIB Server, edit /opt/IBM/energy/cm/conf/input.txt file with the format:

   <utility_id>;<admin>;<user1>,<user2>,... where *<utility_Id>* is the utility to access, *<admin>* is the liberty administrator, *<user>* is a liberty standard user, for example:

   ```
   utility1;Bob;user1;user2
   ```

4. Run the command with correct input file name:

   ```
   /opt/IBM/energy/cm/bin/APP_manageUtilityAccess.sh <input.txt>
   ```

What to do next

If you change the administrator or users of the Liberty server, you must do the next task, Install the sample utility make it assessable to the utility.

Install the sample utility

If you set Install Sample Utility to `false` when you ran the Connectivity Model installer, and you want to install the sample utility later you can install the Sample Utility with these steps.

Procedure

1. On the IBM open Platform management server, run the command:

   ```
   ./IOP_test.sh <ife_admin_group>
   ```

   where *<ife_admin_group>* is the administration group you set up in Creating users and groups for the Connectivity Model on IBM Open Platform.

2. On the IIB server, run the command:

   ```
   cd /opt/IBM/energy/cm
   ./bin/APP_test.sh
   ```

Results

You are now able to use the sample utility.

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