IBM Intelligent Operations Center
Version 5 Release 1

Installing the IBM Intelligent Operations Center V5.1 development edition on Linux

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Note
Before using this information and the product it supports, read the information in "Notices" on page 15.

This edition applies to IBM Intelligent Operations Center version 5, release 1, modification 0. This edition applies to all subsequent releases and modifications until otherwise indicated in new editions.

Contents

Installing the development edition on Linux

The following topics describe how to install the IBM® Intelligent Operations Center development edition on a Linux operating system.

About this task

To test IBM Intelligent Operations Center use cases, and to develop new IBM Intelligent Operations Center use cases, use the development environment.

The installation includes a deployment of Eclipse that includes WebSphere® Application Server Liberty Profile and the IBM Intelligent Operations Center application. The installation also requires a supporting DB2® version 10.5 Express-C database to be installed locally. The following components are optional to install:

- *SPSS Modeler Server 17*
- *SPSS Modeler Batch 17*
- *SPSS Data Access Pack 7.1.1*

You must install these components if you use analytics that rely on SPSS®. Each software component has its own file in the package, and they must be installed using their default product installers.

The `IBM_IOC_V5.1_DevEd_Linux_ML.iso` file contains the following components:

- `ibm-java-x86_64-sdk-8.0-1.10.x86_64.rpm` which is the IBM Java™ 8 SDK.
- `ioc51_dev_environment_installation.tar.gz` which contains the following components:
  - IBM Intelligent Operations Center V5.1 workspace.
  - Eclipse.
  - WebSphere Application Server Liberty Profile.
- `SPSS_DATA_ACCESS_PACK_7.1.1_MP_EN.zip` which contains *SPSS Data Access Pack 7.1.1*
- `spss_mod_btch_17.0_Lx86_ml.bin` which contains *SPSS Modeler Batch 17*
- `spss_mod_svr_17.0_lx86_ml.bin` which contains *SPSS Modeler Server 17*
- `v10.5_linuxx64_expc.tar.gz` which contains DB2 version 10.5 Express-C.

The .ISO file is located on the installation media.

Installation updates

Before you start installing IBM Intelligent Operations Center, review the latest installation updates to ensure that you have the most recent version of the installer.

To review the latest installation updates, see the technote at IBM Intelligent Operations Center V5.1 installation updates.

Prerequisites

Ensure that your development system meets the following requirements before you begin installing the IBM Intelligent Operations Center development edition.

Linux

Ensure that Red Hat Enterprise Linux version 6.6 or later is installed.

Java Runtime Environment

Verify the version of Java Runtime Environment that is installed by opening a terminal window and entering the following command:

```
java -version
```

If Java Runtime Environment version 1.7 or version 1.8 is not installed, either install it, or update the installed version, to the correct version from either IBM or Oracle.

Setting up a user and home directory

Create an `ibmadmin` user, which in turn will automatically create a `/home/ibmadmin` directory. Log on as the `ibmadmin` user to extract the installation files, and to run Eclipse.

Configuring the host name and domain name settings

Ensure that the **`HOSTNAME`** value that is defined in the `/etc/sysconfig/network` file is set to the short host name, and that it is not set to the fully qualified host name. For example, set `HOSTNAME=xyz` instead of `HOSTNAME=xyz.yourco.com`.

Verify that the host name, fully qualified host name, and domain name are configured correctly:

1. Enter the following command: `hostname -s`. The verification is successful if the command returns the defined short host name for the server.
2. Enter the following command: `hostname -f`. The verification is successful if the command returns the fully qualified domain and host name for the server.
3. Enter the following command: `hostname -d`. The verification is successful if the command returns the domain name of the server.

Detailed system requirements

For more information about system requirements, see Detailed system requirements for IBM Intelligent Operations Center.

Deploying the installation files

Deploy the IBM Intelligent Operations Center development and runtime components.

Before you begin

Before you start installing IBM Intelligent Operations Center, review the latest installation updates to ensure that you have the most recent version of the installer. See the technote at IBM Intelligent Operations Center V5.1 installation updates.

Ensure that the `ibmadmin` user is created, and that the `/home/ibmadmin` directory exists.

About this task

The `ioc51_dev_environment_installation.tar.gz` file includes Eclipse, the Eclipse workspace, and WebSphere Application Server Liberty Profile run time. Install all three components into the `/home/ibmadmin` directory.

Procedure

1. Log on as the `ibmadmin` user.

2. If you are upgrading a previous version of IBM Intelligent Operations Center, archive the following directories that are in the `/home/ibmadmin` directory.
   - `eclipse`
   - `liberty`
   - `workspaces`

   After you complete the upgrade, you can reapply any updates that you made to the `server.xml` file or other files in the previous installation.
3. Extract the contents of the `ioc51_dev_environment_installation.tar.gz` file into `/home/ibmadmin`.

Installing DB2

Install DB2 version 10.5 Express-C.

About this task

DB2 version 10.5 Express-C is included in the installation package.

Procedure

1. Log on as a root user.
2. Double-click the `v10.5_linuxx64_expc.tar.gz` file to open it with Archive Manager, and extract the contents into a temporary installation directory.
3. To start the DB2 installation wizard, in a terminal window, go to the `expc` product directory and run `./db2setup`.
4. Proceed through the installation wizard and accept the default values, except for the values that are indicated in the following substeps:
   a. In the "Installation type" window, select **Custom**.
   b. In the "Select the features to install" window, in addition to the features that are selected by default, select the following options:
      - Under **Server support**, select **Spatial Extender server support**.
      - Under **Client support**, select **Spatial Extender client**.
   c. In the "Set user information for the DB2 Administration Server" window, enter a password for the `dasusr1` default user. Note the password that you choose because you will need to use it later.
   d. In the "Set user information for the DB2 instance owner" window, for **User name**, enter `db2inst2` and enter a password. Note the password that you choose because you will need to use it later.
   e. In the "Set user information for the fenced user" window, enter a password for the default fenced user.
   f. In the "Configure instance communication and startup" window, you can either accept the default port number of `50000`, or you can specify a port number of your choice. To be consistent with port numbers that are used in IBM Intelligent Operations Center, enter `50002`. Note the port number that you choose.
   g. In the "Set up notifications" window, select **Do not set up your DB2 server to send notifications at this time**.
5. Complete the installation wizard and start the installation.

Installing and configuring SPSS

If you want to run the SPSS-based analytics, install and configure SPSS.

About this task

Install and extract the SPSS files in the following order:

- `spss_mod_svr_17.0_lx86_ml.bin` that contains `SPSS Modeler Server 17`
- `spss_mod_btch_17.0_Lx86_ml.bin` that contains `SPSS Modeler Batch 17`
- `SPSS_DATA_ACCESS_PACK_7.1.1_MP_EN.zip` that contains `SPSS Data Access Pack 7.1.1`

For the SPSS installation, complete the following steps. For further information, see the SPSS Modeler 17.0 Documentation.

Procedure

1. Extract and install Modeler Server. Follow the instructions in the installer, and set the installation directory to the following value:

   `/opt/IBM/SPSS/ModelerServer/17.0`
2. Extract and install Modeler Batch. Follow the instructions in the installer, and set the installation directory to the following value:

   `/opt/IBM/SPSS/ModelerBatch/17.0`
3. Install Data Access Pack. Follow the instructions in the installer, and set the installation directory to the following value:

   `/opt/IBM/SPSS/DataAccessPack/7.1`

   a. If a second installer is not launched automatically, navigate to the `/opt/IBM/SPSS/DataAccessPack/7.1` directory and run `setup` to complete the installation. If the second installer requests an installation directory, set the directory to the following value:

      `/opt/IBM/SPSS/DataAccessPack/7.1`

To create the SPSS ODBC data sources, complete the following steps:

4. Run the `setodbcpath.sh` script in the following directory:

   `/opt/IBM/SPSS/DataAccessPack/7.1`
5. Back up the `odbc.ini` file in the following directory:

   `/opt/IBM/SPSS/DataAccessPack/7.1`
6. Edit the `odbc.ini` file. After the text `TraceDll=/opt/IBM/SPSS/DataAccessPack/7.1/lib/XEtrc27.so`, enter the following content:

```
[IOCDB]
 Driver=/opt/IBM/SPSS/DataAccessPack/7.1/lib/XEdb227.so
 Description=IBM Corp. 7.1 DB2 Wire Protocol
 AccountingInfo=
 AddStringToCreateTable=
 AlternateID=
 AlternateServers=
 ApplicationName=
 ApplicationUsingThreads=1
 AuthenticationMethod=0
 BulkBinaryThreshold=32
 BulkCharacterThreshold=-1
 BulkLoadBatchSize=1024
 BulkLoadFieldDelimiter=
 BulkLoadRecordDelimiter=
 CatalogSchema=
 CharsetFor65535=0
 ClientHostName=
 ClientUser=
 #Collection applies to z/OS and iSeries only
 Collection=
 ConcurrentAccessResolution=0
 ConnectionReset=0
 ConnectionRetryCount=0
 ConnectionRetryDelay=3
```

```
CurrentFuncPath=
#Database applies to DB2 UDB only
Database=IOCDB
DefaultIsolationLevel=1
DynamicSections=1000
EnableBulkLoad=0
EncryptionMethod=0
FailoverGranularity=0
FailoverMode=0
FailoverPreconnect=0
GrantAuthid=PUBLIC
GrantExecute=1
GSSClient=native
HostNameInCertificate=
IpAddress=localhost
KeyPassword=
KeyStore=
KeyStorePassword=
LoadBalanceTimeout=0
LoadBalancing=0
#Location applies to z/OS and iSeries only
Location=
LogonID=
MaxPoolSize=100
MinPoolSize=0
Password=
PackageCollection=NULLID
PackageNamePrefix=DD
PackageOwner=
Pooling=0
ProgramID=
QueryTimeout=0
ReportCodePageConversionErrors=0
TcpPort=50002
TrustStore=
TrustStorePassword=
UseCurrentSchema=0
ValidateServerCertificate=1
WithHold=1
XMLDescribeType=-10

[IOCDATA]
Driver=/opt/IBM/SPSS/DataAccessPack/7.1/lib/XEdb227.so
Description=IBM Corp. 7.1 DB2 Wire Protocol
AccountingInfo=
AddStringToCreateTable=
AlternateID=
AlternateServers=
ApplicationName=
ApplicationUsingThreads=1
AuthenticationMethod=0
BulkBinaryThreshold=32
BulkCharacterThreshold=-1
BulkLoadBatchSize=1024
BulkLoadFieldDelimiter=
BulkLoadRecordDelimiter=
CatalogSchema=
CharsetFor65535=0
ClientHostName=
ClientUser=
#Collection applies to z/OS and iSeries only
Collection=
ConcurrentAccessResolution=0
ConnectionReset=0
ConnectionRetryCount=0
ConnectionRetryDelay=3
CurrentFuncPath=
```

```
#Database applies to DB2 UDB only
Database=IOCDATA
DefaultIsolationLevel=1
DynamicSections=1000
EnableBulkLoad=0
EncryptionMethod=0
FailoverGranularity=0
FailoverMode=0
FailoverPreconnect=0
GrantAuthid=PUBLIC
GrantExecute=1
GSSClient=native
HostNameInCertificate=
IpAddress=localhost
KeyPassword=
KeyStore=
KeyStorePassword=
LoadBalanceTimeout=0
LoadBalancing=0
#Location applies to z/OS and iSeries only
Location=
LogonID=
MaxPoolSize=100
MinPoolSize=0
Password=
PackageCollection=NULLID
PackageNamePrefix=DD
PackageOwner=
Pooling=0
ProgramID=
QueryTimeout=0
ReportCodePageConversionErrors=0
TcpPort=50002
TrustStore=
TrustStorePassword=
UseCurrentSchema=0
ValidateServerCertificate=1
WithHold=1
XMLDescribeType=-10
```

7. Copy the `odbc.ini` file to the following directory:

   `/opt/IBM/SPSS/DataAccessPack/7.1`

   Note: This file defines two new ODBC data sources, *IOCDB* and *IOCDATA*, on *localhost*. If the databases are hosted on different servers, update the IP address and TCP port properties for each data source to point to the appropriate server.

8. In the `/opt/IBM/SPSS/ModelerServer/17.0/bin` directory, enter the following commands:

   ```
   rm -f libspssodbc.so
   ln -s libspssodbc_datadirect.so libspssodbc.so
   ```

9. Edit the `modelersrv.sh` file in the following directory:

   `/opt/IBM/SPSS/ModelerServer/17.0`

   a. Add the following line to the file after the line *SCLEMDNAME=modelersrv_17_0*:

      `. /opt/IBM/SPSS/DataAccessPack/7.1/odbc.sh`

10. Edit the `options.cfg` in the following directory:

    `/opt/IBM/SPSS/ModelerServer/17.0/config`

    a. Set the value of **start_process_as_login_user** to **Y**.

    b. If the model server is already started, stop and restart the server by running the following commands as the *ibmadmin* user from `/opt/IBM/SPSS/ModelerServer/17.0`

       ```
       ./modelersrv.sh stop
       ./modelersrv.sh start
       ./modelersrv.sh list
       ```

Note: Ensure that the *ASKSPSSEnabled* system property is set to `true`. Also, ensure that the ID and password credentials in the *ASKCredentials* system property are correct for your solution.

Creating the IBM Intelligent Operations Center databases

Create the `IOCDB` and `IOCDATA` databases and tables; and populate the tables with configuration and sample data.

About this task

Three database shell scripts are included in the installation files. The shell scripts create the databases by using a set of database DDL and SQL files.

- The `create_db.sh` database shell script creates the `IOCDB` database.
- The `create_datadb.sh` database shell script creates the `IOCDATA` database.
- The `run_i18n.sh` database shell script adds the language translations to the `IOCDB` database. Run this script after you run the two previous scripts.
- If you want to use Integrated Crime Analytics, the `updateIOCDB_db2.sh` database shell script updates the `IOCDB` database.

First, create the `IOCDB` database, and then create the `IOCDATA` database. When you run the shell script, use the user name that you specified for the DB2 instance user during the database installation process; for example, you might have specified the suggested user name, `db2inst2`.

Pipe the output statements to a trace log file to maintain a record of the execution after the script finishes. The script can take several minutes to finish. After the script has finished running, check the log file to ensure that the script completed successfully. You can ignore some errors that are listed in the log file that are expected and benign; for example, some delete statements fail because nothing exists yet to delete. The following list shows the main errors that do require action:

- Failures to create the databases
- Failures to connect to the databases
- Errors that occur while geospatial indexes are being created in the databases
- Hundreds of successive lines of failures to insert into the databases

Two database shell scripts are included in the installation files that, if necessary, you can use to remove the databases:

- The `drop_db.sh` shell script removes the `IOCDB` database.
- The `drop_datadb.sh` shell script removes the `IOCDATA` database.

After you remove the databases, you can re-create them by using the create shell scripts.

Procedure

Create the `IOCDB` database

1. Open a terminal window and enter the following command as the `ibmadmin` user:
   ```
   chmod 755 /home/ibmadmin
   ```
2. Switch users to the DB2 instance user.
3. Go to the `/home/ibmadmin/workspaces/spf/dev_ioc_install/ioc/config/db` directory, which is where the database shell scripts are located.
4. Enter the following command:
   ```
   ./create_db.sh > trace.log
   ```

Create the `IOCDATA` database

5. Enter the following command:
   ```
   ./create_datadb.sh > trace_data.log
   ```

Add the language translations to the database

6. Enter the following command:
   ```
   ./run_i18n.sh > trace_lang.log
   ```

If you want to use Integrated Crime Analytics, configure the database for Integrated Crime Analytics:

7. Go to the /home/ibmadmin/workspaces/spf/ioc_install/ioc/ica/db directory, which is where the database shell scripts are located.
8. Enter the following command:
   ```
   ./updateIOCDB_db2.sh > traceica.log
   ```

Results

If you do not configure the database for Integrated Crime Analytics, you can ignore the following error that occurs in the WebSphere Application Server Liberty Profile console log file when the WebSphere Application Server Liberty Profile server is started:

```
[err] com.ibm.db2.jcc.am.SqlSyntaxErrorException: "CAST.CRIME_MODEL" is
    an undefined name.. SQLCODE=-204, SQLSTATE=42704, DRIVER=3.63.75[err]  at
    com.ibm.db2.jcc.am.fd.a(fd.java:679)[err]  at
    com.ibm.db2.jcc.am.fd.a(fd.java:60)[err]  at
    com.ibm.db2.jcc.am.fd.a(fd.java:127)[err]  at
    com.ibm.db2.jcc.am.yn.c(yn.java:2644)[err]  at
    com.ibm.db2.jcc.am.yn.d(yn.java:2632)[err]  at
    com.ibm.db2.jcc.am.yn.a(yn.java:2097)[err]  at
    com.ibm.db2.jcc.am.zn.a(zn.java:7197)[err]  at
    com.ibm.db2.jcc.t4.cb.h(cb.java:141)[err]  at
    com.ibm.db2.jcc.t4.cb.b(cb.java:41)[err]  at com.ibm.db2.jcc.t4.q.a(q.java:32)[err]
    at com.ibm.db2.jcc.t4.sb.i(sb.java:135)[err]  at
    com.ibm.db2.jcc.am.yn.gb(yn.java:2066)[err]  at
    com.ibm.db2.jcc.am.zn.pc(zn.java:3446)[err]  at
    com.ibm.db2.jcc.am.zn.b(zn.java:4236)[err]  at
    com.ibm.db2.jcc.am.zn.cc(zn.java:720)[err]  at
    com.ibm.db2.jcc.am.zn.executeQuery(zn.java:694)[err]  at
    com.ibm.ws.rsadapter.jdbc.WSJdbcPreparedStatement.executeQuery
     (WSJdbcPreparedStatement.java:552)[err]
    at
    com.ibm.iss.cros.dao.impl.CrimeModelDaoImpl.getAllModels(CrimeModelDaoImpl.java:92)[err]
    at com.ibm.iss.cros.timer.CrimeModelTimer.initializeTimers(CrimeModelTimer.java:95)[err]
    at
    com.ibm.iss.cros.timer.CrimeModelTimer.autoInitializeTimers(CrimeModelTimer.java:75)[err]
    at sun.reflect.NativeMethodAccessorImpl.invoke0(Native Method)[err]  at
    sun.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl.java:95)[err]  at
    sun.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.java:56)[err]
    at java.lang.reflect.Method.invoke(Method.java:620)[err]  at
    com.ibm.ejs.container.interceptors.InterceptorProxy.invokeInterceptor
     (InterceptorProxy.java:206)[err]
    at [internal classes][err]  at
    java.util.concurrent.ThreadPoolExecutor.runWorker(ThreadPoolExecutor.java:1157)[err]  at
    java.util.concurrent.ThreadPoolExecutor$Worker.run(ThreadPoolExecutor.java:627)[err]  at
    java.lang.Thread.run(Thread.java:798)
```

Configuring Eclipse and the WebSphere Application Server Liberty Profile server

After you deploy the IBM Intelligent Operations Center installation files and install DB2, configure Eclipse.

About this task

Note: In the following procedure, change the server configuration on the **Design** tab. Do not edit any settings on the **Source** tab.

Procedure

1. Log on as the `ibmadmin` user.
2. To start Eclipse, in a terminal window, enter the following command:
   `/home/ibmadmin/eclipse/eclipse`
3. At the prompt, select the following workspace: `/home/ibmadmin/workspaces/spf`
4. Configure the server:
   a. In Eclipse, in the Servers view, right-click in any open space and then click **New** > **Server**.
   b. Either enter or select the following values, and then click **Next**:
      - For **Server type**, select **IBM** > **WebSphere Application Server Liberty Profile**.
      - For **Server's host name**, enter `localhost`.
      - For **Server name**, enter `WebSphere Application Server Liberty Profile at localhost`.
   c. Either enter or select the following values, and then click **Next**:
      - For **How do you want to create the runtime environment**, select **Choose an existing installation**.
      - For **Path**, enter `/home/ibmadmin/liberty`.
      - For **JRE**, select **Use default JRE**.
   d. For **Liberty profile server**, select **defaultServer**, and then click **Finish**.
5. Import the IBM Intelligent Operations Center V5.1 development environment projects into the workspace:
   a. In Eclipse, click **File** > **Import** > **General** > **Existing Projects into Workspace**, and then click **Next**.
   b. Select **Select root directory**.
   c. Click **Browse**, and select `/home/ibmadmin/workspaces/spf`. The Projects list shows the available projects.
   d. Click **Select All**.
   e. Under Options and Working Sets, clear all the options.
   f. Click **Finish**.
6. Wait for Eclipse to refresh and build the workspace. This process can take up to 5 minutes.
7. Add the projects to the server:
   a. In Eclipse, in the Servers view, right-click **WebSphere Application Server Liberty Profile** > **Add and Remove**.
   b. Add the following projects to the server:
      - `ica_solution_ear`
      - `ioc_solution_ear`
      - `ioc_theme_ear`
   c. Optional: If you installed SPSS Modeler Server 17, SPSS Modeler Batch 17, and SPSS Data Access Pack 7.1.1, add the `ASK_ear` project to the server.
8. From Eclipse, edit the `/home/ibmadmin/workspaces/spf/dev_ioc_install/ioc/config/liberty/setup.sh` script and modify all the variables to match your environment. Ensure that you update the *DB2_HOSTNAME*, *DB2_PORT*, *DB2_INSTANCE_USER*, and *JAVA_DIR* variables to match the values that you selected when you installed DB2.

```
db2_hostname=localhost
db2_port=50002
db2_instance_user=db2inst2

java_dir=/opt/ibm/java-x86_64-70/jre/bin
```

a. The *java_dir* variable in the `setup.sh` script refers to a Java 7.0 installation location. If the installation uses Java 8.0, update the variable to refer to the Java 8.0 path:

```
java_dir=/opt/ibm/java-x86_64-80/jre/bin
```

9. To run the `setup.sh` script, enter the following commands as the `ibmadmin` user, and ensure that the script has finished running before you proceed to the next step:

```
cd /home/ibmadmin/workspaces/spf/dev_ioc_install/ioc/config/liberty
./setup.sh
```

10. Optional: If you added the `ASK_ear` project to the server, to configure ASK, enter the following commands as a root user:

```
mkdir -p /opt/IBM/ioc/ASK
cp -r /home/ibmadmin/workspaces/spf/ioc_install/ioc/ASK /opt/IBM/ioc
chown ibmadmin:ibmadmin /opt/IBM/ioc/ASK/*
chmod -R 777 /opt/IBM/ioc/ASK
```

11. On the **Servers** tab in the bottom pane, expand **WebSphere Application Server Liberty Profile at localhost**.
12. To open the `server.xml` file, double-click **Server Configuration [server.xml]**.
13. Click the **Design** tab. The **Design** tab is at the bottom of the **Server Configuration: defaultServer (server.xml)** tab.

    Note: Do not edit the XML on the **Source** tab.
14. On the **Design** tab, expand **Server Configuration** > **Data Source: jdbc/ioc**, and then click **DB2 JCC Properties**. Scroll down through the list of properties to locate and update the following value with the value that you configured for your databases:
    - **Password**

      Next to the **Password** field, click **Set**. In the "Set Password" window, enter the password and accept the default encoding method.

      Note: Set the **Password** value and then confirm that the **Port number**, **Server name**, and **User** values are already set correctly.
15. On the **Design** tab, expand **Server Configuration** > **Data Source: jdbc/iocdata**, and then click **DB2 JCC Properties**. Scroll down through the list of properties to locate and update the following value with the value that you configured for your databases:
    - **Password**

      Next to the **Password** field, click **Set**. In the "Set Password" window, enter the password and accept the default encoding method.

      Note: Set the **Password** value and then confirm that the **Port number**, **Server name**, and **User** values are already set correctly.
16. On the **Design** tab, expand **Server Configuration** > **Data Source: DefaultDataSource**, and then click **DB2 JCC Properties**. Scroll down through the list of properties to locate and update the following values with the value that you configured for your databases:
    - **Password**

      Next to the **Password** field, click **Set**. In the "Set Password" window, enter the password and accept the default encoding method.

      Note: Set the **Password** value and then confirm that the **Port number**, **Server name**, and **User** values are already set correctly.

17. To save the server configuration, press CTRL-S. Alternatively, close the **Server Configuration: defaultServer (server.xml)** tab and save the server configuration at the prompt.

    Note: It might take several minutes for the configuration to be saved, during which time Eclipse appears to stop responding.
18. Create the SSL certificate:
    a. In Eclipse, in the Servers view, right-click **WebSphere Application Server Liberty Profile at localhost** > **Utilities** > **Create SSL Certificate.**.
    b. Either enter or select only the following values:
       - For **Keystore password**, enter a password that you will remember.
       - For **Encoding**, select **xor (encode using XOR)**.
    c. Do not select any other options, and click **Finish**.
    d. At the prompt, select **Yes** to overwrite the `key.jks` file.
    e. Click **OK** to close the completion message.

Starting your WebSphere Application Server Liberty Profile server and opening IBM Intelligent Operations Center

Start your WebSphere Application Server Liberty Profile server, and then open IBM Intelligent Operations Center.

Procedure

1. To start the WebSphere Application Server Liberty Profile server, choose one of the following options:
   - In Eclipse, on the **Servers** tab in the bottom pane, right-click **WebSphere Application Server Liberty Profile at localhost** > **Start**.
   - Alternatively, in a terminal window, enter the following command:
     `/home/ibmadmin/liberty/bin/server start defaultServer`
2. Review the console for messages and errors.
3. Open a browser at the following location: `https://localhost:9443/ioc`
4. Log on to IBM Intelligent Operations Center V5.1 with the user name `sysadmin` and the password `us3rpa88`.

   Note: If the Log In window displays the text `null` instead of prompts for your user ID and password, the cause is an issue with the database connection that you configured during the installation. Resolve the database connection issue before you attempt to log on again.
   After you log on, the IBM Intelligent Operations Center V5.1 user interface is displayed. If a map is not configured, a corresponding message is displayed.

What to do next

For information about the sample users that are installed with the solution, and about how to change user passwords, see the Securing the solution topic.

To configure a map, in the navigation menu, click **Administration** > **Configuration Tools** > **Geospatial Maps**. For information about how to configure maps, see Configuring geospatial maps in the product documentation.

If the database has been configured to support Integrated Crime Analytics, you must configure crime analytics data sources before you use Integrated Crime Analytics. For more information, see Configuring crime analytics in the product documentation.

Configuring the JUnit tests on Linux

JUnit tests with sample data are provided that can be used to call some of the IBM Intelligent Operations Center REST APIs. The sample data is information for Round Rock, Texas in the United States of America. You can configure the JUnit tests for either a local server or a remote server on Linux.

Configuring the JUnit tests for a local server on Linux

JUnit tests with sample data are provided that can be used to call some of the IBM Intelligent Operations Center REST APIs. You can configure the JUnit tests for a local server on Linux.

Procedure

1. Run the scripts to create the database on the local server.
2. Start WebSphere Application Server Liberty Profile on the local server.
3. In the Enterprise Explorer view in Eclipse, in the `junit_round_rock_data` project, edit the following file:

   `config.properties`
4. Set *Sysprop.TileServerUrl.value* to the value of your ArcGIS tile server URL.

   Note: Only an Esri ArcGIS XYZ tile server is supported for use with the supplied JUnit tests.
5. Set *KPI.customConnection.host* to the host name for the server.
6. Set *KPI.customConnection.port* to the database server port that is used to access the `IOCDB` database.
7. Set *KPI.customConnection.user* to the database ID that owns the `IOCDB` database.
8. Set *KPI.customConnection.password* to the password for the ID that is configured as the value for *KPI.customConnection.user*.
9. Save your changes and then close the editor.
10. In the Enterprise Explorer view in Eclipse, expand the `junit_round_rock_testsuite_utils` project.
11. Right-click **Create Round Rock Samples on Local.launch** and then click **Run As** > **Create Round Rock Samples on Local**.

Configuring the JUnit tests for a remote server on Linux

JUnit tests with sample data are provided that can be used to call some of the IBM Intelligent Operations Center REST APIs. You can configure the JUnit tests for a remote server on Linux.

Procedure

1. Run the scripts to create the database on the remote database server.
2. Start WebSphere Application Server Liberty Profile on the remote application server.
3. In the Enterprise Explorer view in Eclipse, in the `junit_round_rock_data` project, edit the following file:

   `config.properties`
4. Set *Sysprop.TileServerUrl.value* to the value of your ArcGIS tile server URL.

   Note: Only an Esri ArcGIS XYZ tile server is supported for use with the supplied JUnit tests.
5. Set *KPI.customConnection.host* to the host name for the server.
6. Set *KPI.customConnection.port* to the database server port that is used to access the `IOCDB` database.
7. Set *KPI.customConnection.user* to the database ID that owns the `IOCDB` database.
8. Set *KPI.customConnection.password* to the password for the ID that is configured as the value for *KPI.customConnection.user*.
9. As the *ibmadmin* user, copy the CSV files from the `junit_round_rock_data` project to the following directory on the remote application server:

```
/opt/IBM/ioc/csv
```

10. In Eclipse, click **Run** > **Run Configurations**.
11. Click **JUnit** > **Create Round Rock Samples on Remote**.
12. Click **VM arguments** > **Arguments** and modify the property values for your environment to the following values:

```
-Dioc.hostname=remote.app.server.host.name
-Dioc.port=9443
-Dioc.copy.csv=false
-Dioc.password=the unencrypted system administrator password on the remote application server
```

13. Click **Run**.

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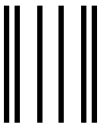

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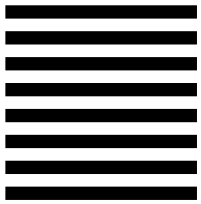

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