IBM Customer Insight for Banking
Version 2.0.0

Solution Guide

IBM

Product Information

This document applies to IBM Customer Insight for Banking and may also apply to subsequent releases.

Contents

Introduction

The IBM Customer Insight for Banking solution gives you the information and insight that you need to provide proactive service to your customers.

Audience

This guide is intended for administrators and users of the IBM Customer Insight for Banking solution. It provides information on installation, configuration, and use of the IBM Customer Insight for Banking solution.

Finding information

To find product documentation on the web, including all translated documentation, access IBM® Knowledge Center (http://www.ibm.com/support/knowledgecenter).

Accessibility features

Accessibility features help users who have a physical disability, such as restricted mobility or limited vision, to use information technology products. Some of the components included in the IBM Customer Insight for Banking have accessibility features. For more information, see Appendix A, "Accessibility features," on page 23.

IBM Customer Insight for Banking HTML documentation has accessibility features. PDF documents are supplemental and, as such, include no added accessibility features.

Forward-looking statements

This documentation describes the current functionality of the product. References to items that are not currently available may be included. No implication of any future availability should be inferred. Any such references are not a commitment, promise, or legal obligation to deliver any material, code, or functionality. The development, release, and timing of features or functionality remain at the sole discretion of IBM.

Samples disclaimer

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Chapter 1. Overview

The IBM Customer Insight for Banking solution provides insights that are generated from analytical models that help banks to plan and deliver programs for growing and retaining customers. The solution enables banks to create personalized experiences for individual customers.

The solution includes an industry-specific data model, dashboard templates, and advanced analytics models. It uses bank customer data, transactional data, interaction data, IBM data, and third-party data.

Scope of the solution

The IBM Customer Insight for Banking solution currently offers the following insights:

- Customer segmentation
- Churn / attrition analysis
- Life event prediction
- Cross-sell propensity analysis
- Customer retention analysis
- Overdraft financial event prediction

Chapter 2. Reports

The IBM Customer Insight for Banking solution provides interactive report pages for exploring your customer base and your individual customers.

The solution provides the following report pages:

• Dashboard
• Dynamic Insights
• Customer List
• Customer Profile

Dashboard

The dashboard is the first page that appears when you sign in to the IBM Customer Insight for Banking solution. It provides insights and identifies opportunities. You can filter your customer base by selecting various criteria.
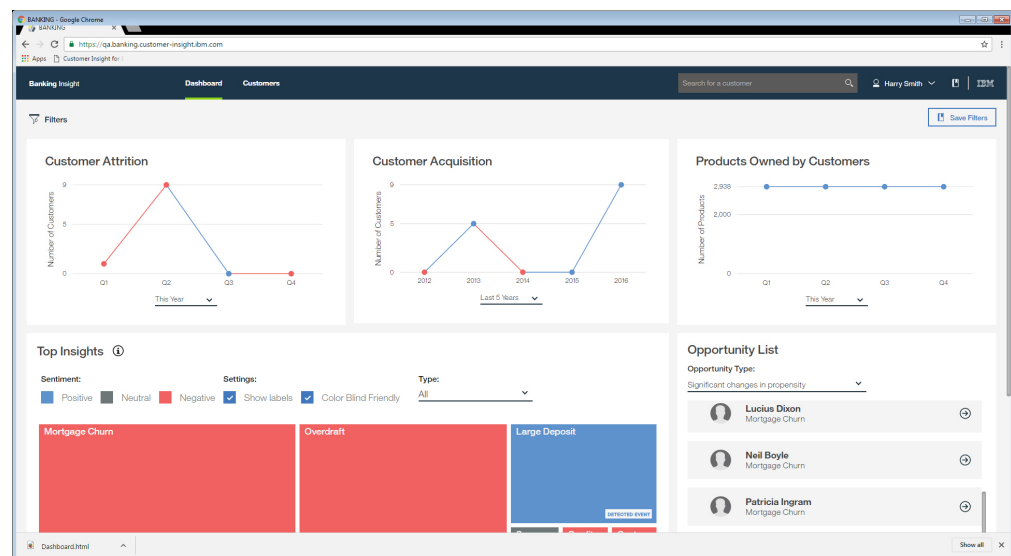
Customer Attrition

The Customer Attrition graph displays the number of customers who have left the bank over the time period that you select for the graph. The scope of the data for this measure is determined by the selections that are made in the Filters pane. When you hover your mouse pointer over a data point on the graph, the percentage change from the previous data point is displayed.

Customer Acquisition

The Customer Acquisition graph displays the number of new customers over the time period that you select for the graph. The scope of the data for this measure is determined by the selections that are made in the filters pane. When you hover your mouse pointer over a data point on the graph, the percentage change from the previous data point is displayed.

Products Owned by Customers

The Products Owned by Customers graph displays the dollar amount of the products that are owned by your clients within the time period that you select. The scope of the data for this measure is determined by the selections that are made in the filters pane. When you hover your mouse pointer over a data point on the graph, the percentage change from the previous data point is displayed.

Top Insights

The Top Insights heat map uses color and size to communicate the most important 10 insights from your data. For example, in the following screen capture, it can be seen that mortgage churn, which has a negative sentiment, is the largest issue that is related to the data.
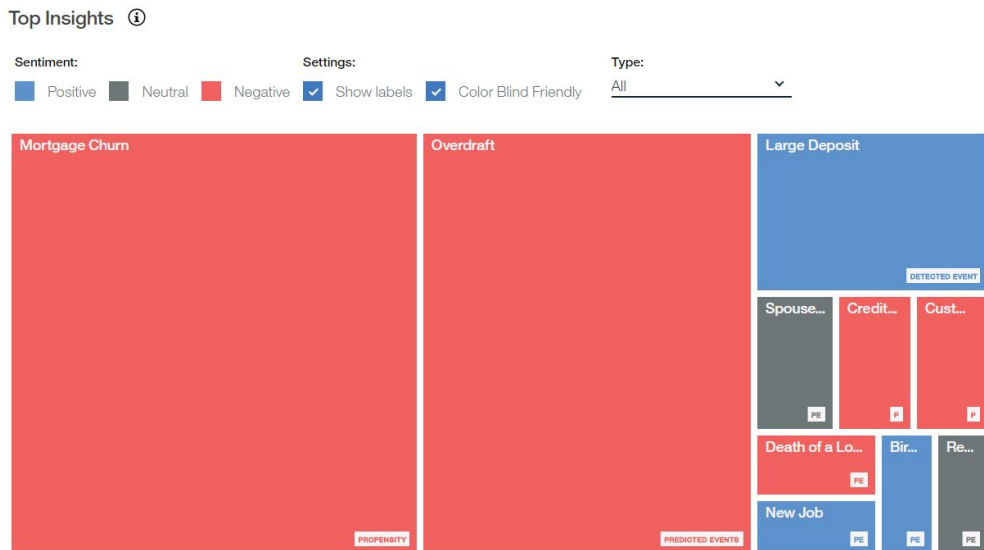
The scope of the data for this measure is determined by the selections that are made in the Filters pane. You can filter your data further by using the **Type** control to include **Predicted Event**, **Propensity**, or **All**. You can choose to hide labels and use color-blind friendly colors.

When you click an area on the chart, a window provides information and links to the dynamic sub-segments and customers that are represented by that area of the chart. For example, the following screen capture shows the menu that is displayed when you click the Mortgage Churn area of the Top Insights chart.
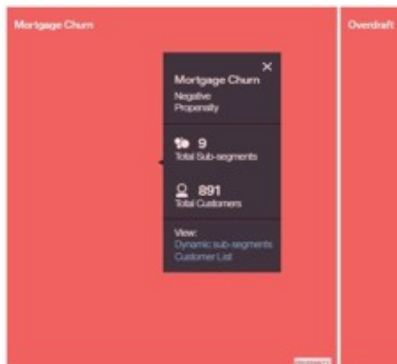
Opportunity List

The Opportunity List shows either customer sub-segments or customers who are related to the option that you choose in the **Opportunity Type** list. The opportunity type options are **Significant changes in propensity**, and **Significant changes in predicted events**. The top 10 customer sub-segments or customers are listed in order of number of significant changes. For example, if **Significant changes in propensity** is selected as the opportunity type, the list shows the sub-segment or customer with the largest number of significant changes first.

If you choose **Customer Sub-segments** in the **Opportunity List** pane, then selecting a sub-segment from the list takes you to the **Customer List** page, which provides a list of the customers in that sub-segment. If you choose **Customers** in the **Opportunity List** pane, then selecting a customer from the list takes you to the **Customer Profile** page for that customer.

Filters

Filters are accessed by clicking the **Filters** icon ![Filters icon]. The filters that you choose determine the data that is analyzed. After you select the filters that you want, click **Apply**.

After you apply a filter or combination of filters, you can save it by clicking **Save Filters**. ![Save Filters button]. Saved filters can be applied by clicking the **Saved Filters** icon ![Saved Filters icon] in the application header.

Filters that are selected are listed across the top of the screen. Filters are accessible from the Dashboard, Dynamic Insights, and Customer List pages.

Search for a Customer

If you know the name or part of the name of a customer who's profile you want to view, you can use the **Search for a Customer** box at the top of the dashboard. Customers who meet the search criteria that you type are displayed, and you can click a customer's name to view the Customer Profile page. The search is not affected by any filters that are selected in the Filters pane.

Dynamic Insights

The IBM Customer Insight for Banking solution uses dynamic segmentation analytics to create real-time types of customers. The Dynamic Insights page provides a visual representation of the number of customers in each segment for the opportunity type and filters that you chose on the Dashboard page.

The Dynamic Insights page is accessed from the Dashboard when you click an area of the **Top Insights** chart and then click **Dynamic sub-segments**.

On the Dynamic Insights page, you can add or remove filters that you applied on the Dashboard page. Dynamic segmentation is based on age, marital status, annual salary, and number of the bank's products that are held. A table beside the visualization indicates the criteria that determines which customers are included in a selected segment.

The following page was accessed by clicking **Mortgage Churn** from the **Top Insights** chart on the Dashboard and selecting **Dynamic sub-segments**. It provides a representation of the segments that have a propensity for mortgage churn. Use the slider to filter the chart by the percentage of propensity. By default the slider is set to 50% when the page is accessed.
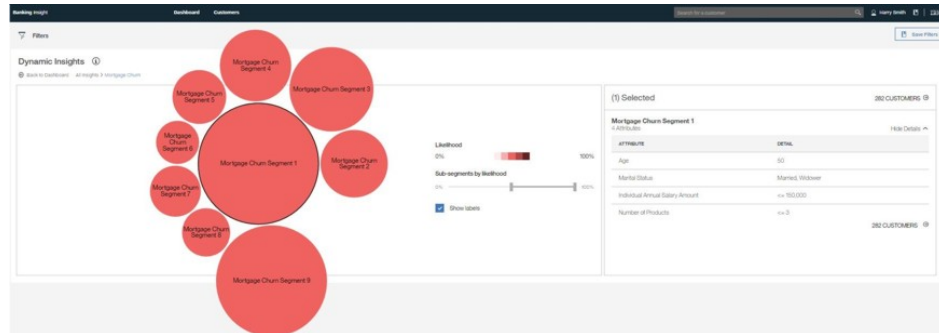
To see the number of customers that are represented by a bubble, hover your mouse pointer over that bubble.

When you select one or more bubbles, a summary of customers in the selected segments is shown in the table. You can select or deselect multiple bubbles by clicking them.

From the table, you can click the number of customers to view the customer list. If more than one bubble is selected, you can view a list of all customers in the selected segments by clicking the number of customers at the top of the table. You can also view a list of only customers for a selected segment by clicking the number of customers beside that segment in the table.

Customer List

The Customer List page provides a list of all customers who meet the criteria that is specified by the filters and segments that were selected on the Dashboard and Dynamic Insights pages.

The Customer List page provides summary information about customers. You can view detailed information for all customers by clicking **Expand All**, or for a single customer by clicking **View Details** for that customer.

You can add or remove filters to this list by clicking the **Filters** icon ⧩ Filters .

If you want to export the list for distribution, you can export it to a .csv file by clicking **Export** [Export] .

To view the Customer Profile page for a customer, click the arrow in the Profile column of the report.

Customer Profile

The Customer Profile page provides details on a selected customer. It helps you to understand a customer's needs before you contact that customer.

The Customer Profile page has the following tabs: Overview, Products, and Cash Flow.

Overview tab

The Overview tab, provides general information about a customer and insights that are related to predicted life events. A chart represents predicted events over future months. You can select a specific insight from the chart to view details.
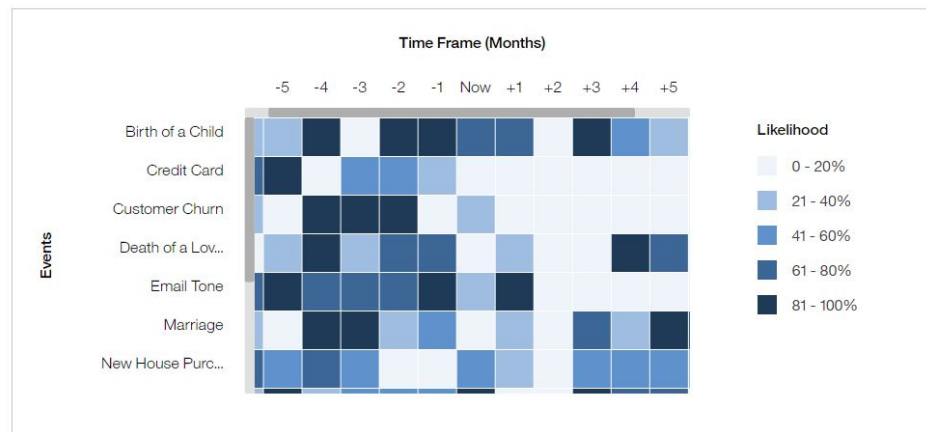
Products tab

The Products tab provides information on the products that are held by the customer along with the customer's propensity to accept cross-sell and up-sell suggestions. This tab provides you with information about products that are held by a client and other products that the client is likely receptive to acquiring.

Cashflow tab

The Cash flow tab provides information on the inflows and outflows from the customers accounts. It indicates how the customer is receiving and spending money. Inflows and outflows for the customer are represented as a bar graph followed by a list of transactions. The tab shows the top three predicted events and a record of any alerts that are related to the customer.

Chapter 3. Installation and configuration

The installation and configuration of the IBM Customer Insight for Banking solution involves downloading the solution package from Passport Advantage, and then configuring the various parts of it within your environment.

The installation of the solution involves the tasks that are shown in the following graphic:
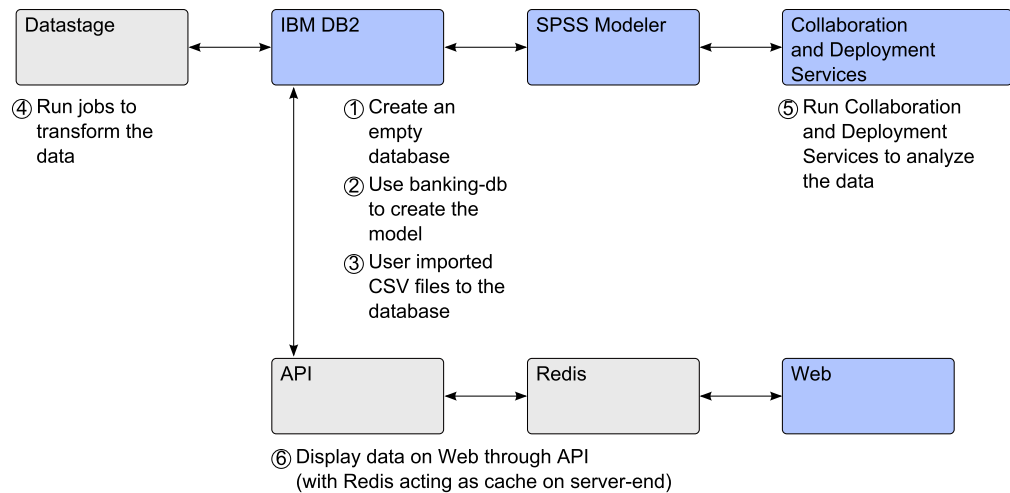
Prerequisites

Before you install the IBM Customer Insight for Banking solution, you must meet several prerequisites.

For more information about prerequisites and supported environments, see the IBM Customer Insight for Banking Supported Software Environments page (www.ibm.com/support/docview.wss?uid=swg27047153).

You must understand your deployment environment. The solution is installed on several nodes, and you must determine where you want the various components of the solution to be placed. You must have administration rights and the ability to copy files between the computers that are used for the solution.

Before you install the solution, the following software must be installed on the server and client computers.

Servers
- IBM DB2 Server 11.1
- Redis 3.2.3
- Nodejs 4.4.4 (for both Web UI and API)
- IBM SPSS Collaboration and Deployment Services Repository Server 7.0.0.1
- IBM SPSS Modeler Gold 17.1
- IBM InfoSphere DataStage Server 11.5

You must be using Security Assertion Markup Language (SAML) for single sign-on (SSO). You can use OpenAM or another provider. You must configure the Web UI component to point to your SSO provider.

Clients
- IBM Data Studio 4.0
- IBM SPSS Collaboration and Deployment Services Deployment Manager 7.0
- SPSS Modeler Premium 17.1
- IBM InfoSphere DataStage Designer 11.5

Contents of the download package

The IBM Customer Insight for Banking package, which you download from Passport Advantage, contains several parts.

The downloads include the following parts:
- API installer
- Web UI installer
- SPSS Streams
- DataStage Jobs

Additionally, downloads are available for the prerequisite software, including
- IBM Predictive Customer Intelligence 1.1.1
- IBM InfoSphere Information Server V11.5.0.1

For more information about downloading the product software, see the download document (www.ibm.com/support/docview.wss?uid=swg24042659).

Deploying the files on the nodes

After you download the IBM Customer Insight for Banking solution package, you must deploy the files to the correct nodes

The packages are provided in bin files. You must copy each bin file to the computer on which you want to run the components. For example, you must run the model creation script on a Linux-based computer which has nodejs installed and has connectivity to the DB2 server.

You must run the bin files to access the script files that you must run.

Procedure
1. Copy the bin files to the computers on which you want to run them.
2. Change the permissions for the bin files so that you can execute them.

   For example, run the following command in a terminal window:

   chmod +x *filename*.bin

   For example, to change the permissions for the API file, run the following command:

   chmod +x API_2.0_Linux_x86_64.bin
3. Run the bin file:

   For example, to run the API bin file, run the following command:

   ./API_2.0_Linux_x86_64.bin

4. Follow the prompts to deploy the `bin` file contents.

   By default. the file contents are deployed to `/root/IBM/Customer_Insight_for_Banking_2.0`.

Creating the physical data model

The API component includes the `banking-db.tar` file, which you use to create the model in a DB2 database that you also create.

If you have an existing database that you intend to use, you don't need to use this topic to create a data model. Instead, go to the topic "Updating an existing data model" on page 12.

You must have nodejs installed on a Linux-based computer where you run the script to create the database model. The computer must have access to the DB2 server.

Procedure

1. In your DB2 database instance, create an empty database that uses page size of 32 K. This database is used as the solution data mart.

   For example, log on to your data node computer, change to the database instance owner, and enter the following command to create a database:

   `db2 CREATE DATABASE DATABASE_NAME AUTOMATIC STORAGE YES USING CODESET UTF-8 TERRITORY US COLLATE USING SYSTEM PAGESIZE 32768`

2. Go to the directory where you deployed `API_2.0_Linux_x86-64_English.bin` contents.

   For example, go to `/root/IBM/Customer_Insight_for_Banking_2.0/API`.

3. Decompress the `banking-db.tar` file.

   For example, enter the following command:

   `tar xvf banking-db.tar`

4. Go to the `banking-db` directory.

5. Open `env.sh` in a text editor.

6. Configure the **database** section to point to the empty database that you created in step 1.

7. Save and close the file.

8. Change the permissions for the `env.sh` file.

   For example, run the following command in a terminal window:

   `chmod +x env.sh`

9. Run `env.sh`. For example, in a terminal window enter `./env.sh`

10. To create the database objects and metadata, run `createmodel.sh`. For example, in a terminal window enter `./createmodel.sh`

11. In the database, verify that the following metadata tables are present and populated:

Table 1.

Metadata table	Row count
ANALYTIC.ANALYTICS_EVENT_DIMENSION	26
ANALYTIC.ANALYTICS_EVENT_TYPE_DIMENSION	6
ANALYTIC.CALENDAR_DATE_DIMENSION	5109

Table 1. (continued)

Metadata table	Row count
ANALYTIC.CASHFLOW_DIMENSION	5
ANALYTIC.CATEGORY_DIMENSION	6
ANALYTIC.LIFESTATE_EVENT_NAME_MAP	8
ANALYTIC.MARKET_SEGMENT_DIMENSION	14
ANALYTIC.TIME_DIMENSION	86400

Updating an existing data model

If you have an existing database that you intend to use, you do not need to create the physical data model in a new database. The installer includes a Model Upgrade feature that you can run to prepare the database.

If you choose not to use an existing database, go to the topic "Creating the physical data model" on page 11.

The API component includes a `banking-upgrader.tar` file, which is used to upgrade the DB2 database.

Procedure

1. Go to the directory where API_2.0_Linux_x86-64_English.bin is deployed
2. Extract the `banking-upgrader.tar` file by using the following command:

   `tar xvf banking-upgrader.tar`
3. In the `banking-upgrader/config` directory, open the `defaults.json` file in a text editor and enter the database information.
4. In the `banking-upgrader` directory, enter the following command:

   `chmod +x upgradeModel.sh`
5. Run the following command:

   `./upgradeModel.sh`

Installing and configuring the API layer

After you create the physical data model, run the DataStage jobs, and load the SPSS project, you can install and configure the API layer. You must deploy the API on a Linux-based computer on which nodejs is installed.

Procedure

1. Go to the directory where you deployed `API_2.0_Linux_x86-64_English.bin` contents.

   For example, go to /root/IBM/Customer_Insight_for_Banking_2.0/API.
2. Decompress the `banking-api.tar` file.

   For example, enter the following command:

   `tar xvf banking-api.tar`
3. Go to the `api` directory.
4. Open `env.sh` in a text editor.
5. Configure the values in the `env.sh` script. By default, SSL is enabled.

   a. Set the port number for the API application to use in the **server** section.

b. Configure the **database** section to point to the database that you created in step 1 "Creating the physical data model" on page 11.

c. Configure the **cache** section to point to your Redis installation.

6. Save and close the file.

7. Run the application:

- Use the following command to run the application in the foreground:

  `source env.sh`

- Use the following command to run the application in the background:

  `nohup node lib/app.js &`

Results

If you are successful, the model is now created and the API is running.

If you need to stop the application, do the following steps:

1. Run the following command: `ps aux`
2. Find the process ID for `node lib/app.js`. There will be two entries if the API and Web UI components are both running on the same computer.
3. Run the following command to end the processes: `sudo kill -9 process_id`

Loading historical data into the analytics data mart

After you create your database and run the scripts in the `banking-db.tar` file, you must load your historical data.

The historical data must be populated in the following database tables:

- **STAGING.ACCOUNT_ARRANGEMENT_STAGING**
- **STAGING.ALERT_STAGING**
- **STAGING.COMMUNICATION_STAGING**
- **STAGING.CONFIGURATION_BUCKETS_STAGING**
- **STAGING.CONTACT_INFORMATION_STAGING**
- **STAGING.CUSTOMER_EDUCATION_STAGING**
- **STAGING.CUSTOMER_STAGING**
- **STAGING.LIFESTATE_EVENT_MAP_STAGING**
- **STAGING.LIFESTATE_EVENTS_STAGING**
- **STAGING.PRODUCT_STAGING**
- **STAGING.TRANSACTION_STAGING**

You can use CSV files to load the historical table, or you can use any other method that you prefer.

Important: Do not modify any other database table.

Transforming the data by using DataStage

You must use DataStage Designer to import the DataStage jobs into the DataStage server and to compile and run the jobs.

Procedure

1. Run the `DataStage_Jobs_2.0_English.bin` installer.
2. Accept the license agreement, and follow the steps to deploy the contents.
3. In DataStage Designer, click **Import** > **DataStage Components (XML)**.
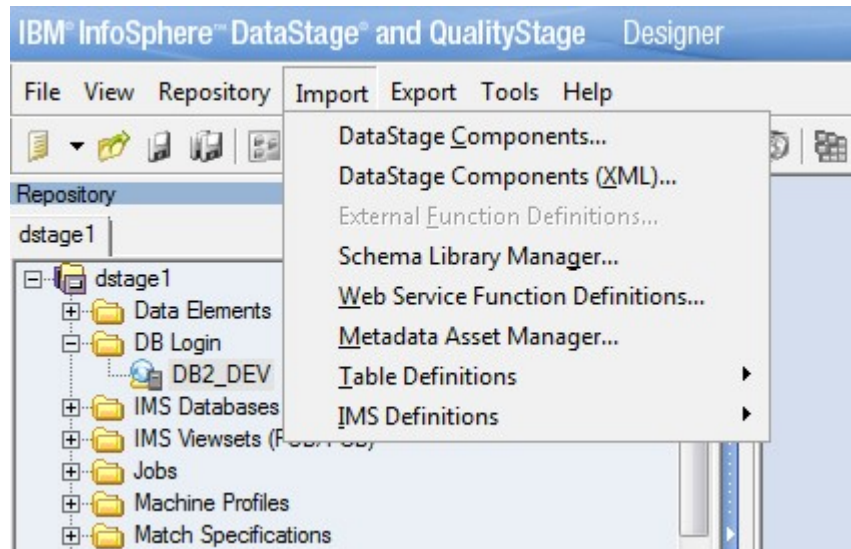
4. Locate the `ds_banking_project.xml` file and click **Import All**.
5. Update the login credentials for the database.
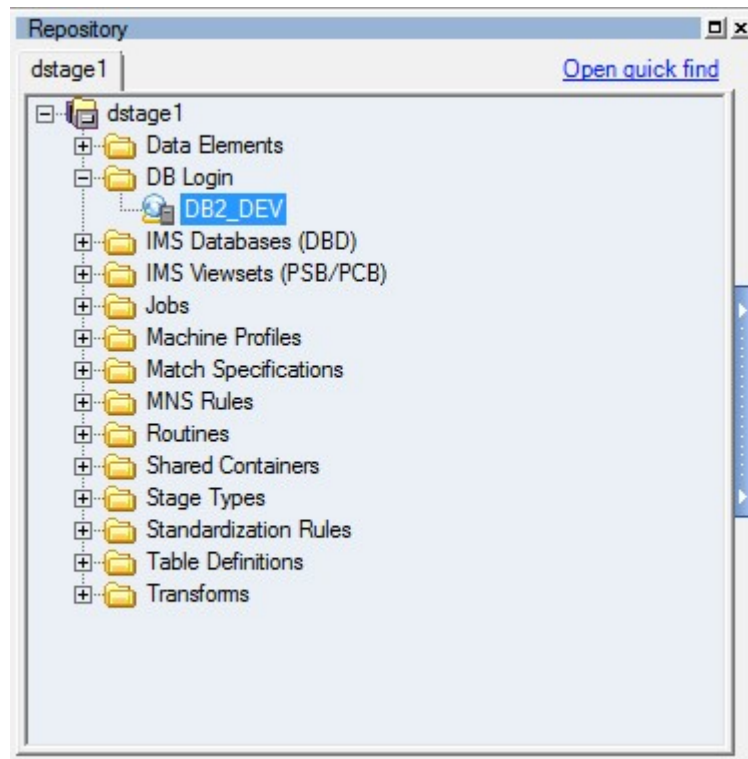
6. Open **DB2_DEV**, and on the **Parameters** tab, modify **ConnectionString**, **Username**, and **Password** to point to the DB2 server, and click **OK**.
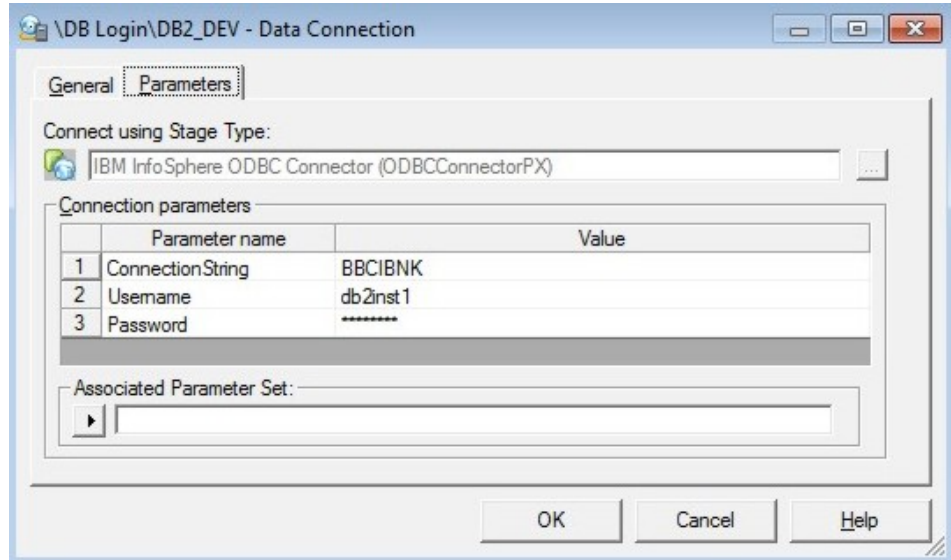
7. Verify that the connection is valid, and open a job such as
   ACCOUNT_ARRANGEMENT_DIMENSION_JOB, as shown in the following screen
   capture.
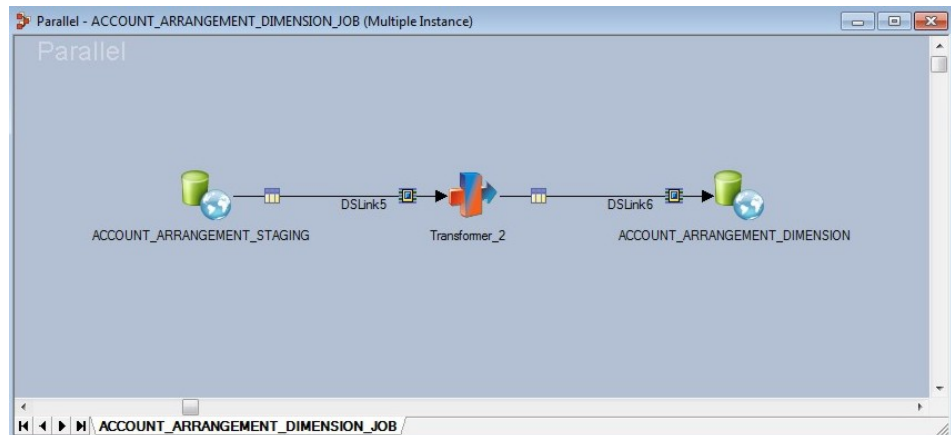
8. Double-click the first node (the **ACCOUNT_ARRANGEMENT_STAGING** node in this
   example).

   The properties window displays the connection properties for the node.
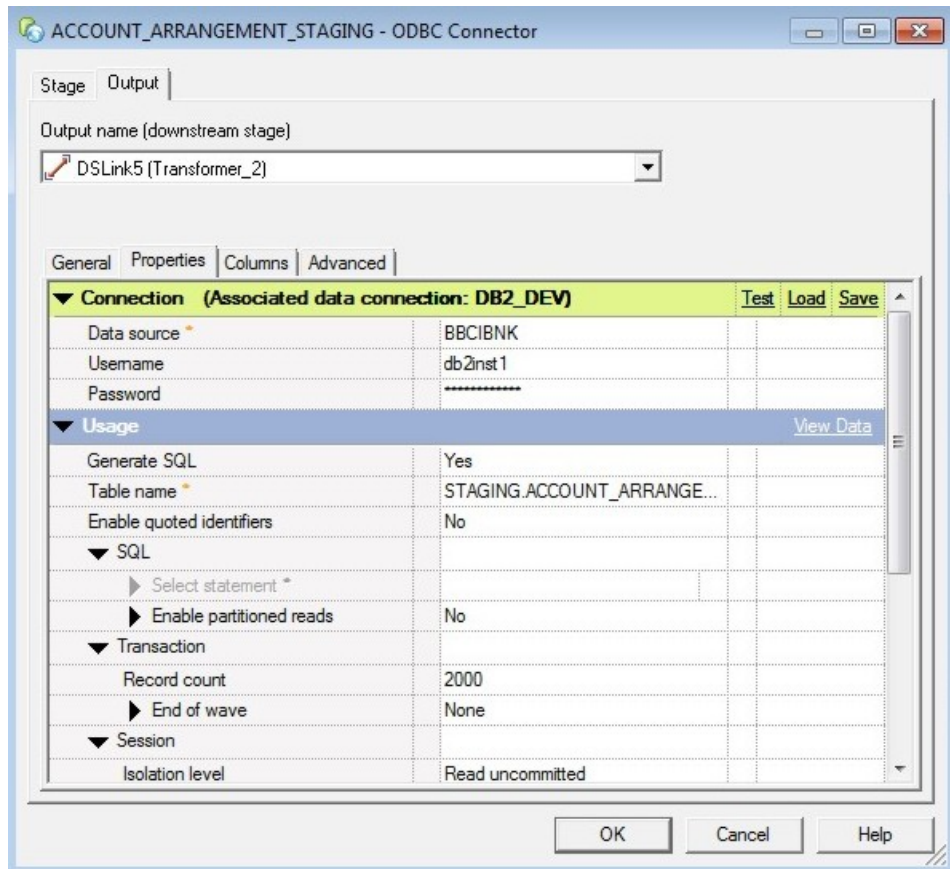
9. To test the database connection of the reconfigured `DB2_DEV` connection property, click **Test**.
10. To compile the DataStage jobs that were updated, click **Tools** > **Multiple Job Compile**.
11. For the **Automatic Selection Criteria**, select the check boxes for **Server**, **Parallel**, **Mainframe**, **Sequence**, **Only select uncompiled jobs**, and **Show Manual Selection Page**, as shown in the following screen capture.
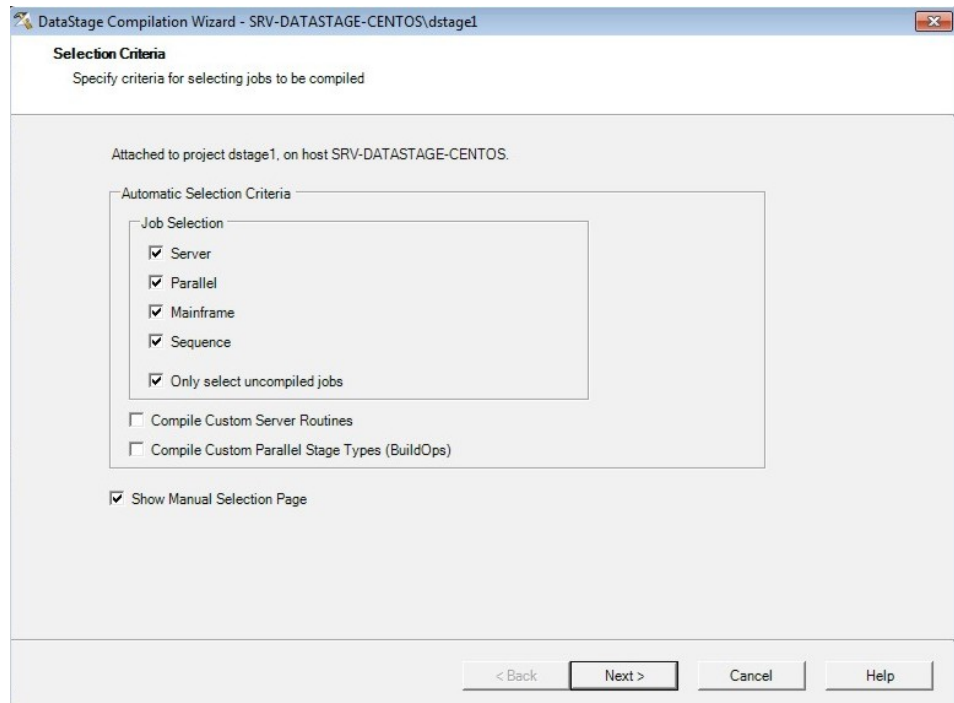
12. On the **Selection Override** page, click **Add All**.
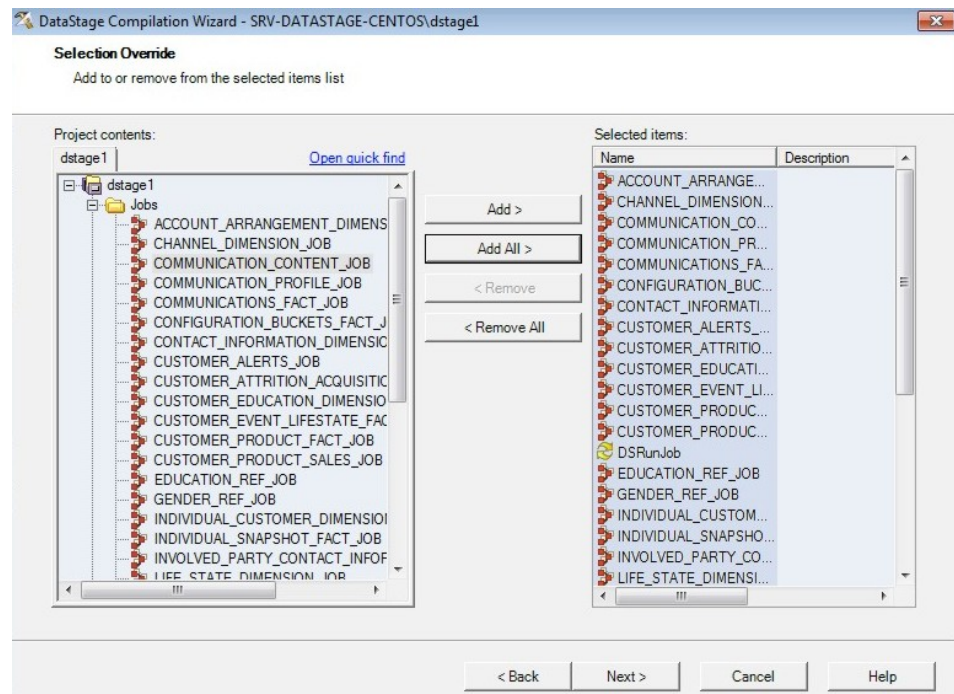
13. On the **Compile Options** page, select the **Force compile** check box, and click **Next**.
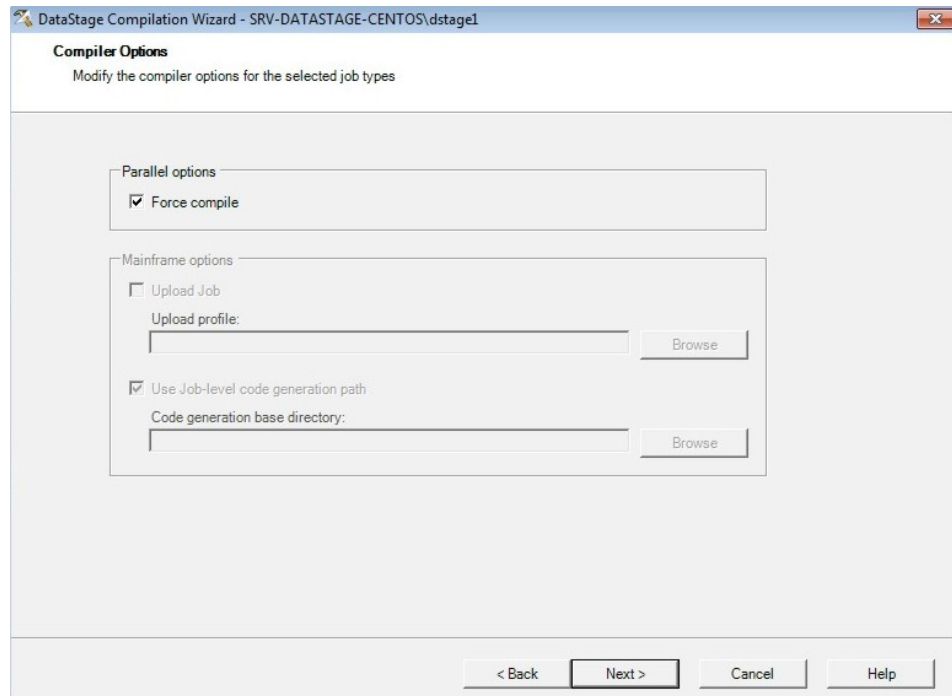
14. Click **Start Compile**.

15. Run the DataStage jobs. To run all jobs, run the job that is named `STAGE_ALL_JOBS`.

IBM SPSS Collaboration and Deployment Services

The IBM Customer Insight for Banking solution uses IBM SPSS Collaboration and Deployment Services to analyze data.

IBM SPSS Collaboration and Deployment Services includes a server-side component that is called Repository Server, and a client-side component that is called Deployment Manager. You use Deployment Manager to interact with the Repository Server.

Repository Server

All the data models that perform analytics on your data sets are saved as files with the .str file extension; they are known as streams. The Repository Server is responsible for storing these streams, in addition to other responsibilities such as managing the execution of the streams. Streams are packaged within jobs, which contain one or more streams. These jobs might contain streams that are run concurrently, and they might also contain streams that are run sequentially if dependencies exist between the streams. When data analysis is performed, the Repository Server does not directly run streams; rather, it runs jobs.

Streams and jobs in the Repository Server are stored within separate directories in a file hierarchy. The project file that is imported when you set up your data analytics project contains several streams and jobs.

Deployment Manager

The Deployment Manager is used to connect to a Repository Server and is the interface that users use to make changes to the Repository Server. Changes to Repository Server include uploading the initial project file and uploading new streams. The Deployment Manager can be used to manually run jobs and view logs of the execution of the jobs, but this is not necessary as the execution of the jobs is automated in the solution.

Importing the SPSS project

You must import a project file into the Repository Server by using the Deployment Manager.

Procedure

1. Ensure that the project file (.pes) is on the computer where IBM SPSS Collaboration and Deployment Services Deployment Manager is installed.
2. In Deployment Manager, click **File** > **New** > **Content Server Connection**.
3. Enter a descriptive name for your Repository Server connection, enter the URL for the Repository Server in the form of `http://hostname:9080`, and click **Finish**.
4. In **Content Explorer**, click next to your Repository Server entry, enter the credentials, and click **OK**.
5. Right-click **Content Repository**, and click **Import**.
6. For the **Import File** field, click **Browse**, select the project file, and click **Open**.
7. Leave the default options selected, and click **OK**.
8. For the subsequent windows, leave the default options selected.

Updating the SPSS project resource definitions

After the project is imported, the project's resource definitions must be updated.

Updating the resource definitions includes the following tasks:
- Specifying which SPSS Modeler Server runs the streams
- Specifying the credentials to use to connect to the WebSphere Business Modeler server
- Specifying the credentials to use to connect to the database from which the streams read data and to which the results of the streams are saved

Before you begin

You must create an ODBC data source connection on the SPSS server computer that points to the database that you created in "Creating the physical data model" on page 11. The ODBC data source connection must be named **FSS**.

Procedure

1. In Deployment Manager, in the **Content Explorer** pane, click **Resource Definitions** > **Servers**.
2. Under **Servers**, double-click the server definition that you want to update.
3. Make updates to the server definition parameters, and click **Finish**.
4. To update the Credentials of the SPSS Modeler Server, in the **Content Explorer** pane, click **Resource Definitions** > **Credentials**.

5. Under Credentials, double-click the credentials that are used for SPSS Modeler Server, make any required updates to the credentials, and click **Finish**.

6. To update the Credentials of the database, in the **Content Explorer** pane, click to **Resource Definitions** > **Credentials**.

7. Under Credentials, double-click the credentials that are used for the database, make any required updates to the credentials, and click **Finish**.

Running the SPSS jobs

After you import the SPSS project, you must run the SPSS jobs. The jobs must be run in a specific order.

Procedure

1. In Deployment Manager, expand **Content Repository** > **IBMPCIBNK** > **Jobs**.

2. Run the jobs in the following order:
   a. `Churn Propensity`
   b. `Churn Propensity Credit Card`
   c. `CrossSell Propensity`
   d. `Customer Behavior Segment`
   e. `Customer Cash Flow`
   f. `Customer Peer Group`
   g. `Email Tone Analyzer`
   h. `Large Deposit`
   i. `Life Event`
   j. `Overdraft`
   k. `Overdraft Propensity`
   l. `Upsell Propensity`

   For more information about running jobs, see the Deployment Manager documentation (www.ibm.com/support/knowledgecenter/en/SS69YH_7.0.0/ cads_manager_ddita/model_management/thick/job_schedule_overview.html).

Updating the SPSS project streams

Occasionally, the data analytics streams might need to be updated.

About this task

Procedure

1. In Deployment Manager, connect to the correct Repository Server.

2. Right-click the Streams directory, and select **Add File to Repository**.

3. Select the new stream that you want to update.

4. To overwrite the existing stream file, click **OK**.

5. Expand the Jobs directory, and open the job that contains the stream file that was updated.

6. Click the stream's icon, wait until an asterisk appears next to the open job's name in the tab, and then save the job.

Generating the web UI

The banking-web installer includes the banking-web.tar file, which you use to create the web UI for the solution. You must deploy the API on a Linux-based computer on which nodejs is installed.

Procedure

1. Go to the directory where you deployed Web_UI_2.0_Linux_x86-64_English.bin contents.

   For example, go to /root/IBM/Customer_Insight_for_Banking_2.0/Web.

2. Decompress the banking-web.tar file.

   For example, enter the following command:

   tar xvf banking-web.tar

3. In the web/dist directory, open config.js in a text editor.

   a. Enter the **HOST** and **PORT** number where the API is running.

   By default, SSL is enabled in the configuration file. If you are not using SSL, change the **PROTOCOL** to http.

4. In the web directory, open env.sh in a text editor.

   a. Enter the **HOST** and **PORT** number where the API is running.

   b. Configure the **cache** section to point to your Redis installation.

   c. Configure the **sso** section to point to your SAML SSO provider.

   By default, SSL is disabled in the env.sh file.

5. Run the application:

   • Use the following command to run the application in the foreground:

   source env.sh

   • Use the following command to run the application in the background:

```
nohup node lib/app.js &
```

Results

If you are successful, the web UI is now accessible at the configured URL.

If you need to stop the application, do the following steps:

1. Run the following command: `ps aux`
2. Find the process ID for `node lib/app.js`. There will be two entries if the API and Web UI components are both running on the same computer.
3. Run the following command to end the processes: `sudo kill -9 process_id`

Appendix A. Accessibility features

Accessibility features help users who have a physical disability, such as restricted mobility or limited vision, to use information technology products.

For information about the commitment that IBM has to accessibility, see the IBM Accessibility Center (www.ibm.com/able).

IBM Cognos® HTML documentation has accessibility features. PDF documents are supplemental and, as such, include no added accessibility features.

Report output

In IBM Cognos Administration, you can enable system-wide settings to create accessible report output. For more information, see the *IBM Cognos Analytics Administration and Security Guide*. In IBM Cognos Report Studio, you can enable settings to create accessible output for individual reports. For more information, see the *IBM Cognos Report Studio User Guide*. You can access the previously mentioned documents at IBM Knowledge Center (http://www.ibm.com/support/knowledgecenter).

Appendix B. Troubleshooting

This section contains troubleshooting information for the IBM Customer Insight for Banking installation.

Troubleshooting a problem

Troubleshooting is a systematic approach to solving a problem. The goal of troubleshooting is to determine why something does not work as expected and how to resolve the problem.

Review the following table to help you or customer support resolve a problem.

Table 2. Troubleshooting actions and descriptions

Actions	Description
A product fix might be available to resolve your problem.	Apply all known fix packs, or service levels, or program temporary fixes (PTF).
Look up error messages by selecting the product from the IBM Support Portal, and then typing the error message code into the **Search support** box (http://www.ibm.com/support/entry/portal/).	Error messages give important information to help you identify the component that is causing the problem.
Reproduce the problem to ensure that it is not just a simple error.	If samples are available with the product, you might try to reproduce the problem by using the sample data.
Ensure that the installation successfully finished.	The installation location must contain the appropriate file structure and the file permissions. For example, if the product requires write access to log files, ensure that the directory has the correct permission.
Review all relevant documentation, including release notes, technotes, and proven practices documentation.	Search the IBM Knowledge Center to determine whether your problem is known, has a workaround, or if it is already resolved and documented.
Review recent changes in your computing environment.	Sometimes installing new software might cause compatibility issues.

If the items in the table did not guide you to a resolution, you might need to collect diagnostic data. This data is necessary for an IBM technical-support representative to effectively troubleshoot and assist you in resolving the problem.

Troubleshooting resources

Troubleshooting resources are sources of information that can help you resolve a problem that you are having with an IBM product.

Support Portal

The IBM Support Portal is a unified, centralized view of all technical support tools and information for all IBM systems, software, and services.

The IBM Support Portal lets you access all the IBM support resources from one place. You can tailor the pages to focus on the information and resources that you need for problem prevention and faster problem resolution. Familiarize yourself with the IBM Support Portal by viewing the demo videos (https://www.ibm.com/blogs/SPNA/entry/the_ibm_support_portal_videos).

Find the content that you need by selecting your products from the IBM Support Portal (http://www.ibm.com/support/entry/portal).

Before contacting IBM Support, you will need to collect diagnostic data (system information, symptoms, log files, traces, and so on) that is required to resolve a problem. Gathering this information will help to familiarize you with the troubleshooting process and save you time.

Service request

Service requests are also known as Problem Management Reports (PMRs). Several methods exist to submit diagnostic information to IBM Software Technical Support.

To open a PMR or to exchange information with technical support, view the IBM Software Support Exchanging information with Technical Support page (http://www.ibm.com/software/support/exchangeinfo.html).

Fix Central

Fix Central provides fixes and updates for your system's software, hardware, and operating system.

Use the pull-down menu to navigate to your product fixes on Fix Central (http://www.ibm.com/systems/support/fixes/en/fixcentral/help/getstarted.html). You may also want to view Fix Central help.

IBM developerWorks®

IBM developerWorks provides verified technical information in specific technology environments.

As a troubleshooting resource, developerWorks provides easy access to the most popular practices, in addition to videos and other information: developerWorks (http://www.ibm.com/developerworks).

IBM Redbooks®

IBM Redbooks are developed and published by the IBM International Technical Support Organization, the ITSO.

IBM Redbooks (http://www.redbooks.ibm.com) provide in-depth guidance about such topics as installation and configuration and solution implementation.

Software support and RSS feeds

IBM Software Support RSS feeds are a quick, easy, and lightweight format for monitoring new content added to websites.

After you download an RSS reader or browser plug-in, you can subscribe to IBM product feeds at IBM Software Support RSS feeds (https://www.ibm.com/software/support/rss).

Log files

Log files can help you troubleshoot problems by recording the activities that take place when you work with a product.

Error messages

The first indication of a problem is often an error message. Error messages contain information that can be helpful in determining the cause of a problem.

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