

*IBM SPSS Modeler 17 Batch User's
Guide*

IBM

Note

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

Product Information

This edition applies to version 17, release 0, modification 0 of IBM(r) SPSS(r) Modeler and to all subsequent releases and modifications until otherwise indicated in new editions.

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Preface

IBM® SPSS® Modeler is the IBM Corp. enterprise-strength data mining workbench. SPSS Modeler helps organizations to improve customer and citizen relationships through an in-depth understanding of data. Organizations use the insight gained from SPSS Modeler to retain profitable customers, identify cross-selling opportunities, attract new customers, detect fraud, reduce risk, and improve government service delivery.

SPSS Modeler's visual interface invites users to apply their specific business expertise, which leads to more powerful predictive models and shortens time-to-solution. SPSS Modeler offers many modeling techniques, such as prediction, classification, segmentation, and association detection algorithms. Once models are created, IBM SPSS Modeler Solution Publisher enables their delivery enterprise-wide to decision makers or to a database.

About IBM Business Analytics

IBM Business Analytics software delivers complete, consistent and accurate information that decision-makers trust to improve business performance. A comprehensive portfolio of business intelligence, predictive analytics, financial performance and strategy management, and analytic applications provides clear, immediate and actionable insights into current performance and the ability to predict future outcomes. Combined with rich industry solutions, proven practices and professional services, organizations of every size can drive the highest productivity, confidently automate decisions and deliver better results.

As part of this portfolio, IBM SPSS Predictive Analytics software helps organizations predict future events and proactively act upon that insight to drive better business outcomes. Commercial, government and academic customers worldwide rely on IBM SPSS technology as a competitive advantage in attracting, retaining and growing customers, while reducing fraud and mitigating risk. By incorporating IBM SPSS software into their daily operations, organizations become predictive enterprises – able to direct and automate decisions to meet business goals and achieve measurable competitive advantage. For further information or to reach a representative visit <http://www.ibm.com/spss>.

Technical Support

Technical support is available to maintenance customers. Customers may contact Technical Support for assistance in using IBM Corp. products or for installation help for one of the supported hardware environments. To reach Technical Support, see the IBM Corp. web site at <http://www.ibm.com/support>. Be prepared to identify yourself, your organization, and your support agreement when requesting assistance.

Chapter 1. About IBM SPSS Modeler

IBM SPSS Modeler is a set of data mining tools that enable you to quickly develop predictive models using business expertise and deploy them into business operations to improve decision making. Designed around the industry-standard CRISP-DM model, IBM SPSS Modeler supports the entire data mining process, from data to better business results.

IBM SPSS Modeler offers a variety of modeling methods taken from machine learning, artificial intelligence, and statistics. The methods available on the Modeling palette allow you to derive new information from your data and to develop predictive models. Each method has certain strengths and is best suited for particular types of problems.

SPSS Modeler can be purchased as a standalone product, or used as a client in combination with SPSS Modeler Server. A number of additional options are also available, as summarized in the following sections. For more information, see <http://www.ibm.com/software/analytics/spss/products/modeler/>.

IBM SPSS Modeler Products

The IBM SPSS Modeler family of products and associated software comprises the following.

- IBM SPSS Modeler
- IBM SPSS Modeler Server
- IBM SPSS Modeler Administration Console
- IBM SPSS Modeler Batch
- IBM SPSS Modeler Solution Publisher
- IBM SPSS Modeler Server adapters for IBM SPSS Collaboration and Deployment Services

IBM SPSS Modeler

SPSS Modeler is a functionally complete version of the product that you install and run on your personal computer. You can run SPSS Modeler in local mode as a standalone product, or use it in distributed mode along with IBM SPSS Modeler Server for improved performance on large data sets.

With SPSS Modeler, you can build accurate predictive models quickly and intuitively, without programming. Using the unique visual interface, you can easily visualize the data mining process. With the support of the advanced analytics embedded in the product, you can discover previously hidden patterns and trends in your data. You can model outcomes and understand the factors that influence them, enabling you to take advantage of business opportunities and mitigate risks.

SPSS Modeler is available in two editions: SPSS Modeler Professional and SPSS Modeler Premium. See the topic “IBM SPSS Modeler Editions” on page 2 for more information.

IBM SPSS Modeler Server

SPSS Modeler uses a client/server architecture to distribute requests for resource-intensive operations to powerful server software, resulting in faster performance on larger data sets.

SPSS Modeler Server is a separately-licensed product that runs continually in distributed analysis mode on a server host in conjunction with one or more IBM SPSS Modeler installations. In this way, SPSS Modeler Server provides superior performance on large data sets because memory-intensive operations can be done on the server without downloading data to the client computer. IBM SPSS Modeler Server also provides support for SQL optimization and in-database modeling capabilities, delivering further benefits in performance and automation.

IBM SPSS Modeler Administration Console

The Modeler Administration Console is a graphical application for managing many of the SPSS Modeler Server configuration options, which are also configurable by means of an options file. The application provides a console user interface to monitor and configure your SPSS Modeler Server installations, and is available free-of-charge to current SPSS Modeler Server customers. The application can be installed only on Windows computers; however, it can administer a server installed on any supported platform.

IBM SPSS Modeler Batch

While data mining is usually an interactive process, it is also possible to run SPSS Modeler from a command line, without the need for the graphical user interface. For example, you might have long-running or repetitive tasks that you want to perform with no user intervention. SPSS Modeler Batch is a special version of the product that provides support for the complete analytical capabilities of SPSS Modeler without access to the regular user interface. SPSS Modeler Server is required to use SPSS Modeler Batch.

IBM SPSS Modeler Solution Publisher

SPSS Modeler Solution Publisher is a tool that enables you to create a packaged version of an SPSS Modeler stream that can be run by an external runtime engine or embedded in an external application. In this way, you can publish and deploy complete SPSS Modeler streams for use in environments that do not have SPSS Modeler installed. SPSS Modeler Solution Publisher is distributed as part of the IBM SPSS Collaboration and Deployment Services - Scoring service, for which a separate license is required. With this license, you receive SPSS Modeler Solution Publisher Runtime, which enables you to execute the published streams.

For more information about SPSS Modeler Solution Publisher, see the IBM SPSS Collaboration and Deployment Services documentation. The IBM SPSS Collaboration and Deployment Services Knowledge Center contains sections called "IBM SPSS Modeler Solution Publisher" and "IBM SPSS Analytics Toolkit."

IBM SPSS Modeler Server Adapters for IBM SPSS Collaboration and Deployment Services

A number of adapters for IBM SPSS Collaboration and Deployment Services are available that enable SPSS Modeler and SPSS Modeler Server to interact with an IBM SPSS Collaboration and Deployment Services repository. In this way, an SPSS Modeler stream deployed to the repository can be shared by multiple users, or accessed from the thin-client application IBM SPSS Modeler Advantage. You install the adapter on the system that hosts the repository.

IBM SPSS Modeler Editions

SPSS Modeler is available in the following editions.

SPSS Modeler Professional

SPSS Modeler Professional provides all the tools you need to work with most types of structured data, such as behaviors and interactions tracked in CRM systems, demographics, purchasing behavior and sales data.

SPSS Modeler Premium

SPSS Modeler Premium is a separately-licensed product that extends SPSS Modeler Professional to work with specialized data such as that used for entity analytics or social networking, and with unstructured text data. SPSS Modeler Premium comprises the following components.

IBM SPSS Modeler Entity Analytics adds an extra dimension to IBM SPSS Modeler predictive analytics. Whereas predictive analytics attempts to predict future behavior from past data, entity analytics focuses

on improving the coherence and consistency of current data by resolving identity conflicts within the records themselves. An identity can be that of an individual, an organization, an object, or any other entity for which ambiguity might exist. Identity resolution can be vital in a number of fields, including customer relationship management, fraud detection, anti-money laundering, and national and international security.

IBM SPSS Modeler Social Network Analysis transforms information about relationships into fields that characterize the social behavior of individuals and groups. Using data describing the relationships underlying social networks, IBM SPSS Modeler Social Network Analysis identifies social leaders who influence the behavior of others in the network. In addition, you can determine which people are most affected by other network participants. By combining these results with other measures, you can create comprehensive profiles of individuals on which to base your predictive models. Models that include this social information will perform better than models that do not.

IBM SPSS Modeler Text Analytics uses advanced linguistic technologies and Natural Language Processing (NLP) to rapidly process a large variety of unstructured text data, extract and organize the key concepts, and group these concepts into categories. Extracted concepts and categories can be combined with existing structured data, such as demographics, and applied to modeling using the full suite of IBM SPSS Modeler data mining tools to yield better and more focused decisions.

IBM SPSS Modeler Documentation

Documentation in online help format is available from the Help menu of SPSS Modeler. This includes documentation for SPSS Modeler, SPSS Modeler Server, as well as the Applications Guide (also referred to as the Tutorial), and other supporting materials.

Complete documentation for each product (including installation instructions) is available in PDF format under the *\Documentation* folder on each product DVD. Installation documents can also be downloaded from the web at <http://www.ibm.com/support/docview.wss?uid=swg27043831>.

Documentation in both formats is also available from the SPSS Modeler Knowledge Center at http://www-01.ibm.com/support/knowledgecenter/SS3RA7_17.0.0.0.

SPSS Modeler Professional Documentation

The SPSS Modeler Professional documentation suite (excluding installation instructions) is as follows.

- **IBM SPSS Modeler User's Guide.** General introduction to using SPSS Modeler, including how to build data streams, handle missing values, build CLEM expressions, work with projects and reports, and package streams for deployment to IBM SPSS Collaboration and Deployment Services, Predictive Applications, or IBM SPSS Modeler Advantage.
- **IBM SPSS Modeler Source, Process, and Output Nodes.** Descriptions of all the nodes used to read, process, and output data in different formats. Effectively this means all nodes other than modeling nodes.
- **IBM SPSS Modeler Modeling Nodes.** Descriptions of all the nodes used to create data mining models. IBM SPSS Modeler offers a variety of modeling methods taken from machine learning, artificial intelligence, and statistics.
- **IBM SPSS Modeler Algorithms Guide.** Descriptions of the mathematical foundations of the modeling methods used in IBM SPSS Modeler. This guide is available in PDF format only.
- **IBM SPSS Modeler Applications Guide.** The examples in this guide provide brief, targeted introductions to specific modeling methods and techniques. An online version of this guide is also available from the Help menu. See the topic "Application Examples" on page 4 for more information.
- **IBM SPSS Modeler Python Scripting and Automation.** Information on automating the system through Python scripting, including the properties that can be used to manipulate nodes and streams.

- **IBM SPSS Modeler Deployment Guide.** Information on running IBM SPSS Modeler streams and scenarios as steps in processing jobs under IBM SPSS Collaboration and Deployment Services Deployment Manager.
- **IBM SPSS Modeler CLEF Developer's Guide.** CLEF provides the ability to integrate third-party programs such as data processing routines or modeling algorithms as nodes in IBM SPSS Modeler.
- **IBM SPSS Modeler In-Database Mining Guide.** Information on how to use the power of your database to improve performance and extend the range of analytical capabilities through third-party algorithms.
- **IBM SPSS Modeler Server Administration and Performance Guide.** Information on how to configure and administer IBM SPSS Modeler Server.
- **IBM SPSS Modeler Administration Console User Guide.** Information on installing and using the console user interface for monitoring and configuring IBM SPSS Modeler Server. The console is implemented as a plug-in to the Deployment Manager application.
- **IBM SPSS Modeler CRISP-DM Guide.** Step-by-step guide to using the CRISP-DM methodology for data mining with SPSS Modeler.
- **IBM SPSS Modeler Batch User's Guide.** Complete guide to using IBM SPSS Modeler in batch mode, including details of batch mode execution and command-line arguments. This guide is available in PDF format only.

SPSS Modeler Premium Documentation

The SPSS Modeler Premium documentation suite (excluding installation instructions) is as follows.

- **IBM SPSS Modeler Entity Analytics User Guide.** Information on using entity analytics with SPSS Modeler, covering repository installation and configuration, entity analytics nodes, and administrative tasks.
- **IBM SPSS Modeler Social Network Analysis User Guide.** A guide to performing social network analysis with SPSS Modeler, including group analysis and diffusion analysis.
- **SPSS Modeler Text Analytics User's Guide.** Information on using text analytics with SPSS Modeler, covering the text mining nodes, interactive workbench, templates, and other resources.

Application Examples

While the data mining tools in SPSS Modeler can help solve a wide variety of business and organizational problems, the application examples provide brief, targeted introductions to specific modeling methods and techniques. The data sets used here are much smaller than the enormous data stores managed by some data miners, but the concepts and methods involved should be scalable to real-world applications.

You can access the examples by clicking **Application Examples** on the Help menu in SPSS Modeler. The data files and sample streams are installed in the *Demos* folder under the product installation directory. See the topic “Demos Folder” for more information.

Database modeling examples. See the examples in the *IBM SPSS Modeler In-Database Mining Guide*.

Scripting examples. See the examples in the *IBM SPSS Modeler Scripting and Automation Guide*.

Demos Folder

The data files and sample streams used with the application examples are installed in the *Demos* folder under the product installation directory. This folder can also be accessed from the IBM SPSS Modeler program group on the Windows Start menu, or by clicking *Demos* on the list of recent directories in the File Open dialog box.

Chapter 2. Batch Mode Execution

Introduction to Batch Mode

Data mining is usually an interactive process—you interact with data and models to improve your understanding of the data and the domain it represents. However, IBM SPSS Modeler streams can also be used to process data and perform data mining tasks in **batch mode**, with no visible user interface. Batch mode allows long-running or repetitive tasks to be performed without your intervention and without the presence of the user interface on the screen.

For customers who want to run IBM SPSS Modeler exclusively in batch mode, IBM SPSS Modeler Batch is a special version of the product that provides support for the complete analytical capabilities of IBM SPSS Modeler without access to the regular user interface. An IBM SPSS Modeler Server license is required to use batch mode.

Examples of tasks appropriate for batch mode include:

- Running a time-consuming modeling exercise in the background.
- Running a stream at a scheduled time (for example, overnight, when the resultant load on the computer will not be inconvenient).
- Running a data preprocessing stream on a large volume of data (for example, in the background and/or overnight).
- Running regularly scheduled tasks, such as monthly reports.
- Running a stream as an embedded part of another process, such as a scoring engine facility.

Note: IBM SPSS Modeler operations can be scheduled in batch mode using the appropriate operating system commands or utilities (for example, the `at` command under Windows NT).

Working in Batch Mode

Working in batch mode typically involves:

1. Invoking IBM SPSS Modeler in batch mode using the `clemb` command.
2. Connecting to a server.
3. Loading an existing stream or script file.
4. Executing the stream or script.

Note: SPSS Modeler Batch requires 4GB of available memory.

Once execution is complete, you can then consult the log file produced by default in batch mode and view the results of graphs, output nodes, and models. For more information about these steps, see the following topics.

Invoking the Software

You can use the command line of your operating system to launch IBM SPSS Modeler as follows:

1. On a computer where IBM SPSS Modeler is installed, open a DOS, or command-prompt, window.
2. To launch the IBM SPSS Modeler interface in interactive mode, type the `modelerclient` command followed by the required arguments; for example:

```
modelerclient -stream report.str -execute
```

The available arguments (flags) allow you to connect to a server, load streams, run scripts, or specify other parameters as needed.

Using Command Line Arguments

In order for IBM SPSS Modeler to open and execute files (such as streams and scripts) in batch mode, you need to alter the initial command (`clemb`) that launches the software. There are a number of command line arguments, also referred to as **flags**, that you can use to:

- Connect to a server.
- Load streams, scripts, models, states, projects, and output files. (If you have licensed IBM SPSS Collaboration and Deployment Services Repository, you can connect to a repository and load objects from it.)
- Specify log file options.
- Set default directories for use in IBM SPSS Modeler.

All of the above operations require the use of flags appended to the `clemb` command. Flags follow the form `-flag`, where the hyphen precedes the argument itself. For example, using the flag `-server` in conjunction with the initial argument `clemb` will connect to the server specified using other flag options.

You can combine the `clemb` command with a number of other startup flags, such as `-server`, `-stream`, and `-execute`, in order to load and execute streams in batch mode. The following command loads and executes the stream `report.str` without invoking the user interface:

```
clemb -server -hostname myserver -port 80
-username dminer -password 1234 -stream report.str -execute
```

For a complete list of command line arguments, see Chapter 3, “Command Line Arguments,” on page 9.

- IBM SPSS Modeler states and scripts are also executed in this manner, using the `-state` and `-script` flags, respectively. Multiple states and streams can be loaded by specifying the relevant flag for each item.
- Multiple arguments can be combined into a single command file and specified at startup using the `@` symbol. See the topic “Combining Multiple Arguments” on page 13 for more information.

Batch Mode Log Files

Running in batch mode produces a log file. By default, the name of this log file is `clem_batch.log`, but you can specify an alternative name using the `-log` flag. For example, the following command executes `report.str` in batch mode and sends the logging information to `report.log`:

```
clemb -server -hostname myserver -port 80
-username dminer -password 1234 -stream report.str
-execute -log report.log
```

Normally, the log file overwrites any existing file of the same name, but you can make IBM SPSS Modeler append to the log file instead by using the `-appendlog` flag. Logging can also be suppressed altogether by using the `-nolog` flag.

Note: Logging arguments are available only when running in batch mode.

Scripting in Batch Mode

In its simplest form, batch mode execution of IBM SPSS Modeler streams is performed one at a time using the command line arguments discussed in this guide. A given stream is executed without significantly altering its node parameters. While this may work well for automated production of monthly churn reports or predictions, it cannot handle the sophisticated processes that many advanced data miners would like to automate.

For example, a financial institution may want to construct a number of models using different data or modeling parameters, test the models on another set of data, and produce a report on the results. Because this process requires repetitive modifications to a stream and the creation and deletion of nodes, automating it requires the use of scripting. Scripting allows complex processes that would otherwise require user intervention to be automated and executed in batch mode.

To Execute a Script in Batch Mode

1. Append the `clemb` command with the `-script` flag, specifying the name of the script that you want to execute.
2. Also use the `-execute` flag with the above arguments to execute the specified script. This will run the stand-alone script in its entirety.

For example, to load and execute a script that runs a model producing churn scores that are stored as output for the data warehouse, you would use the following command:

```
clemb -server -hostname myserver -port 80  
-username dminer -password 1234  
-script clemscript.txt -execute
```

Using Parameters in Batch Mode

You can modify the effect of executing a stream in batch mode by supplying parameters to the command line launch of IBM SPSS Modeler. These might be **simple parameters** used directly in CLEM expressions, or they might be node properties, also called **slot parameters**, which are used to modify the settings of nodes in the stream.

For example, the following stream selects a subset of data from a file, passes it through a neural net, and sends the results to a file:

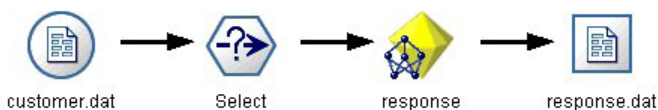


Figure 1. Stream operations in the user interface

The value of the field *Month* determines the selected data; the expression in the Select node is:

```
Month == '$P-mth'
```

When running the same stream in batch mode, select the appropriate month by setting the value of the parameter *mth* in the command line:

```
clemb -server -hostname myserver -port 80  
-username dminer -password 1234  
-stream predict.str -Pmth=Jan -execute
```

Note: In command line arguments, the `-P` flag is used to denote a parameter.

Sometimes the required command line control of the stream involves modifying the settings of the nodes in the stream using slot parameters. Consider the following stream, which reads a file, processes its contents, and sends a report to another file:



Figure 2. Stream operations in the user interface

Suppose that you want to generate the report once a month, reading the appropriate month's data and sending the report to a file whose name indicates the relevant month. You might want to set the filenames for the source data and for the report. The following command sets the appropriate slot parameters and executes the stream:

```
clemb -stream report.str -Porder.full_filename=APR_orders.dat  
-Preport.filename=APR_report.txt -execute
```

Note: This command does not contain the operating-system-specific code that schedules it to run monthly.

Working with Output in Batch Mode

Working with visual output, such as tables, graphs, and charts, typically requires a user interface. Since batch mode does not launch the IBM SPSS Modeler user interface, output objects are diverted to a file so that you can view them later, either in the user interface or in another software package. Using the properties available for nodes (slot parameters), you can control the formats and filenames of output objects created during batch mode.

Chapter 3. Command Line Arguments

Invoking the Software

You can use the command line of your operating system to launch IBM SPSS Modeler as follows:

1. On a computer where IBM SPSS Modeler is installed, open a DOS, or command-prompt, window.
2. To launch the IBM SPSS Modeler interface in interactive mode, type the `modelerclient` command followed by the required arguments; for example:

```
modelerclient -stream report.str -execute
```

The available arguments (flags) allow you to connect to a server, load streams, run scripts, or specify other parameters as needed.

Using Command Line Arguments

You can append command line arguments (also referred to as *flags*) to the initial `modelerclient` command to alter the invocation of IBM SPSS Modeler.

Several types of command line arguments are available, and are described later in this section.

Table 1. Types of command line arguments.

Argument type	Where described
System arguments	See the topic “System Arguments” on page 10 for more information.
Parameter arguments	See the topic “Parameter Arguments” on page 11 for more information.
Server connection arguments	See the topic “Server Connection Arguments” on page 11 for more information.
IBM SPSS Collaboration and Deployment Services Repository connection arguments	See the topic “IBM SPSS Collaboration and Deployment Services Repository Connection Arguments” on page 12 for more information.
IBM SPSS Analytic Server connection arguments	See the topic “IBM SPSS Analytic Server Connection Arguments” on page 13 for more information.

For example, you can use the `-server`, `-stream` and `-execute` flags to connect to a server and then load and run a stream, as follows:

```
modelerclient -server -hostname myserver -port 80 -username dminer  
-password 1234 -stream mystream.str -execute
```

Note that when running against a local client installation, the server connection arguments are not required.

Parameter values that contain spaces can be enclosed in double quotes—for example:

```
modelerclient -stream mystream.str -Pusername="Joe User" -execute
```

You can also execute IBM SPSS Modeler states and scripts in this manner, using the `-state` and `-script` flags, respectively.

Note: If you use a structured parameter in a command, you must precede quotation marks with a backslash. This prevents the quotation marks being removed during interpretation of the string.

Debugging Command Line Arguments

To debug a command line, use the `modelerclient` command to launch IBM SPSS Modeler with the desired arguments. This enables you to verify that commands will execute as expected. You can also confirm the values of any parameters passed from the command line in the Session Parameters dialog box (Tools menu, Set Session Parameters).

System Arguments

The following table describes system arguments available for command line invocation of the user interface.

Table 2. System arguments

Argument	Behavior/Description
@ <commandFile>	The @ character followed by a filename specifies a command list. When <code>modelerclient</code> encounters an argument beginning with @, it operates on the commands in that file as if they had been on the command line. See the topic "Combining Multiple Arguments" on page 13 for more information.
-directory <dir>	Sets the default working directory. In local mode, this directory is used for both data and output. Example: <code>-directory c:/</code> or <code>-directory c:\</code>
-server_directory <dir>	Sets the default server directory for data. The working directory, specified by using the <code>-directory</code> flag, is used for output.
-execute	After starting, execute any stream, state, or script loaded at startup. If a script is loaded in addition to a stream or state, the script alone will be executed.
-stream <stream>	At startup, load the stream specified. Multiple streams can be specified, but the last stream specified will be set as the current stream.
-script <script>	At startup, load the standalone script specified. This can be specified in addition to a stream or state as described below, but only one script can be loaded at startup.
-model <model>	At startup, load the generated model (.gm format file) specified.
-state <state>	At startup, load the saved state specified.
-project <project>	Load the specified project. Only one project can be loaded at startup.
-output <output>	At startup, load the saved output object (.cou format file).
-help	Display a list of command line arguments. When this option is specified, all other arguments are ignored and the Help screen is displayed.
-P <name>=<value>	Used to set a startup parameter. Can also be used to set node properties (slot parameters).

Note: Default directories can also be set in the user interface. To access the options, from the File menu, choose **Set Working Directory** or **Set Server Directory**.

Loading Multiple Files

From the command line, you can load multiple streams, states, and outputs at startup by repeating the relevant argument for each object loaded. For example, to load and run two streams called `report.str` and `train.str`, you would use the following command:

```
modelerclient -stream report.str -stream train.str -execute
```

Loading Objects from the IBM SPSS Collaboration and Deployment Services Repository

Because you can load certain objects from a file or from the IBM SPSS Collaboration and Deployment Services Repository (if licensed), the filename prefix `spsscr:` and, optionally, `file:` (for objects on disk) tells IBM SPSS Modeler where to look for the object. The prefix works with the following flags:

- -stream
- -script
- -output
- -model
- -project

You use the prefix to create a URI that specifies the location of the object—for example, -stream "spsscr:///folder_1/scoring_stream.str". The presence of the spsscr: prefix requires that a valid connection to the IBM SPSS Collaboration and Deployment Services Repository has been specified in the same command. So, for example, the full command would look like this:

```
modelerclient -spsscr_hostname myhost -spsscr_port 8080
-spsscr_username myusername -spsscr_password mypassword
-stream "spsscr:///folder_1/scoring_stream.str" -execute
```

Note that from the command line, you *must* use a URI. The simpler REPOSITORY_PATH is not supported. (It works only within scripts.)

Parameter Arguments

Parameters can be used as flags during command line execution of IBM SPSS Modeler. In command line arguments, the -P flag is used to denote a parameter of the form -P <name>=<value>.

Parameters can be any of the following:

- **Simple parameters** (or parameters used directly in CLEM expressions).
- **Slot parameters**, also referred to as **node properties**. These parameters are used to modify the settings of nodes in the stream.
- **Command line parameters**, used to alter the invocation of IBM SPSS Modeler.

For example, you can supply data source user names and passwords as a command line flag, as follows:

```
modelerclient -stream response.str -P:databasenode.datasource="{\"ORA 10gR2\", user1, mypsw, true}"
```

The format is the same as that of the datasource parameter of the databasenode node property.

Note: If the node is named, you must surround the node name with double quotes and escape the quotes with a backslash. For example, if the data source node in the preceding example has the name *Source_ABC* the entry would be as follows:

```
modelerclient -stream response.str -P:databasenode.\"Source_ABC\".datasource="{\"ORA 10gR2\", user1, mypsw, true}"
```

A backslash is also required in front of the quotes that identify a structured parameter, as in the following TM1 datasource example:

```
clem -server -hostname 9.115.21.169 -port 28053 -username administrator
-execute -stream C:\Share\TM1_Script.str -P:tmlimport.pm_host="http://9.115.21.163:9510/pmhub/pm"
-P:tmlimport.tm1_connection="{\"SData\", \"\", \"admin\", \"apple\"}"
-P:tmlimport.selected_view="{\"SalesPriorCube\", \"salesmargin%\"}"
```

Server Connection Arguments

The -server flag tells IBM SPSS Modeler that it should connect to a public server, and the flags -hostname, -use_ssl, -port, -username, -password, and -domain are used to tell IBM SPSS Modeler how to connect to the public server. If no -server argument is specified, the default server is used.

Examples

To connect to a public server:

```
modelerclient -server -hostname myserver -port 80 -username dminer  
-password 1234 -stream mystream.str -execute
```

To connect to a server cluster:

```
modelerclient -server -cluster "QA Machines" \  
-spsscr_hostname pes_host -spsscr_port 8080 \  
-spsscr_username asmith -spsscr_epassword xyz
```

Note that connecting to a server cluster requires the Coordinator of Processes through IBM SPSS Collaboration and Deployment Services, so the `-cluster` argument must be used in combination with the repository connection options (`spsscr_*`). See the topic “IBM SPSS Collaboration and Deployment Services Repository Connection Arguments” for more information.

Table 3. Server connection arguments.

Argument	Behavior/Description
<code>-server</code>	Runs IBM SPSS Modeler in server mode, connecting to a public server using the flags <code>-hostname</code> , <code>-port</code> , <code>-username</code> , <code>-password</code> , and <code>-domain</code> .
<code>-hostname <name></code>	The hostname of the server machine. Available in server mode only.
<code>-use_ssl</code>	Specifies that the connection should use SSL (secure socket layer). This flag is optional; the default setting is <i>not</i> to use SSL.
<code>-port <number></code>	The port number of the specified server. Available in server mode only.
<code>-cluster <name></code>	Specifies a connection to a server cluster rather than a named server; this argument is an alternative to the <code>hostname</code> , <code>port</code> and <code>use_ssl</code> arguments. The name is the cluster name, or a unique URI which identifies the cluster in the IBM SPSS Collaboration and Deployment Services Repository. The server cluster is managed by the Coordinator of Processes through IBM SPSS Collaboration and Deployment Services. See the topic “IBM SPSS Collaboration and Deployment Services Repository Connection Arguments” for more information.
<code>-username <name></code>	The user name with which to log on to the server. Available in server mode only.
<code>-password <password></code>	The password with which to log on to the server. Available in server mode only. <i>Note:</i> If the <code>-password</code> argument is not used, you will be prompted for a password.
<code>-epassword <encodedpasswordstring></code>	The encoded password with which to log on to the server. Available in server mode only. <i>Note:</i> An encoded password can be generated from the Tools menu of the IBM SPSS Modeler application.
<code>-domain <name></code>	The domain used to log on to the server. Available in server mode only.
<code>-P <name>=<value></code>	Used to set a startup parameter. Can also be used to set node properties (slot parameters).

IBM SPSS Collaboration and Deployment Services Repository Connection Arguments

If you want to store or retrieve objects from IBM SPSS Collaboration and Deployment Services via the command line, you must specify a valid connection to the IBM SPSS Collaboration and Deployment Services Repository. For example:

```
modelerclient -spsscr_hostname myhost -spsscr_port 8080  
-spsscr_username myusername -spsscr_password mypassword  
-stream "spsscr:///folder_1/scoring_stream.str" -execute
```

The following table lists the arguments that can be used to set up the connection.

Table 4. IBM SPSS Collaboration and Deployment Services Repository connection arguments

Argument	Behavior/Description
-spsscr_hostname <hostname or IP address>	The hostname or IP address of the server on which the IBM SPSS Collaboration and Deployment Services Repository is installed.
-spsscr_port <number>	The port number on which the IBM SPSS Collaboration and Deployment Services Repository accepts connections (typically, 8080 by default).
-spsscr_use_ssl	Specifies that the connection should use SSL (secure socket layer). This flag is optional; the default setting is <i>not</i> to use SSL.
-spsscr_username <name>	The user name with which to log on to the IBM SPSS Collaboration and Deployment Services Repository.
-spsscr_password <password>	The password with which to log on to the IBM SPSS Collaboration and Deployment Services Repository.
-spsscr_epassword <encoded password>	The encoded password with which to log on to the IBM SPSS Collaboration and Deployment Services Repository.
-spsscr_domain <name>	The domain used to log on to the IBM SPSS Collaboration and Deployment Services Repository. This flag is optional—do not use it unless you log on by using LDAP or Active Directory.

IBM SPSS Analytic Server Connection Arguments

If you want to store or retrieve objects from IBM SPSS Analytic Server via the command line, you must specify a valid connection to IBM SPSS Analytic Server.

Note: The location of Analytic Server is obtained from SPSS Modeler Server and cannot be changed on the client.

The following table lists the arguments that can be used to set up the connection.

Table 5. IBM SPSS Analytic Server connection arguments

Argument	Behavior/Description
-analytic_server_username	The user name with which to log on to IBM SPSS Analytic Server.
-analytic_server_password	The password with which to log on to IBM SPSS Analytic Server.
-analytic_server_epassword	The encoded password with which to log on to IBM SPSS Analytic Server.
-analytic_server_credential	The credentials used to log on to IBM SPSS Analytic Server.

Combining Multiple Arguments

Multiple arguments can be combined in a single command file specified at invocation by using the @ symbol followed by the filename. This enables you to shorten the command line invocation and overcome any operating system limitations on command length. For example, the following startup command uses the arguments specified in the file referenced by <commandFileName>.

```
modelerclient @<commandFileName>
```

Enclose the filename and path to the command file in quotation marks if spaces are required, as follows:

```
modelerclient @ "C:\Program Files\IBM\SPSS\Modeler\mn\scripts\my_command_file.txt"
```

The command file can contain all arguments previously specified individually at startup, with one argument per line. For example:

```
-stream report.str  
-Porder.full_filename=APR_orders.dat  
-Preport.filename=APR_report.txt  
-execute
```

When writing and referencing command files, be sure to follow these constraints:

- Use only one command per line.
- Do not embed an @CommandFile argument within a command file.

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