

IBM® Analytical Decision Management
Version 8 Release 0

Troubleshooting Guide



Note

Before using this information and the product it supports, read the information in "Notices" on page 13.

Product Information

This edition applies to version 8, release 0, modification 0 of IBM Analytical Decision Management and to all subsequent releases and modifications until otherwise indicated in new editions.

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Preface

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. Basic topics

Techniques for troubleshooting problems

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.

The first step in the troubleshooting process is to describe the problem completely. Problem descriptions help you and the IBM technical-support representative know where to start to find the cause of the problem. This step includes asking yourself basic questions:

- What are the symptoms of the problem?
- Where does the problem occur?
- When does the problem occur?
- Under which conditions does the problem occur?
- Can the problem be reproduced?

The answers to these questions typically lead to a good description of the problem, which can then lead you to a problem resolution.

What are the symptoms of the problem?

When starting to describe a problem, the most obvious question is: What is the problem? This question might seem straightforward; however, you can break it down into several more-focused questions that create a more descriptive picture of the problem. These questions can include:

- Who, or what, is reporting the problem?
- What are the error codes and messages?
- How does the system fail? For example, is it a loop, hang, crash, performance degradation, or incorrect result?

Where does the problem occur?

Determining where the problem originates is not always easy, but it is one of the most important steps in resolving a problem. Many layers of technology can exist between the reporting and failing components. Networks, disks, and drivers are only a few of the components to consider when you are investigating problems.

The following questions help you to focus on where the problem occurs to isolate the problem layer:

- Is the problem specific to one platform or operating system, or is it common across multiple platforms or operating systems?
- Is the current environment and configuration supported?

If one layer reports the problem, the problem does not necessarily originate in that layer. Part of identifying where a problem originates is understanding the environment in which it exists. Take some time to completely describe the problem environment, including the operating system and version, all corresponding software and versions, and hardware information. Confirm that you are running within an environment that is a supported configuration; many problems can be traced back to incompatible levels of software that are not intended to run together or have not been fully tested together.

When does the problem occur?

Develop a detailed timeline of events leading up to a failure, especially for those cases that are one-time occurrences. You can most easily develop a timeline by working backward: Start at the time an error was reported (as precisely as possible, even down to the millisecond), and work backward through the available logs and information. Typically, you need to look only as far as the first suspicious event that you find in a diagnostic log.

To develop a detailed timeline of events, answer these questions:

- Does the problem happen only at a certain time of day or night?
- How often does the problem happen?
- What sequence of events leads up to the time that the problem is reported?
- Does the problem happen after an environment change, such as upgrading or installing software or hardware?

Responding to these types of questions can give you a frame of reference in which to investigate the problem.

Under which conditions does the problem occur?

Knowing which systems and applications are running at the time a problem occurs is an important part of troubleshooting. These questions about your environment can help you to identify the root cause of the problem:

- Does the problem always occur when the same task is being performed?
- Does a certain sequence of events need to occur for the problem to surface?
- Do any other applications fail at the same time?

Answering these types of questions can help you explain the environment in which the problem occurs and correlate any dependencies. Remember that just because multiple problems might have occurred around the same time, the problems are not necessarily related.

Can the problem be reproduced?

From a troubleshooting standpoint, the ideal problem is one that can be reproduced. Typically, when a problem can be reproduced you have a larger set of tools or procedures at your disposal to help you investigate. Consequently, problems that you can reproduce are often easier to debug and solve. However, problems that you can reproduce can have a disadvantage: If the problem is of significant business impact, you do not want it to recur. If possible, re-create the problem in a test or development environment, which typically offers you more flexibility and control during your investigation.

- Can the problem be re-created on a test system?
- Are multiple users or applications encountering the same type of problem?
- Can the problem be re-created by running a single command, a set of commands, or a particular application?

Searching knowledge bases

You can often find solutions to problems by searching IBM knowledge bases. You can optimize your results by using available resources, support tools, and search methods.

About this task

You can find useful information by searching the information center, but sometimes you need to look beyond the information center to answer your questions or resolve problems.

Procedure

To search knowledge bases for information that you need, use one or more of the following approaches:

- Find the content you need by using the IBM Support Portal. Add **SPSS Decision Management** to your list of products, along with any other IBM products you have.

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 the IBM electronic support portfolio 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 about this tool. These videos introduce you to the IBM Support Portal, explore troubleshooting and other resources, and demonstrate how you can tailor the page by moving, adding, and deleting portlets.

- Search for content about IBM Analytical Decision Management by using one of the following additional technical resources:
 - IBM Analytical Decision Management technotes and APARs (problem reports)
 - IBM Analytical Decision Management Support web site
 - IBM Redbooks®
- Search for content by using the IBM masthead search. You can use the IBM masthead search by typing your search string into the Search field at the top of any ibm.com® page.
- Search for content by using any external search engine, such as Google, Yahoo, or Bing. If you use an external search engine, your results are more likely to include information that is outside the ibm.com domain. However, sometimes you can find useful problem-solving information about IBM products in newsgroups, forums, and blogs that are not on ibm.com.

Tip: Include "IBM" and the name of the product in your search if you are looking for information about an IBM product.

Getting fixes

A product fix might be available to resolve your problem.

Procedure

To find and install fixes:

1. Determine which fix you need via IBM Fix Central. Note that at the time of writing this guide, no fixes were yet available for IBM Analytical Decision Management.
 - a. Check the recommended fixes for IBM Analytical Decision Management to confirm that your software is at the latest maintenance level.
 - b. Determine whether IBM has already published an individual fix to resolve your problem. Check the list of problems that have been fixed in the IBM Analytical Decision Management readme documentation that is available for each listed fix pack and refresh pack.
2. Download the fix.
 - a. Open the download document and follow the link in the Download Package section.
 - b. When downloading the file, ensure that the name of the maintenance file is not changed. Changes might be intentional changes or they might be inadvertent changes that are caused by certain web browsers or download utilities.
3. Apply the fix.
 - a. Follow the instructions in the Installation Instructions section of the download document.
 - b. Subscribe to receive weekly e-mail notifications about fixes and other IBM Support information.

Contacting IBM Support

IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

Before you begin

After trying to find your answer or solution by using other self-help options such as technotes, you can contact IBM Support. Before contacting IBM Support, your company must have an active IBM software subscription and support contract, and you must be authorized to submit problems to IBM. For information about the types of support available, see the Support portfolio topic in the *Software Support Handbook*.

Procedure

Complete the following steps to contact IBM Support with a problem:

1. Define the problem, gather background information, and determine the severity of the problem. For help, see the Getting IBM® support topic in the *Software Support Handbook*.
2. Gather diagnostic information. See the topic “Collecting data for IBM Analytical Decision Management” on page 7 for more information.
3. Submit your problem to IBM Support in one of the following ways:
 - Online through the IBM Support Portal: You can open, update, and view all your Service Requests from the Service Request portlet on the Service Request page.
 - By phone: For the phone number to call in your region, see the Directory of worldwide contacts web page.

Results

If the problem you submit is for a software defect or for missing or inaccurate documentation, IBM Support creates an Authorized Program Analysis Report (APAR). The APAR describes the problem in detail. Whenever possible, IBM Support provides a workaround that you can implement until the APAR is resolved and a fix is delivered. IBM publishes resolved APARs on the IBM Support web site, so that other users who experience the same problem can benefit from the same resolution.

Be prepared to work with the IBM technical-support representative by using IBM Assist On-Site, which is a remote-assistance plug-in that you can download to your computer. The IBM technical-support representative can use IBM Assist On-Site to view your desktop and share control of your mouse and keyboard. This tool can shorten the time it takes to identify the problem, collect the necessary data, and solve the problem. For more information, see IBM Assist On-Site.

Exchanging information with IBM

To diagnose or identify a problem, you might need to provide IBM Support with data and information from your system. In other cases, IBM Support might provide you with tools or utilities to use for problem determination.

Sending information to IBM Support

To reduce the time it takes to resolve your problem, you can send trace and diagnostic information to IBM Support.

Procedure

To submit diagnostic information to IBM Support:

1. Open a problem management record (PMR). You can use the Service Request tool.

2. Collect the diagnostic data you need. Diagnostic data helps reduce the time it takes to resolve your PMR.
3. Compress the files by using the ZIP or TAR format.
4. Transfer the files to IBM. You can use one of the following methods:
 - The Service Request tool
 - Standard data upload methods: FTP, HTTP
 - Secure data upload methods: FTPS, SFTP, HTTPS
 - E-mail

All of these data exchange methods are explained on the IBM Support web site.

Receiving information from IBM Support

Occasionally an IBM technical-support representative will ask you to download diagnostic tools or other files. You can use FTP to download these files.

Before you begin

Ensure that your IBM technical-support representative provided you with the preferred server to use for downloading the files and the exact directory and file names to access.

Procedure

To download files from IBM Support:

1. Use FTP to connect to the site that your IBM technical-support representative provided and log in as **anonymous**. Use your e-mail address as the password.
2. Change to the appropriate directory:
 - a. Change to the /fromibm directory.
`cd fromibm`
 - b. Change to the directory that your IBM technical-support representative provided.
`cd nameofdirectory`
3. Enable binary mode for your session.
`binary`
4. Use the get command to download the file your IBM technical-support representative specified.
`get filename.extension`
5. End your FTP session.
`quit`

Subscribing to Support updates

To stay informed of important information about the IBM products you use, you can subscribe to updates.

About this task

By subscribing to receive updates, you can receive important technical information and updates for specific IBM Support tools and resources. You can subscribe to updates by using one of two approaches:

RSS feeds and social media subscriptions

The following RSS feeds and social media subscriptions are available for IBM Analytical Decision Management:

- IBM Analytical Decision Management Information Center, which has an RSS feed you can use to be informed of updates to the information.

For general information about RSS, including steps for getting started and a list of RSS-enabled IBM web pages, visit the www.ibm.com/software/support/rss/ site.

My Notifications

With My Notifications, you can subscribe to Support updates for any IBM product. (My Notifications replaces My Support, which is a similar tool you might have used in the past.) With My Notifications, you can specify that you want to receive daily or weekly e-mail announcements. You can specify what type of information you want to receive (such as publications, hints and tips, product flashes (also known as alerts), downloads, and drivers). My Notifications enables you to customize and categorize the products about which you want to be informed and the delivery methods that best suit your needs.

Procedure

To subscribe to Support updates:

1. Subscribe to the IBM Analytical Decision Management Information Center RSS feed, which enables you to stay informed of regular updates to the information. To set up your RSS feed, go to the information center RSS feed setup page.
2. Subscribe to the IBM Analytical Decision Management RSS feed, which enables you to stay up-to-date with the latest IBM Software Support content for the product. To subscribe, go to the IBM Analytical Decision Management RSS feeds page.
3. To subscribe to My Notifications, go to the IBM Support Portal and click **Manage all my subscriptions** in the Notifications portlet.
4. Sign in using your IBM ID and password, and click **Submit**.
5. Identify what and how you want to receive updates.
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 - b. Click **Information Management** or another software brand or type of hardware.
 - c. Click **SPSS Decision Management** and select the names of any additional products you use. Click **Continue**.
 - d. Select your preferences for how to receive updates, whether by e-mail, online in a designated folder, or as an RSS or Atom feed.
 - e. Select the types of documentation updates you want to receive, for example, new information about product downloads and discussion group comments.
 - f. Click **Submit**.

Results

Until you modify your RSS feeds and My Notifications preferences, you receive notifications of updates that you have requested. You can modify your preferences when needed (for example, if you stop using one product and begin using another product).

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Chapter 2. General troubleshooting

Troubleshooting checklist for IBM Analytical Decision Management

Are the required prerequisites installed and running?

IBM Analytical Decision Management requires the following prerequisite software. When you encounter problems, verify the following prerequisites are installed properly. See the installation documentation for more detailed system requirements information.

- IBM SPSS Collaboration and Deployment Services Server. See the IBM SPSS Collaboration and Deployment Services documentation for installation instructions and troubleshooting information.
- IBM SPSS Modeler Server. You can install on a different machine or the same machine as IBM SPSS Collaboration and Deployment Services, however IBM SPSS Modeler Server must be running in the same time zone as the application server used by IBM SPSS Collaboration and Deployment Services. See the IBM SPSS Modeler documentation for installation instructions.
- IBM SPSS Modeler Adapter. This is provided with IBM SPSS Modeler, and must be installed on the same machine where IBM SPSS Collaboration and Deployment Services is installed. See the IBM SPSS Modeler documentation for installation instructions.

The IBM SPSS Collaboration and Deployment Services Server and the IBM SPSS Modeler Server must both be running before launching IBM Analytical Decision Management. Wait several minutes after starting them before launching the product.

Have you set up the required server definition and credentials for IBM SPSS Modeler Server?

Before using IBM Analytical Decision Management, you must use IBM SPSS Collaboration and Deployment Services Deployment Manager to set up a server definition and credentials for your IBM SPSS Modeler Server. Otherwise users will be unable to log in to IBM Analytical Decision Management. See the IBM Analytical Decision Management installation documentation for instructions.

Are you using a custom URL?

The default IBM Analytical Decision Management URL is still the same (*http://hostname:port/DM*). But starting with version 6 of IBM SPSS Collaboration and Deployment Services, the base URL for launching IBM SPSS Collaboration and Deployment Services browser-based applications and IBM Analytical Decision Management is now customizable.

If you have problems accessing the IBM Analytical Decision Management URL or any IBM SPSS Collaboration and Deployment Services URLs, an administrator may have customized them. Contact your administrator. More information is available in the *Application context roots* chapter of the *IBM SPSS Collaboration and Deployment Services Repository Installation and Configuration Guide*.

Collecting data for IBM Analytical Decision Management

When troubleshooting IBM Analytical Decision Management problems, and before contacting IBM Support, the following data should be collected.

- Take note of the following information. Much of this information can be collected using the browser-based IBM SPSS Collaboration and Deployment Services Deployment Manager (*http://hostname:port/security/login*). After logging on, click **About** and then click **Show Detail**. Versions of many components will be listed. You can also use the links at the bottom of the screen to download version details, system details, and logs.

- Operating system
- IBM Analytical Decision Management version
- IBM SPSS Collaboration and Deployment Services version
- IBM SPSS Modeler Server version
- Application server and version
- Database and version
- Take note of which IBM Analytical Decision Management application was being used when the problem occurred, along with the specific data source used.
- If the IBM Analytical Decision Management installation fails, see the log files in the IBM SPSS Collaboration and Deployment Services \Server\log directory (for example, *C:\Program Files\IBM\SPSS\Deployment\6.0\Server\log*).

Chapter 3. IBM Analytical Decision Management troubleshooting

The topics in this section provide troubleshooting information related to IBM Analytical Decision Management. For troubleshooting information related to IBM SPSS Collaboration and Deployment Services, see the *IBM SPSS Collaboration and Deployment Services Troubleshooting Guide*.

Correcting incomplete Gains chart output

If you are using the JRockit JVM, you may see incomplete *Gains* chart output. When you run a job containing an IBM SPSS Modeler scenario file, with an Evaluation type of *Gains*, the resulting *Gains* chart may be incomplete.

JRockit produces wrong numerical results for expressions including NaN. To work around these issues, specify `-XstrictFP` as a parameter to the JVM or switch to a different JVM.

Managing versions of streams

IBM Analytical Decision Management projects are stored as IBM SPSS Modeler streams in the repository. Each time a stream is saved in the repository, a new version is created. Streams with a large number of versions may perform slower than streams with a smaller number of versions. We recommend managing the number of versions that exist in the repository by not keeping versions that are no longer needed. If you have an extremely large number of unneeded versions in your repository and are having trouble cleaning them up, you can contact your IBM SPSS Support representative for a repository utility that can help automate the clean-up work.

Before cleaning up old versions, we highly recommend backing up your repository as a precaution in case any needed files are accidentally deleted.

Verifying IBM SPSS Modeler Server connectivity

When IBM Analytical Decision Management cannot connect to the IBM SPSS Modeler Server, a vague error message is displayed when users try to log on. If you encounter this problem, do the following:

- Verify the server definition and credentials definition for the IBM SPSS Modeler Server are correct in IBM SPSS Collaboration and Deployment Services Deployment Manager client, and browser-based IBM SPSS Collaboration and Deployment Services Deployment Manager. See the *IBM Analytical Decision Management Installation Guide* for more information.
- Verify the IBM SPSS Modeler Server is set up correctly. See the following Technote for details.
<http://www-01.ibm.com/support/docview.wss?uid=swg21488191>

Segment rules

When creating segment rules in IBM Analytical Decision Management, note that a rule such as Age BETWEEN 50 and 20 will not return results. It is the same as the expression $x \leq \text{value}$ and $\text{value} < y$, which can never be true. This is consistent with SQL Server behavior. Age BETWEEN 20 and 50 is the correct format.

CPLEX models

Advanced users can tune the CPLEX parameters for IBM Analytical Decision Management to attain better performance on large data sets. We also recommend minimizing the number of possible allocations presented to CPLEX (the data volume). In other words, you should reduce the number of combinations (for example, the number of alternative offers allocated to each customer).

Administrators can use the **Advanced Options** button on the Optimize tab in IBM Analytical Decision Management to export CPLEX *.lp* or *.mps* files for troubleshooting purposes or to control certain CPLEX parameters.

Following is a list of CPLEX parameters that can be used for the CPLEX node in IBM SPSS Modeler client. These are the valid custom names that are recognized by the CPLEX integration with IBM Analytical Decision Management.

Important: Refer to the IBM ILOG CPLEX Optimization Studio documentation for details about these settings. Note that they may have and adverse affect on IBM Analytical Decision Management's performance.

Table 1. CPLEX parameters

Boolean Settings	Floating Point Settings	Integer Settings	String Settings
CloneLog	EpMrk	AdvInd	WorkDir
PreInd	EpOpt	RootAlg	FileEncoding
MIPOrdInd	EpPer	NodeAlg	APIEncoding
MPSLongNum	EpRHS	MIPEmphasis	IntSolFilePrefix
LBHeur	NetEpOpt	AggInd	
PerInd	NetEpRHS	ClockType	
PreLinear	TiLim	CraInd	
DataCheck	DefTiLim	DepInd	
QPmakePSDInd	TuningTiLim	PreDual	
MemoryEmphasis	BtTol	PrePass	
NumericalEmphasis	CutLo	RelaxPreInd	
	CutUp	RepeatPresolve	
	EpGap	Symmetry	
	EpInt	DPriInd	
	EpAGap	PriceLim	
	EpRelax	SimDisplay	
	ObjDif	NetFind	
	ObjLLim	PerLim	
	ObjULim	PPriInd	
	PolishTime	ReInv	
	PolishAfterEpAGap	ScaInd	
	PolishAfterEpGap	Threads	
	PolishAfterTime	AuxRootThreads	
	ProbeTime	ParallelMode	
	RelObjDif	SingLim	
	CutsFactor	Reduce	

Table 1. CPLEX parameters (continued)

Boolean Settings	Floating Point Settings	Integer Settings	String Settings
	TreLim	ColReadLim	
	SolnPoolGap	RowReadLim	
	SolnPoolAGap	WriteLevel	
	WorkMem	SiftDisplay	
	BarEpComp	SiftAlg	
	BarQCPEpComp	BrDir	
	BarGrowth	Cliques	
	BarObjRng	CoeRedInd	
	EpLin	Covers	
		MIPDisplay	
		NodeFileInd	
		NodeSel	
		VarSel	
		BndStrenInd	
		FPHeur	
		MIPOrdType	
		FlowCovers	
		ImplBd	
		Probe	
		GUBCovers	
		StrongCandLim	
		FracCand	
		FracCuts	
		PreslvNd	
		FlowPaths	
		MIRCuts	
		DisjCuts	
		ZeroHalfCuts	
		MCFCuts	
		AggCutLim	
		EachCutLim	
		DiveType	
		MIPSearch	
		MIQCPStrat	
		SolnPoolCapacity	
		SolnPoolReplace	
		SolnPoolIntensity	
		PopulateLim	
		BarAlg	
		BarColNz	

Table 1. CPLEX parameters (continued)

Boolean Settings	Floating Point Settings	Integer Settings	String Settings
		BarDisplay	
		BarOrder	
		BarCrossAlg	
		BarStartAlg	
		NetPPriInd	
		NetDisplay	
		ConflictDisplay	
		FeasOptMode	
		TuningMeasure	
		TuningRepeat	
		TuningDisplay	
		MIPKappaStats	
		SolutionTarget	

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