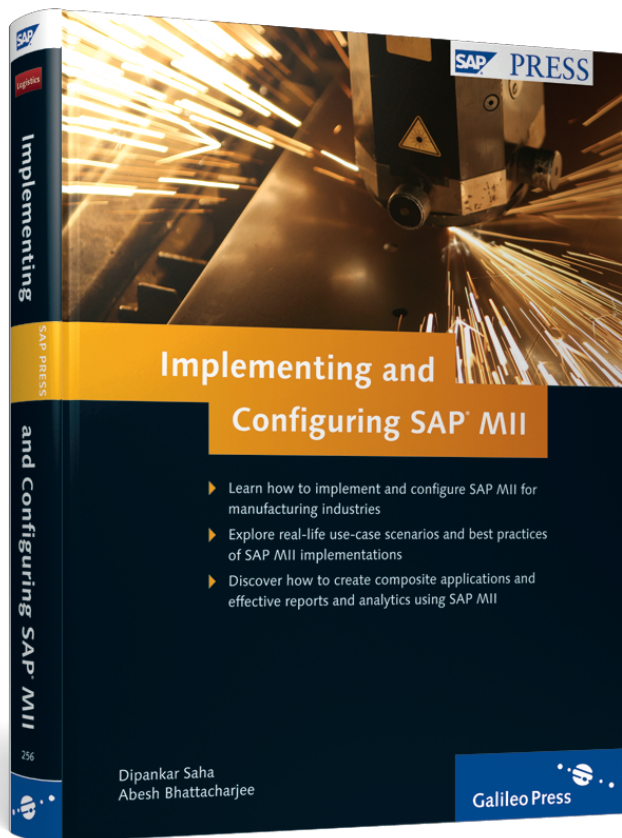


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Implementing and Configuring SAP® MII



 Galileo Press

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Contents at a Glance

1	SAP MII: A New Composition Platform for Manufacturing Integration and Analytics	29
2	Administrating and Configuring SAP MII	39
3	Managing Manufacturing Plant Floor Integration with SAP MII	71
4	Developing Composite Applications in SAP MII: The Basics ...	119
5	Display Templates: Let Your Data Speak	153
6	Business Logic Transactions: Intelligence in Action	231
7	Animated Objects: Making Dynamic Visualizations	343
8	Web Scripting and Reports: Weaving It All Together	353
9	Advanced Techniques for SAP MII Composite Application Development	383
10	Implementing SAP MII Composite Applications	427
A	New Features in SAP MII 12.1	449
B	The Authors	451

Contents

Foreword	13
Foreword	15
Acknowledgments	17
Preface	19
Introduction	21

1 SAP MII: A New Composition Platform for Manufacturing Integration and Analytics 29

1.1 SAP MII as a Manufacturing Integration Platform	29
1.2 SAP MII as a Manufacturing Intelligence Platform	32
1.3 Application Architecture of SAP MII	36
1.4 Summary	38

2 Administrating and Configuring SAP MII 39

2.1 User Management and WebAS Administration in SAP MII	39
2.2 System Management of SAP MII	45
2.2.1 System Administration	46
2.2.2 System Jobs	48
2.2.3 Scheduler	48
2.2.4 Schedule Editor	50
2.2.5 Active Sessions	53
2.2.6 Custom Attributes	53
2.2.7 Custom Attribute Mapping	55
2.2.8 Configurations	56
2.2.9 Projects	59
2.2.10 Custom Actions	60
2.2.11 PDF Fonts	62
2.2.12 JDBC Drivers	62
2.2.13 Applet Debugging	64
2.3 Security Services in SAP MII	64
2.3.1 System Security	65
2.3.2 Data Access	68
2.4 Summary	69

3	Managing Manufacturing Plant Floor Integration with SAP MII	71
3.1	Data Servers: Connecting to the Manufacturing Plant Floor	71
3.1.1	DataSource Connector	76
3.1.2	IDBC Connector	77
3.1.3	IP21OLEDB Connector	78
3.1.4	InSQL Connector	83
3.1.5	OLAP Connector	84
3.1.6	Open Connector	85
3.1.7	OLEDB Connector	89
3.1.8	Simulator Connector	90
3.1.9	Universal Data Connector	91
3.1.10	Virtual Connector	95
3.1.11	Xacute Connector	96
3.2	Message Services: Synchronizing the Manufacturing Plant Floor with the Enterprise	96
3.2.1	Configuring the Message Listeners	98
3.2.2	Configuring the Processing Rules for Messages	109
3.2.3	Using the Message Monitor	112
3.2.4	Configuring and Using the Message Cleanup Rules	116
3.3	Summary	118
4	Developing Composite Applications in SAP MII: The Basics ...	119
4.1	Using the SAP MII Workbench	119
4.1.1	Layout	120
4.1.2	Content Organization and Management	121
4.1.3	Important Menu Items and Functionality	123
4.1.4	SAP MII Content Security	124
4.2	Configuring Query Templates	126
4.2.1	Data Source Configuration	129
4.2.2	General Configuration	130
4.2.3	Date Range Configuration	133
4.2.4	Parameters Configuration	137
4.2.5	Transformation Configuration	137
4.2.6	Security Configuration	139
4.3	Types of Query Templates	139
4.3.1	OLAPQuery	139

4.3.2	SQLQuery	141
4.3.3	TagQuery	145
4.3.4	XacuteQuery	150
4.4	Summary	152

5 Display Templates: Let Your Data Speak 153

5.1	iGrid	154
5.1.1	iGrid Configuration Tabs	155
5.1.2	iGrid Subtypes	162
5.2	iTicker	166
5.3	iChart	168
5.3.1	iChart Configuration Tabs	168
5.3.2	iChart Subtypes	178
5.4	iSPCChart	191
5.4.1	iSPCChart Configuration Tabs	192
5.4.2	iSPCChart Subtypes	205
5.4.3	SPC Analysis Using iSPCChart	217
5.5	iBrowser	221
5.6	iCommand	225
5.7	iCalendar	228
5.8	Summary	229

6 Business Logic Transactions: Intelligence in Action 231

6.1	Introduction	231
6.2	Logic, Tracing, and Miscellaneous Functions	241
6.2.1	Logic Action Blocks	241
6.2.2	Miscellaneous Functions Action Blocks	252
6.2.3	Logging Action Blocks	256
6.3	Working with XML	260
6.3.1	SAP xMII XML Output Action Blocks	260
6.3.2	XML Functions Action Blocks	267
6.3.3	Reference Documents Action Blocks	284
6.4	Connecting to the Enterprise Systems	287
6.4.1	Creating an SAP Server Alias	287
6.4.2	SAP JCo Interface Action Blocks	289
6.4.3	SAP JRA Interface Action Blocks	293
6.4.4	SAP ERP System Interface Action Blocks	296

6.4.5	Using SSO in JCo Action Blocks	298
6.4.6	SAP XI Action Blocks	299
6.4.7	Web Service	302
6.4.8	Message Services Action Blocks	303
6.4.9	Manufacturing Dashboards Action Blocks	309
6.5	Managing the Plant Data	311
6.5.1	Data Queries Action Blocks	311
6.5.2	Queuing Action Blocks	314
6.6	Charts, Animated Objects, and SQC Analysis	317
6.6.1	Charts Action Blocks	317
6.6.2	Quality Action Blocks	319
6.6.3	Dynamic Graphics Action Blocks	322
6.7	Web, Email, and File Handling	324
6.7.1	Web Action Blocks	324
6.7.2	Email Action Blocks	328
6.7.3	PDF Action Blocks	331
6.7.4	File I/O Action Blocks	336
6.8	Executing BLS Transactions	340
6.9	Summary	342
7	Animated Objects: Making Dynamic Visualizations	343
7.1	Introduction	343
7.2	Configuring an Animated Object using the SAP MII Workbench	344
7.2.1	Select SVG Document	345
7.2.2	Properties	346
7.2.3	Calculated Properties	347
7.2.4	View SVG Document	348
7.2.5	Links	348
7.2.6	Preview	350
7.2.7	Description	350
7.3	Displaying Animated Objects	350
8	Web Scripting and Reports: Weaving It All Together	353
8.1	Web Scripting	353
8.1.1	Common Applet Methods	355
8.1.2	Common Applet Properties	358

8.1.3	Common Applet Events	358
8.2	SAP MII Reports	362
8.3	Customizing Content for Mobile Devices	364
8.4	SAP MII Scripting: Common Use Case Scenarios	364
8.4.1	Displaying Data	364
8.4.2	Creating/Changing Data	366
8.4.3	Displaying Charts	369
8.4.4	Using the iBrowser	371
8.4.5	Displaying Animated Objects	372
8.5	Localizing the Web Content	374
8.6	Enterprise Portal Integration: Make the Shop Floor Visible to the Enterprise	376
8.6.1	Using the SAP MII Portal	376
8.6.2	Using the SAP Enterprise Portal	379
8.7	Summary	381

9 Advanced Techniques for SAP MII Composite Application Development 383

9.1	Creating and Deploying a Custom Action Block	383
9.2	Using XPath Expressions in BLS Transactions	391
9.3	Creating Dynamic Queries Using JavaScript	396
9.3.1	Dynamically Specifying Selection Columns	397
9.3.2	Limiting Number of Rows of Data Returned	397
9.3.3	Filtering Data	398
9.3.4	Sorting Data	398
9.4	Executing a BAPI/RFC with a Table as an Input Parameter	398
9.4.1	Solution Overview	399
9.4.2	Solution Walkthrough	399
9.4.3	An Alternative Approach	403
9.5	Using Virtual Servers for Communication Between SAP MII Servers	404
9.5.1	Troubleshooting	407
9.6	Autobind and Session Variables in SAP MII	407
9.6.1	Example	408
9.7	Dynamic Data Exchange Between SAP MII Web Pages	411
9.7.1	Methods of Passing Variables Between Pages	412
9.7.2	SAP MII Session Variables	412
9.7.3	SAP MII Reports	413

9.7.4	Weaving It All Together	414
9.8	Implementing Role-Based Access to SAP MII Web Pages	417
9.9	SAP MII Services: The Power Behind SAP MII	418
9.9.1	Admin Service	419
9.9.2	Scheduler Service	421
9.9.3	SystemInfo Service	422
9.10	Summary	425
10 Implementing SAP MII Composite Applications		427
10.1	Specifying and Designing SAP MII Composite Applications	427
10.1.1	Collecting Information Using a Pre-Implementation Questionnaire	428
10.1.2	Specifying the SAP MII Implementation Requirements ...	429
10.1.3	Designing the SAP MII Implementation Solutions	430
10.1.4	Best Practices for Developing SAP MII Solutions	430
10.2	Solution Architecture of SAP MII Implementations	432
10.2.1	Implementation Architecture of SAP MII	434
10.2.2	Application Architecture of SAP MII Composite Applications	436
10.3	Troubleshooting of SAP MII Composite Applications	438
10.4	Implementing ISA-95/B2MML in SAP MII	440
10.5	Implementation Scenarios of SAP MII in Manufacturing Industries	443
10.5.1	Simpler User Interface and Enterprise Integration	444
10.5.2	Plant Systems Integration and Manufacturing Dashboards	445
10.5.3	Enterprise Services for the Manufacturing Plant Floor	445
10.6	Summary	446
Appendices		447
A	New Features in SAP MII 12.1	449
B	The Authors	451
Index		453

This chapter explains the general configurations required in SAP MII, such as user management and basic Java WebAS administration, along with system management and security services.

2 Administrating and Configuring SAP MII

As SAP MII is a development and a deployment platform for manufacturing composites running on SAP NetWeaver, administration and configuration of the server is an important and regular activity to ensure smooth operations.

In this chapter, you learn how to create users, assign required roles, and configure other aspects of SAP NetWeaver J2EE WebAS for running SAP MII. You also learn about the system administration and security configurations of SAP MII using the System Management and System Security menu options.

2.1 User Management and WebAS Administration in SAP MII

SAP MII 12.0 is installed on SAP NetWeaver 7.0 J2EE WebAS with a minimum support package stack level of SP14. You need to configure the sizing of the hardware according to the SAP NetWeaver 7.0 J2EE sizing guide, using the Quick Sizer tool available in the SAP Service Marketplace at <http://service.sap.com/quicksizer>. The usage type of the SAP NetWeaver installation is Application Server Java.

Example

A sample production installation setup of SAP MII 12.0 is as follows:

Hardware

- ▶ Server Hardware—DB/CI - IBM 9119 server
- ▶ Number of CPUs—4
- ▶ RAM—6GB, Swap space—47GB
- ▶ System Disk—122GB

- ▶ Data Disk—200GB
- ▶ Clone Backup Disk—200GB
- ▶ Disaster Recovery Disk—200GB

Software

- ▶ Operating System—AIX OS 5.3
- ▶ Database—IBM DB2 - V9.5.1
- ▶ SAP NetWeaver Java SP14
- ▶ SAP MII V12.0.4
- ▶ JDK 1.4.2_08

This setup is for approximately 150 concurrent users.

The SAP NetWeaver J2EE engine on which SAP MII is installed might also have the SAP Enterprise Portal installed, which can be used as the portal for MII. If SAP Enterprise Portal is installed on the same WebAS as SAP MII, sizing must be done accordingly.

From SAP MII 12.0, the user management is handled by the SAP NetWeaver J2EE WebAS User Management Engine (UME). The following user roles are required and created by the MII installation:

- ▶ XMII Users
- ▶ XMII Developers
- ▶ XMII Administrators

You need to assign the users of SAP MII to at least one of the preceding roles. Assign the XMII Administrators role only to the systems administrators, the XMII Developers role to the developers who develop the composite applications using SAP MII Workbench, and the XMII Users role to all users running applications developed on SAP MII. These three roles are used in the development objects security by default, but apart from these roles, you can create project- or application-specific roles in the UME and can use them to assign security permissions to development objects.

To create new users and assign the MII roles, open the User Administration Screen from <http://<servername>:<port>/useradmin> and click on Create User or on Copy to New User, if an existing user needs to be copied. In the Assigned Roles tab, add the required SAP MII roles as mentioned previously or any other roles required, as seen in Figure 2.1. You can also use external Lightweight Directory Access Protocol

(LDAP) or Central User Administration (CUA) engines for the user management by connecting the SAP NetWeaver UME with it.

Search Criteria: User | All Data Sources | demouser | Go | Advanced Search

Select All | Deselect All | Create User | Copy to New User | Delete | Unlock | Lock | Generate New Password | Export

Type	Status	Logon ID	Name	Department
		demouser	User, Demo	

Row 1 of 1

Details of User demouser

Modify

General Information | Account Information | Contact Information | Additional Information | **Assigned Roles** | Assigned Groups | User

Assigned Roles

Search Criteria: All Data Sources | Search Recursively | Go

Name	Description	Data Source
XMII Developers		UME Database
XMII Administrators		UME Database
XMII Users		UME Database

Figure 2.1 User Management for SAP MII

Logging and tracing functionality is also provided by the SAP NetWeaver logging service, which is used by SAP MII for logging purposes. You can view the system logs from the SAP NetWeaver Administrator (NWA). To view the logs, open SAP NetWeaver Administrator (<http://<servername>:<port>/nwa>) and navigate to ANALYSIS • DEBUG • LOGS & TRACES. The application ID for SAP MII is *sap.com/xapps~xmii~ear*, which you can use to filter the logs. By default, the tracing level is set to Error for the SAP MII application, which means only logs of type error are logged. You can change the tracing level if required for debugging purposes. To set the tracing level, navigate to SAP NETWEAVER ADMINISTRATOR • SYSTEM MANAGEMENT • CONFIGURATION • LOG CONFIGURATION. Select Tracing Locations from the Show dropdown list, then select ROOT LOCATION • COM • SAP • XMII from the tree view, and if required, change the log severity level to any other option available in the dropdown list, as shown in Figure 2.2. The trace severity level can be set to any one of the following options:

- ▶ **All:** Logs messages of any severity
- ▶ **Debug:** Used for debugging purposes, with extensive and low-level information
- ▶ **Path:** For tracing the execution flow; for example, used in the context of entering and leaving a method and looping and branching operations
- ▶ **Info:** Informational text, mostly for echoing what has already been performed
- ▶ **Warning:** The application can recover from an anomaly and fulfill the required task, but needs attention from a developer/operator
- ▶ **Error:** The application can recover from an error, but it cannot fulfill the required task because of the error
- ▶ **Fatal:** The application cannot recover from an error, and the severe situation causes fatal termination
- ▶ **None:** Logs no messages

Two trace locations are present under XMII as Illuminator and Xacute, as shown in Figure 2.2, for which you can configure the trace severity levels. Xacute logs all messages related to Business Logic Services Transactions, and Illuminator logs the rest, such as Query Templates and Display Templates.

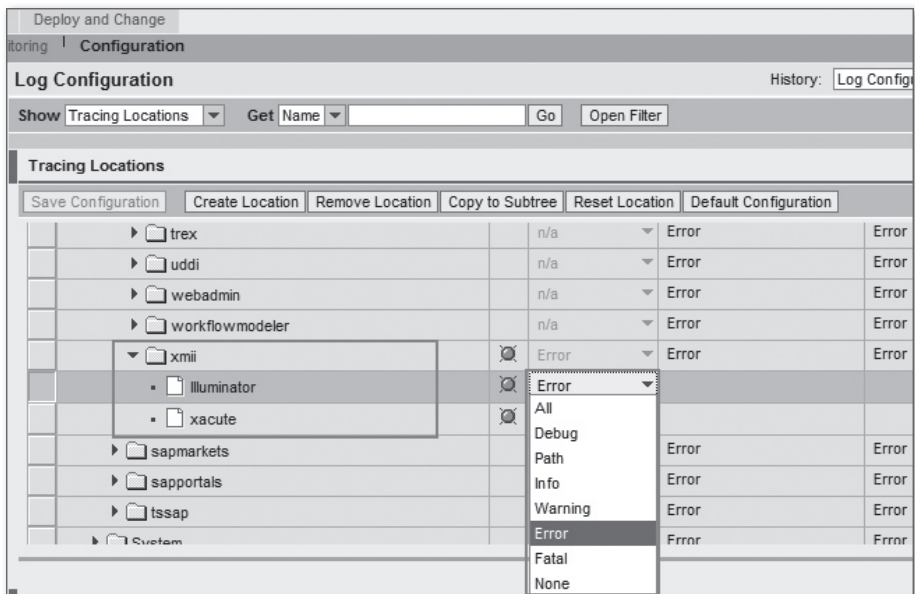


Figure 2.2 Trace Level Configuration for SAP MII

SAP MII uses RFC or BAPI interfaces to connect to enterprise systems such as SAP ERP. Both SAP Java Connector (SAP JCo) and SAP Java Resource Adapter (JRA) are provided in SAP MII for executing RFC and BAPI from Advanced Business Application Programming (ABAP) systems. SAP JCo needs to be installed separately in SAP MII 12.0 till SPS03, but from SPS04 separate installation of SAP JCo is not required.

In addition, SAP JRA is provided in SAP NetWeaver as an add-on to SAP JCo, which you can use for executing BAPI/RFC from SAP MII Business Logic Transactions. It is recommended you use JRA over JCo because it provides a number of advantages, such as load balancing, connection management, data buffering, and the connection properties are managed by the SAP WebAS in the case of the JRA, and thus, no user level configuration in SAP MII is needed by the user unlike SAP JCo. To use SAP JRA you need to install it as an add-on and then configure it separately for each ABAP system from where the BAPI/RFC will be executed.

The JRA library is available on the system where SAP NetWeaver has been installed under the following folder:

<Drive>\usr\sap\<SID>\sys\global\ra\sapjra.rar

To deploy it on the NetWeaver WebAS, you would need to use DeployTool, which can be started using the batch file provided under *<drive>:\usr\sap\<SID>\JC<XX>\j2ee\deploying\DeployTool.bat*. After DeployTool has been launched, open a new project, give it a name, and browse to the Deployer tab. Select **DEPLOY • EAR • LOAD MODULE**, select the *sapjra.rar* file, and click OK. Select the *sapjra.rar* entry in the left pane to view its properties and browse to the Server Settings property on the right. Select the Auth Type as "Caller Impersonation." You can configure the other JRA properties now or later through Visual Administrator, as described later in this chapter. Connect to the WebAS you want to deploy the library to using **DEPLOY • CONNECT** and Deploy the Library using, **DEPLOY • DEPLOYMENT • DEPLOY MODULE**. Enter an application name, which can be any value of your choice, and when asked, select Yes to start the application. SAP JRA library should be successfully deployed into the server.

To configure SAP JRA in NetWeaver, use the following steps:

1. Open the SAP NetWeaver Visual Administrator from the following SAP J2EE Engine installation path: **<DRIVE>\USR • SAP • <SYSID> • JC70 • J2EE • ADMIN • GO.BAT**.

2. Log on to Visual Administrator.
3. Open the Services node on the left in the tree under the required server name, and select the Connector Container service.
4. Open the tree on the Runtime tab and select *sap.com/sapjra.rar*.
5. Under the Properties tab, specify the connection details for an ABAP system, as shown in Figure 2.3.

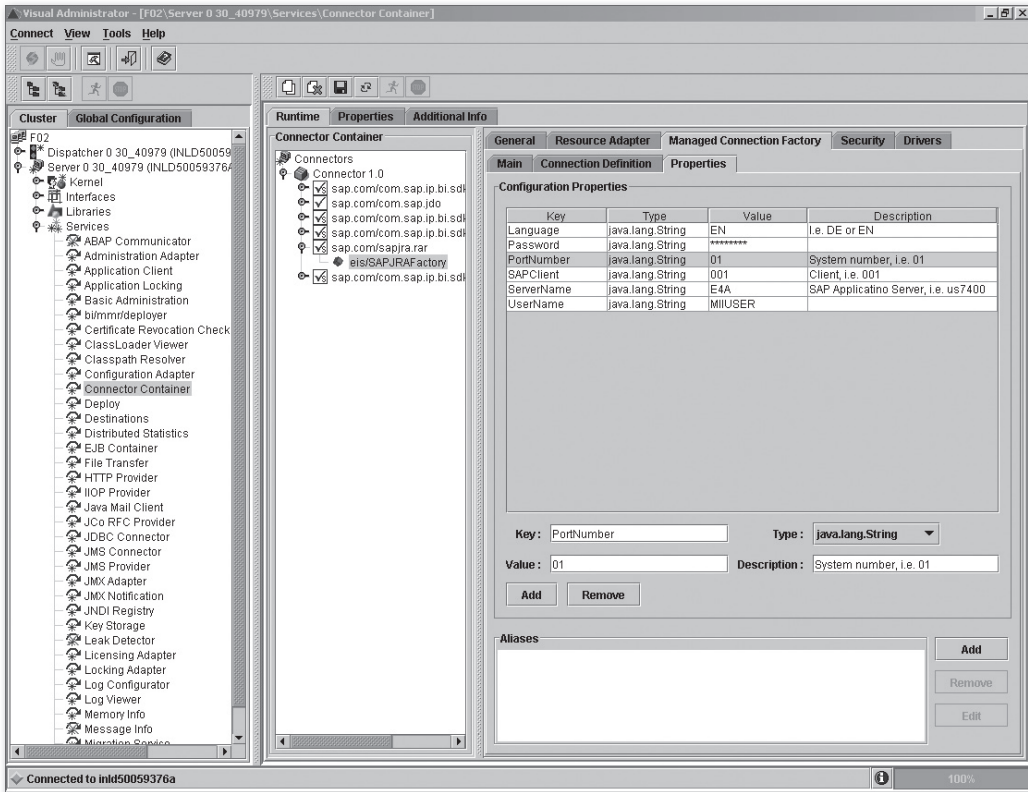


Figure 2.3 SAP JRA Configuration in Visual Administrator

You need to install Universal Data Server (UDS) or SAP MII UDS 4.0 separately in a server having either Microsoft Windows XP Service Pack 2 or later or Microsoft Windows Server 2003 Service Pack 1 or later. You can use UDS to retrieve data from Supervisory Control and Data Acquisition (SCADA) systems and historical data systems that support the industry standard OPC Data Access (DA) and OPC Historical Data Access (HDA) interfaces. SAP MII UDS also provides data connec-

tivity to OLE DB-compliant data sources such as Microsoft Access and Excel. The various connectors for these systems are configured in the SAP MII UDS Admin Console, which is then used in the data servers configuration in SAP MII. You also need to deploy the different database drivers to be used by the data servers separately using the JDBC Drivers menu, which is explained further in Section 2.2.12 JDBC Drivers.

After you've got all that installed and configured, you can access SAP MII via the following URL: *http://<servername>:<port>/XMII/Menu.jsp*. The server name is the SAP NetWeaver J2EE WebAS hostname, and port is the corresponding HTTP port.

Now that you understand how to create users and configure the WebAS for SAP MII, it's time to move on to the SAP MII configurations using the System Management menu.

2.2 System Management of SAP MII

In SAP MII you can configure the system-wide settings under the System Management menu and enable the SAP MII administrator to manage and monitor the global configurations.

System Management in SAP MII mainly constitutes of the following tasks or menu options:

- ▶ System Administration
- ▶ System Jobs
- ▶ Scheduler
- ▶ Schedule Editor
- ▶ Active Sessions
- ▶ Custom Attributes
- ▶ Custom Attribute Mapping
- ▶ Configurations
- ▶ Projects
- ▶ Custom Actions

- PDF Fonts
- JDBC Drivers
- Applet Debugging

The next sections delve deeper into each of these tasks and to see how each can be configured.

2.2.1 System Administration

You can use the System Administration menu, as seen in Figure 2.4, to set global system property values. You need to assign the Admin and SystemEditor security services to a user, explained in Section 2.3.1 System Security, to enable access to the System Administration menu.

System Administration	
Description	Default System Configuration
Language	en
Name	default
ProxyBypassList	
ProxyBypassLocal	<input checked="" type="checkbox"/>
ProxyHost	
ProxyPort	8080
ProxyUserName	
ProxyUserPassword
ResolveMachineName	<input type="checkbox"/>
RunInterval	1 Hours
SessionTimeout	120

Save Summary Help

Figure 2.4 System Administration

The system properties explained in Table 2.1 are available for configuration in System Administration.

Property	Description
Description	A short text description of the configuration settings.
Language	Sets the default system language.
Name	A name that also acts as an identifier for the configuration settings.
ProxyBypassList	A comma-separated list of server names or IPs for which the proxy server should be bypassed.
ProxyBypassLocal	Indicator for whether the proxy server should be bypassed for servers in the same network.
ProxyHost	The hostname or IP of the proxy server.
ProxyPort	The port to which the proxy server defined above is listening.
ProxyUserName	Proxy authentication information, the user name to log on to the proxy server.
ProxyUserPassword	Proxy authentication information, the password for the user name declared previously.
ResolveMachineName	Indicator for whether SAP MII resolves and logs the machine name of the requesting system. If unchecked, only the IP is logged.
RunInterval	Duration in hours that defines the interval at which the message cleanup rules run (see Section 3.2).
SessionTimeOut	Duration in minutes after which idle user sessions are terminated by SAP MII.

Table 2.1 System Properties

The Language property in SAP MII System Administration is overridden by the logged on user's locale or language attribute, if set.

To enable localization features, SAP MII reads the language settings in the following order until it finds one:

- ▶ Locale attribute of the user, set in the SAP User Management Engine (UME)
- ▶ Language attribute of the user, set in the SAP User Management Engine (UME)
- ▶ The browser's language

- ▶ The Language property in SAP MII System Administration menu
- ▶ The Java Virtual Machine (JVM) language.

Note

If your organization accesses the Internet through a corporate firewall or proxy, we advise that you configure the proxy settings in the System Management screen. This configuration enables you to access any HTTP service or Web service on the Internet through SAP MII. For example, if you want to create a composite application that wants to geo-code a particular street address and in turn display the location on the map, you would need to access the Yahoo! geo-coding Web service and also the Google Maps service, and the proxy configuration in SAP MII is the only way to access them behind a firewall.

2.2.2 System Jobs

System jobs are tasks that run in the background at regular intervals and perform internal maintenance of the SAP MII server and content.

This menu option displays a list of the default system jobs running on the SAP MII server.

You find three default jobs running on any SAP MII server.

- ▶ **SessionLogger:** Runs every 30 minutes and logs system usage via the number of active users and the number of unique users.
- ▶ **SecurityObjectReferenceCleaner:** Runs once every 7 days; checks for and deletes invalid system and server permission roles, custom attribute roles, and users in the respective database tables.
- ▶ **TempFileCleaner:** Runs once an hour and cleans up the temporary files table.

2.2.3 Scheduler

The Scheduler menu, shown in Figure 2.5, provides overview and information about all the tasks that are scheduled by the user. It wakes up every 500 milliseconds to check for jobs that are ready to run and then executes them. Using the scheduler, any Business Logic Transaction can be executed periodically to do various activities, such as pull data from manufacturing plant-floor systems by data queries, execute a Web service or RFC, and calculate and update a KPI.

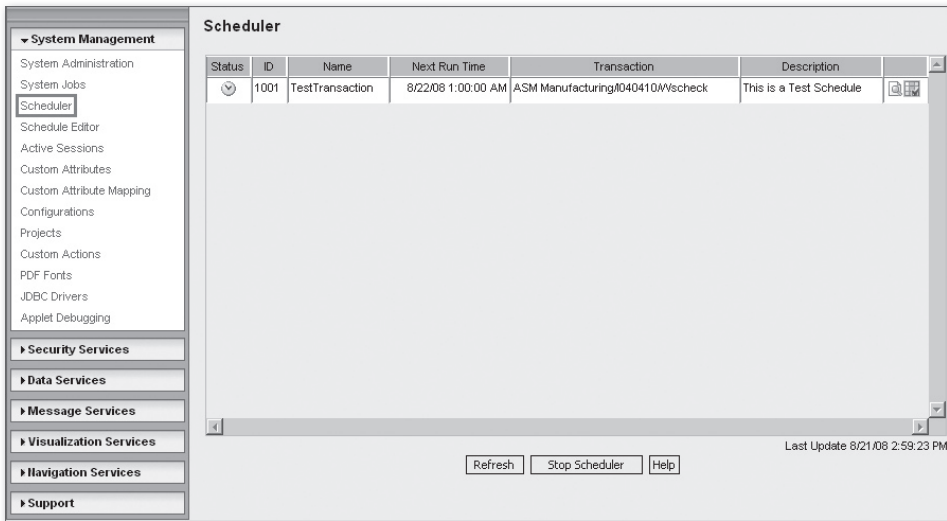


Figure 2.5 Scheduler View

The Scheduler screen displays the following information about the scheduled jobs:

- ▶ **Status:** The status of the job. The values can be Stopped, Pending, and Running.
 - ▶ Stopped: The job is currently stopped. Tasks that are not enabled have this status.
 - ▶ Pending: The job is scheduled and pending its next run.
 - ▶ Running: The scheduled job is running at the current moment.
- ▶ **ID:** The Job ID of the scheduled job.
- ▶ **Name:** The name of the job as set in the Schedule Editor.
- ▶ **Next Run Time:** The time when this scheduled job will run next.
- ▶ **Transaction:** The full path of the Business Logic Transaction that has been scheduled to run.
- ▶ **Description:** The description of the job as set in the Schedule Editor.

Other than the information just mentioned, the Scheduler also enables the administrator or any user with appropriate rights to view the Job Run Schedule (📅) and the Job Run History (📋). These functionalities are provided in the last column of the Scheduler view. The Job Run Schedule functionality displays a schedule of the

next 20 scheduled times the job is going to be run. The Job Run History displays details of the previous execution attempts of the scheduled job with the status, duration, and details.

2.2.4 Schedule Editor

You can use the Schedule Editor to schedule a Business Logic Transaction to be executed at regular intervals. You need to assign the ScheduleEditor security service to a user to enable access to the Scheduler Editor screen, as seen in Figure 2.6. Any job that is scheduled using the Schedule Editor appears in the Scheduler overview previously explained in Section 2.2.3 Scheduler.

Figure 2.6 Schedule Editor

The parameters explained in Table 2.2 are available when you are configuring a new SAP MII scheduled job.

Parameters	Description
Name	The scheduled job's name.
Description	A description of the job, what it is supposed to do.
Enabled	When checked, enables the job to run periodically according to the cron pattern. The job is not scheduled if this checkbox is not checked.

Table 2.2 Scheduler Configuration Properties

Parameters	Description
Transaction	The Business Logic Services (BLS) Transaction that will be scheduled to run.
Run As Username	The user whose credentials are used to run the job.
Run As Password	The password of the user mentioned previously.
Parameters	The input parameters, if any, of the Transaction selected previously are displayed here. The user should ideally enter the values of the input parameters which would be used while running the transaction as a scheduled job.
Pattern	A cron pattern that determines the schedule of the job to be run.

Table 2.2 Scheduler Configuration Properties (Cont.)

You can create the cron pattern, which you use to determine the schedule, either manually or using the Build Pattern screen. The Build Pattern screen is invoked by clicking the Build Pattern (🔗) button and enables creation of cron patterns with ease.

The screen has four tabs (Figure 2.7) and enables users to create jobs that run at intervals of seconds, hours, days, and months. You can further fine-tune the job schedule by configuring the parameters in each of the tabs.

Figure 2.7 Scheduler Build Pattern

For example, we can create a job schedule that runs at the forty-fifth minute of each hour between 8:00 a.m. and 6:00 p.m. on all days except Saturdays and Sundays. The way to do this is shown in Figure 2.7. In the Hourly tab of the Build Pattern screen, choose the From Hour...To Hour option in the Run Job options. Select 8 in the "From Hour" dropdown and 18 in the "To Hour" one. Now in the Run Within the Hour options, select At Minute, and then 45 from the dropdown list. Lastly, in the Run on Selected Days options, deselect Sun. and Sat. and then click on Save.

We now want to discuss how you can create a cron pattern manually. The cron pattern consists mainly of the following fields, separated by spaces: Second, Minute, Hour, Day of the Month, Month, and Day of the Week. Each of these fields can take a single value, a wildcard, comma-separated values, or a value range. The values that each of these fields accepts are as follows:

- ▶ Second and Minute: 0–59
- ▶ Hour: 0–23
- ▶ Day of the Month: 1–31
- ▶ Month: 0–11, with a value of zero (0) for January
- ▶ Day of the Week: 1–7 with a value of one (1) for Sunday
- ▶ Other than the values just mentioned, you can also use an asterisk (*) to denote every instance of that field, such as every second or every minute.
- ▶ Comma-separated values (for example, 25,26,27) in the Day of the Month field denotes every twenty-fifth, twenty-sixth, and twenty-seventh of the month.
- ▶ A value range (for example, 2–5) in the Day of the Week field denotes Monday, Tuesday, Wednesday, and Thursday of the week.
- ▶ You should note that comma-separated values and value ranges can be combined together (for example, 5,10–15,20). In the Day of the Month field, this would signify the fifth, tenth, eleventh, twelfth, thirteenth, fourteenth, fifteenth, and twentieth days of the month.

With all of these options, you can also use a step modifier (/). The step modifier indicates which values can be used in the ranges. For example, 4–36/4 in Minutes denotes that the job runs from the fourth to the thirty-sixth minute every hour at an interval of 4 minutes, that is, every fourth, eighth, twelfth, sixteenth, twentieth, twenty-fourth, twenty-eighth, thirty-second, and thirty-sixth minute of the hour.

Now try to analyze the cron pattern that was created by the preceding example: 0 45 8-18 * * 2,3,4,5,6. A zero (0) in the first field means that job runs on the first second of every forty-fifth minute, which is the second field. The value in the hour field is a range 8-18, which denotes the hours from 8:00 a.m. to 6:00 p.m. The values for Day of the Month and Month are both asterisks (*), which means the job executes for every day of the month and for every month of the year. Lastly, the Day of the Week has a comma-separated list 2,3,4,5,6, which stands for Monday (2) to Friday (6), but not Saturday (7) or Sunday (1).

2.2.5 Active Sessions

The Active Sessions menu displays a list of currently logged in users and their details. You need to assign the Admin security service to a user to enable access to the Active Sessions screen.

The Active Sessions screen displays the following information regarding the currently logged in user:

- ▶ **Login Name:** The username of the logged on user.
- ▶ **Full Name:** The complete name of the logged on user.
- ▶ **Email:** The email ID of the logged on user.
- ▶ **Created:** The date and time of the first access of the user account.
- ▶ **Last Access Time:** The date and time when the user account was last accessed.
- ▶ **Expiration Date:** The date and time when the logged on user's session timeouts.

2.2.6 Custom Attributes

Custom attributes are custom variables that you can add to an SAP MII role or user. The values of these variables can be accessed at runtime in the Business Logic Services (BLS) as session variables and can influence the logic of the application by allowing different branches of logic according to the value of the custom attribute.

In the Custom Attribute screen in Figure 2.8, clicking on the New button brings up the custom attribute configuration screen.

System Management

- System Administration
- System Jobs
- Scheduler
- Schedule Editor
- Active Sessions
- Custom Attributes**
- Custom Attribute Mapping
- Configurations
- Projects
- Custom Actions
- PDF Fonts
- JDBC Drivers
- Applet Debugging

Custom Attributes

Name
Color
Plant
Plant_No

Name *

Description

Required

Type

Field Size

Validation

Values

Default Value

Plant

Assigned Plant

☐

List

None

1000|1100|1200

New Save Delete Usage Help

Figure 2.8 Custom Attributes Configuration

The parameters explained in Table 2.3 are available when you are creating a custom attribute.

Parameters	Description
Name	The name of the custom attribute.
Description	Brief text describing the custom attribute.
Required	Checkbox to denote whether or not the custom attribute is mandatory. If checked, the default value needs to be assigned in the custom attribute configuration. This value is mapped to all roles and users.
Type	This denotes the type of field that is displayed on the custom attribute mapping page for roles and users. Values can be Text, Date, List, and RadioButton.
Field Size	The length of the text box if the custom field type selected above is Text. Accepts integers between 1 and 1000.

Table 2.3 Custom Attributes Configuration Properties

Parameters	Description
Validation	Defines the validation type if the custom attribute is of the type Text. Validation methods are numeric and alphanumeric. Ensures that only text of the type set by the validation method is allowed as values for the custom attribute.
Values	Relevant only if the custom attribute type is Date, List, or RadioButton. A date format can be entered for date types whereas a pipe-separated () list can be entered for RadioButton and List values. The values of the pipe-separated list appear as the choices of the List or RadioButton on the Custom Attribute Mapping screen.
Default Value	Denotes the default value of the custom attribute. Relevant only if the Required option is checked previously.

Table 2.3 Custom Attributes Configuration Properties (Cont.)

Custom attributes are like user variables. When you want to assign particular values to a user and make them available when the user logs in, you should use custom attributes. A typical business case would be if you want to make visible to the user only those production orders for the particular plant and work centers to which he is assigned. In this case you can create the values of the plant and work center as custom attributes and assign them to the users. This value can then be read at runtime and passed on to query templates or BLS Transactions for retrieving data filtered on the basis of these values. One such example is explained in Section 9.6 Autobind and Session Variables in SAP MII.

2.2.7 Custom Attribute Mapping

The Custom Attribute Mapping menu enables you to map a custom attribute to a role or a user that has been created using the Custom Attributes screen (Figure 2.8). You select the role or user by selecting the relevant tab in the Custom Attribute Mapping screen, as seen in Figure 2.9.

To map custom attributes to a user, select the user in the Users dropdown list and the custom attribute in the Attributes dropdown. Click on the Add button to add the custom attribute to the user, change the default value, if it has one, and click on Save to assign the attribute to the user. All required custom attributes are assigned to all users by default with their default values. You can change the value that is assigned in this case by manually mapping the attribute.

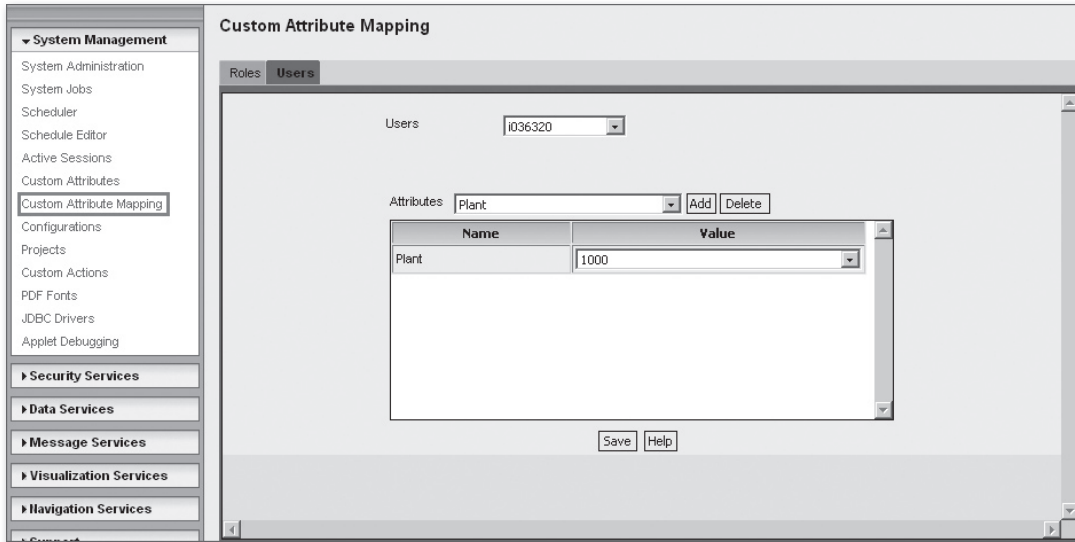


Figure 2.9 Custom Attribute Mapping to Users

Assigning attributes to roles is similar to that of assigning them to users. However, you need to keep in mind the priority that is assigned to the role when assigning a custom attribute to it. The priority is selected from the Priority dropdown list and is set to a default value of 50 for every role. When a user is assigned multiple roles with the same custom attribute but with different values, SAP MII applies the role with the lowest priority (0) last. So, the custom attribute value associated with the role with the lowest priority gets mapped to the user in this case. The value of the custom attribute in the role also overrides the default value of any required custom attributes that might be associated with the user.

To delete a custom attribute that is associated with a user or role, you need to select the row of the custom attribute that you want to delete, click on the Delete button, and then click on Save to make the changes permanent.

2.2.8 Configurations

The Configurations screen, shown in Figure 2.10, provides the option of backing up the system configuration as a ZIP file (xmiiibackup.zip) to a user-specified location on the local system and the ability to restore the system configuration from a similar backup archive. This feature is useful when you are transporting the configurations from one SAP MII installation to other (for example, from development

to production). You need to assign the ConfigurationManagement security service to a user to enable access to the Configurations screen.

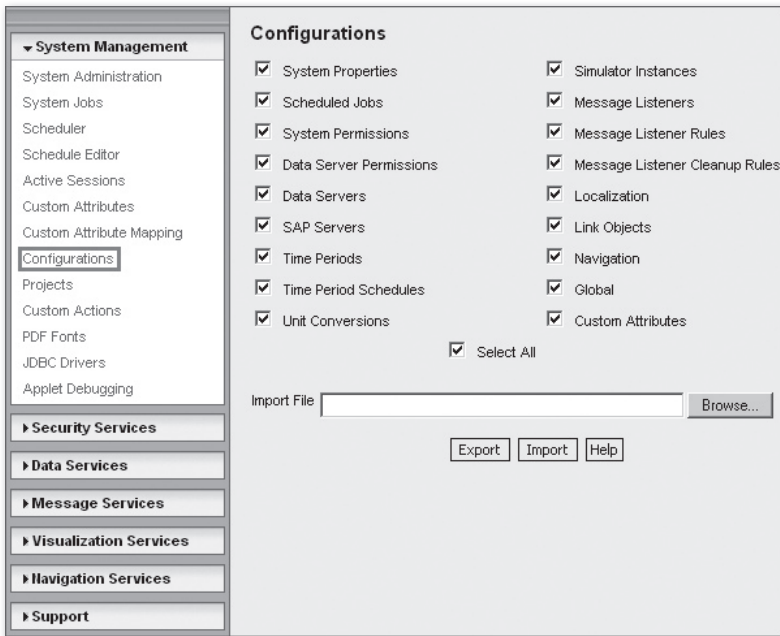


Figure 2.10 Configurations Backup

According to the options that are checked on the screen, the respective configurations are exported to an XML file, and the corresponding file is included in the xmiibackup.zip archive when you click the Export button.

The configuration types explained in Table 2.4 are available for export or import in SAP MII.

Configuration	XML File
System Properties	The system properties are backed up in the file SystemProperties.xml.
Simulator Instances	Each instance is backed up as a separate XML file as <SimulatorServerName>.xml in a folder called Simulator_files in the archive. The default Simulator Instance is backed up as DefaultSimulator.xml.

Table 2.4 System Configuration Backup Properties

Configuration	XML File
Scheduled Jobs	Each scheduled job is backed up as a separate XML file as <ScheduleName>.xml in a folder called Scheduler_Jobs in the archive.
Message Listeners	The Message Listeners configuration created in Message Services are backed up in the file MessageServers.xml.
System Permissions	The system permissions configured in security services are backed up in the file SystemPermissions.xml.
Message Listener Rules	The processing rules for message listeners created in Message Services are backed up in the file MessageProcessRules.xml.
Data Server Permissions	The security permissions for the data servers configured in security services are backed up in the file ServerPermissions.xml.
Message Listener Cleanup Rules	The cleanup rules created in Message Services are backed up in the file MessageCleanupRules.xml.
Data Servers	The data servers configured in Data Services are backed up in the file Servers.xml.
Localization	Localization settings are backed up as a separate XML file, <Language>.xml, in a folder called Localization in the archive.
SAP Servers	The SAP Server alias configurations created in Data Services are backed up in the file SAPServers.xml.
Link Objects	The navigation link objects configured in the visualization services are backed up in the file ContentMap.xml.
Time Periods	The time periods configured in Data Services are backed up in the file TimePeriods.xml.
Navigation	Each role or profile that has navigation profiles associated with it is stored as its corresponding XML file named <Role>.xml or <User>.xml in the corresponding ROLE or USER folder under a common Profiles folder.
Time Period Schedules	The time period schedules configured in Data Services are backed up in the file Schedules.xml.
Global	The global properties defined in the SAP MII installation are backed up in the file Globals.xml.
Unit Conversions	The unit conversion configurations are backed up in the file UnitConversions.xml.
Custom Attributes	The custom attributes configured in system administration are backed up in the file CustomAttributes.xml.

Table 2.4 System Configuration Backup Properties (Cont.)

In the case of an import, you need to browse for the backup archive file containing a previous export of the configuration from the local file system and click on Import to import the configuration archive file into SAP MII.

2.2.9 Projects

The Projects screen, shown in Figure 2.11, allows the SAP MII administrator (and any users with the ProjectManagement System security service assigned) to back up and restore SAP MII projects. This capability is useful when you are transporting the development content from one SAP MII installation to another, such as from development to production.

The Projects screen lists the various projects and their details such as their name, description, whether or not it is system project, when and by whom it was created, and options to delete (✕) and export (📦) it as a compressed ZIP file.

Name	Description	System Project	Created By	Created	
Acceptance Testing 12.1		<input type="checkbox"/>	I040560	5/2/08 4:40:15 PM	📦 ✕
ASM Manufacturing		<input type="checkbox"/>	I040560	5/2/08 4:18:59 PM	📦 ✕
BatchHistory		<input type="checkbox"/>	I040644	8/13/08 10:23:23 AM	📦 ✕
Default	Default Project	<input checked="" type="checkbox"/>			📦
EMO_Mill_Demo		<input type="checkbox"/>	I040560	8/7/08 11:13:02 AM	📦 ✕
I036320		<input type="checkbox"/>	I036320	7/22/08 11:24:20 AM	📦 ✕
ManufModel		<input type="checkbox"/>	I040560	5/2/08 4:18:05 PM	📦 ✕
MfgAnalytics		<input type="checkbox"/>	I040644	8/14/08 1:33:23 PM	📦 ✕
PDC_DB_script		<input type="checkbox"/>	C5109298	6/20/08 4:34:35 PM	📦 ✕
PDC_testing		<input type="checkbox"/>	C5109298	6/19/08 6:35:31 PM	📦 ✕
QM_eSOA		<input type="checkbox"/>	I030283	8/21/08 1:28:20 PM	📦 ✕
Summit_Demo		<input type="checkbox"/>	I040560	6/5/08 11:07:38 AM	📦 ✕
TrashScreenPDC		<input type="checkbox"/>	C5100300	8/13/08 3:03:30 PM	📦 ✕

Figure 2.11 SAP MII Projects

A project exported from SAP MII contains the project files in the same folder structure that has been defined in the SAP MII Workbench, along with an Export-Manifest.xml file that contains necessary metadata regarding the exported project.

The fields that are present in the ExportManifest.xml file are listed and explained in Table 2.5.

Parameter	Description
Export_User	The user who exported the project.
Hidden_Project	Indicates if the project is a hidden project. Values can be true or false. A hidden project is not visible in the projects list.
Project_Created	The date and time when the project was created.
Project_Created_By	The user who created the project.
Project_Description	Description text of the project.
Project_Name	The name of the project.
System_Project	Indicates if the project is a system project. Values can be true or false. A system project cannot be deleted.
Timestamp	The date and time when the project was exported.
XMII_Version	The SAP MII version on which the project was created and exported.

Table 2.5 SAP MII Project Properties

You do not need to have an ExportManifest.xml to import a project into SAP MII. You can externally create the project structure and import it into SAP MII; however, you should note that if a project with the same project name as an existing project is imported into SAP MII, the existing project is overwritten, regardless of whether it is a system or a hidden project.

2.2.10 Custom Actions

You can use the Custom Action screen, shown in Figure 2.12, for managing custom action blocks used in Business Logic Services. You can refer to Section 9.1 Creating and Deploying a Custom Action Block, to understand how to develop new custom actions to be used in the Business Logic Services Transactions in SAP MII. Custom actions that have already been deployed can be deleted, and those that are new can be deployed using the options available on this screen. You need to assign the CustomActionUpload security service to a user to enable access to the Custom Actions screen.

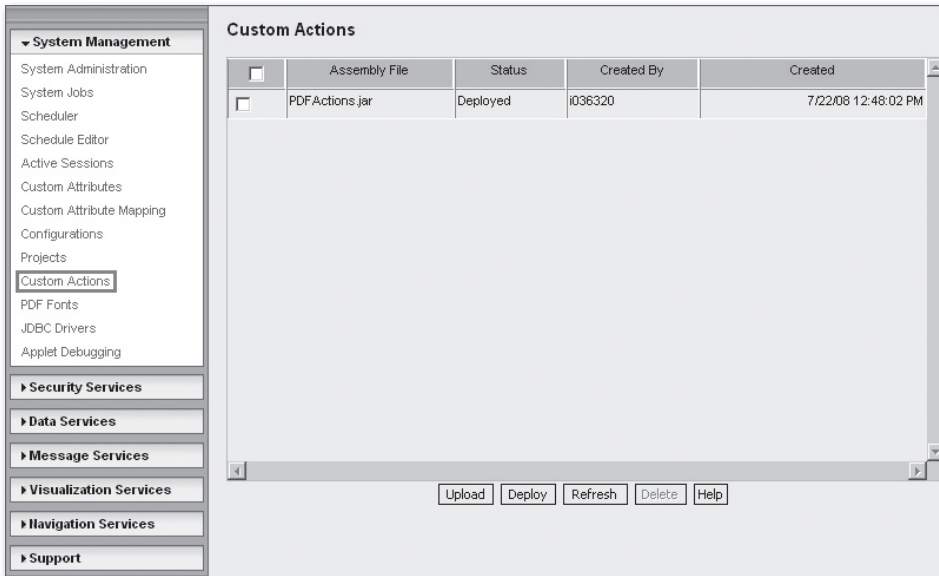


Figure 2.12 Custom Actions Management

To delete an already deployed custom action, choose the custom action by selecting the check box next to it and clicking on Delete. Deleted actions appear in the Custom Actions list marked as deleted until the server is restarted or another custom action is deployed.

New actions need to be uploaded and then deployed so that they show up in SAP MII Workbench. To upload a custom action Java Archive file into SAP MII, click on Upload to bring up the Custom Action Upload screen.

The Assembly File field should have the custom action assembly jar file location, and any dependency files should subsequently be entered on the dependency files fields. After it is saved, the custom action assembly file along with its dependant jars are uploaded to the SAP MII server. The uploaded actions now appear on the Custom Actions list with the status Not Deployed. To deploy these actions, choose the custom action by selecting the checkbox next to it and click on the Deploy button to deploy it. On deployment of an action, all transactions and queries running at that instance of the server is interrupted; the user sessions are not.

2.2.11 PDF Fonts

The PDF Fonts menu option appears only when the PDF actions have been deployed using the Custom Action upload, as explained in the previous section. The method for deploying these actions is explained in SAP Note 1109054. You use the PDF Fonts screen (Figure 2.13) to upload PDF fonts you can use in the PDF action blocks in the BLS Transactions.

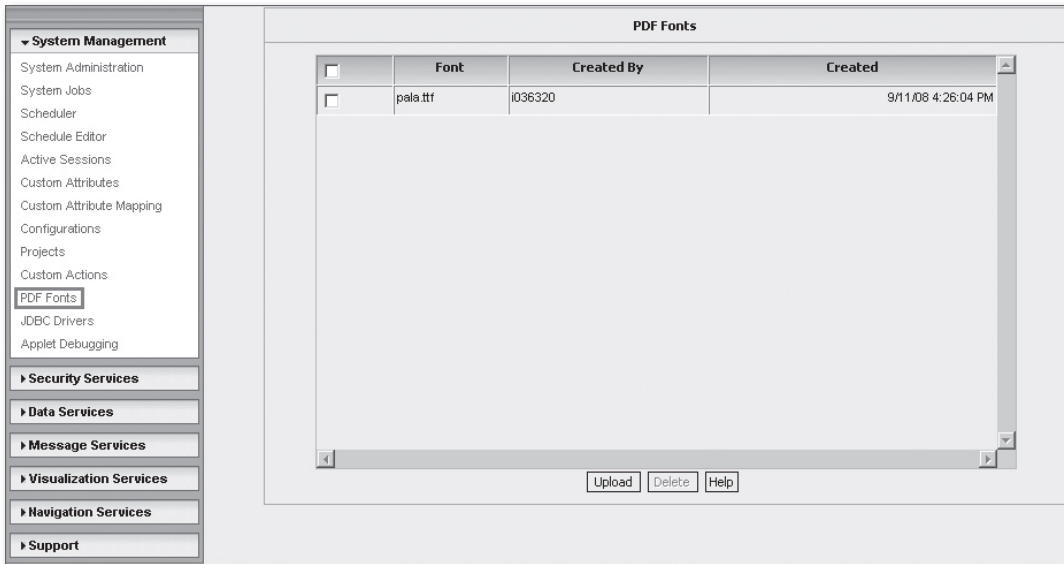


Figure 2.13 PDF Fonts Management

To upload a PDF font into SAP MII, click on Upload to bring up the PDF Font Upload screen. Click on Browse to choose or enter the path of the PDF Font file in the dialog that pops up. After it is saved, the PDF Font appears in the PDF Fonts list. To delete an already uploaded PDF Font, select the checkbox next to it in the PDF Font list and click on Delete. After you have uploaded and deployed the custom action for generating PDF documents, you can use this menu to install custom PDF fonts that you want to use in the PDF documents generated by the BLS Transactions.

2.2.12 JDBC Drivers

You can use the JDBC Drivers menu, seen in Figure 2.14, to deploy Java Database Connectivity (JDBC) drivers for the databases connected by the data servers in SAP

MII. The overview screen displays information about the driver such as the JDBC driver file name, the deployment status, Created By identification, and a Created timestamp.

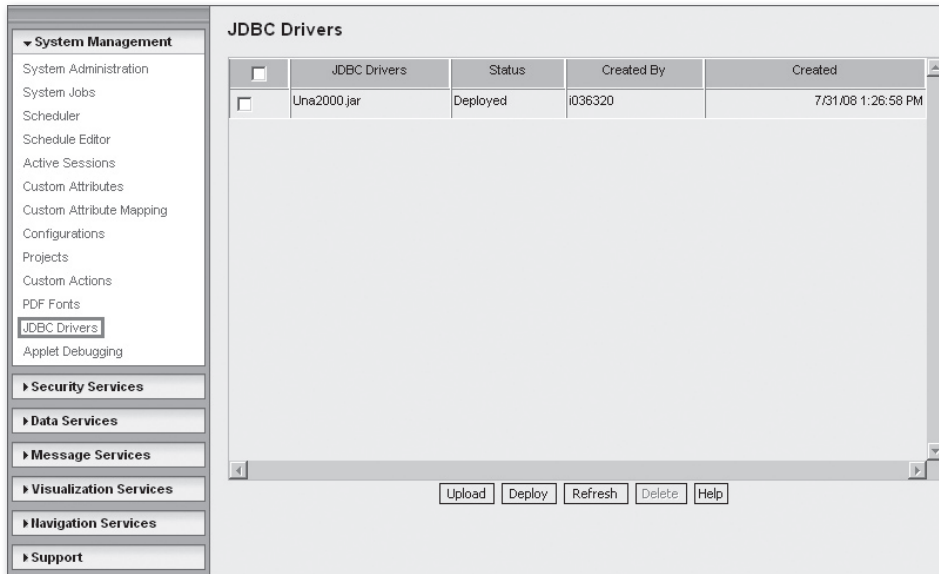


Figure 2.14 JDBC Drivers Management

To delete an already deployed JDBC driver, choose the driver by selecting the checkbox next to it and clicking on Delete. Deleted drivers appear as deleted in the JDBC Driver list until the server is restarted or another driver is deployed.

To upload a new JDBC driver, click on Upload, which brings up the JDBC Driver Upload screen.

Browse to select the JDBC driver you want to upload, and click on Save to upload it to the SAP MII server. The uploaded drivers now appear on the JDBC drivers list with the status Not Deployed. To deploy them, choose the driver by selecting the checkbox next to it and clicking on Deploy. On your deployment of a new driver, all transactions and queries running at any data server instance using the same driver are interrupted; the user sessions are not.

Depending on the database you want to connect to using the data servers (explained in Section 3.1 Data Servers: Connecting to the Manufacturing Plant Floor), and given all the different database vendors in the market today, the standard way to

connect to these databases would be to use the JDBC drivers that these vendors have made available. So if you want to connect to proprietary databases like IBM DB2, Microsoft SQL Server, or Oracle databases, a JDBC driver for that particular database is often the only option.

2.2.13 Applet Debugging

The Applet Debugging screen, shown in Figure 2.15, is a troubleshooting utility that allows the SAP MII applets to log debug messages on the Java Runtime Environment Console in the browser, if enabled. These console debug messages help developers in quickly figuring out the source of errors in case an applet does not work as expected and readily fix them.



Figure 2.15 Applet Debugging Configurations

To enable Applet Debugging, check on the Allow Applet Debugging option on the Applet Debugging popup window. The Applet Debugging session is valid only for the current session of the browser, and you need to have the Admin, SystemEditor, SystemSecurityEditor, and System Security roles for your user to debug applets.

You now know about the various configuration options available for administrators of SAP MII. In the next section, you learn about the security services, through which the administrator can control access of users to various services and menus of SAP MII.

2.3 Security Services in SAP MII

Because SAP MII is a development platform, you might need to control the access of the different functionalities and menu options available in SAP MII to different users. For example, you might want to provide the administration menu options such as System Management and Security Services to the administrator users and

the configuration and development menus such as Data Services and Message Services to the developers. You can use the security services in SAP MII to control user access on system functionality and data servers. You do this by granting or revoking users' access to the SAP MII services, which form the backbone for the majority of the SAP MII functionality. The security services in SAP MII are of two types: system security and data access security.

2.3.1 System Security

The System Security screen, seen in Figure 2.16, enables the administrator to assign SAP MII services to the SAP MII roles defined in the User Management Engine (UME), which provides access to different functionalities of SAP MII. If the administrator doesn't assign the roles to the services, the users cannot create or change the corresponding configurations, though they might be able to open the menu in read-only mode for some screens.

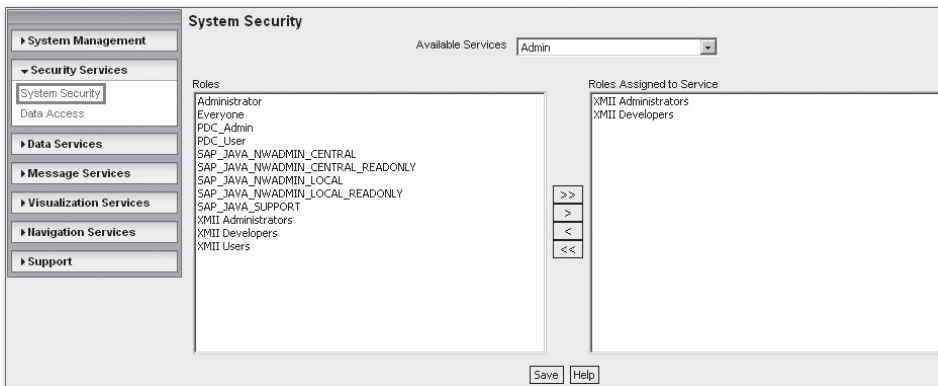


Figure 2.16 System Security Configurations

The SAP MII system security services are as follows:

- ▶ **Admin:** The most important service in SAP MII. Provides access to all system administration options. Only the Active Sessions and the Applet Debugging screen do not need this security service to be assigned to the user role.
- ▶ **Configuration:** Not related to any SAP MII screen. Enables the user to migrate configuration data from SAP MII 11.5 to 12.0.
- ▶ **ConfigurationManagement:** Enables users to import and export SAP MII system configurations using the Configurations menu under System Management.

- ▶ **ContentEditor:** Controls the ability to edit, import, and export web content using SAP MII Workbench. This service needs the Admin service to be assigned as well.
- ▶ **ContentList:** Enables users to list all content that they have developed or that have been assigned to them.
- ▶ **CustomActionUpload:** Enables users to upload custom actions using the Custom Action menu under System Management.
- ▶ **DataAccessSecurityEditor:** Enables access to the Data Access screen under the Security Services menu in SAP MII. This service needs the Admin service to be assigned as well.
- ▶ **DataBufferEntry:** Gives access to the Data Buffer Entries screen under the Data Services menu in SAP MII.
- ▶ **DataBufferJobs:** Enables access to the Data Buffer Jobs screen under the Data Services menu in SAP MII.
- ▶ **DynamicGraphicsEditor:** Enables you to create and edit Dynamic Graphics Objects via SVG using the SAP MII Workbench.
- ▶ **IlluminatorService:** The heart of Data Services of SAP MII. All SAP MII queries require it for retrieving data from their intended sources. Denying access to this security service causes all the data queries that use it to stop functioning when executed by that user and also prevents the user from creating and editing the data servers.
- ▶ **LocalizationEditor:** Enables the user to use the Localization menu under the Visualization Services menu category in SAP MII. This service needs the Admin service to be assigned as well.
- ▶ **MessageMonitor:** Enables access to the Message Monitor, Failed Messages, and Messages Without Rules menus under the Message Services menu category in SAP MII.
- ▶ **MessageRuleEditor:** Enables create, view, modify, and delete access to the Message Cleanup Rule Editor menu under the Message Services menu category in SAP MII.
- ▶ **MessageServerEditor:** Enables users to create, view, modify, and delete access to the Message Listeners menu under the Message Services menu category in SAP MII.

- ▶ **NavigationEditor:** Enables access to the Link Editor and the Navigation menus under the Navigation Services menu category. This service needs the Admin service to be assigned as well.
- ▶ **ProcessingRuleEditor:** Enables users to create, view, modify, and delete access to the Processing Rules Editor menu under the Message Services menu category in SAP MII.
- ▶ **ProjectManagement:** Enables access to the Project menu under the System Management menu category and the ability to import and export projects.
- ▶ **QueryCaching:** Enables users to use the query caching mechanism for query templates and allows access to the cached query results.
- ▶ **ScheduleEditor:** Enables access to the Schedule Editor menu under the System Management menu category, giving the ability to create, modify, and delete scheduled jobs.
- ▶ **Scheduler:** Enables users to start and stop the SAP MII scheduler from the Scheduler menu under the System Management menu category.
- ▶ **ServerEditor:** Enables access to the Data Servers menu under the Data Services menu category and the ability to create, modify, delete, and view Data Servers. This service also requires the Admin service.
- ▶ **SystemEditor:** Enables access to the System Administration, System Jobs, and Applet Debugging menus under the System Management menu category. This service requires the Admin service as well.
- ▶ **SystemInfo:** Mainly a reporting service that lists servers and modes that the servers support.
- ▶ **SystemSecurityEditor:** Enables access to the System Security menu under the Security Services menu category. This service needs the Admin service to be assigned as well.
- ▶ **TemplateEditor:** Controls access to edit any templates (for example, query, display, and so on) created in SAP MII Workbench.
- ▶ **TimeIntervalEditor:** Enables you to view, create, modify, and delete access to Time Periods and Time Period Schedules via their respective menus under the Data Services menu category.
- ▶ **WSMessageListener:** Lets you send HTTP XML messages to SAP MII using the XMIIMessageListener, which listens for HTTP posts. The XMIIMessageListener

can be found in the Message Listeners menu under the Message Services menu category.

- ▶ **XacuteDevelopment:** Controls the ability to view, create, modify, and delete transactions using SAP MII Workbench.
- ▶ **XacuteRuntime:** Controls the ability to invoke transactions, developed using SAP MII Workbench, through a URL.

To assign an SAP MII service to a role in the System Security menu, select the SAP MII service from the Available Services dropdown list. The roles that are available in UME appear on the list on the left of the screen; the ones that are already assigned to the selected service are in a list on the right. You can select the roles that need to be assigned and then assign them to the selected service by using the (>) or (>>) buttons. Similarly you can un-assign a role from the selected service by selecting the role on the list on the right side and using the (<) or (<<) buttons to bring it to the list on the left. You can select multiple roles on either list by pressing the Shift or Control keys. The (<) and (>) buttons transfer the selected single or multiple rows, whereas the (<<) and the (>>) buttons transfer all entries on one list to the other. When the assignment or un-assignment has been done, click on Save.

2.3.2 Data Access

The Data Access screen, seen in Figure 2.17, enables the administrator to assign SAP MII user roles to the data servers defined using the Data Servers menu (explained in Section 3.1 Data Servers: Connecting to the Manufacturing Plant Floor) under the Data Services menu category. Without the roles assigned to the data server, no data query can be created or executed by the user using that specific data server.

To assign a data server to a role in the Data Access menu, select the data server from the Available Servers dropdown. All the data servers configured in the Data Servers menu appear in the dropdown list. The roles that can be assigned appear on the list on the left of the screen, and the ones that are already assigned appear in a list on the right. You can select the roles that need to be assigned to the required data server and transfer them by the method discussed previously. When the assignment or un-assignment has been done, click on Save.

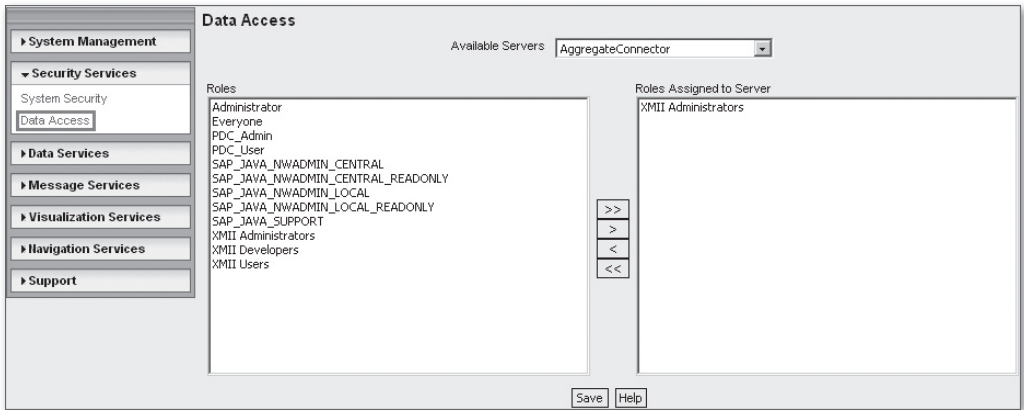


Figure 2.17 Data Access Configurations

2.4 Summary

In this chapter, you have learned how to create users and assign the required roles to them in the J2EE WebAS, how to configure the SAP J2EE logging options, and how to configure the SAP JRA adapter. You have also learned how you can use the System Management and the System Security menu options to configure the system and security options of SAP MII.

In the next chapter, you will learn how to connect to the manufacturing plant floor systems by creating data servers in SAP MII and how to configure the Message Services to receive RFC, IDoc, and HTTP XML messages from the enterprise systems.

Index

3D Display, 170
3D Header, 157
<APPLET>, 354
.irpt extension, 362
/sap/bw/xml/soap/xmla, 85
/xmla/msxisapi.dll, 85

A

abap_debug, 102
AbstractActionDialog, 386
AbstractXacuteAction, 386
Accessibility, 409
Accumulator, 280
Action block categories, 390
Action blocks, 34, 234, 236
ActionReflectionBase, 384
Active Sessions, 53
Adaptive manufacturing, 21, 23
Add Param, 313
Add Sequence, 235
Admin, 46, 65
Admin Service, 419
Adobe Flex, 34
Aggregate Statistics, 268
AJAX, 340
Alarm Color, 219
Alarm conditions, 204
Alarms, 202
Alarms configuration, 202
Alarms menu, 219
ALE/IDoc, 26, 30
Alert category, 310
Alert Header Text, 310
Alert Long Text, 310
Alert Short Text, 310
Alias, 271
Alias Name, 271
alias_user, 101
Allow Automatic Refresh, 178
Allow Cell Selection, 158
Allow Column Resizing, 157
Allow Comment Editing, 204
Allow Data to be Saved Locally, 178, 204
Allow Deselection, 157
Allow Detail Page Generation, 178, 204
Allow Double-Click Refresh, 177, 204
Allow Editing of Display Properties, 178
Allow Editing of Query Properties, 177, 204
Allow Item Selection, 170, 204
Allow Key Search, 158
Allow Legend Item Selection, 177
Allow Multiple Selection, 158
Allow Point Suppression, 204, 221
Allow Popup Menu, 177, 204
Allow Selection, 157
ALRTCATDEF, 310
Alternating Limit Alarm, 203
Analog, 90
Analysis, 217
Analytics, 26, 32
Animated dynamic visualization, 33
Animated graphics, 32, 33
Animated object configuration, 33
AnimatedObject Renderer, 350
Animated SVG objects, 343
Animation Renderer, 322
Append After XML, 239
Append XML, 239, 401
Applet debugging, 64
Application architecture, 436
Application/x-www-form-urlencoded, 326
ARCHIVE, 354
Area chart, 190
Ashost, 101
AspenTech's InfoPlus.21, 72, 78
AssemblyName, 390
Assignment, 241
Assign Reference Document, 285
Assign Value, 238
Assign XML, 238
Asynchronous communication, 97, 300
Attachment, 330

Attachment Content Type, 329
 Attachment Folder, 330
 AttachmentMimeType, 329
 Attribute Columns, 194, 196
 Attributes menu, 219
 Autobind, 299, 408
 AutoBind, 96
 Autocommit, 295
 Automatically Commit Transaction, 297
 Automatically Refresh, 161
 Automatically Scale, 177, 199
 Auto Resize Columns, 157
 Average, 269

B

B2MML, 284
 Background Color, 174
 BAPI, 289
 Bar chart, 179
 Bar Code Text, 335
 Bar Group Spacing, 170
 Bar Margin Spacing, 170
 Bar Spacing, 170
 Basic HTTP authentication, 325
 Batch tracking dashboard, 444
 BC, 288
 Best practices, 430
 BLS, 231
 Transactions, 231
 BLS engine, 34
 Border Color, 174
 Border Color of Selected Row, 174
 BOX-WHISKER chart, 213
 Break, 245
 Break condition, 250
 Buffered messages, 31
 Buffering, 98, 130
 BufferListDoc, 305
 Build Pattern, 51
 Business Logic Services, 32, 34, 231
 Business Logic Transaction, 30, 34, 96, 231
 Business processes, 429
 Business requirements, 429
 Business services, 429

C

Calculate Control Limits, 200
 Calculated Columns, 269
 Calculated properties, 347
 Calculate totals, 280
 Calculation, 252
 Calendar applet, 228
 Catalog, 84
 Catalog View, 122
 Catalog.xml, 390
 Categorized, 113, 308
 Category, 109, 112
 Processing, 109
 Central deployment, 434
 Chart, 215
 Chart action, 317
 Chart Area, 193
 Configuration, 169
 Chart Background Color, 169
 Chart Border Color, 169
 Chart Name, 193
 Charts and visualization controls, 32
 ChartServlet, 190, 362, 363
 Chart Type, 169, 193
 Child Document Source, 276
 Cleanup rules, 31
 Clear Param., 313
 Client, 101
 Client properties, 100
 CODEBASE, 354
 Codepage, 102
 Collect IDocs, 106
 Color, 171
 Color Column, 168
 Color Context, 158, 168
 Configuration, 158
 Color of Highlighted Marker on Upper Chart, 199
 Color of Upper Centerline, 199
 Color of Upper Chart Line, 199
 Color of Upper Chart Marker, 199
 Color of Upper Chart Target, 198
 Color of Upper Control Limit, 200
 Color of Upper Inner Limit, 200
 Column, 264
 Column Aliasing, 271

- ColumnLights, 158, 162
- Column Map, 313
- ColumnNameAttribute, 84
- Column Stripper, 272
- Column to Alias, 271
- Column to Remove, 272
- Command queries, 225
- Comma-separated value (CSV), 338
- Comments menu, 219
- Commit, 289, 296
 - Transaction*, 292
- Comparative charts, 33
- ComponentCatalog, 390
- Composite application development platform, 29
- Composite applications, 26
- Composition capability, 31
- Composition platform, 26
- CompressedHistoryEventName, 81
- CompressedHistoryEventNameColumn, 82
- CompressedHistoryEventQuality, 81
- CompressedHistoryEventQualityColumn, 82
- CompressedHistoryEventTable, 82
- CompressedHistoryEventTime, 81
- CompressedHistoryEventTimeColumn, 82
- CompressedHistoryEventValue, 81
- CompressedHistoryEventValueColumn, 82
- Com.sap.xmii.xacute.actions.shared, 386
- Conditional, 242
 - Expression*, 242
- Configurable, 385
- Configuration, 65, 423
- ConfigurationManagement, 65
- Configurations, 56
- Connection session, 294
- Connection status, 73, 74
- Connection Test, 105
- Connectors, 71
- Connector types, 71
- Content Administration, 379
- Content and version management, 37
- ContentEditor, 66
- ContentList, 66, 420
- Content security, 124
- Content Type, 326, 329
- Context Menu Behavior configuration, 177, 204
- Context Sensitive Configuration Options, 121
- Control Limit Alarm, 202
- Count, 269
- Counter, 280
- Created_By, 409
- Create Directory, 338
- CreateLayoutObjects, 388
- Create Model View, 108
- Create Zip Archive, 339
- CreationEvent, 359, 360
- Cron pattern, 51
- Crosstab, 272
- CSV files, 218
- CurrentItem, 245, 251
- Current mode, 83, 89
- CurrentNameColumn, 83, 89
- CurrentProfile, 420, 423
- CurrentQualityColumn, 83
- CurrentQuery, 85, 89
- CurrentTable, 83
- CurrentTimeColumn, 83, 89
- CurrentValueColumn, 83, 89
- Custom Actions, 60
- CustomActionUpload, 66
- Custom Attribute Mapping, 55
- Custom Attributes, 53
- Custom business logic, 26
- Custom chart, 187
- Customer executive, 25
- Custom Label, 175
 - Color*, 175

D

- Dashboards, 33
- Data Access, 68
- DataAccessSecurityEditor, 66
- Data buffer entries, 66, 132
- Data Buffering, 294
- DataBufferJobs, 66
- Data connectors, 29, 30
- Data integration, 34
- Data Item, 266
- Data Link Columns, 173
- Data Link for Default Item, 222
- Data Link Mode, 222, 224

- Data Mapping, 167, 172
 - Configuration*, 222
- Data Points of Upper Chart, 217
- Data pull, 96
- Data push, 96
- Data queries, 30, 311
- Data Reporting, 154
- Data Series configuration, 176
- Data Series Details, 187
- Data Server configuration, 73
- Data Servers, 45, 71
- Data Services, 30, 68
- Data Source configuration, 129
- DataSource connector, 76
- DataSourceInfo, 84
- DatasSource, 76
- Data synchronization, 30
- DataTypeAttribute, 84
- Data types, 233, 384
- DataValue, 254
- Date Format, 154
- DatePrefix, 74
- Date Range configuration, 133
- DateSuffix, 74
- DaysRetention, 75
- DB2, 77
- DBInit, 420
- DCS, 26, 29
- Debug, 256, 260
- Debug-level logging, 313
- Debug messages, 256
- DecimalDelimiter, 84
- Decision support, 26
- Default Item, 222
- Delete, 422
- Delete File, 338
- Delete Message, 309
- Delete Param, 313
- Deleting messages, 113
- Delimiter, 174, 283
- Demonstrating, 90
- Description Columns, 172
- Design, 430
- Dest, 102
- Digital Signature, 225, 227
- Disable, 117, 422
- Discrete, 90

- Display Columns, 167
- Display Datalink Values as Quick Info Text, 172
- Displaying charts, 369
- Display Quick Info Text, 171, 194
 - Background*, 172
- Display Tag Names as Quick Info Text, 172
- Display templates, 32, 153
- Display Values as Quick Info Text, 172
- Display X-Axis Values as Quick Info Text, 172
- Display Y-Axis Values as Quick Info Text, 172
- Distinct Value Extractor, 274
- Distribution model, 108
- Document, 262
- Document Object, 264
- Document Source, 255, 269, 271
- DoubleClickEvent, 359
- Dropdown, 221
 - Listbox*, 224
 - List Mode*, 222, 224
- Dsr, 102
- Dynamic analysis, 33
- Dynamic Background, 160
- Dynamic graphics, 343
- DynamicGraphicsEditor, 66
- Dynamic Link, 238
- Dynamic Queries, 396

E

- Easysoft JDBC/ODBC driver, 72
- Editor for Message Cleanup Rule, 116
- Email action, 328
- Embedded Lights, 163
- Enable, 422
- Enabled, 99, 117
- Enable Detail Page Generation, 161
- Enable Popup Menu, 160
- Enable Save Data Locally, 160
- Encoded image, 317, 322
- Enterprise business systems, 287
- Enterprise integration, 444
- Environmental variable, 299
- EPM_KPI_DATA_INSERT, 309
- ERROR, 256, 260
- Error message, 266

Evaluate, 238
 Event horizon chart, 187
 Event Logger, 260
 Event Type, 260
 EWMA chart, 209
 EWMA-RANGE chart, 209
 EWMA-SDEV chart, 210
 Execute, 240
 executeCommand(), 357
 Execute Function, 290, 297
 Execute RFC or BAPI, 294, 297
 Execute Without Trace, 240
 Executing RFC, 293
 Export, 422
 Expression Editor, 238
 Extiddata, 102
 Extidtype, 102

F

FAILED, 308
 Failed message, 113
 Failure, 113, 260
 FATAL, 256
 Fatal Error, 266
 FatalError, 266
 File I/O, 336
 File Path, 258
 File Transfer Protocol (FTP), 338
 Filter Column, 275
 Filtered, 275
 Filter expressions, 398
 Filtering Data, 398
 FirstUpdateEvent, 359
 Flat File Parser, 338
 Floating bar chart, 182
 FloatTypeIndicator, 87
 Font, 171, 174
 Font Size, 171, 174
 Font Style, 171, 174
 For Next Loop, 245
 Freeze Column, 156
 From, 245
 FromAddress, 329
 From Date, 113
 FTP Create Directory, 339
 FTP Delete File, 339
 FTP Get File List, 339
 FTP Input, 338
 FTP Output, 339
 FTP Server, 338
 FullName, 409
 FullProfile, 420
 Functions, 238

G

Gap analysis, 428
 Gateway Host, 105
 Gateway Monitor, 105
 Gateway Service, 105
 Gauge chart, 183
 Gauge Start Angle, 170
 Gauge Sweep Angle, 170
 General configuration, 130
 Generation of alerts, 34
 Generic Sort Filter, 275
 GetAction(), 389
 getBrowserObject(), 355
 getChartObject(), 355
 getColumnCount(), 357, 365
 getColumnName(COLUMN), 357
 getDisplayTemplate(), 356
 Get File List, 337
 getGridObject(), 355
 GetIconPath, 385
 getLastError(), 357
 getParam(INDEX), 358
 getPropertyValue(PROPERTYNAME), 356
 getQueryObject(), 355
 getQueryTemplate(), 356
 getRowCount(), 357, 365
 Getsso2, 102
 getTickerObject(), 355
 getValue(), 365
 getValueByName(COLNAME, ROWNUM), 357
 getValue(COLNUM, ROWNUM), 357
 Global Decimals, 176
 Globalization, 21
 Global Max. Range, 176
 Global Min. Range, 176

Global property, 234
 Grid Area, 155
 Grid Type, 155
 Group, 101
 GroupBar chart, 179
 GroupList, 85
 GroupList mode, 87
 GroupListNameColumn, 87
 GroupListParentColumn, 87
 GroupListQuery, 87
 grt_data, 102
 Gwhoost, 100
 Gwserv, 100, 101

H

Header configuration, 157
 Header Height, 157
 Hidden Columns, 167
 Highlight, 219
 Highlighted Attribute Name, 193
 Highlighted Attribute Value, 193
 Histogram Cell Count, 196
 HISTOGRAM chart, 212
 Historian, 26, 29
 History, 422
 HistoryEvent mode, 81, 88
 HistoryEventNameColumn, 81, 82, 89
 HistoryEventQualityColumn, 82
 HistoryEventQuery, 85, 89
 HistoryEventTable, 81
 HistoryEventTimeColumn, 81, 82, 89
 HistoryEventValueColumn, 81, 82, 89
 History mode, 80, 88
 HistoryNameColumn, 80, 88
 HistoryPeriodColumn, 81
 HistoryQualityColumn, 81
 HistoryQuery, 85, 88
 HistoryTable, 80
 HistoryTimeColumn, 81, 88
 HistoryValueColumn, 81, 88
 Horizontal bar chart, 188
 Horizontal Grid Color, 169
 Horizontal Grid Line Count, 169
 Horizontal group bar chart, 189
 HostInfo, 423

HTML Loader, 324
 HTML Saver, 324
 HTTP Post, 326
 HTTP service, 34, 418
 HTTP XI, 300
 HTTP XML, 97
 HTTP XML messages, 30
 Human activities, 429

I

iBrowser, 221
 iCalendar, 228
 iCharts, 168
 iCommand, 356
 iCommand display template, 225
 Icon file, 385
 IDBC connector, 77
 Idle_timeout, 102
 IDoc, 97
 IDoc Listener, 97
 iGrid, 154
 Illuminator, 363
 IlluminatorDocument, 264
 IlluminatorService, 66
 IllumLoginName, 409
 IllumLoginRoles, 409
 ILog, 386
 Image Combiner, 323
 Image Creator, 324
 Image Format, 322
 Image Loader, 325
 Image Saver, 325, 350
 Image Scaler, 324
 IMAP4, 330
 Implementation architecture, 434
 Implementation scenarios, 443
 Import, 422
 Include Value in Label, 173
 Industry standard, 284
 INFO, 256, 260
 InfoCube, 84
 InfoPlus.21 suite, 72
 Information message, 267
 InitCommand, 75
 Initial Update, 161

InputDocument, 301
 Input parameter, 232
 Input property, 384
 InputValue, 248
 InputXSL, 283
 Insert Sequence, 235
 Inside Zone C Alarm, 204
 Inspector, 420
 InSQL, 83
 InSQL connector, 83
 IntegerTypeIndicator, 87
 Integral, 280
 Integration capability, 29
 Integration scenarios, 429
 Intelligence dashboards, 34
 Intelligence system, 25
 Intelligent visualization, 32
 Intercept, 255
 Interface Name, 300
 InternalDateFormat, 75
 Interpolate Lines, 170
 Invoke, 386
 IP, 84
 IP21 connector, 78
 IP21OLEDB connector, 78
 IP address, 288
 iSPCChart, 191
 iText, 331
 iTicker, 166
 iViews, 376

J

Java applet, 30, 33, 153
 Java Database Connectivity, 77
 JavaRunFinalizer, 423
 JavaRunGC, 423
 JavaRunTimeStatus, 423
 JavaScript, 32, 153
 Java Swing, 386
 JavaThreadStatus, 423
 JCo Configuration, 288
 JCOMessage, 305
 JCOMessageList, 305
 JCo Session, 291
 JDBC-compliant data source, 76
 JDBC DataSource, 76
 JDBCDriver, 45, 62, 75, 78, 86
 Job Run History, 49
 Job Run Schedule, 49
 Join type, 276

K

Key Figure, 310
 Keystore Administration, 379
 KPI, 22
 Definitions, 309
 Monitoring, 33
 Name, 309
 Value, 309

L

Label Color, 174
 Label Columns, 172
 Lambda, 195
 Lang, 101
 Language, 409
 LastErrorMessage, 291
 LastName, 409
 Layout, 156
 Configuration, 156
 LayoutMainPanel, 388
 Lcheck, 102
 Legend, 173
 Configuration, 196
 Description Label, 171
 Properties, 173
 Lighthammer CMS, 27
 Lighthammer Software, 27
 Lights grid, 159, 164
 Limit the rows, 397
 LIMS, 26, 29
 Linear Regression, 254
 Line chart, 178
 Link Configuration, 237
 Link Editor, 377
 Link Types, 238
 List, 422

- Listbox, 221
- Load data, 325
- Locale, 409
- Local File, 338
- LocalizationEditor, 66
- Local persistence, 437
- Local properties, 234
- Logging, 256, 313
- Logic Action Blocks, 241
- Logical, 34
- Logical Condition, 242
- Logical system, 105
- Log messages, 258
- Logon ticket, 298
- Log/trace files, 258
- Log Viewer, 260
- LOIPRO, 106
- LOIROU, 107
- Loops, 34
- LowerAlarmCount, 321
- Lower Alarms Color, 202
- Lower Chart Area configuration, 202
- Lower Chart Axes configuration, 201
- Lower Chart Data Points, 218
- Lower Chart menu, 221
- Lower Chart Spec. Limits configuration, 201
- Lower Control Limit of Upper Chart, 200
- Lower Limit of Box, 195
- Lower Spec. Limit, 198
 - Column, 197*
 - Upper Chart User, 198*

M

- Machine, 409
- Machine breakdown, 24
- Machine downtime recording dashboard, 444
- MailAccount, 328
- MailAccountPassword, 328
- Mail Protocol, 330
- Mail Server, 328
- Main Background Color, 169
- Main Border Color, 169
- Maintenance notification, 25
- MajorTickCount, 186
- Manufacturing analytics, 443

- Manufacturing dashboards, 309, 445
- Manufacturing data synchronization, 444
- Manufacturing excellence, 23, 24
- Manufacturing Execution System, 77
- Manufacturing synchronization, 23, 24, 29
- Mapping, 238
- Marker Size, 170, 193
- Marker Style, 170, 177
- Match Mode, 159
- MatchValue, 248
- Material availability, 30
- Max, 269
- MaxDB, 77
- Maximum Number of Queue Entries, 316
- MaxIterations, 251
- Max. Range Column, 176
- Max. Range of Upper Chart, 199
- Max. Retry Count, 75, 295
- max_startup_delay, 100
- MEDIAN chart, 211
- MEDIAN-RANGE chart, 212
- MES, 26, 29
- Message, 267
- Message Category, 113
- Message cleanup rules, 98, 116
- Message cleanup run interval, 118
- Message listeners, 30, 98
- MessageMimeType, 329
- Message Monitor, 30, 66, 98, 112
- Message Name, 110, 113
- Message Older Than, 116
- MessageRuleEditor, 66
- MessageServerEditor, 66
- Message Services, 30, 97, 303
 - actions, 109*
- Message Status, 304
- MessageStatusText, 308
- Messages without rules, 113
- Message Type, 110, 113, 304
- Microsoft Access, 45
- Microsoft-compliant data sources, 89
- Microsoft Excel, 45
- Microsoft Internet Information Server, 27
- Microsoft SQL Server, 77
 - Analysis Services, 84*
- Middleware, 434
- Min, 269

Minitab Export, 255
 Minitab Statistical Software, 255
 Min. Range Column, 176
 Min. Range of Upper Chart, 199
 Miscellaneous Functions, 252
 Model-driven development, 26
 Modeling area, 121
 Modeling environment, 34
 Mshost, 101
 MS SQL Server, 30
 MultiLights grid, 165
 Multi-plant deployment, 435
 Multi-rowset XML, 277
 mysapso2, 102
 MYSAPSSO2, 298

N

Navigation Configuration, 378
 NavigationEditor, 67
 NavigationItems, 376
 Navigation Services, 376
 Near real-time data access, 26
 New Directory, 339
 Normalize, 277
 No Rule, 113
 NORULEDEFINED, 308
 NP chart, 214
 Number Format, 154
 Number of Inputs, 248
 Number of Major Ticks, 175
 Number of Minor Ticks, 175
 Number of Vertical Grid Lines, 170

O

OAG, 284
 Object Browser, 120
 Object Configuration, 237
 Object Configuration dialog, 387
 OLAP, 30
 OLAP connector, 84
 OLAPQuery, 139
 OLE DB, 45

Connector, 89
DB UDS, 93
 onload(), 359
 OPC Data Access, 44
 OPC DA UDS, 93
 OPC HAD UDS, 93
 OPC Historical Data Access, 44
 Open connector, 85
 Optimized BLS Transactions, 392
 Oracle, 30
 Oracle Database, 77
 Output Mode, 106
 Output property, 384
 Outside Zone C Alarm, 204

P

PARAM, 354
 Parameter, 313
 Configuration, 137, 195
 Name, 312
 Output, 232
 Value, 312
 Params, 100
 Parsing data, 247
 Partner Port, 106
 Partner Profile, 105
 Partner Type, 106
 Password, 75, 101
 Pause, 251
 P chart, 214
 PDF
 Action, 331
 Barcode, 334
 Document, 331
 Fonts, 62
 Horizontal Line, 335
 Image, 334
 Page, 333
 Table, 333
 Text, 335
 Pen ID, 177
 Performance Management, 443
 PerformOK, 389
 PermissionList, 420
 Pie chart, 180

Plant-floor connectivity, 71
 Plant maintenance order, 25
 Plant Manager 1.0, 309
 Plant Manager 2.0, 309
 Plant systems integration, 445
 Polar chart, 180
 Pool Connections, 289
 PoolMax, 75
 PoolSize, 75
 POP, 330
 Port, 84
 Portal Content, 379
 Port Maintenance, 106
 PostData, 326
 Pre-implementation questionnaire, 428
 PrepareDialog, 387
 Process data, 26
 Processed, 308
 Process Historian databases, 85
 Processing Rule Editor, 67, 110
 Processing rules, 30, 98, 109
 Processing Status, 113, 116
 Processing Type, 110
 Process intelligence, 26
 Production order confirmation dashboard, 444
 Production orders, 25, 30
 Production planner, 25
 Production supervisor, 24
 ProfileEditor, 420
 Progid, 100
 Program ID, 104
 ProjectManagement, 67
 Projects, 59
 Properties, 121
 Property Value, 238
 Protocol, 300
 Publish, 124

Q

QOS, 300
 Quality inspection recording, 444
 QualityPortal, 192
 Query caching, 67, 130
 Query Messages, 304

Query templates, 71
 QueryTimeout, 92
 Queue, 314
 Delete, 317
 Get, 315
 List, 316
 Name, 315
 Put, 315
 Quick Info Attribute Name, 194

R

r3name, 101
 Radar chart, 186
 Raw Data Details, 217
 Read Email, 330
 Read Message, 307
 Read Timeout, 330
 Real-time data synchronization, 26
 Received, 113, 308
 ReceivedMessageXML, 111
 Receiver Port, 106
 Reference Document Loader, 284
 Reference Documents, 284
 Reference Schema Loader, 286
 refresh(), 356
 Refresh Page, 161, 168
 Configuration, 178
 Refresh Rate, 161, 185
 Registered Server Program, 104
 Regression chart, 185
 Reload Transaction After Execution, 250
 Remote Folder, 338
 Remote Parent Folder, 339
 Remove XML, 239
 Render Image, 322
 Repeater, 246
 Repeater leg, 247
 Repeating condition, 247
 Repeating leg, 246
 Replace XML, 239
 ReportServlet, 362
 Reprocessing, 113
 Request XML, 291
 Rescheduling, 25
 Response XML, 291

ResultInNamespace, 84
 Retention Time in Days, 295
 Retry Interval, 295
 RetryInterval, 75
 ReturnAsString, 327
 ReturnAsXML, 326
 Reverse Point Order, 193
 RFC, 30, 97, 289
 Destination, 100, 104
 Names, 290
 RFC/BAPI, 34
 RoleAttribList, 421
 RoleList, 421, 423
 RoleProfile, 421
 Rollback a JCo session, 293
 Rollback a JRA transaction, 296
 Root-cause analysis, 192, 219
 Row Count, 114
 Row Heading configuration, 158
 Rowset, 263
 RPC, 26
 RSquared, 255
 Rule-based, 109
 Processing, 109
 Rule Description, 117
 Rule Name, 117
 Run, 422
 RunInterval, 118
 Run Limit Alarm, 203
 Running, 113, 308
 Run Rule, 117

S

SALERT_CREATE, 310
 Sample Details menu, 220
 Sample Size, 195
 Sample Size Column, 195
 SAP Alert, 310
 SAP BI, 84
 SAP Enterprise Portal, 379
 SAP Enterprise Services, 302
 SAP ERP, 29, 30
 SAP Java Connector, 29, 98
 SAP Java Resource Adapter (SAP JRA), 293
 Commit, 296
 Connection factory, 294
 End Session, 296
 Function Call, 294
 Interface, 293
 Rollback, 296
 Start Session, 294
 SAP JCo
 Commit, 292
 End Session, 293
 Function, 290
 Interface, 289, 297
 Rollback, 293
 Start Session, 289
 SAP KPI Update, 309
 saplogon_id, 102
 SAPLogonTicketKeypair-cert, 379
 SAP MII, 26
 Components, 30
 SAP MII 12.0, 36
 SAP MII OLEDB UDS, 78
 SAP MII Reports, 362
 SAP MII services, 418
 SAP MII UDS, 44
 4.0, 44
 SAP MII UDS Admin Console, 45
 SAP MII Workbench, 119
 SAP NetWeaver 7.0, 27
 SAP NetWeaver Developer Studio, 384
 SAP NetWeaver Platform, 428
 SAP NetWeaver Web AS log, 313
 SAP PI, 434
 SAP Server Alias, 289
 SAP Server Editor, 288
 SAPServerInfo, 423
 SAPUserName, 298
 SAP XI
 PI, 299
 SAP XI Integration Directory, 300
 SAP xMII, 27
 SAP xMII 12.0, 27
 SAP xMII XML Output, 260
 Save Raw Data , 218
 Save SPC Results , 218
 SCADA, 26, 29, 44
 Scalable Vector Graphics, 343
 Scaled Height, 322
 Scaled Width, 322

- Scaling Factor, 281
- ScheduleAttribList, 424
- ScheduleDetailList, 424
- ScheduleEditor, 50, 67
- ScheduleList, 424
- Scheduler, 48
- Scheduler service, 421
- Schema elements, 286
- Scoreboard grid, 164
- Scrape HTML Page, 327
- Scroll Delay, 167
- Search pattern, 327
- SecurityObjectReferenceCleaner, 48
- Security services, 65
- Selected Marker Color of Upper Chart, 199
- Selection Columns, 397
- SelectionEvent, 359, 360, 361
- Sender HTTP adapter, 300
- Sender SOAP adapter, 301
- Send Mail, 328
- SendTimeout, 328
- Sequence, 235
- ServerAttribList, 424
- ServerEditor, 67
- ServerInfo, 424
- ServerList, 424
- Server Name, 110, 113
- ServerPackage, 75
- Server Properties, 100
- Server Scaling configuration, 176
- ServerURL, 75, 77, 83, 86
- ServiceList, 424
- SERVLET, 362, 363
- SessionList, 421
- SessionLogger, 48
- Session variables, 96, 407
- setAction, 389
- setColumns, 397
- setDisplayTemplate(TEMPLATENAME), 356
- setParam(INDEX, VALUE), 358
- setProperty(PROPERTYNAME, VALUE), 356
- setQueryTemplate(TEMPLATENAME), 356
- setRowcount, 397
- Show 3D Tick Marks, 175
- Show Actual Value Points, 174
- Show Comment Flags, 193
- ShowConfigurationDialog, 385
- Show Header, 157
- Show Horizontal Grid, 171
- Show Legend, 174
 - Top*, 174
- Show Limit Transitions, 193
- Show Lines, 170
- Show Message During Termination, 249
- Show Suppressed Points, 193
- Show Tag Descriptions, 174, 175
- Show Tag Names, 174
- Show Tick Marks, 175
- Show Time Refresh Control, 161, 168, 178, 204
- Show Title, 171, 194
- Show Upper Control Limits, 200
- Show Upper Inner Limits, 200
- Show Upper Labels, 199
- Show Upper Regions, 200
- Show Upper Specification Limits, 198
- Show Upper Tick Marks, 199
- Show Upper User Specification Limit, 198
- Show Upper User Target, 198
- Show Upper Warning Limits, 200
- Show Values, 174
- Show Vertical Grid, 171
- Show X-Axis, 175
- Sigma Difference Alarm, 203
- Simpler user interface, 444
- Simple Statistics, 254
- Simulator connector, 90
- Simulator Data Server, 90
- Simulator Editor, 90
- Simulator Groups, 90
- Simulator Instance, 90
- SimulatorInstanceName, 90
- Simulator Tags, 90
- Single Rowset
 - XML*, 277
- Single Sign-On (SSO), 298, 379
- Six Sigma analysis, 33
- Slope, 255
- snc_lib, 100, 102
- snc_mode, 102
- snc_myname, 100, 102
- snc_partername, 102
- snc_qop, 100, 102

- SOAP Web service, 34
- Solution architecture, 432
- Sort, 275
- Sorting data, 398
- Sorting order, 275
- Source Document, 280
- Source for Upper Control Limit, 200
- Source of Parent Document, 276
- SPCChartServlet, 221, 362, 363
- SPC Results, 217
- SPC Rules, 202
- SPC/SQC Analysis, 34, 320
- SPC/SQC Chart, 319
- SPCXMLServlet, 221
- Specification Limit Alarm, 202
- Specification Limit Source, 197
- Spec. Limit, 197
- Spec. Limit Color of Upper Chart, 198
 - User*, 198
- SQL, 30
- SQL queries, 76, 77
- SQLQuery, 141
- Stacked bar chart, 181, 188
- Start, 422
- Start Server, 103
- Statistical analysis, 34
- Statistical indexes, 254, 268
- Statistical mode, 182
- Statistical Process Control chart, 191
- Statistical quality analysis, 33, 191
- Status, 100, 424
- StatusCode, 327
- StatusText, 327
- StdDev, 269
- Step, 245
- Stop, 422
- String, 90
- String list, 282
- String List To XML Parser, 282
- String To XML Parser, 282
- StringTypeIndicator, 87
- Strip chart, 185
- StripQuotes, 283
- StyleSheet, 363
- Subgroup Size, 195
- Subject, 329
- Success, 114

- Summary, 104
- Summary Statistics, 217
- SVG Renderer, 322
- Switch, 248
- Synchronize, 96
- Synchronous communication, 300
- Sysnr, 101
- System Administration, 46, 379
- System Configuration, 379
- SystemEditor, 46, 67
- SystemInfo, 67
- SystemInfo service, 422
- System Jobs, 48
- SystemList, 421
- System Management, 45
- System Security, 65
- SystemSecurityEditor, 67

T

- Tab-delimited file, 255
- TAG, 30
- Tag-based relational databases, 85
- Tag groups, 85
- TagInfoDescriptionColumn, 79, 87
- TagInfoMaxRangeColumn, 80, 88
- TagInfoMinRangeColumn, 80, 87
- TagInfoNameColumn, 79, 87
- TagInfoQuery, 88
- TagInfoTable, 79
- TagInfoTypeColumn, 80, 88
- TagList, 85
- TagListDescriptionColumn, 79, 88
- TagList mode, 87
- TagListNameColumn, 79, 88
- TagListQuery, 85, 88
- TagListTable, 79
- Tag Queries, 79, 83, 90, 93
- TagQuery, 145
- Target, 197
- Target Color of Upper Chart User, 198
- Target Column, 197
- Target of Upper Chart User, 198
- TCP/IP, 104
 - Sockets*, 92
- TempFileCleaner, 48

Template categories, 121
 TemplateEditor, 67
 Terminate a JCo session, 293
 terminate a JRA session, 296
 Terminate Transaction, 249
 Termination Message, 249
 Text Loader, 325
 Text Saver, 325
 Thresholds, 159
 Tick Color, 175, 186
 Ticker Area, 166
 Tick Highlight Color, 175
 Ticks Per Label, 175
 Time, 281
 Time Interpolator, 281
 TimeIntervalEditor, 67
 TimeOut, 76
 TimePeriodAttribList, 425
 TimePeriodList, 424
 Time period schedules, 135
 Time Stamp Column, 195
 Title, 171
 Title configuration, 171, 194
 To, 245
 ToAddress, 329
 To Date, 113
 Tolerance Type, 196
 Total, 269
 Totalizer, 280
 Totalizer Mode, 281
 Tphost, 102
 Tpname, 101
 Trace, 100, 102
 Trace and log, 256
 Tracer, 256
 Transaction Call, 250
 Transaction execution, 386
 Transaction handling, 289
 Transaction properties, 96, 232
 Transaction RFC (tRFC), 105, 106
 Transactions, 34, 231
 Transform, 283
 Transformation configuration, 137
 Transitions, 280
 Tree view, 221, 224
 Trend Limit Alarm, 203
 TrimWhitespace, 283

Troubleshooting tips, 438
 Type, 102

U

U chart, 216
 UDC, 92
 UDS, 91
 UI Behavior configuration, 157
 Unicode, 100, 105
 Union, 280
 UniqueName, 409
 Unit Conversion, 253
 Unit Converter, 253
 Unit of measures, 253
 Universal connectivity, 30, 31
 Universal Data Connector, 91
 Universal Data Server, 89, 91
 UpdateEvent, 359
 Update Message, 308
 UpperAlarmCount, 321
 Upper Alarms Color, 200, 202
 Upper Bar Color, 199
 Upper Chart Area configuration, 199
 Upper Chart Axes configuration, 198
 Upper Chart Background Color, 199
 Upper Chart Border Color, 199
 Upper Chart Control Limits, 200
 Upper Chart menu, 221
 Upper Chart Spec. Limits configuration, 197
 Upper Control Limit, 200
 Upper Limit of Box, 195
 Upper Spec. Limit, 197
 Column, 197
 Upper Spec. Limit
 Upper Chart User, 198
 UpTime, 425
 UseCount, 76
 Use Data Buffering, 294
 Use Data Series Color, 174
 Use Global Auto. Scaling, 176
 Use Global Decimals, 176
 Use Global Ranges, 176
 Use Global Server Scaling, 176
 use_guihost, 102
 use_guiprogid, 102

use_guiserv, 102
 UseOLEDB, 83
 User, 101
 UserAttribList, 421
 UserList, 421, 425
 UserName, 76
 UserProfile, 421
 use_sapgui, 102
 Use Screen Resolution, 170
 Use Server Scaling, 177, 199
 Use Zero-Based Scale, 176, 199

V

ValidationQuery, 76
 Value Columns, 172
 ValueSource, 269
 VariabilityBar chart, 182
 verify.der, 379
 VerticalGrid, 165, 364, 365
 Color, 169
 VerticalScoreboard, 165
 VirtualAlarm, 95
 Virtual connectors, 95, 437
 VirtualIDBC, 95
 VirtualOLAP, 95
 Virtual server connectors, 405
 VirtualTAG, 95
 VirtualXacute, 95
 VirtualXML, 95
 Visibility and responsiveness, 22
 Visual Administrator, 76
 Visual Composer, 34
 Visualization engine, 26
 Visualizations and analytics, 32
 Visualization Services, 32

W

WaitTime, 76
 WARN, 256
 WARNING, 260
 Warning Limit Color for Upper Chart, 200
 WAS, 288

Waterfall chart, 188
 WatermarkEncodedImage, 331
 Watermark image, 331
 Watermark Properties, 331
 Web action blocks, 324
 Web Dynpro, 34
 Web scripting, 353
 Web service, 26, 231, 302
 WebService, 85
 Web Service XI, 301
 Web view, 123
 Western Electric Company (WECO), 202
 Rules, 202
 While Loop, 251
 Whisker Lower Limit, 195
 Whisker Upper Limit, 195
 Who, 421
 Widgets, 33
 Wonderware IndustrialSQL Server, 83
 Workbench layout, 120
 Work center capacity, 30
 Writable, 90, 92
 Write File, 337
 WSDL, 340
 WSDL URL, 302
 WSMMessageListener, 67

X

x509cert, 102
 Xacute connector, 96
 XacuteConnector, 96
 Xacute Data Server, 96
 XacuteDevelopment, 68
 Xacute queries, 96, 225
 Xacute query, 34
 XacuteQuery, 150, 312
 XacuteRuntime, 68
 X-Axis configuration, 196
 X-Axis Label Attribute, 196
 X-Axis Label Columns, 175
 X-Axis Value Columns, 175
 XBAR chart type, 205
 XBAR-MR chart, 206
 XBAR-RANGE chart, 207
 XBAR-SDEV chart, 208

- XMII.JAR, 383
- XMIIMESSAGELISTENER, 99
- XML, 90, 233, 284
- XMLA, 84
- XMLA data source, 84
- XML document, 260, 262
- XML HTTP service, 231
- XML join conditions, 276
- XML Joiner, 276
- XML Loader, 325
- XML parsing, 34
- XML Path Language, 391
- XML Saver, 325
- XML schema, 286
- XML style sheet, 283
- XML Tracer, 258
- XPath, 391
- XPath expression, 246

- XSL, 283
- XSL Transformation, 283
- XY chart, 184
- XY regression chart, 184

Y

- Yahoo! Widgets, 34
- Y-Axis configuration, 176, 197

Z

- Zero-Based Centerline, 171
- Zip File Name, 339
- Zone A Alarm, 203
- Zone B Alarm, 204