

BOE320

SAP BusinessObjects Business Intelligence Platform: Administering Servers (Windows)

INSTRUCTOR HANDBOOK
INSTRUCTOR-LED TRAINING

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American English is the standard used in this handbook.
The following typographic conventions are also used.

This information is displayed in the instructor's presentation	
Demonstration	
Procedure	
Warning or Caution	
Hint	
Related or Additional Information	
Facilitated Discussion	
User interface control	<i>Example text</i>
Window title	<i>Example text</i>

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Course Overview

TARGET AUDIENCE

This course is intended for the following audiences:

- System Administrator
- Systems Architect

UNIT 1

SAP BusinessObjects Business Intelligence Platform

Lesson 1

Describing the SAP BusinessObjects Business Intelligence Platform	2
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Lesson 2

Describing the SAP BusinessObjects Business Intelligence Platform Architecture	6
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UNIT OBJECTIVES

- Describe the SAP Business Intelligence platform
- Explain the architecture of the SAP BusinessObjects Business Intelligence platform



Describing the SAP BusinessObjects Business Intelligence Platform

LESSON OVERVIEW

Business Intelligence is a business improvement process that includes accessing and exploring information, analyzing the information, and developing insights and understanding that lead to informed decision making. SAP BusinessObjects Business Intelligence platform is a specialized tool for providing business intelligence. The platform is a flexible and scalable business solution that delivers powerful, interactive reports and operates as an integrated suite for reporting, analysis, and information delivery. Business Intelligence and SAP BusinessObjects Business Intelligence platform increases end-user productivity and reduces administrative efforts to increase overall business performance.



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Describe the SAP Business Intelligence platform

Business Intelligence

A survey by BusinessWeek found that a majority of the business users today have either too little information or too much. If they have too much, which may be the best of the two situations, they still have to spend time to go through all that info and figure out what is relevant and what is not for their decision making. In any case, it is likely that the manager with too much information will have to delay their decision for some time and possibly lose momentum. If executives end up with too little information, they could either delay their decision and possibly lose some momentum, or worse, rely on "instinct" and "gut feel" and move ahead with their decision with the associated risks of not having fact-based insight to back it up.

So, if the results of inadequate access information include lost productivity and flawed decision making, it is interesting to observe the reverse effect for companies providing access to analytic information and capabilities. Thomas Davenport is the author of "Competing on Analytics." His research discovered that those companies that are truly high performing are more likely to use analytic information strategically. In fact, Davenport found that among the "high performers," 77% of these companies have a depth of analytic support across their entire organization, and these top performers value the insights they gain from their analytics. In other words, when companies provide access to information and to analytics, they are far more likely to be high performing companies. And availability of analytics across the enterprise, and the USE of those analytics can drive competitive differentiation.

Gartner, Inc., a research and advisory firm that helps clients to leverage technology, coined the term "Business Intelligence" in the late 1980s.

Business Intelligence (BI), as defined by Gartner, is an iterative user-centered process that includes accessing and exploring information, analyzing this information, and developing insights

and understanding that lead to improved and informed decision making. BI usage crosses the spectrum of users, both internally and externally throughout any enterprise, and includes rank-and-file workers, executives, analysts, and knowledge workers.

Business Intelligence can help organization perform tasks such as:

- Generating a class list for a training session.
- Creating an employee performance review.
- Scheduling in a healthcare setting.

Business Intelligence can help organizations perform tasks like:

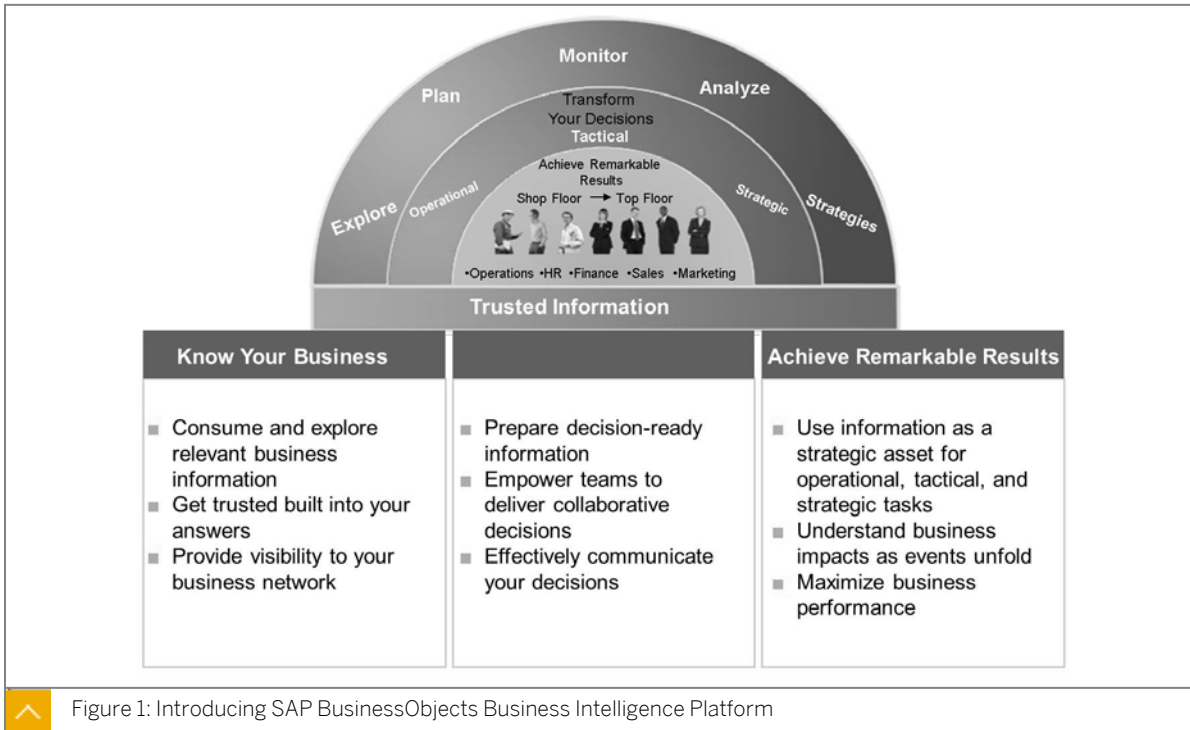
Benefits of Business Intelligence



- Identify and track key performance metric against their direct competitors and the overall market.
- Improve customer service and target high yield accounts.
- Streamline operations and improve supplier and warehouse operations.
- Identify successful marketing campaigns.
- Improve response time to market trends and customer requests.
- Decrease query and reporting time.
- Reduce cost and anxiety over compliance.
- Deliver true cost of Days Sales Outstanding and services.
- Reduce strain on IT departments.

SAP BusinessObjects Business Intelligence Platform

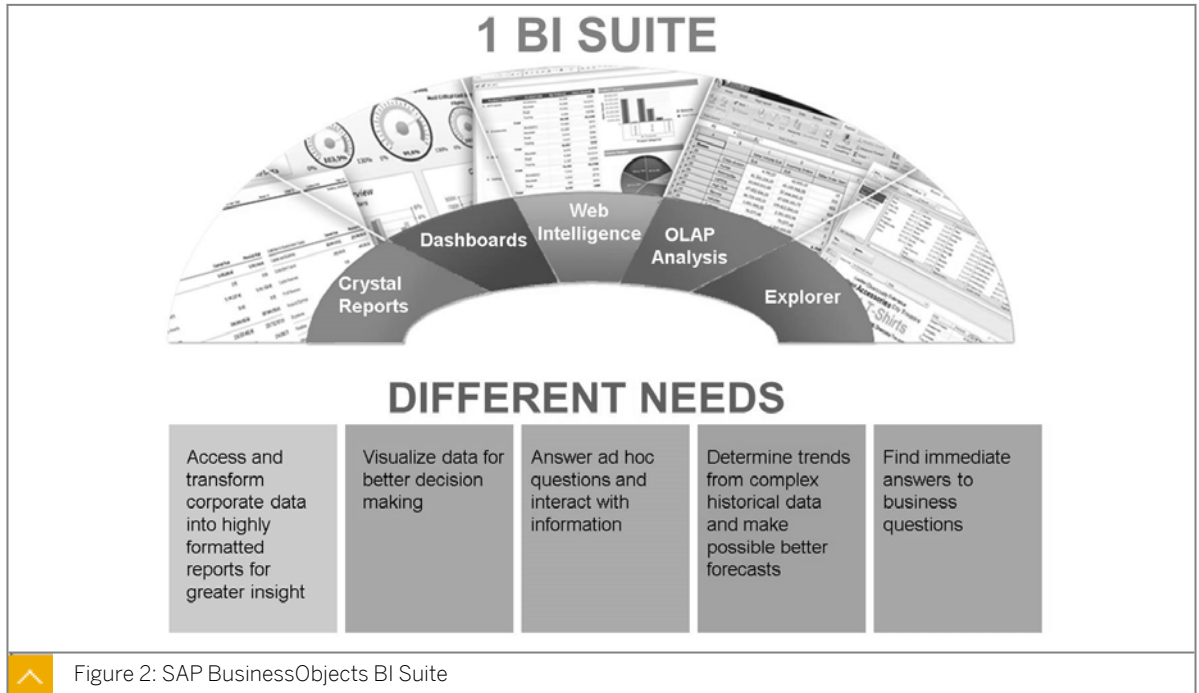
SAP BusinessObjects Business Intelligence platform is a flexible, scalable, and reliable solution for delivering powerful, interactive reports to end users via any Web application — intranet, extranet, Internet, or corporate portal. Whether it is used for distributing weekly sales reports, providing customers with personalized service offerings, or integrating critical information into corporate portals, SAP BusinessObjects Business Intelligence platform delivers tangible benefits that extend across and beyond the organization. As an integrated suite for reporting, analysis, and information delivery, SAP BusinessObjects Business Intelligence platform provides a solution for increasing end-user productivity and reducing administrative efforts.



BI Suite

The Business Intelligence suite components work together to provide solutions for various user needs. The suite provides:

- Access to and transformation of corporate data into highly formatted reports that provide greater insight.
- Visualization of data, which enables better decision making.
- Answers to specific questions and information interaction.
- Determination of trends from historical data and better forecasting.
- Immediate answers to business questions.



LESSON SUMMARY

You should now be able to:

- Describe the SAP Business Intelligence platform

Unit 1

Lesson 2



Describing the SAP BusinessObjects Business Intelligence Platform Architecture

LESSON OVERVIEW

SAP BusinessObjects Business Intelligence platform has a flexible architecture that is designed for growth and modification. The platform can be easily understood as a series of conceptual tiers that contain servers and services that work together to provide flawless reporting.



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Explain the architecture of the SAP BusinessObjects Business Intelligence platform

SAP BusinessObjects Business Intelligence Platform Architecture

The architecture of SAP BusinessObjects Business Intelligence platform is designed to meet the needs of any BI deployment, and is flexible enough to grow from several users with a single tool, to tens of thousands of users with multiple tools and interfaces.

Developers can integrate SAP BusinessObjects BI into your organization's other technology systems by using web services, Java, or .NET application programming interfaces (APIs).

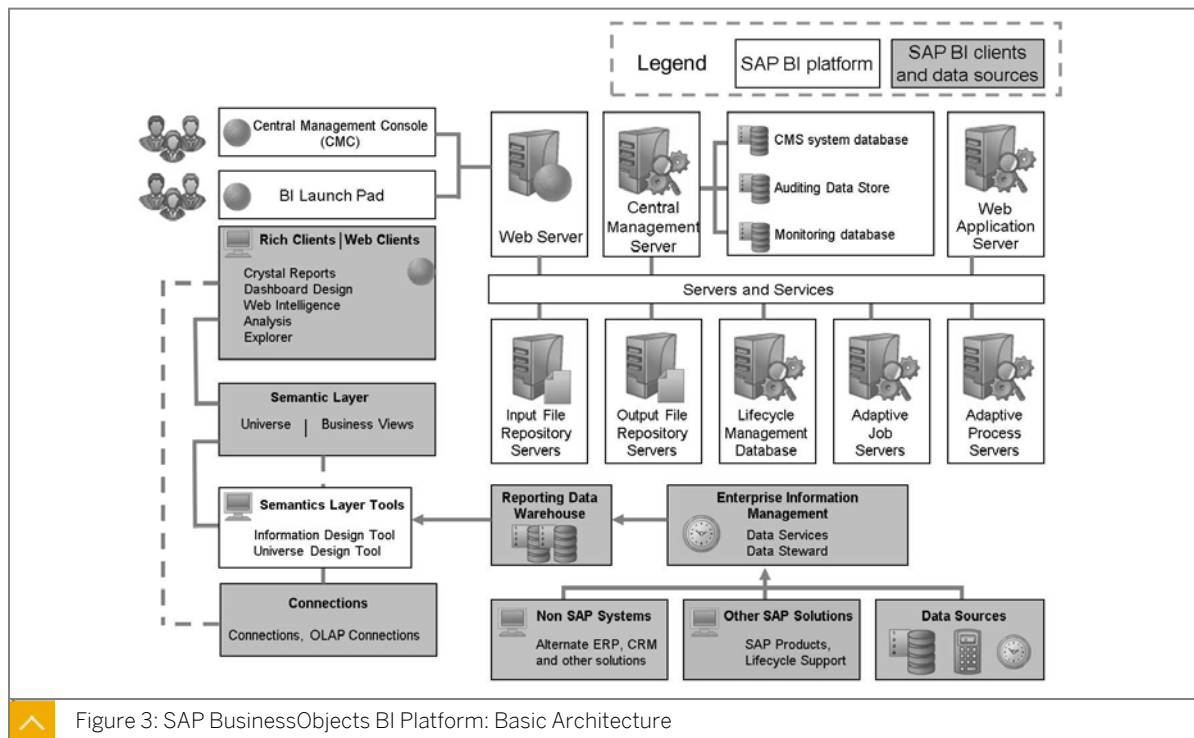


Figure 3: SAP BusinessObjects BI Platform: Basic Architecture

SAP BusinessObjects Business Intelligence Platform Tiers

SAP BusinessObjects Business Intelligence platform can be thought of a series of conceptual tiers:

Conceptual Tiers



- Client platform
- Web platform
- Management platform
- Storage platform
- Processing platform
- Data platform

SAP BusinessObjects Business Intelligence Client Tier

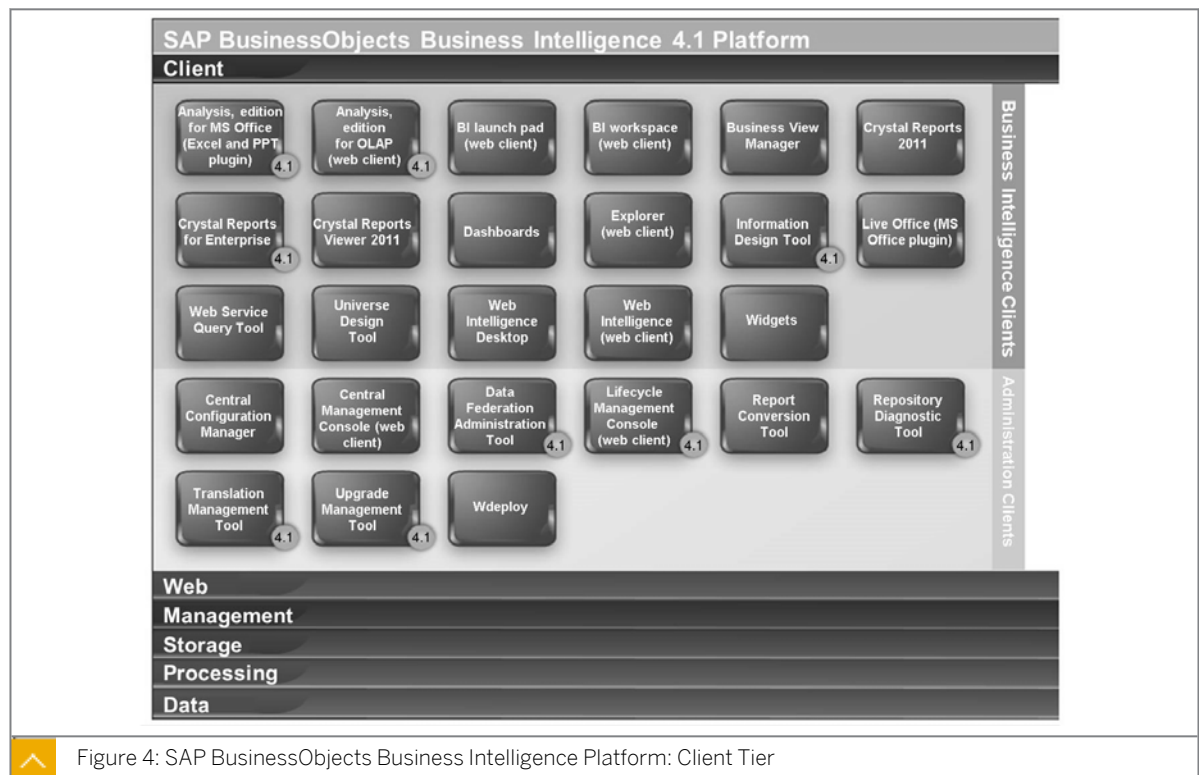


Table 1: Tools in the Client Tier

Group	Tool
BI Client	<p>Analysis, edition for MS Office (Excel and PPT Plug-In)</p> <p>SAP BusinessObjects Analysis, edition for Microsoft Office, is a Plug-In that integrates into Microsoft Excel and Microsoft PowerPoint to be used as an online analytical processing (OLAP) tool. It provides access to a range of OLAP data sources, and also allows users to combine information from different systems within a single workspace.</p> <p>Analysis, edition for OLAP (web client)</p> <p>SAP BusinessObjects Analysis, edition for OLAP (formerly Voyager) is an online analytical processing (OLAP) tool for working with multi-dimensional data. It provides access to a range of OLAP data sources, and can also combine information from different OLAP data sources within a single workspace.</p> <p>BI Launch Pad (web client)</p> <p>BI launch pad (formerly InfoView) is the main web interface for business users to view, schedule, and track of published business intelligence documents. BI launch pad can access, interact with, and export, any type of business intelligence including reports, analytics, dashboards, scorecards, and strategy maps. It simplifies information delivery and delivers secure access to BI content and tools, such as BI workspaces, SAP BusinessObjects Web Intelligence, SAP BusinessObjects Explorer, and SAP BusinessObjects Analysis, edition for OLAP.</p> <p>BI workspaces (web client)</p> <p>BI workspaces (formerly Dashboard Builder) helps you track your business activities and performance using modules (templates for data) and Business Intelligence (BI) workspaces (for viewing data in one or more modules). Modules and BI workspaces provide information needed to adjust business rules as conditions change. It helps you track and analyze key business data. It also supports group decision-making and analysis via integrated collaboration and workflow capabilities. BI workspaces enables you to organize content in pages, create mash-ups of Business Intelligence content, and present the information in a way that is tailored to the role of the user, either for personal use or for sharing with others.</p> <p>Business View Manager</p> <p>Business View Manager allows users to build semantic layer objects that simplify underlying database complexity. Business View Manager can create data connections, dynamic data connections, data foundations, business elements, business views, and relational views. It also allows detailed column and row-level security to be set for the objects in a report. Designers can build connections to multiple data sources, join tables, alias field names, create calculated fields, and then use the simplified structure as a Business View. Report designers and users can then use the business view as the ba-</p>

Group	Tool
	<p>sis for their Crystal reports, rather than building their own queries from the data directly.</p> <p>Crystal Reports 2011 SAP Crystal Reports 2011 is a Windows-based report design tool that creates powerful reports that can be published in the SAP BusinessObjects Business Intelligence platform.</p> <p>Crystal Reports for BI platform SAP Crystal Reports for Enterprise is a Java-based report design tool that creates and integrates powerful reports in the SAP BusinessObjects Business Intelligence platform.</p> <p>Crystal Reports Viewer 2011 SAP Crystal Reports Viewer 2011 is a Java-based tool to view Crystal reports.</p> <p>Dashboards SAP BusinessObjects Dashboards (formerly Xcelsius) is a tool for data visualization and the creation of dynamic, interactive dashboards. Data can be updated dynamically from the SAP BusinessObjects Business Intelligence platform, and exported to many different formats that can be viewed by data consumers in standard formats, such as PowerPoint, PDF, or Flash.</p> <p>Explorer SAP BusinessObjects Explorer is an information-discovery tool that empowers everyone in an organization with fast, easy access to information, so they can explore data, spark new ideas, and find new insights.</p> <p>Information Design Tool The Information Design Tool is an SAP BusinessObjects metadata design environment that enables a designer to extract, define, and manipulate metadata from relational and OLAP sources to create and deploy UNX universes.</p> <p>Live Office SAP BusinessObjects Live Office integrates with the Microsoft Office environment, allowing dynamically updated data to be embedded within Microsoft PowerPoint, Excel, and Word documents. In addition, you can share your documents with others over the Web for collaborative decision-making.</p> <p>Web Service Query Tool The Web Service Query Tool (formerly Query as a Web Service) allows Business Intelligence queries to be used in custom web applications. Business users create their own queries from an universe connection and publish them as web services so they can be incorporated into client applications.</p> <p>Universe Design Tool</p>

Group	Tool
	<p>The Universe Design Tool (formerly Universe Designer) allows data designers to combine data from multiple sources in a semantic layer (UNV universe) that hides database complexity from end users. It abstracts the complexity of data by using business rather than technical language to access, manipulate, and organize data.</p> <p>Universe Design Tool provides a graphical interface to select and view tables in a database. The database tables are represented as table symbols in a schema diagram. Designers can use this interface to manipulate tables, create joins between tables, create alias tables, create contexts, and solve loops in a schema. You can also create universes from metadata sources. Universe Design Tool is used for the universe generation at the end of the creation process.</p> <p>Web Intelligence Desktop</p> <p>SAP BusinessObjects Web Intelligence Desktop is an ad hoc analysis and reporting tool for business users with or without access to the SAP BusinessObjects Business Intelligence platform. It allows business users to access and combine data from relational, online analytical processing (OLAP), spreadsheet, or text file sources, using familiar business terms in a drag-and-drop interface. Workflows allow broad or narrow questions to be analyzed, and for further questions to be asked at any point in the analysis workflow. Web Intelligence Desktop users can continue working with Web Intelligence document files (.wid) even when unable to connect to a Central Management Server (CMS).</p> <p>Web Intelligence (web client)</p> <p>SAP BusinessObjects Web Intelligence is an ad hoc analysis and reporting tool for business users with access to the SAP BusinessObjects Business Intelligence platform. It allows business users to access and combine data from relational, online analytical processing (OLAP), spreadsheet, or text file sources, using familiar business terms in a drag-and-drop interface. Workflows allow broad or narrow questions to be analyzed, and for further questions to be asked at any point in the analysis workflow.</p> <p>Widgets</p> <p>SAP Widgets (formerly BI Widgets) are mini-applications that allow easy and fast access to frequently used functions and provide visual information from your desktop. SAP Widgets allow your organization to provide access to existing BI content on the SAP BusinessObjects Business Intelligence platform. Or you can add Web Dynpro applications that are registered as Extensible Business Client Markup Language (XBCML) widgets on the SAP NetWeaver Application Servers, as desktop widgets.</p>

Group	Tool
Admin Client	<p data-bbox="513 247 889 279">Central Configuration Manager</p> <p data-bbox="553 296 1474 699">The Central Configuration Manager (CCM) is a server troubleshooting and node management tool provided in two forms. In a Microsoft Windows environment, the CCM allows you to manage local and remote servers through its Graphical User Interface (GUI) or from a command line. In a Unix environment, the CCM shell script (ccm.sh) allows you to manage servers from the command-line. The CCM allows you to create and configure Server Intelligence Agent (SIA) nodes and start or stop your web application server. On Windows, it also allows you to configure network parameters, such as Secure Socket Layer (SSL) encryption. These parameters apply to all servers within a node. Note: Most server management tasks are now handled through the Central Management Console (CMC), not through the CCM. The CCM is now used for troubleshooting and node configuration.</p> <p data-bbox="513 720 1029 751">Central Management Console (web client).</p> <p data-bbox="553 768 1474 898">The Central Management Console (CMC) is the main web interface to perform administrative tasks in the SAP BusinessObjects Business Intelligence platform, including user, content, and server management. It also allows you to publish and organize content, and configure security settings.</p> <p data-bbox="513 919 954 951">Data Federation Administration Tool</p> <p data-bbox="553 968 1474 1230">The Data Federation Administration Tool (formerly Data Federator) is a rich client application that offers easy-to-use features to manage your data federation service. Tightly integrated in the SAP BusinessObjects Business Intelligence platform, the data federation service enables multi-source universes by distributing queries across disparate data sources, and lets you federate data through a single data foundation. The Data Federation Administration Tool lets you optimize data federation queries and fine-tune the data federation query engine for the best possible performance.</p> <p data-bbox="513 1251 1040 1283">Lifecycle Management Console (web client)</p> <p data-bbox="553 1299 1474 1423">The Lifecycle Management Console provides a centralized view to monitor the progress of the entire lifecycle process. It is used to promote content from one SAP BusinessObjects Business Intelligence platform to another of the same version.</p> <p data-bbox="513 1444 802 1476">Report Conversion Tool</p> <p data-bbox="553 1493 1446 1654">The Report Conversion Tool converts Desktop Intelligence reports to Web Intelligence format, and publishes them to a Central Management Server (CMS). The Report Conversion Tool also lets you audit your converted reports. This helps identify reports that cannot be fully converted, and explains why.</p> <p data-bbox="513 1675 841 1707">Repository Diagnostic Tool</p> <p data-bbox="553 1724 1474 1848">The Repository Diagnostic Tool scans, diagnoses, and repairs inconsistencies that may occur between the Central Management Server (CMS) system database and the File Repository Servers (FRS) filestore. It can also report the repair status and completed actions.</p>

Group	Tool
	<p>Translation Management Tool</p> <p>The Translation Management Tool defines multilingual universes and manages translation of universes and their Web Intelligence documents and prompts.</p> <p>Upgrade Management Tool</p> <p>The Upgrade Management Tool (formerly Import Wizard) guides administrators through the process of importing users, groups, and folders from previous versions of the SAP BusinessObjects Business Intelligence platform (formerly know as SAP BusinessObjects Enterprise). It also allows you to import and upgrade objects, events, server groups, repository objects, and calendars.</p> <p>WDeploy</p> <p>WDeploy is a tool that assists in deploying SAP BusinessObjects Business Intelligence platform web applications, such as BI Launch pad and the Central Management Console, to target application servers.</p>



Note:

Key administrative tools for administrators are Central Management Console (CMC), Central Configuration Manager (CCM), Repository Diagnostic Tool, and Upgrade Management Tool.

SAP BusinessObjects Business Intelligence Web Tier

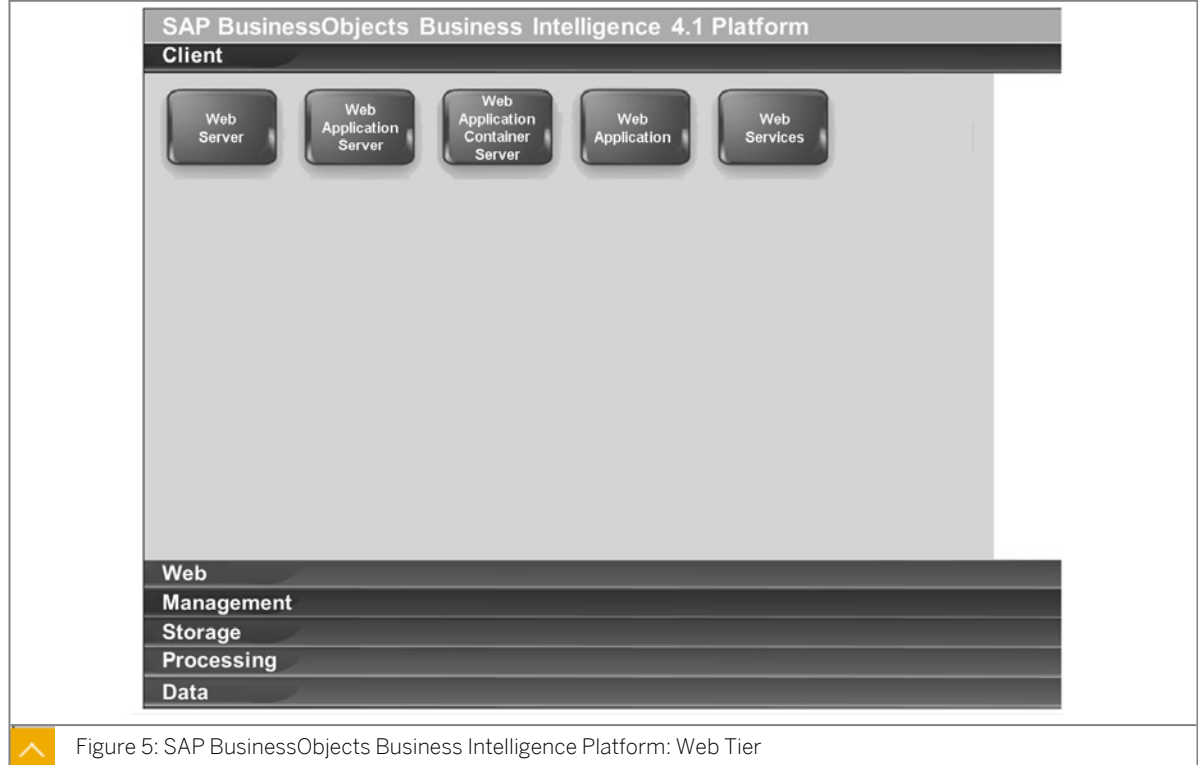


Figure 5: SAP BusinessObjects Business Intelligence Platform: Web Tier

Web Tier Components



Web Server

The Web server receives HTTP requests sent from the web client. The Web server holds and manages static content such as .html and .js files that may be part of an SAP BusinessObjects Business Intelligence suite web application.

Web Application Server

A web application server acts as the translation layer between a web browser or rich application, and the SAP BusinessObjects Business Intelligence platform. The Web application server hosts web applications, Web services, and Software Development Kits (SDK). Various Web application servers running on Windows, Unix, and Linux are supported. Note: If you do not have a web application server in place for use with the SAP BusinessObjects Business Intelligence platform, the installation program can install and configure a Tomcat 6 web application server for you.

Web Application Container Server

The Web Application Container Server (WACS) is an SAP BusinessObjects Business Intelligence platform server that allows the platform web services and web applications, such as the Central Management Console (CMC) and BI launch pad, to run without the need for a previously installed Java Web application server.

Web Applications

Web applications run in the web application server to process requests from the web client. SAP BusinessObjects Business Intelligence suite web applications include:

- Central Management Console
- Lifecycle Management Console
- BI Launchpad
- BI Workspaces
- SAP BusinessObjects Web Intelligence
- SAP BusinessObjects Analysis, edition for OLAP
- SAP BusinessObjects Explorer

Web Services

Web services run in the web application server to process requests from client applications. Web services can be called remotely using the Simple Object Access Protocol (SOAP) for exchanging information that is not dependent on a specific platform, object model, or programming language.

SAP BusinessObjects web services include logic to understand and direct requests to the appropriate SAP BusinessObjects Business Intelligence platform server. SAP BusinessObjects web services can be accessed by rich clients such as Live Office and Crystal Reports, and also by custom-built web service consumer applications.

SAP BusinessObjects Business Intelligence platform web services include:

- Session
- BIPlatform
- ReportEngine
- QueryService
- SaveService
- BICatalog
- Publish
- LiveOffice
- Managequeryasaservice
- Federator
- XcelsiusWebServices
- BicsRemote
- Gopher

SAP BusinessObjects Business Intelligence Platform Management Tier



Figure 6: SAP BusinessObjects Business Intelligence Platform: Management Tier

Management Tier Components



Central Management Server

The Central Management Server (CMS) maintains a database of information about your SAP BusinessObjects Business Intelligence platform (in the CMS system database) and audited user actions (in the Auditing Data Store). All platform services are managed by the CMS. The CMS also controls access to the system files where documents are stored, and information on users, user groups, security levels (including authentication and authorization), and content.

Event Server

The Event Server monitors the system for events, which can act as a trigger for running a report. When you set up an event trigger, the Event Server monitors the condition and notifies the CMS that an event has occurred. The CMS can then start any jobs that are set to run upon the event.

Explorer Master Server

Explorer Master Server manages all of the Explorer processing servers, including: Explorer Exploration Server, Explorer Indexing Server, and Explorer Search Server.

Server Intelligence Agent

A Server Intelligence Agent (SIA) manages and monitors all of the servers on a node, to ensure that they operate properly. Note: A node is a group of SAP BusinessObjects Business Intelligence platform servers that run on the same host. All of the servers on a node run

under the same user account. One machine can contain many nodes, so you can run processes under different user accounts.

SAP BusinessObjects Business Intelligence Platform Storage Tier



Figure 7: SAP BusinessObjects Business Intelligence Platform: Storage Tier

Storage Tier

Crystal Reports Cache Server

The Crystal Reports Cache server intercepts report viewing requests sent from clients to the Crystal Reports Processing server. If the Cache server cannot fulfill the request with a cached report page, it passes the request on to the Crystal Reports Processing server, which runs the report and returns the results. The Cache server then caches the report page for potential future use.

Dashboard Design Cache Server

The Dashboard Design Cache server determines whether a previously served dashboard viewing request would satisfy the current dashboard viewing request. If the request cannot be fulfilled by the Dashboard Design Cache server, it forwards the request to the Dashboard Design Processing server. The Dashboard Design Cache server will try to share previous data results as much as possible.

Input File Repository Server

The Input File Repository Server stores all of the documents and program objects that have been published to the SAP BusinessObjects Business Intelligence platform. It can store a large variety of file types.

Output File Repository Server

The Output File Repository Server stores all of the instances generated by scheduled jobs for all object types including Crystal Reports, Web Intelligence, and programs. It can store a large variety of file types.

SAP BusinessObjects Business Intelligence Platform Processing Tier

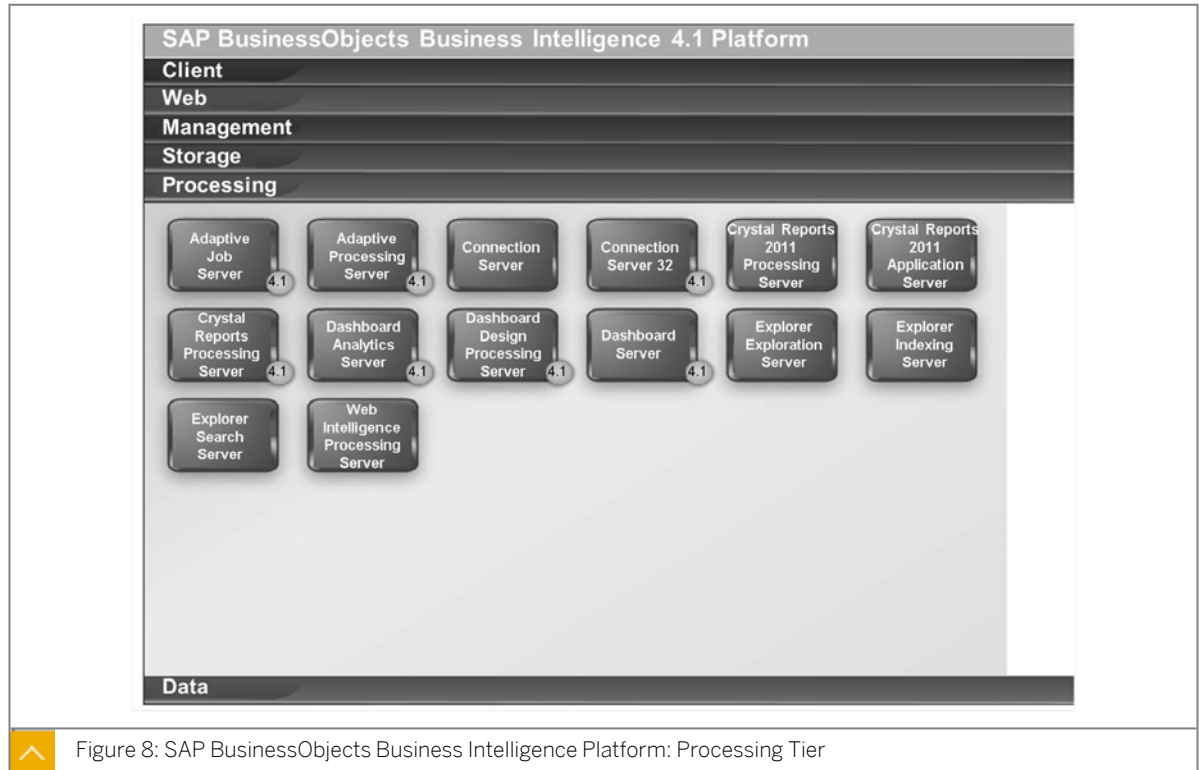


Figure 8: SAP BusinessObjects Business Intelligence Platform: Processing Tier

Processing Tier



Adaptive Job Server

The Adaptive Job server is a generic server that processes scheduled jobs for many object types. Services that can be hosted on this server include: Authentication Update Scheduling Service, Crystal Reports 2011 Scheduling Service, Crystal Reports Scheduling Service, Destination Delivery Scheduling Service, Lifecycle Management Scheduling Service, Platform Search Scheduling Service, Probe Scheduling Service, Program Scheduling Service, Publication Scheduling Service, Replication Service, Security Query Scheduling Service, Visual Difference Scheduling Service, and Web Intelligence Scheduling Service.

Adaptive Processing Server

The Adaptive Processing server is a generic server that hosts services responsible for processing requests from many sources. Services that can be hosted on this server include: Adaptive Connectivity Service, BEx Web Application Service, Client Auditing Proxy Service, Custom Data Access Service, Data Federation Service, Document Recovery Service, DSL Bridge Service, Excel Data Access Service, Lifecycle Management ClearCase Service, Lifecycle Management Console Service, Monitoring Service, Multi Dimensional Analysis Service, Platform Search Service, Publishing Post Processing Service, Publishing Service,

Rebean Service, Security Token Service, Translation Service, Visual Difference Service, Visualization Service, and Web Intelligence Monitoring Service.

Connection Server

The Connection server provides database access to source data. It supports relational databases, as well as OLAP and other formats. The Connection server is responsible for handling connection and interaction with the various data sources and providing a common feature set to clients.

Connection Server 32

The Connection Server 32 is responsible for 32-bit database connectivity to access data.

Crystal Reports 2013 Processing Server

The Crystal Reports 2011 Processing server responds to Crystal Reports page requests by processing reports and generating encapsulated page format (EPF) files. The key benefit of EPF is that it supports page-on-demand access, so only the requested page is returned, not the entire report. This improves system performance and reduces unnecessary network traffic for large reports. The Crystal Reports 2011 Processing server retrieves data for the report from the latest instance or directly from the data source. After it generates the report, it converts the requested data to one or more EPF files. These EPF files are then sent to the Crystal Reports Cache server.

Crystal Reports 2013 Report Application Server

The Crystal Reports 2011 Report Application server (RAS) provides ad hoc reporting capabilities that allow users to create and modify Crystal reports via the SAP Crystal Reports server Embedded Software Development Kit (SDK).

Crystal Reports Processing Server

The Crystal Reports Processing server responds to Crystal Reports for Enterprise page requests by processing reports and generating encapsulated page format (EPF) files. The key benefit of EPF is that it supports page-on-demand access, so only the requested page is returned, not the entire report. This feature improves system performance and reduces unnecessary network traffic for large reports. The Crystal Reports Processing server retrieves data for the report from the latest instance or directly from the data source. After it generates the report, it converts the requested data to one or more EPF files. These EPF files are then sent to the Crystal Reports Cache server.

Dashboards Cache Server

Intercepts report requests sent from clients to the Dashboard server. If the cache server cannot fulfill the request with a cached report page, it passes the request on to the Dashboard server, which runs the report and returns the results. The cache server then caches the report page for potential future use.

Explorer Exploration Server

Explorer Exploration server provides and manages the Information Space exploration and analysis capabilities including search on data, filtering, and aggregation.

Explorer Indexing Server

Explorer Indexing server provides and manages the indexing of Information Space data and metadata.

Explorer Search Server

Explorer Search server processes search queries and returns search results.

Web Intelligence Processing Server

The Web Intelligence Processing server is responsible for generating Web Intelligence documents. The Web Intelligence Processing server obtains document creation requests from the Web Application server and then communicates with the Input File Repository server to obtain a copy of the Web Intelligence document (WID) file and the universe definition. When viewing an existing instance of a WID, the Web Intelligence Processing server communicates with the Output File Repository server to obtain an existing historical instance of a WID.

SAP BusinessObjects Business Intelligence Platform Data Tier

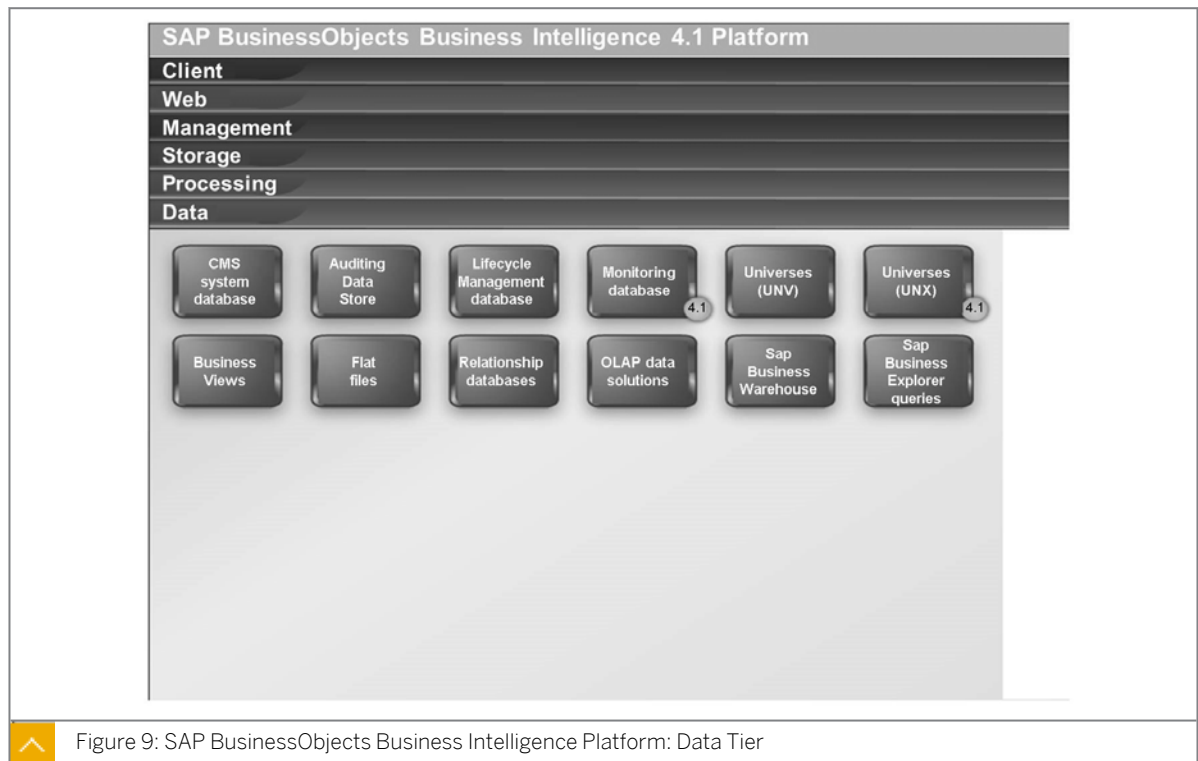


Figure 9: SAP BusinessObjects Business Intelligence Platform: Data Tier

CMS system database

The CMS system database is used to store SAP BusinessObjects Business Intelligence platform information, such as user, server, folder, document, configuration, authorization, and authentication details. It is maintained by the Central Management Server (CMS), and is sometimes referred to as the system repository.

Auditing Data Store

The Auditing Data Store (ADS) is used to store information on trackable events that occur in SAP BusinessObjects BI platform. This information can be used to monitor the usage of system components, user activity, or other aspects of day-to-day operation.

Lifecycle Management database

The Lifecycle Management database tracks configuration and version information related to an SAP BusinessObjects Business Intelligence platform installation, as well as updates.

Monitoring database

The Monitoring database is an embedded Java Derby database that stores system configuration and component information for SAP supportability in the SAP BusinessObjects Business Intelligence platform.

Universes (UNV)

UNV Universes are identified by the .unv file extension. They are the legacy type of universe based on the semantic layer in previous versions of the SAP BusinessObjects Business Intelligence platform. They are built using the legacy Universe Design Tool. An universe is an organized collection of metadata objects that enables business users to analyze and report on corporate data in non-technical language. These objects include dimensions, measures, hierarchies, attributes, predefined calculations, functions, and queries. The metadata object layer is built on a relational database schema or an OLAP cube, so the objects map directly to the database structures. A universe includes connections to the data sources so that users of query and analysis tools can connect to an universe and run queries and create reports using the objects in an universe without needing to know about the underlying data structures in the database.

Universes (UNX)

UNX Universes are identified by the .unx file extension. They are the new type of universe based on the new semantic layer in the SAP BusinessObjects Business Intelligence 4.0 platform. They are built using the new Information Design Tool. An universe is an organized collection of metadata objects that enables business users to analyze and report on corporate data in non-technical language. These objects include dimensions, measures, hierarchies, attributes, predefined calculations, functions, and queries. The metadata object layer is built on a relational database schema or an OLAP cube, so the objects map directly to the database structures. A universe includes connections to the data sources so that users of query and analysis tools can connect to an universe and run queries and create reports using the objects in an universe without needing to know about the underlying data structures in the database.

Business Views

Business Views simplify report creation and interaction by abstracting the complexity of data for report developers. Business Views help separate the data connections, data access, business elements, and access control. Business Views can only be used by Crystal Reports and are designed to simplify the data access and view-time security required for Crystal report creation. Business Views support the combination of multiple data sources in a single view.

Flat files

Flat files include .txt, .csv, and .xls files.

Relational databases

Relational databases store data in two-dimensional tables.

OLAP data sources

OLAP data sources store data in multi-dimensional cubes.

SAP Business Warehouse

SAP NetWeaver Business Warehouse (BW) is the OLAP data source from SAP.

SAP Business Explorer Queries

SAP Business Explorer (BEx) queries are used to analyze data in SAP NetWeaver Business Warehouse. BEx queries are built in the BEx query designer.

Services and Servers

SAP BusinessObjects BI platform uses the terms server and service to refer to the two types of software running on an SAP BusinessObjects BI platform machine.

BI Platform Terminology



Service

A service is a server subsystem that performs a specific function. The service runs within the memory space of its server under the process ID of the parent container (server). For example, the SAP BusinessObjects Web Intelligence Scheduling and Publishing Service is a subsystem that runs within the Adaptive Job server.

Server

The term server is used to describe an operating system level process hosting one or more services. For example, the Central Management server (CMS) and Adaptive Processing server are servers. A server runs under a specific operating system account and has its own PID.

Node

A node is a collection of SAP BusinessObjects BI platform servers running on the same host. One or more nodes can be hosted in a single host.

Server Intelligence Agent (SIA)

Server Intelligence Agent is a component of the Central Management Console (CMC) to manage a collection of server processes, collectively known as a node. Changes to server processes applied in the CMC are propagated to affected servers by the Server Intelligence Agent. The SIA is also used for the automatic restart or shutdown of a server when it encounters an unexpected condition, and is used by the Central Management Server (CMS) to manage nodes.

The Agent (SIA) server archives server information in the CMS system database so you can easily restore default server settings, or create redundant instances of server processes with the same settings.

Host

This term is used for the physical machine (PC tower, server blade) that is hosting nodes and SIAs. Each single host machine will host at least one node and one SIA, but it can host many more when being created by the administrator for scalability reasons.

SAP BusinessObjects BI platform consists of collections of servers running on one or more hosts. Small installations (such as test or development systems) can use a single host for a web application server, database server, and all SAP BusinessObjects BI platform servers.

Medium and large installations can have servers running on multiple hosts. For example, a web application server host can be used in combination with an SAP BusinessObjects BI platform server host. This combination frees up resources on the SAP BusinessObjects BI platform server host, allowing it to process more information than if it also hosted the web application server.

Large installations can have several SAP BusinessObjects BI platform server hosts working together in a cluster. For example, if an organization has many SAP Crystal Reports users, Crystal

Reports processing servers can be created on multiple SAP BusinessObjects BI platform server hosts to ensure that there are plenty of resources available to process requests from clients.

Production BI System

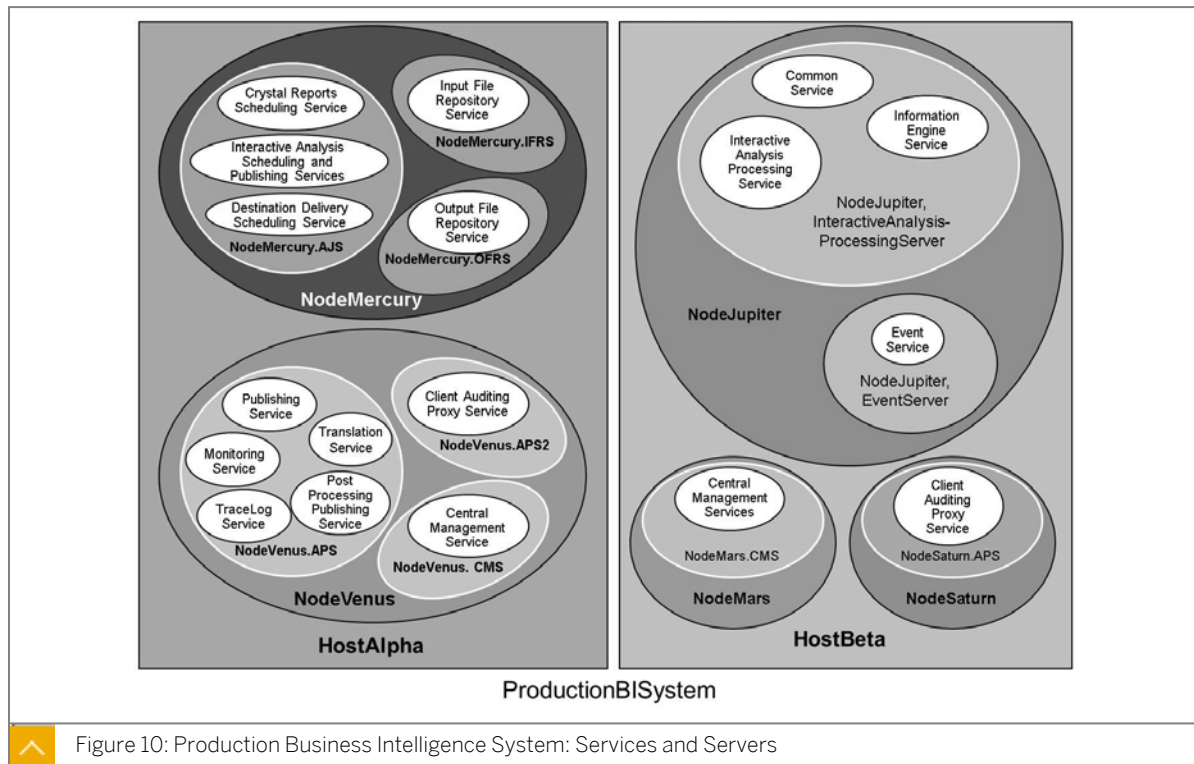


Figure 10: Production Business Intelligence System: Services and Servers



Note:

The nodes, servers, and services shown are for illustrative purposes only. The number of hosts, nodes, servers and services, as well as the type of servers and services, will vary in real world installation queries.

In this figure two hosts form the cluster named ProductionBISystem, with two hosts:

- The host named HostAlpha has two nodes:
 - NodeMercury: contains an Adaptive Job server (NodeMercury.AJS) with services to schedule and publish reports, an Input File Repository server (NodeMercury.IFRS) with a service to store input reports, and an Output File Repository server (NodeMercury.OFRS) with a service to store report output.
 - NodeVenus: contains an Adaptive Processing server (NodeVenus.APS) with services to provide publishing, monitoring, and translation features, an Adaptive Processing server (NodeVenus.APS2) with a service to provide client auditing, and a Central Management server (NodeVenus.CMS) with a service to provide the CMS services.
- The host named HostBeta has three nodes:

- NodeMars: contains a Central Management server (NodeMars.CMS) with a service to provide the CMS services.
- NodeJupiter: contains a Web Intelligence Processing server (NodeJupiter.WebIntelligence) with a service to provide Web Intelligence documents, and an Event Server (NodeJupiter.EventServer) to provide report monitoring of files.
- NodeSaturn: contains an Adaptive Processing server (NodeSaturn.APS) with a service to provide client auditing.



Log on to the SAP BusinessObjects Business Intelligence Platform 4.1

Business Example:

As the system administrator, first you need to access the Administration Web application of the SAP BusinessObjects Business Intelligence platform. Second, you must change and customize the default BI launch pad *Home* page for a specific group in the platform.

Connect to the Training Cloud Environment

1. Launch the Remote Training Environment (Citrix connection).
2. Connect to the Remote Training Environment (Citrix connection).



Note:

We recommend using WTS in full screen mode. You can change this window size by clicking the *Preferences* tab, then selecting the *Display* option and the new window size.



Hint:

Press the Control + F12 keys on your keyboard to toggle between full screen view and your own desktop screen.

3. Connect to your Training Cloud environment:



Note:

If your training course is located outside the SAP Network (WAN) perform the following to optimize the quality of the display:

- a) Click the *Option* button.
- b) Select the *Experience* tab.
- c) Choose the *Modem (56 kbps)* or *LAN* option in the listbox.



Note:

Write down your personal Training System Alias information in the following table.

Training System Alias	User Name	Password
_____	train-_____	initial

Connect to the SAP BusinessObjects Business Intelligence Platform 4.1

1. Connect to the CMC Web Application for Administrators.

SAP BusinessObjects Business Intelligence Platform 4.1 System	User Name	Password	Authentication
WDFLBMT5072	Administrator	admin41	Enterprise
WDFLBMT5073	Administrator	admin41	Enterprise



Note:

Remember the name of the the BI platform 4.1 system that was assigned to you by your instructor.

2. Connect to the BI launch pad Web Application for Users.
3. Log off of the BI launch pad application.

Change the BI Launch Pad Preferences on the SAP BusinessObjects Business Intelligence Platform 4.1

1. In the CMC application, change the default BI launch pad preferences for all users who belong to the Administrators group to display the Public folders in the Documents tab instead of the Home tab as currently defaulted.
2. Check the changes in the BI Launchpad Web Application.
3. Set the user preferences in the BI launch pad to override those defined by the administrator.
4. Log off, and then log back on to the BI launch pad as "Administrator".
You are now connected to the User default *Home* page of the BI launch pad defined by the user.



Log on to the SAP BusinessObjects Business Intelligence Platform 4.1

Business Example:

As the system administrator, first you need to access the Administration Web application of the SAP BusinessObjects Business Intelligence platform. Second, you must change and customize the default BI launch pad *Home* page for a specific group in the platform.

Connect to the Training Cloud Environment

1. Launch the Remote Training Environment (Citrix connection).
 - a) Launch the following URL address from your local web browser:

Training Course Environment	URL Address
Training course is located inside the SAP Network (LAN)	http://wts.wdf.sap.corp/portal/
Training course is located outside the SAP Network (WAN)	<ol style="list-style-type: none">a) http://mywts.sap.comb) Click your nearest region (AMERICAS / EMEA / APJ).c) Enter your logon and password credentials (provided by your instructor).

2. Connect to the Remote Training Environment (Citrix connection).



Note:

We recommend using WTS in full screen mode. You can change this window size by clicking the *Preferences* tab, then selecting the *Display* option and the new window size.




Hint:


Press the Control + F12 keys on your keyboard to toggle between full screen view and your own desktop screen.

- a) Once you are connected to the WTS@SAP portal, click the tab with the name of your region (example: "Region -- EMEA").

- b) Click the *Training Zone* submenu.
 - c) Click the *Applications* tab and then the *Common Training* link. After a couple of seconds, the remote *Common Training* desktop will appear in a new window.
 - d) Maximize this new window.
3. Connect to your Training Cloud environment:

 Note:
If your training course is located outside the SAP Network (WAN) perform the following to optimize the quality of the display:

- a) Click the *Option* button.
- b) Select the *Experience* tab.
- c) Choose the *Modem (56 kbps)* or *LAN* option in the listbox.

 Note:
Write down your personal Training System Alias information in the following table.

Training System Alias	User Name	Password
_____	train-_____	initial

- a) Run the Remote Connection program from the *Start > Programs* menu.
- b) Once the Remote Desktop Connection dialog box is displayed, go to the *General* tab and then enter the Training System Alias information that is provided by your instructor.
- c) Click the *Connect* button to connect to your Training Cloud environment. After a couple of second the *Log On* screen appears.
- d) Click the *Other User* option and then enter your persona credentials (see the previous table).
- e) Click the *Enter* button. After a couple of seconds the desktop of your Training Cloud Environment is displayed in full screen.
You are now logged into your Training Cloud Environment.

Connect to the SAP BusinessObjects Business Intelligence Platform 4.1

1. Connect to the CMC Web Application for Administrators.

SAP BusinessObjects Business Intelligence Platform 4.1 System	User Name	Password	Authentication
WDFLBMT5072	Administrator	admin41	Enterprise

SAP BusinessObjects Business Intelligence Platform 4.1 System	User Name	Password	Authentication
WDFLBM5073	Administrator	admin41	Enterprise



Note:

Remember the name of the the BI platform 4.1 system that was assigned to you by your instructor.

- a) From the *Start* menu in your Training Cloud Environment, select the *_SAP Business Intelligence* menu.
 - b) Click the custom link to Central Management Console (CMC) *Home* page option.
 - c) Enter the name of your personal BI 4.1 system that was assigned to you by your instructor in the dialog box.
 - d) Click the *OK* button. The CMC home page displays.
 - e) Enter your personal credential as **Administrator** (see previous table), and click the *Log On* button. After a couple of seconds the *System Configuration Wizard* window displays.
 - f) Click the *Close* button.
You are now connected to the Central Management Console *Home* page.
2. Connect to the BI launch pad Web Application for Users.
 - a) From the *Start* menu in your Training Cloud Environment, select the *_SAP Business Intelligence* menu.
 - b) Click the custom link to BI Launchpad *Home* page option.
 - c) Enter the name of your personal BI 4.1 system assigned to you by your instructor (see previous table).
 - d) Click the *OK* button. The BI launch pad *Home* page is displayed.
 - e) Enter your personal credential as **Administrator** and click the *Log On* button.
You are now connected to the default *Home* page of the BI launch pad
 3. Log off of the BI launch pad application.
 - a) Click the *Log Off* button.

Change the BI Launch Pad Preferences on the SAP BusinessObjects Business Intelligence Platform 4.1

1. In the CMC application, change the default BI launch pad preferences for all users who belong to the Administrators group to display the Public folders in the Documents tab instead of the Home tab as currently defaulted.
 - a) Click the *Users and Groups* option in the CMC.

- b) Select the *Administrators* group and right-click it. A context menu appears.
 - c) Select the *BI Launchpad Preferences* option. The *BI Launchpad Preferences* window displays.
 - d) Uncheck the *No Preferences Defined* option.
 - e) Select the *Documents tab* radio button.
 - f) Select the *Folders* radio button.
 - g) Click the *Save and Close* button to validate the changes.
2. Check the changes in the BI Launchpad Web Application.
 - a) From the *Start* menu in your Training Cloud Environment, select the *_SAP Business Intelligence* menu and then click the custom link to *BI Launchpad Home* page option.
 - b) Enter the name of your personal BI 4.1 system that was assigned to you by your instructor in the dialog box.
 - c) Click the *OK* button. The *BI Launchpad Home* page displays.
 - d) Enter your personal credential as **Administrator** and then click the *Log On* button. You are now connected to the *ADMIN* default *Home* page of the BI launch pad defined by the BI 4.1 administrator.
3. Set the user preferences in the BI launch pad to override those defined by the administrator.
 - a) In the new BI launch pad home page, select the *User Preferences* option.
 - b) In the *General* page, uncheck the *Use Default Settings (Administrator defined)* option.
 - c) Select the *Home tab* radio button.
 - d) Click the *Save and Close* button to validate the changes.
4. Log off, and then log back on to the BI launch pad as "Administrator".
You are now connected to the User default *Home* page of the BI launch pad defined by the user.



LESSON SUMMARY

You should now be able to:

- Explain the architecture of the SAP BusinessObjects Business Intelligence platform



Learning Assessment

1. Which of the following are examples of the application of Business Intelligence?

Choose the correct answers.

- A Identification of successful marketing campaigns
- B Generation of contact lists
- C Recording of consumer feedback
- D Decrease query and reporting time

2. How will your company benefit from Business Intelligence?

3. When a server starts, it registers with the Central Management Server (CMS).

Determine whether this statement is true or false.

- True
- False

4. Match the Business Intelligence platform management tier component with the correct functions.

Match the item in the first column to the corresponding item in the second column.

Central Management Server (CMS)
Event server
Explorer Master server
Server Intelligence Agent

Manages and monitors all of the servers on a node, to ensure that they operate properly.
Monitors the system for events, which can act as a trigger for running a report. When you set up an event trigger, this component monitors the condition and notifies the CMS that an event has occurred. The CMS can then start any jobs that are set to run upon the event.
Manages all of the Explorer processing servers, including: Explorer Exploration Server, Explorer Indexing Server, and Explorer Search Server.
Maintains a database of information about your BI platform and audits user actions. All platform services are managed by this component. It also controls access to the system files where documents are stored, and information on users, user groups, security levels (including authentication and authorization), and content.



Learning Assessment - Answers

1. Which of the following are examples of the application of Business Intelligence?

Choose the correct answers.

- A Identification of successful marketing campaigns
- B Generation of contact lists
- C Recording of consumer feedback
- D Decrease query and reporting time

2. How will your company benefit from Business Intelligence?

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Event server
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Server Intelligence Agent

Maintains a database of information about your BI platform and audits user actions. All platform services are managed by this component. It also controls access to the system files where documents are stored, and information on users, user groups, security levels (including authentication and authorization), and content.
Monitors the system for events, which can act as a trigger for running a report. When you set up an event trigger, this component monitors the condition and notifies the CMS that an event has occurred. The CMS can then start any jobs that are set to run upon the event.
Manages all of the Explorer processing servers, including: Explorer Exploration Server, Explorer Indexing Server, and Explorer Search Server.
Manages and monitors all of the servers on a node, to ensure that they operate properly.

UNIT 2

Installation of SAP BusinessObjects Business Intelligence Platform

Lesson 1

Installing SAP BusinessObjects Business Intelligence Platform: Server-Side Installation 38

Lesson 2

Installing SAP BusinessObjects Business Intelligence Platform: Client-Side Installation 44



UNIT OBJECTIVES

- Install SAP BusinessObjects Business Intelligence platform
- Install SAP BusinessObjects Business Intelligence platform client tools



Installing SAP BusinessObjects Business Intelligence Platform: Server-Side Installation

LESSON OVERVIEW

Server-side installation of the SAP BusinessObjects Business Intelligence platform may be performed as an interactive or as a silent installation. Before installing, make sure the technical prerequisites are satisfied and that preparation for the installation is finished. The provided installation checklist will help ensure that you are ready for the installation process.



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Install SAP BusinessObjects Business Intelligence platform

Technical Prerequisites

Before you start the actual installation of SAP BusinessObjects BI platform, ensure that the following requirements are met:

- Validate the exact details of the supported platforms and ensure that this matches your environment. You can review the list of supported platforms at <http://service.sap.com/bosap-support>.
- Check that your account for the operating system has administrative privileges.
- If you are planning to deploy on a distributed system, you need access to all machines via TCP/IP.
- You must have administrative access to the Web application server.
- You must have access to the database system to install the system database for SAP BusinessObjects BI platform.



Note:

The default installation of SAP BusinessObjects BI platform includes the Java application server, Tomcat, and Sybase SQL Anywhere for your system database.

Installation Preparation

The following sections detail how to prepare for the installation of SAP BusinessObjects BI platform.

Process Flow

This section explains the process flow for the installation of SAP BusinessObjects BI platform.

1. Ensure that sufficient disk space is available. Allow for both the operating system and the software to grow over time as patches or new components become available.
2. Gather the installation media or download the latest release and any patches or service packs from the support portal at <http://service.sap.com/bosap-support>.
3. Decide which options you will change, and select the installation process. In most cases, you can accept the default values. More advanced installations require that you plan the installation process. The installation program prompts for the following information:
 - License information (the name of the user and company associated with your SAP BusinessObjects BI platform license).
 - Web application server configuration, including type, connection, and authentication details.
 - Database server configuration, including type, connection, and authentication details.
 - CMS system and Auditing Data Store configuration information, including type, connection, and authentication details.
 - Folder where SAP BusinessObjects BI platform will be installed.
 - Central Management Console (CMC) administrator account password and cluster key.
 - CMS port number to receive incoming connections.
 - Server Intelligence Agent (SIA) name.
 - Server Intelligence Agent (SIA) port number for incoming connections.
 - SAP Solution Manager Diagnostics (SMD) configuration.
 - CA Wily Introscope Enterprise Manager configuration.
 - Subversion or ClearCase version control system configuration to store configuration files.
 - Lifecycle management (LCM) configuration.
 - Installation type and components ("Full", "Custom / Expand", "Web Tier").

Installation Checklist


Before installing SAP BusinessObjects BI platform, review the following checklist.




Table 2: Checklist

Item	Detail
Choose the installation destination folder.	<ul style="list-style-type: none"> • The use of Unicode characters in the destination folder is not supported. • Ensure that the installation destination folder is not the same folder in which the installation program has been extracted. (Do not install to the current working directory

Item	Detail
	when running the installation program from the current working directory.)
Verify that there is appropriate network connectivity between all machines that will be part of your deployment.	Yes / No
Are you using your own database server?	<ul style="list-style-type: none"> • Have you created a database, tablespace (if required), and accounts for the CMS system and Auditing Data Store databases? • Have you made sure you can log on to the database from the SAP BusinessObjects BI platform host? • If you are using DB2 or Sybase, have you verified that your database was created with the correct settings? • Has the database client software been properly configured?
Are you using your own Web application server?	<ul style="list-style-type: none"> • Have you decided on which Web application server to use? • Has the server been installed and configured? • Have you ensured that your existing Web application server has the required JDK installed?



Caution:
Installation on Microsoft Windows requires a minimum screen resolution of 1024 × 768.



Note:
The SAP BusinessObjects BI platform setup program no longer installs Client Tools. Client Tools can only be installed with the dedicated Client Tools installation program.

Methods of Installation

There are two different methods of running the installation program for SAP BusinessObjects BI platform:

- Interactive installation

An interactive wizard prompts for all information related to the installation. Use this option to select individual installation options from a series of screens. Interactive is the default installation method.

- Silent installation

Installation options are given on the command-line, which override the installation program's default values. The command-line can be used to give some or all installation options. When an installation option is not given on the command-line, the installation program uses a default value.

Installation options can be given in a response file rather than directly on the command-line. This type of silent installation uses the `-r` command-line parameter to read installation options from the response file. Use this option if you want to install multiple machines with the same configuration. Installation options stored in a response file can be overridden by giving them on the command-line.

When the `-q` (quiet mode) switch is used, the installation program does not prompt for any user input during the installation.

Interactive Installation Method

1. Log in at the console with a minimum screen resolution of 1024 × 768.
2. Locate the installation program **setup.exe** .
3. Double-click the **setup.exe** to run the program in Windows Explorer.
4. Choose a language for the setup program to use during the installation process. The language setting is used by the installation program to display information to you in the language of your choice. If you select a non-English language, the corresponding language pack is automatically installed on the server.
5. The installation program checks for required components. Review the results and decide whether to continue with the installation, or abort and correct any unmet requirements.
6. Review the recommendations made by the installation program welcome screen.
7. Review the agreement and select the *I accept the License Agreement* option.
8. Enter the name, company, and the product keycode you purchased. Keep the keycode safe in case you need to re-install the product.
9. Select an install type:
 - **Full**

Installs all required server components onto a single machine. Use this option to create a single-host deployment, such as a pre-production development or test environment.
 - **Custom / Expand Install**

Allows experienced users to select individual components. Use this option to create either a single host or a cluster deployment, such as a production environment.

- **Web Tier**

The Web tier hosts Web applications and serves content to users over the Web. Use the Web Tier installation option to install Java Web applications onto a dedicated Java Web application server.

If you do not have a Web application server in place for use with SAP BusinessObjects BI platform, the installation program can install and configure a Tomcat Web application server for you. We recommend that you evaluate your requirements against information from your Web application server vendor to determine which supported Web application server would best suit your organization's needs.

If you already have a supported Web application server installed, you can deselect the option to install Tomcat, and only install the Java Web applications

Silent Installation Method

Every option in the installation wizard can be given from the command-line. This type of installation is known as a silent install. Installation options can be given directly on the command-line as a parameter, or can be stored in a response file.

1. Giving installation options on the command-line:

Installation options can be passed directly to the setup program from the command-line as a parameter.

In the following example of giving the **CMSPort** parameter on the command-line, ellipses ([...]) are shown to indicate where other installation options would normally be present:

```
setup.exe [...] CMSPort=6401 [...]
```

2. Giving installation options in a response file:

Installation options can be stored in a response file, which is a text file containing installation option parameters in key-value format. When using a response file to give installation options, the installation program is run from the command-line with the **-r <RESPONSE_FILE>** parameter, where **<RESPONSE_FILE>** is the name of the response file.

To create a response file, run the installation program with the **-w <RESPONSE_FILE>** parameter and select the desired installation options with the installation wizard. When the wizard completes installation, the program exits and the response file is created. The response file can then be used for future installations.

To use a response file, run the installation program with the **-r <FILENAME>** parameter. The installation program reads all installation options from the response file, and no further input is required.

The following table lists the switch parameters that can be given to the installation program on the command-line to perform a silent installation.



Table 3: Silent Installation Switch Parameters

Switch parameter	Description	Example
-w <FILENAME>	Writes a response file to <FILENAME> , containing the options selected from the installation wizard.	setup.exe -w "C:\response.ini"

Switch parameter	Description	Example
<code>-r <FILENAME></code>	Reads installation options from a response file named <code><FILENAME></code> .	<code>setup.exe -r "C:\response.ini"</code>
<code>-q</code>	When performing a silent installation, this switch causes the installation program to install with no console output or prompting. If a problem is encountered, the installation program will write a message to the installation log file and exit. This switch must always be used in combination with the <code>-r <FILENAME></code> switch parameter.	<code>setup.exe -q -r "C:\response.ini"</code>



How to Create a Silent Installation File for an Installation of a BusinessObjects Business Intelligence Platform 4.x Server



In order to complete this demonstration, you have to use the new Training Course BOE320 content that is in the `Initialize` Course folder in the Training Cloud Environment.

1. Uncompress the `Training Course BOE 320` content file.
 - a) In the Training Cloud Environment, select the `Initialize BOE320` program file from the `Start > Initialize Course > BusinessObjects BI 4` folder.
 - b) In *Windows Explorer*, view the contents of the `My Documents` folder and find the `Videos` sub folder that is located within the `BOE320 Training Course` folder (sub folder `\BOE320\Videos`).
2. Play the `DEMO1 BI 4 Silent Installation` video and explain the following steps:
 - Create a Silent Installation File for the BI 4 platform.
 - Display the Content of the Silent Installation file.
 - Complete the content of the Silent Installation file.
 - Run the Silent Installation file for the BI 4 platform.



LESSON SUMMARY

You should now be able to:

- Install SAP BusinessObjects Business Intelligence platform



Installing SAP BusinessObjects Business Intelligence Platform: Client-Side Installation

LESSON OVERVIEW

Installation of the SAP BusinessObjects Business Intelligence Client Tools is performed after the server-side installation. The Client Tools can be installed all together with the suite, or by individual application depending upon the needs of the business. The Client Tools can be installed using an interactive or a silent installation.



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Install SAP BusinessObjects Business Intelligence platform client tools

SAP BusinessObjects Business Intelligence Platform Client Tools Installation

- Some of the client applications that make up the Client Tools suite are also available with their own standalone installation program. This approach allows you to install the client application by itself, without having to install the Client Tools suite's Custom installation option.
- Client Tools can coexist on a system that also runs SAP BusinessObjects BI platform server software. When you are installing both SAP BusinessObjects BI platform servers and Client Tools on the same system, we recommend that you install the SAP BusinessObjects BI platform server components (including add-ons and language packs) before Client Tools. This installation order allows the Client Tools to use the same components as the server.
- No keycode is required to install Client Tools, but administrative privileges for the account being used are required to run the installation program.
- If a file is in use during the installation, the installation program recommends a system reboot when the install is complete. Although the reboot can be postponed, and you can continue to use the system after the installation, the system may be in an unsupported state until it is rebooted. We recommend that you restart the system promptly at the end of an installation when a reboot is recommended.
- The installation program requires a minimum screen resolution of 1,024 × 768 pixels. Using Microsoft Remote Desktop Connection to run the installation program is fully supported, as long as a minimum screen resolution of 1,024 × 768 pixels is used.

**Note:**

Although the Client Tools are supported on 64-bit operating systems, the Client Tools themselves are only available as 32-bit applications.

When installing a database driver for Client Tools on 64-bit operating systems, ensure that you install the 32-bit version. A 32-bit application cannot use a 64-bit driver.

SAP BusinessObjects BI Platform Client Tools

The following desktop client applications are installed by the SAP BusinessObjects BI platform Client Tools installation program:

- Web Intelligence Desktop
- Business View Manager
- Report Conversion Tool
- Universe Design Tool
- Query as a Web Service Design Tool
- Information Design Tool
- Translation Management Tool
- Data Federation Administration Tool
- Widgets for SAP BusinessObjects BI platform
- Developer Components to integrate SAP BusinessObjects functionality into interactive web applications. These components include: SAP BusinessObjects BI platform Java SDK, Web Services SDK, and .NET SDK.
- Data Access and Security

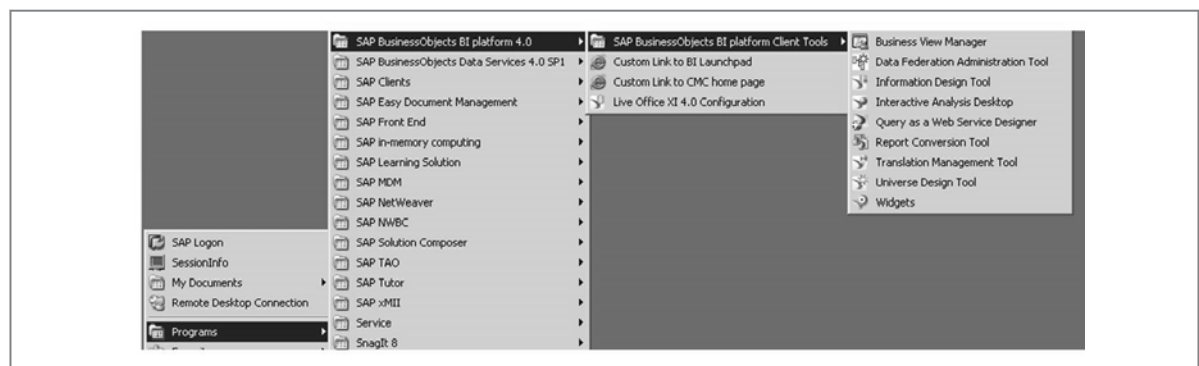


Figure 11: Desktop Applications Installed by BI Platform Client Tools Installation Program

Interactive Installation Method for Client Tools

1. Log in at the console with a minimum screen resolution of 1024 × 768.
2. Locate the installation program **setup.exe** .

3. Double-click the **setup.exe** to run the program in Windows Explorer.

A log file containing information on the installation process is saved to

`<CLIENT_INSTALL_DIR>\InstallData\logs\<DATE>\InstallDU<COMPONENT>.log`.

4. Choose a language for the setup program to use during the installation process. The language setting is used by the installation program to display information to you in the language of your choice. If you select a non-English language, the corresponding language pack is automatically installed on the server.
5. The installation program checks for required components. Review the results and decide whether to continue with the installation, or abort and correct any unmet requirements.
6. Review the recommendations made by the installation program *Welcome* screen.
7. Review the agreement and select the *I accept the License Agreement* option.
8. Select any language for which you want language support to be installed. A language pack allows SAP BusinessObjects BI platform Client Tools to interact with users in a specific language.
9. Review and confirm the destination folder setting.
If you have already installed SAP BusinessObjects products, the **Destination Folder** field is not editable, and the path to the existing folder is displayed.
10. Review the list of features to install. Only features with a selected checkbox are installed.
11. Review the confirmation screen and start the installation when ready.

The *Start Installation* screen appears. Click *Next* to install.

Silent Installation Method for Client Tools

Every option in the installation wizard can be given from the command-line. This type of installation is known as a silent install. Installation options can be given directly on the command-line as a parameter, or can be stored in a response file.

1. Giving installation options on the command-line:

Installation options can be passed directly to the setup program from the command-line as a parameter.

In the following example of giving the **CMSPort** parameter on the command-line, ellipses ([...]) are shown to indicate where other installation options would usually be present: **setup.exe [...]** **CMSPort=6401 [...]**

2. Giving installation options in a response file:

Installation options can be stored in a response file, which is a text file containing installation option parameters in key-value format. When using a response file to give installation options, the installation program is run from the command-line with the **-r <RESPONSE_FILE>** parameter, where **<RESPONSE_FILE>** is the name of the response file.

To create a response file, run the installation program with the **-w <RESPONSE_FILE>** parameter and select the desired installation options with the installation wizard. When the wizard completes, the installation program exits and the response file is created. The response file can then be used for future installations.

To use a response file, run the installation program with the **-r <FILENAME>** parameter. The installation program reads all installation options from the response file, and no further input is required.



LESSON SUMMARY

You should now be able to:

- Install SAP BusinessObjects Business Intelligence platform client tools



Learning Assessment

1. Sort these steps into the correct order of the installation process flow.

Arrange these steps into the correct sequence.

- Gather the installation media or download the latest release and any patches or service packs from the support portal.
- Decide which options you will change, and select the installation process.
- Ensure that sufficient disk space is available. Allow for both the operating system and the software to grow over time as patches or new components become available.

2. What is the difference between an interactive and a silent installation of the Business Intelligence platform?

3. Select the applications that are installed as part of the Business Intelligence Client Tools

Choose the correct answers.

- A** Content Management Service
- B** Universe Design Tool
- C** Business Intelligence Connections
- D** Data Federation Administrative Tools
- E** Web Intelligence Desktop

4. When installing both SAP BusinessObjects BI platform servers and Client Tools on the same system, it is recommended that the SAP BusinessObjects BI platform server components (including add-ons and language packs) are installed after Client Tools.

Determine whether this statement is true or false.

- True
- False



Learning Assessment - Answers

1. Sort these steps into the correct order of the installation process flow.

Arrange these steps into the correct sequence.

- 2 Gather the installation media or download the latest release and any patches or service packs from the support portal.
- 3 Decide which options you will change, and select the installation process.
- 1 Ensure that sufficient disk space is available. Allow for both the operating system and the software to grow over time as patches or new components become available.

2. What is the difference between an interactive and a silent installation of the Business Intelligence platform?

In an Interactive Installation an interactive wizard prompts for all information related to the installation. Use this option to select individual installation options from a series of screens. Interactive is the default installation method. In a Silent Installation, options are given on the command-line, which override the installation program's default values. The command-line can be used to give some or all installation options. When an installation option is not given on the command-line, the installation program uses a default value. This option is useful if you want to install multiple machines with the same configuration.

3. Select the applications that are installed as part of the Business Intelligence Client Tools

Choose the correct answers.

- A Content Management Service
- B Universe Design Tool
- C Business Intelligence Connections
- D Data Federation Administrative Tools
- E Web Intelligence Desktop

4. When installing both SAP BusinessObjects BI platform servers and Client Tools on the same system, it is recommended that the SAP BusinessObjects BI platform server components (including add-ons and language packs) are installed after Client Tools.

Determine whether this statement is true or false.

True

False

UNIT 3

Server Administration and Management

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Lesson 2

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UNIT OBJECTIVES

- Configure the Central Management Console (CMC)
- Operate the Central Configuration Manager (CCM)



Using the Central Management Console (CMC)

LESSON OVERVIEW

The Central Management Console (CMC) is a web-based tool to perform administrative tasks on the platform. Administrators use the CMC to manage users, content, and servers. Server management with the CMC includes server enablement and disablement, server cloning, server configuration, and node management.



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Configure the Central Management Console (CMC)

CMC Servers Management Area

Central Management Console (CMC)

The Central Management Console (CMC) is a web-based tool to perform administrative tasks, including user, content, and server management. It also allows you to publish, organize, and configure security settings. Because the CMC is a web-based application, you can perform all of these administrative tasks through a web browser on any machine that can connect to the server.

All users can log on to the CMC to change their user preference settings. Only members of the Administrators group can change management settings, unless explicitly granted the rights to do so. Roles can also be assigned to the CMC to grant some users privileges to perform minor administrative tasks.

The Servers Management area of the CMC is your primary tool for server management tasks. It provides a list of all of the servers in your deployment. For most management and configuration tasks, you need to select a server in the list and choose a command from the Manage or Action menu.

The Navigation Tree

The navigation tree on the left side of the *Servers Management* area provides a number of ways to view the Servers list. Select items in the navigation tree to change the information displayed in the *Details* pane.



Table 4: CMC Navigation Tree

Navigation Tree Item	Description
Servers List	Displays a complete list of all servers in the Servers List deployment.

Navigation Tree Item	Description
Server Groups List	Displays a flat list of all available server groups in the <i>Details</i> pane. Select this option if you want to configure a server group's settings or security.
Server Groups	Lists the server groups and the servers within each server group. When you select a server group, its servers and server groups are displayed in the <i>Details</i> pane in a hierarchical view.
Nodes	Displays a list of the nodes in your deployment. Nodes are configured in the CCM. You can select a node by clicking it to view or manage the servers on the node.
Service Categories	<p>Provides a list of the types of services that may be in your deployment. Service categories include:</p> <ul style="list-style-type: none"> • Connectivity Services • Core Services • Crystal Reports Services • Data Federation Services • Promotion Management Services • Analysis Services • Web Intelligence Services • Dashboards Services
Server Status	<p>Displays the servers according to their current status. This is a valuable tool for checking to see which of your servers are running or stopped. Possible server states include the following:</p> <ul style="list-style-type: none"> • Stopped • Starting • Initializing • Running • Stopping • Started with Errors • Failed • Waiting for resources

CMC Details Pane

Depending on which options you have selected in the navigation tree, the *Details* pane on the right side of the Servers management area shows a list of servers, server groups, states, categories, or nodes. The following table describes the information listed for servers in the *Details* pane.



Table 5: CMC Details Pane

Details Pane Item	Description
Server Name or Name	Displays the name of the server.
State	Displays the current status of the server. You can sort by server state using the <i>Server Status</i> list in the navigation tree. Possible server states include the following: <ul style="list-style-type: none"> • Stopped • Starting • Initializing • Running • Stopping • Started with Errors • Failed • Waiting for resources
Enabled	Displays whether the server is enabled or disabled.
Stale	If the server is marked as Stale, then it requires a restart. For example, if you change certain server settings in the server's <i>Properties</i> screen, you may need to restart the server before the changes will take effect.
Kind	Displays the type of server.
Host Name	Displays the Host Name for the server.
Health	Indicates the general health of the server.
PID	Displays the unique Process ID number for the PID server.
Description	Displays a description of the server. You can change this description in the server's <i>Properties</i> page.
Date Modified	Displays the date that the server was last modified, or when the server's state was changed. This column is very useful if you want to check the status of recently changed servers.

Server Enablement and Disablement



Enabling and disabling servers allows for the graceful addition and removal of a server from an environment. If you need to bring down a Job Server for maintenance, stopping it would halt the service and generate processing errors. Disabling the service would allow it to complete the processing of the current job and not taking any new job. At this point it can be stopped without impacting the environment. For example, if there is only one Web Intelligence Processing Server in the system, and you are in the middle of a Web Intelligence document creation when the server is stopped, you will get errors when you attempt to perform further action (such as refresh). However, if the server is disabled instead of stopped, you can continue working on your current document; only when you attempt to create another new document you will receive an error.

Enabling a server is also a security feature. Without this feature, anyone with connectivity to the system can run as a server that claims to be a particular server type (e.g. Processing Server or File Repository Server), and then incoming request can be routed to this server. The person running this server can then obtain a copy of the file or perform undesired actions to the system.

When you disable an SAP BusinessObjects BI platform server, you prevent it from receiving and responding to new SAP BusinessObjects BI platform requests, but you do not actually stop the server process. Disabling the server is useful when you want to allow the server to finish processing all of its current requests before you stop it completely. For example, you may want to stop a Job Server before rebooting the machine it is running on. However, you want to allow the server to fulfill any outstanding report requests that are in its queue. First, you disable the Job Server so it cannot accept any additional requests. Next, go to the Central Management Console to monitor when the server completes the jobs it has in progress. (From the *Servers* management area, right-click the server and select *Metrics*.) Then, once it has finished processing current requests, you can safely stop the server.



Note:

- The CMS must be running in order for you to enable or disable other servers.
- A CMS cannot be disabled by an administrator. You should never see a disabled status for the CMS server on any environment. If the CMS is disabled, it will corrupt the health and the behavior of all servers running on the platform (production and system data are not affected).

Server Cloning

If you want to add a new server instance to your deployment, you can clone an existing server. The cloned server retains the configuration settings of the original server. Cloning a server can be particularly useful if you are expanding your deployment and want to create new server instances that use almost all of the same server configuration settings as an existing server.

Cloning also simplifies the process of copying servers between nodes. If you want to copy an existing CMS to another node, you can clone it to the new node. The cloned CMS appears on the new node and retains all of the configuration settings of the original CMS.



Hint:

There are some considerations to keep in mind when cloning servers. You may not want all settings to be cloned, so it's good practice to check the cloned server to make sure that it meets your needs. For example, if you clone a CMS to the same machine, make sure that you change the port number settings that were copied from the original CMS to the cloned CMS.



Note:

- Before you clone servers, make sure that all machines in your deployment have the same version of SAP BusinessObjects BI platform (and any updates, if applicable).
- You can clone servers from any machine. However, you can only clone servers to machines where the required binaries for the server are installed.
- When you clone a server, it does not necessarily mean that the new server will use the same OS credentials. The user account is controlled by the Server Intelligence Agent that the server is running under.

Node Management



Explain that SIA is a locally run service managed by the operating system. The task of Server Intelligence Agent (SIA) is to start, stop, and monitor locally run SAP BusinessObjects Enterprise servers. When one of the managed servers goes down unexpectedly, the SIA will restart the server immediately. When you issue a command in the CMC to stop a server, the SIA will receive the request from the CMC, and the SIA will stop the server.

When you create a SIA, you create a new node. A node is a collection of SAP BusinessObjects BI platform servers which run on the same host and are managed by a single SIA. You can add servers to the node and you can have more than one node on the same machine.

The SIA continuously monitors server status information, which is stored in the CMS databases. When you change a server's settings or add a new server in the CMC, the CMS notifies the SIA and the SIA performs the jobs accordingly.

Nodes are initially created by installation setup programs during installation, but you can also add additional nodes. Instruct learners that they can either perform a custom installation with the installation setup program, or they can create a new node from the CCM.

A node is a group of SAP BusinessObjects BI platform servers that run on the same host. All of the servers on a node run under the same user account. One machine can contain many nodes, so you can run processes under different user accounts.

One Server Intelligence Agent (SIA) manages and monitors all of the servers on a node, ensuring they operate properly.

The following steps explain the interaction of platform components when the SIA is started.

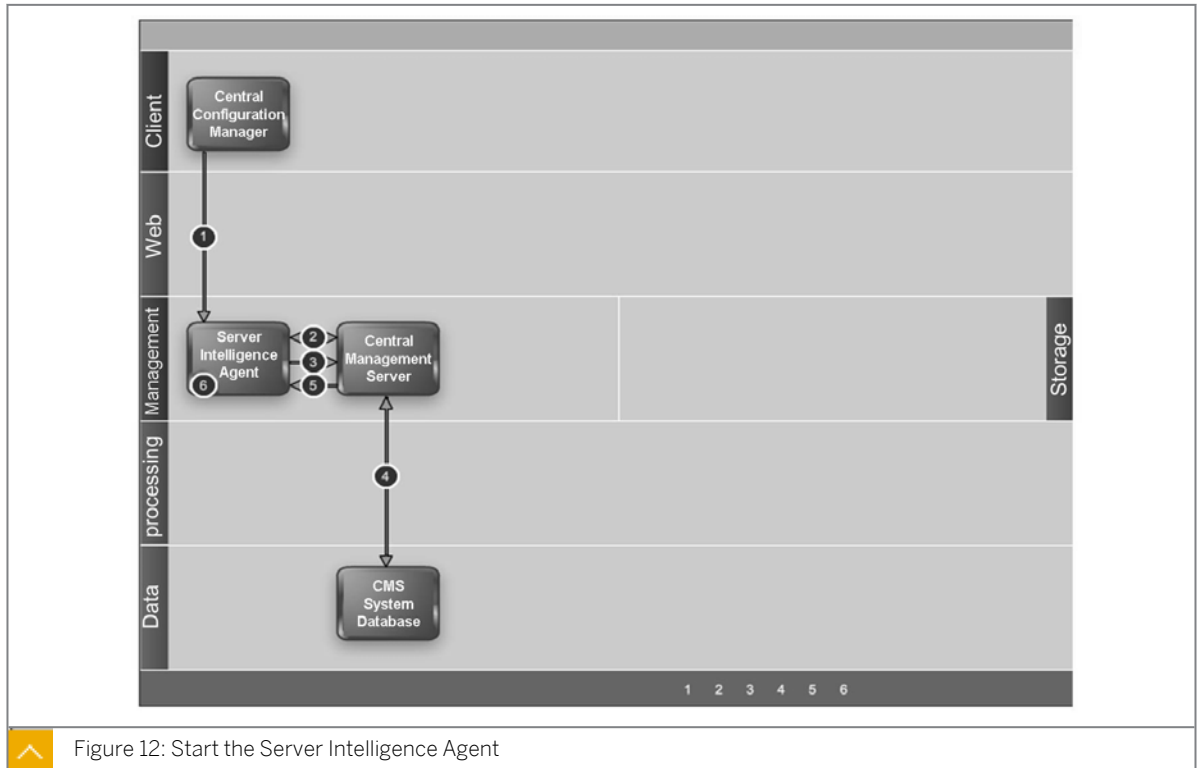


Figure 12: Start the Server Intelligence Agent

1. The user starts the SIA manually in the Central Configuration Manger (CCM).



Note:

An SIA can be configured to start automatically with the operating system, or it can be started manually with the CCM.

2. The SIA looks in its cache to locate a Central Management Server (CMS). If the SIA is configured to start a local CMS, and the CMS is not running, the SIA starts the CMS and connects. If the SIA is configured to use a running CMS (local or remote), it attempts to connect to the first CMS in its cache. If the CMS is not currently available, it attempts to connect to the next CMS in its cache. If no cached CMS is available, the SIA waits for one to become available. The CMS then confirms the SIA's identity to ensure that it is valid.
3. Once the SIA has successfully connected to a CMS, it requests a list of servers to manage. Note: A SIA does not store information about the servers it manages. The configuration information that dictates which server is managed by a SIA is stored in the CMS system database and is retrieved from the CMS by the SIA when it starts.
4. The CMS queries the CMS system database for a list of servers managed by the SIA. The configuration for each server is also retrieved.
5. The CMS returns the list of servers to manage, and their configuration, to the SIA.
6. For each server configured to start automatically, the SIA starts it with the appropriate configuration and monitors its state. Each server started by the SIA is configured to use the

same CMS used by the SIA. Servers that are not configured to start automatically with the SIA will not start.

Server Settings Configuration

You can change server settings through the Central Management Console (CMC) in two ways.

- On the *Properties* screen for the server.
- On the *Edit Common Services* screen for the server.



Note:

Not all changes occur immediately. If a setting cannot change immediately, the *Properties* and *Edit Common Services* screens display both the current setting (in red text) and the desired setting. When you return to the Servers management area, the server will be marked as Stale. When you restart the server, it will use the desired settings and the Stale flag is removed from the server.



How to Configure the BusinessObjects Business Intelligence Platform 4.1



In order to perform this demonstration, you must use the `Training Course BOE320` content that is in the `Initialize Course` folder in the Training Cloud Environment.

1. Go to the `videos` subfolder in the Training Cloud Environment.
2. Play the `DEMO2 System Configuration Wizard video` file, and explain the following steps:
 - a) Stop and disable the WACS server.
 - b) Configure the JAVA Heap Max Memory Size for the JAVA Application server.
 - c) Configure the BI4 platform with the System Configuration Wizard (post-installation steps).



LESSON SUMMARY

You should now be able to:

- Configure the Central Management Console (CMC)



Using the Central Configuration Manager (CCM)

LESSON OVERVIEW

The Central Configuration Manager (CCM) is a platform tool that troubleshoots servers and manages nodes. The CCM allows administrators to create and configure Server Intelligence Agent (SIA) nodes, and to start and stop Windows servers. The CCM also makes managing and rebuilding bootstrap files simple and easy.



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Operate the Central Configuration Manager (CCM)

Central Configuration Manager (CCM)

Central Configuration Manager (CCM)

The Central Configuration Manager (CCM) is a server troubleshooting and node management tool provided in two forms:

- In a Microsoft Windows environment, the CCM allows you to manage local and remote servers through its graphical user interface (GUI) or from a command line.
- In a Unix environment, the CCM shell script (ccm.sh) allows you to manage servers from the command-line.

The CCM allows you to create and configure Server Intelligence Agent (SIA) nodes and start or stop your web application server. On Windows, it also allows you to configure network parameters, such as Secure Socket Layer (SSL) encryption. These parameters apply to all servers within a node.



Note:

Most server management tasks are handled through the CMC, not through the CCM. The CCM is used for troubleshooting and node configuration.

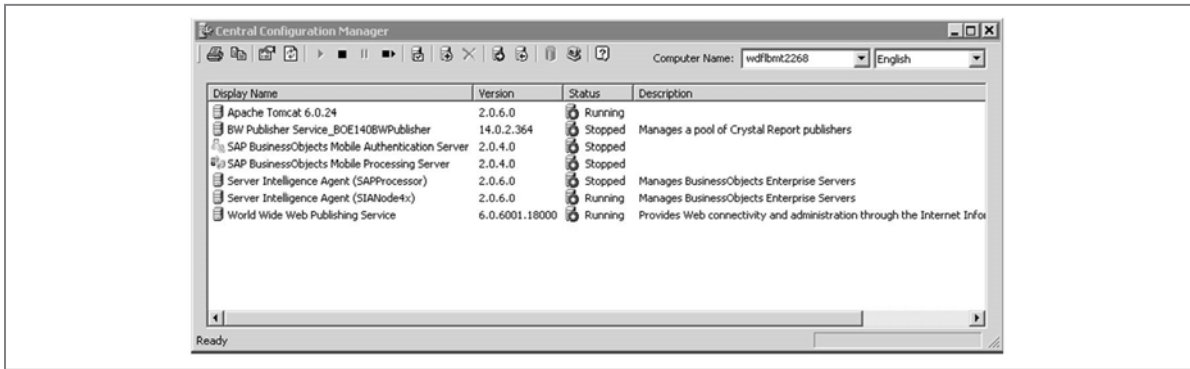


Figure 13: Central Configuration Manager Window



How to Start, Stop, and Restart a Windows Server with CCM

1. In the CCM, click the *Manage Servers* button on the toolbar.
2. When prompted, log on to your CMS with an administrative account.
3. In the *Manage Servers* dialog box, select the server that you want to start, stop, or restart. The CMS server should not be stopped.
4. Click *Start*, *Stop*, *Restart*, or *Force Terminate*.
5. Click *Close* to return to the CCM.



How to Manage Bootstrap Files During the SIA Startup

1. In the CCM, create a new SIA.
2. Observe the creation of the new bootstrap files in `D:\Program Files (x86)\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\win64_x64`
3. In the CCM, select the newly created SIA and start the SIA.
4. Click the *Properties* button and click the *Startup* tab.
5. Stop the newly created SIA.
6. Move **.bootstrap** and **.original** files from their original location to a temporary folder.
7. Start the SIA and observe if it can be started successfully.
Bootstrap.backup file is used here during the SIA startup.
8. Navigate to `D:\Program Files (x86)\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\win64_x64` and investigate if the bootstrap files are being created.

9. Stop the running SIA.
10. Go to `D:\Program Files (x86)\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\win64_x64` and move all the corresponding bootstrap files to the temporary directory.
11. Start the SIA and observe if it can be started successfully.
System can create brand new **.bootstrap** and **.backup** files. However, these files do not have the right information to communicate with the proper CMS. Thus, the SIA is unusable and will go down after about a minute.
12. Copy corresponding bootstrap files back from the temporary directory to `D:\Program Files (x86)\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\win32_x86`.
13. Start the SIA.
The SIA needs a bootstrap file to connect to the CMS and to initialize itself properly at startup.



How to Rebuild Bootstrap Files When They Are Lost

The CCM can rebuild necessary bootstrap files for a given SIA even if the bootstrap files are lost.

1. Create a temporary directory in the file system to store the backup bootstrap files.
2. In the CCM, stop the running SIA.
3. Copy all the corresponding bootstrap files to the temporary directory. Remove all the bootstrap files from their original location.
4. Start the SIA.
5. Go to the CCM and click the *Add Node* button.
 - Provide the same name to this SIA as the name of the SIA in step 2.
 - Enter the SIA Port number.
 - Select the option *Add node with no servers*.
 - Select the option *Use existing running CMS* and
 - Specify the CMS System Database Data Source Name (for example, BOE4x).
 - If prompted, enter the cluster key. Refer to the Instructor Guide to find the value.
6. Click *Next* and *Finish*.
7. Navigate to the directory to see the bootstrap files.
8. Start the SIA.



Manage Nodes, Servers, and Configuration Templates

Business Example

As the system administrator, you are required to create a new node and change the user credentials for this node. In addition, you are asked to clone a server to this node and work with a configuration template.

Create a Node

Create a new SIA (node) on your SAP BusinessObjects Business Intelligence Platform.



Note:

This task is performed on the server side where administrative access to the Central Configuration Manager (CCM) is required. Remote desktop to the server to perform this task.



This part of the exercise needs to be performed on the server side where administrative access to the Central Configuration Manager (CCM) is required. Provide instructions to learners on how to remote access the server.

1. Launch the Central Configuration Manager (CCM).
2. Add a new node.
3. Enter the new node name and Server Intelligence Agent port using the following information:

Field Name	Value
Node Name	Train##Node
SIA Port	<assigned port number>

4. Select a CMS.
5. Specify the CMS system database configuration.
6. Enter the CMS logon information.

Field Name	Value
System	<assigned hostname>

Field Name	Value
User Name	administrator
Password	<assigned password>
Authentication	Enterprise

The CCM creates a node. You can now use the CCM to manage this new node.

Changing the User Credentials for a Node

Change the user account under which the newly created SIA runs. For example, change the use account from the system account to administrator account.

1. Select the newly created node (Server Intelligence Agent).
2. Open the *Properties* page of this Server Intelligence Agent.
3. Change the user account from the system account to OS administrator account.

Field Name	Value
User Name	boadmin
Password	BOTraining

4. Start the Server Intelligence Agent.

The SIA and the server processes log on to the local machine with the new user account.

Clone a Server

Clone the event server from an existing node to the newly created node.

1. Launch the CMC and log on with the following details:

Field Name	Value
System	<hostname>:6400
User name	Administrator
Password	admin41

2. Navigate to the *Servers* management area of the CMC
3. Select the Event server and clone this server to the new node.
4. Check the cloned server on the new node.

The new server appears in the *Servers* management area of the CMC.

Work with a Configuration Template

Change some settings on one event server in the first node and set it as the configuration template. Apply this configuration template to the event server on the second node. Verify that the settings of both event servers match.

1. Select the event server on the origin node that hosts services whose configuration template you want to set.
2. Configure the service settings that you want to use in the template.
3. Set the settings as the configuration template.
4. Set the Event Server on the newly created node to use the configuration template.
5. Verify that the new settings are in effect.

The configuration settings on both event servers are consistent.



Manage Nodes, Servers, and Configuration Templates

Business Example

As the system administrator, you are required to create a new node and change the user credentials for this node. In addition, you are asked to clone a server to this node and work with a configuration template.

Create a Node

Create a new SIA (node) on your SAP BusinessObjects Business Intelligence Platform.



Note:

This task is performed on the server side where administrative access to the Central Configuration Manager (CCM) is required. Remote desktop to the server to perform this task.



This part of the exercise needs to be performed on the server side where administrative access to the Central Configuration Manager (CCM) is required. Provide instructions to learners on how to remote access the server.

1. Launch the Central Configuration Manager (CCM).
 - a) Click *Start* → *Programs* → *SAP Business Intelligence* → *SAP BusinessObjects BI platform 4* → *SAP BusinessObjects BI platform* → *Central Configuration Manager* .
2. Add a new node.
 - a) In the Central Configuration Manager (CCM), on the toolbar, click *Add Node* .
The *Add Node Wizard* page appears.
 - b) Click the *Next* button.
3. Enter the new node name and Server Intelligence Agent port using the following information:

Field Name	Value
Node Name	Train###Node
SIA Port	<assigned port number>

- a) Enter the *Node Name* and *SIA Port* number for the new Server Intelligence Agent (SIA).

- b) Select the *Add node with no servers* option.
- c) Click the *Next* button.
- 4. Select a CMS.
 - a) Select the *Use existing running CMS* option.
 - b) Click the *Next* button.
- 5. Specify the CMS system database configuration.
 - a) Click the *Specify...* button.
 - b) Select the *SQL Anywhere (ODBC)* option.
 - c) Click the *OK* button.
A window appears that asks you to select the data source.
 - d) Click the *Machine Data Source* tab.
 - e) Select the *BI4_CMS_DSN* Data Source.
 - f) Connect to to SQL Anywhere using the UserID: **dba** and the password **Admin41** .
 - g) Click the *OK* button.



Note:

If you are prompted to enter the cluster key, enter **CMSKey** .

- h) Click the *OK* button.
- i) Click the *Next* button.
- 6. Enter the CMS logon information.

Field Name	Value
System	<assigned hostname>
User Name	administrator
Password	<assigned password>
Authentication	Enterprise

- a) Enter the logon information and click the *Next* button.
A confirmation box appears.
- b) Review the confirmation page, and click the *Finish* button.



Hint:

If any errors occur, review the log file.

The CCM creates a node. You can now use the CCM to manage this new node.

Changing the User Credentials for a Node

Change the user account under which the newly created SIA runs. For example, change the user account from the system account to administrator account.

1. Select the newly created node (Server Intelligence Agent).
 - a) In the CCM, navigate to the newly created *Server Intelligence Agent (Train##Node)*.
2. Open the *Properties* page of this Server Intelligence Agent.
 - a) Right-click *Server Intelligence Agent (Train##Node)* and select the *Properties* option.
3. Change the user account from the system account to OS administrator account.

Field Name	Value
User Name	boadmin
Password	BOTraining

- a) In the *Log On As* area, deselect the *System Account* check box.
- b) Enter the user name and password information.



Note:

All servers managed by a Server Intelligence Agent run under the same account.

- c) Click the *OK* button.
4. Start the Server Intelligence Agent.
 - a) Right-click *Server Intelligence Agent (Train##Node)* and select the *Start* menu option.

The SIA and the server processes log on to the local machine with the new user account.

Clone a Server

Clone the event server from an existing node to the newly created node.

1. Launch the CMC and log on with the following details:

Field Name	Value
System	<hostname>:6400
User name	Administrator
Password	admin41

- a) Click *Start* → *Programs* → *SAP BusinessObjects BI platform 4* → *SAP BusinessObjects BI platform* → *Central Management Console*.
- b) Log on with your username and password.
2. Navigate to the *Servers* management area of the CMC

- a) In the CMC *Home* page, click the *Servers* option.
- b) Click the + sign in front of *Nodes* .
You will see you newly created node is listed there, but it has no server.
3. Select the Event server and clone this server to the new node.
 - a) In the *Servers* page, click the *Servers List* option.
 - b) Right-click *wdfibmt5072.EventServer* and select the *Clone Server* menu option.
The *Clone Server* dialog box appears.
 - c) On the *Clone to Node* list, choose the *Train##Node* option.



Note:
This is where you want to add the cloned server.

- d) Click the *OK* button.
4. Check the cloned server on the new node.
 - a) In the *Servers* page, click the + sign in front of *Nodes* .
 - b) Select the *Train##Node* node option.



Note:
The new server appears in the *Servers* management area of the CMC.
Port number settings are also cloned. In many cases, such as cloning a CMS, you will want to change the port number to avoid port conflicts between the original server and its clone.

The new server appears in the *Servers* management area of the CMC.

Work with a Configuration Template

Change some settings on one event server in the first node and set it as the configuration template. Apply this configuration template to the event server on the second node. Verify that the settings of both event servers match.

1. Select the event server on the origin node that hosts services whose configuration template you want to set.
 - a) In the *Servers* page, click the *Nodes* option.
 - b) Navigate to the event server that is on the origin node *wdfibmt5072*.
 - c) Right-click *wdfibmt5072.EventServer* and select the *Properties* menu option.
The *Properties* dialog box appears.
2. Configure the service settings that you want to use in the template.
 - a) Under the *Event Service* area, change the *Event Poll Interval (seconds)* to **5** .
 - b) Under the *Event Service* area, change the *Cleanup Interval (minutes)* to **30** .

3. Set the settings as the configuration template.

- a) Under the *Event Service* area, select the *Set Configuration Template* checkbox.



Note:

The configuration template for the service type that you selected is defined according to the settings of the current server. Other servers of the same type hosting the same services will be automatically and immediately reconfigured to match the configuration template if they have the *Use Configuration Template* option enabled in their properties. If you do not explicitly define the settings for the configuration template, the service's default settings are used.

- b) Click the *Save & Close* button.



Note:

If the server requires you to restart it in order for the new settings to take effect, it will show up as *Stale* in the servers list.

- c) Right-click the Event Server and click the *Restart Server* menu option.

4. Set the Event Server on the newly created node to use the configuration template.

- a) In the *Servers* page, click the *Nodes* option.

- b) Navigate to the event server that is on your newly created node *Train##Node* .

- c) Right-click *wdfbmt5072.EventServer* and select the *Properties* menu option.
The *Properties* dialog box appears.

- d) Under the *Event Service* area, select the *Use Configuration Template* checkbox.



Note:

If you do not explicitly define the settings for the configuration template, the service's default settings are used.

- e) Click the *Save & Close* button.



Note:

If the server requires you to restart it in order for the new settings to take effect, it will show up as *Stale* in the servers list.

- f) Right-click the Event Server and click the *Restart Server* menu option.

5. Verify that the new settings are in effect.

- a) Double-click the Event Server in your new node and check the new settings.

- b) The value in *Event Poll Interval (seconds)* should be 5.
- c) The value in *Cleanup Interval (minutes)* should be 30.

The configuration settings on both event servers are consistent.



Secure the BusinessObjects Business Intelligence Platform 4.1

Business Example

As the system administrator, you must secure the BusinessObjects Business Intelligence Platform 4.1 (also known as "platform") to have 100% quality of service. You will identify all major Single Point of Failure to secure the application server platform.

Back up the BusinessObjects Business Intelligence 4.1 Platform Configuration

1. Connect to the Operating System (OS) desktop on your server using the credentials in the table.

BusinessObjects Business Intelligence Platform 4.1 SP2 System	Windows User Account	Password
WDFLBMT5072	boadmin	BOTraining
WDFLBMT5073	boadmin	BOTraining

You are now connected to the Operating desktop of your Business Intelligence 4.1 Platform.

2. Back up the platform server configuration in the *My Documents* folder with the following name: **ServerConfiguration.BIAR.**
3. Check that the backup file was created.
You have backed up the platform configuration. This backup can also be restored at any time on this host machine for recovery.

Backup Bootstrap Files

1. Back up the platform Bootstrap files in the *My Documents* folder.

Securing the Platform

1. In *Windows Task Manager*, select the `SIA.exe` process. Note the PID in the table here, and then click the *End Process* button. What happened to the process and why?

SIA PID
'

2. In the *Windows Task Manager*, select the *Central Management Server* process. Note the PID in the table here, and click the *End Process* button. What happened to this process and why?

CMS PID
'

3. Manage the bootstrap files on your platform:



Secure the BusinessObjects Business Intelligence Platform 4.1

Business Example

As the system administrator, you must secure the BusinessObjects Business Intelligence Platform 4.1 (also known as "platform") to have 100% quality of service. You will identify all major Single Point of Failure to secure the application server platform.

Back up the BusinessObjects Business Intelligence 4.1 Platform Configuration

1. Connect to the Operating System (OS) desktop on your server using the credentials in the table.
 - a) Run the Remote Desktop Connection program from the *Start > Programs* menu on your Training Cloud Environment.
 - b) Enter the following credentials:

BusinessObjects Business Intelligence Platform 4.1 SP2 System	Windows User Account	Password
WDFLBMT5072	boadmin	BOTraining
WDFLBMT5073	boadmin	BOTraining

You are now connected to the Operating desktop of your Business Intelligence 4.1 Platform.

2. Back up the platform server configuration in the *My Documents* folder with the following name: **ServerConfiguration.BIAR**.
 - a) Run the Central Configuration Management (CCM) program from the *Start > Programs* menu of your Operating System desktop.
 - b) Once the CCM is displayed, click the *Backup Server Configuration* button. The Server Configuration Backup Wizard starts.
 - c) Click the *Next* button to go to the next step.
 - d) Select the *Use existing running CMS* option. Then click the *Next* button.
 - e) Enter the credentials found in the table. Then click the *Next* button.

BusinessObjects Business Intelli- gence Platform 4.1 SP2 System	User Name	Password	Authentication
WDFLBMT5072	Administrator	admin41	Enterprise
WDFLBMT5073	Administrator	admin41	Enterprise

- f) Select the *My Documents* folder to store the BIAR file and enter the name of the BIAR file: **ServerConfiguration.BIAR**. Click the *Next* button. The *Confirmation* screen displays.
- g) Click the *Finish* button to confirm the server configuration backup.
3. Check that the backup file was created.
You have backed up the platform configuration. This backup can also be restored at any time on this host machine for recovery.

Backup Bootstrap Files

1. Back up the platform Bootstrap files in the *My Documents* folder.
 - a) In Windows Explorer, go to the `D:\Program Files (x86)\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\win64_x64` folder.
 - b) Select all of the bootstrap files with the prefix "_boe".
 - c) Copy these bootstrap files to your *My Documents* folder.
You have now backed up the platform bootstrap files.

Securing the Platform

1. In *Windows Task Manager*, select the `SIA.exe` process. Note the PID in the table here, and then click the *End Process* button. What happened to the process and why?

SIA PID
'

- a) In *Windows Task Manager*, select the *Server Intelligent Agent (SIA)* process and click the *End Process* button.
You will notice that the Process ID of the SIA changes instantly when you end the process. The quality of service of this process is guaranteed by default on this operating system.
- b) From the *Start* menu, run *Windows Services*.
- c) Run the `services.msc` panel.
- d) In the list of Windows services, select the *Server Intelligence Agent (WDFLBMTxxxx)* and then double-click it.
The SIA process runs as a Windows service, so it is protected by the Windows operating system, and it will be automatically recycled on any process failure. Quality of service is guaranteed.

2. In the *Windows Task Manager* , select the *Central Management Server* process. Note the PID in the table here, and click the *End Process* button. What happened to this process and why?

CMS PID
'

- a) In *Windows Task Manager* , select the *Central Management Server* process, and click the *End Process* button.
You will notice that the CMS process is automatically restarted after a couple of seconds. This process is not a Windows service, but it is monitored by the SIA process. On any process failure for a Business Intelligence 4.1 platform server, a new process will be automatically restarted. Quality of service is guaranteed.
3. Manage the bootstrap files on your platform:
- a) Stop the SIA agent with the Central Configuration Manager.
- b) When the SIA agent is stopped, remove all of the bootstrap files from `D:\Program Files (x86)\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\win64_x64` folder.
- c) Start the SIA agent with the Central Configuration Manager. What happened when you did this?
The SIA process tries to re-create some empty files, so the platform application servers cannot be started. The next step is to restore these files in this folder so that the platform will restart correctly.
- d) Restore all bootstrap files from the `My Documents` folder to `D:\Program Files (x86)\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\win64_x64` folder.
If prompted, select the *Copy and Replace* option.
- e) Restart the SIA agent with the Central Configuration Manager. What happened when you did this?
The platform application servers are starting correctly.
- f) Log off from the Operating System desktop.



LESSON SUMMARY

You should now be able to:

- Operate the Central Configuration Manager (CCM)



Learning Assessment

1. Match the CMC navigation tree options with their correct descriptions.

Match the item in the first column to the corresponding item in the second column.

Servers List
Server Groups List
Server Groups
Nodes
Service Categories
Server Status

Displays a flat list of all available server groups in the <i>Details</i> pane.
Lists the server groups and the servers within each server group.
Displays the servers according to their current status.
Provides a list of the types of services that may be in your deployment.
Displays a complete list of all servers in the Servers List deployment.
Displays a list of the nodes in your deployment.

2. Which is an easy way to add a new server instance to your deployment?

Choose the correct answer.

- A Add New button
- B Manually
- C Cloning
- D Mirroring

3. Which server management component is Windows based?

4. Why would you disable a server?



Learning Assessment - Answers

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Displays a complete list of all servers in the Servers List deployment.
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Provides a list of the types of services that may be in your deployment.
Displays the servers according to their current status.

2. Which is an easy way to add a new server instance to your deployment?

Choose the correct answer.

- A Add New button
- B Manually
- C Cloning
- D Mirroring

3. Which server management component is Windows based?

The Windows-based server management component is the CCM.

4. Why would you disable a server?

You would disable a server when want to prevent it from receiving and responding to new requests, but you do not want to stop the server process. This is useful when you want to allow a server to finish processing all of its current requests before you stop it completely.

UNIT 4

Web Application Servers Management

Lesson 1

Configuring Web Application Servers

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Exercise 4: Modify Web Application Properties

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UNIT OBJECTIVES

- Configure Web Application Container servers



Configuring Web Application Servers

LESSON OVERVIEW

A Web Application Container Server (WACS) provides the platform for hosting SAP BusinessObjects Business Intelligence Web applications. A WACS simplifies system administration, is easy to install, maintain, and configure, and all hosted applications are predeployed, so no additional installation steps are necessary. The WACS administrative interface is consistent with other SAP BusinessObjects BI platform servers, so it effortlessly navigable for system administrators.



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Configure Web Application Container servers

Web Application Container Server (WACS)

Web application server

A Web application server acts as the translation layer between a Web browser or rich application, and SAP BusinessObjects BI platform. The following Web application servers are supported:

- JBoss
- Oracle Application Server
- Sun Java System Application Server (Unix only)
- SAP NetWeaver AS Java
- Tomcat
- WebLogic
- WebSphere



Note:

SAP BusinessObjects BI platform requires a Java Web application server to process the server-side scripts that make up Web applications. If you do not have a Web application server in place for use with SAP BusinessObjects BI platform, the installation program can install and configure a Tomcat Web application server (version 6 or 7) for you.

Web Application Container Server (WACS)

Web Application Container Servers (WACS) provide a platform for hosting SAP BusinessObjects BI platform Web applications. For example, a Central Management Console (CMC) can be hosted on a WACS.

WACS simplifies system administration by removing several workflows that were previously required for configuring application servers and deploying Web applications, and by providing a simplified, consistent administrative interface.

Using WACS to host the CMC provides a number of advantages:

- WACS requires a minimum effort to install, maintain, and configure.
- All hosted applications are predeployed on WACS, so that no additional manual steps are required.
- WACS is supported by SAP.
- WACS removes the need for Java application server administration and maintenance skills.
- WACS provides an administrative interface that is consistent with other SAP BusinessObjects BI platform servers.



Hint:

Do you need WACS?

Install the WACS when installing the platform if:

- You are an advanced Java Web application server administrator with advanced administration needs.
- You use a supported Java Web application server to host SAP BusinessObjects BI platform Web applications.
- You are using a supported Windows operating system to host SAP BusinessObjects BI platform, and prefer a simple Web application server installation process.
- You do not have the resources to administer a Java Web application server, you can install the WACS when installing the platform.



Note:

There are some limitations to using WACS instead of a dedicated Java Web applications server:

- WACS is only available on supported Windows operating systems.
- You need a single web application server for test or preparation environments, but not for a production system.
- Custom Web applications cannot be deployed to WACS, as it only supports the Web applications installed with SAP BusinessObjects BI platform.
- WACS cannot be used with an Apache load balancer.

Additional Web Application Configuration Components

Web Application servers

It is possible to use a dedicated Web application server in addition to WACS. This configuration allows your dedicated Web application server to host custom Web applications, while the CMC and other SAP BusinessObjects BI platform Web applications are hosted by WACS.

Web servers

You can use a dedicated Web server to host static Web content, such as images, HTML, or multimedia files. This is known as a split deployment. Split deployments increase the performance of the Web application server as it no longer needs to serve static content, and returns dynamic content only when required.

wDeploy tool

The wDeploy tool is able to separate static dynamic content for deployment to separate Web and Web application servers. For some Web application servers, the SAP BusinessObjects BI platform installation program will not deploy Web applications for them. These Web application servers must have Web applications deployed manually through the Web application server administrative console, or on the command-line with the **wDeploy tool** included with BusinessObjects BI platform.

There are two different ways to deploy Web applications using the wDeploy tool:

1. Standalone mode

All Web application resources are deployed together on a Web application server that serves both dynamic and static content.

2. Split mode

The application's dynamic and static resources are separated. Static content is deployed to a Web server, and dynamic content is deployed to a Web application server.

The Web and Web application servers can run on the same machine, or on separate machines across a network.

WACS Metrics

The following table describes the server metrics that appear on the *Metrics* screen for Web Application Container Servers.



Table 6: WACS Metrics

Metric	Description
List of Running WACS Connectors	A list of all running connectors on the server. If you do not see all of the connectors (HTTP, HTTPS and HTTP through proxy), it indicates that the connector is not enabled, or that it failed during startup.
WACS Connector(s) Failed at Startup	Shows if there are any failed connectors. If true, at least one connector failed to start. If false, all connectors are running. Do not run a server when one or more connectors has failed to start. Troubleshoot the server to ensure that all connectors start properly.

WACS Properties



Table 7: WACS General Server Properties

Property	Description	Default Value
Service Startup Timeout (seconds)	How long the WACS will wait for its hosted services to start before it times out. If the timeout passes, the WACS will not provide services that have not started yet. On a slower machine, you can consider specifying a larger value. If you specify a value that is too small, and the WACS does not start before timing out, restore the default settings of the WACS through the Central Configuration Manager (CCM).	The default value is 600 seconds.

Property	Description	Default Value
Authentication Type	The authentication type that is used to authenticate users logging on to SAP BusinessObjects BI Launchpad. Accepted values are: <ul style="list-style-type: none"> • AD Kerberos • AD Kerberos SSO • Enterprise • LDAP 	The default value is Enterprise.
Default AD Domain	The default Active Directory domain is used so that users do not have to supply a domain when they log in. For example, if the default domain is set to "mydomain" and a user logs on with the username "user", the Active Directory logon authority tries to authenticate "user@mydomain.com".	By default, this value is empty.
Service Principal Name	A service principal name (SPN) is used by clients to uniquely identify an instance of a service. The Kerberos authentication service uses an SPN to authenticate a service.	By default, this value is empty.
Keytab File	The full path to a keytab file. A keytab file allows Kerberos Filters to be configured without exposing the password of the user account on the Web application machine.	By default, this value is empty.

Other WACS Properties

Table 8: WACS Properties: Other Configuration Properties

HTTP Configuration Property	Description	Default Value
Bind to All IP Addresses	Whether to bind to all network interfaces or not. If your server has more than one NIC, and you want to bind to a specific network interface, uncheck this property.	The default value is TRUE.
Bind to Hostname or IP Address	Specifies the network interface (IP address or host name) on which HTTP service is provided. You can only specify a value if you uncheck <i>Bind to All IP Addresses</i> .	The default value is localhost.

HTTP Configuration Property	Description	Default Value
HTTP Port	The port on which HTTP service is provided.	The default value is 6405. The range of allowed values is 1 to 65535.
Maximum HTTP Header Size	The maximum allowed size, in bytes, of the request and response HTTP header.	The default value is 32768.

HTTP through Proxy Property	Description	Default Value
Enable HTTP through Proxy	Whether to enable the HTTP through Proxy connector on the WACS. This option is typically checked in deployments with a reverse proxy.	The default value is FALSE.
Bind to All IP Addresses	Whether to bind the HTTP through proxy port to all network interfaces or not.	The default value is TRUE.
Bind to Hostname or IP Address	Specifies the network interface (IP address or host name) on which HTTP through Proxy service is provided. You can only specify a value if you uncheck <i>Bind to All IP Addresses</i> .	The default value is localhost.
HTTP Port	The port on which HTTP service in a reverse proxy deployment is provided. You can only specify a value if you check <i>Enable HTTP through Proxy</i> .	The default value is 6406. The range of allowed values is 1 to 65535.
Proxy Hostname	The IPv4 address, IPv6 address, hostname, or fully qualified domain name of your proxy server. You can only specify a value if you check <i>Enable HTTP through Proxy</i> .	By default, this value is empty.
Proxy Port	The port of your forward or reverse proxy server. You can only specify a value if you check <i>Enable HTTP through Proxy</i> .	By default, this value is 0. The range of allowed values is 1 to 65535.
Maximum HTTP Header Size	The maximum allowed size, in bytes, of the request and response HTTP header.	The default value is 32768.

HTTPS Configuration Property	Description	Default Value
Enable HTTPS	Whether HTTPS/SSL communication is enabled or not.	The default value is FALSE.

HTTPS Configuration Property	Description	Default Value
Bind to Hostname or IP Address	Specifies the network interface (IP address or host name) on which HTTPS service is provided. You can only specify a value if you check <i>Enable HTTPS</i> .	The default value is localhost.
HTTPS Port	The port on which HTTPS service is provided. You can only specify a value if you check <i>Enable HTTPS</i> .	The default value is 443. The range of allowed values is 1 to 65535.
Proxy Hostname	The IPv4 address, IPv6 address, hostname, or fully qualified domain name of your proxy server. You can only specify a value if you check <i>Enable HTTPS</i> .	By default, this value is empty.
Proxy Port	The port of your forward or reverse proxy server. You can only specify a value if you check <i>Enable HTTPS</i> .	By default, this value is 0. The allowed range of values is 1 to 65535.
Protocol	The encryption protocol to use. You can only specify a value if you check <i>Enable HTTPS</i> .	The default value is TLS. Allowed values are TLS or SSL.
Certificate Store Type	The type of certificate store that contains your certificates and private keys. In most cases, this type will be PKCS12 . You can only specify a value if you check <i>Enable HTTPS</i> .	The default value is PKCS12. Allowed values are PKCS12 or JKS.
Certificate Store File Location	The full path to the certificate file. You can only specify a value if you check <i>Enable HTTPS</i> .	By default, this value is empty.
Private Key Access Password	PKCS12 certificate stores and JKS keystores have private keys that are password protected, to prevent unauthorized access or theft. Enter the password that you specified when you generated the certificate store here, so that WACS can access private keys from the certificate store. You can only specify a value if you check <i>Enable HTTPS</i> .	By default, this value is empty.
Certificate Alias	The alias of the certificate inside the certificate store. If this alias is not specified, and a certificate store that contains more than one certificate is used, the first certificate in the store is used. In most cases, you do not need to specify a value. You can only specify a value if you check <i>Enable HTTPS</i> .	By default, this value is empty.

HTTPS Configuration Property	Description	Default Value
Enable Client Authentication	If client authentication is enabled, only clients that have keys stored in the Certificate Trust List file can acquire WACS services. Other clients are rejected. You can only enable client authentication if you check <i>Enable HTTPS</i> .	The default value is FALSE.
Certificate Trust List File Location	The full path to the certificate trust list file. You can only specify a value if you check <i>Enable HTTPS</i> and <i>Enable Client Authentication</i> .	By default, this value is empty.
Certificate Trust List Private Key Access Password	The password that protects access to the private keys in the Certificate Trust List file. You can only specify a value if you check <i>Enable HTTPS</i> and <i>Enable Client Authentication</i> .	By default, this value is empty.
Maximum HTTP Header Size	The maximum allowed size, in bytes, of the request and response HTTP header.	The default value is 32768.



How to Add a WACS

We recommend that you run a single Web Application Container Server (WACS) on the same machine at the same time due to high resource utilization. However, you can deploy more than one WACS on the same machine, and only run one of them, to help you recover in the event of a misconfigured WACS.

1. Go to the *Servers* management area of the CMC.
2. Select *Manage* → *New* → *New Server*.
3. From the *Service Category* list, select *Core Services*.
4. From the *Select Service* list, select the services that you want the WACS to host, and click the *Next* button.
5. Select one of the following options, based on your desired outcome:
 - If you want the WACS to host Web applications such as the CMC, BI Launchpad or OpenDocument, select the *BOE Web Application Service* option.
 - If you want the WACS to host web services such as Live Office or Query as a Web Service (QaaWS), select the *Web Services SDK* and *QaaWS Service* options.
 - If you want the WACS to host Business Process BI Web Services, select the *Business Process BI Web Service* option.
6. On the next *Create New Server* screen, select any additional services that you want the WACS to host, and click the *Next* button.
7. On the next *Create New Server* screen, click the *Next* button.

8. On the next *Create New Server* screen, select a node to which to add the server, type a server name and description for the server, and click the *Create* button.
9. On the *Servers* screen, double-click the newly created WACS.
10. If you do not want the WACS to start automatically when the system restarts, in the *Common Settings* pane, ensure that the *Automatically start this server when the Server Intelligence Agent starts* checkbox is unchecked.
11. Click the *Save & Close* button.

SAP BusinessObjects Business Intelligence Platform WAR Files



Explain to learners that the functionality that makes up SAP BusinessObjects Business Intelligence platform is divided between several Web applications to make it easy to deploy only the components required by your organization. In SAP BusinessObjects Business Intelligence platform 4.x, many of the core Web applications included with previous releases have been bundled into a single OSGi archive. This saves Web application server memory and the reduces the number of Web sessions needed for Web applications that previously had multiple archives.

For example, SAP BusinessObjects Business Intelligence platform XI 3.x included the Central Management Console (CMC) and InfoView (now BI Launchpad) Web applications archived as CMC.war and InfoView.war. SAP BusinessObjects Business Intelligence platform 4.1 has consolidated the CMC and InfoView (now BI Launchpad) Web applications, along with others, into a single archive named BOE.war or BOE.ear.

The functionality that makes up SAP BusinessObjects Business Intelligence platform is divided between several Web applications to make it easy to deploy only the components required by your organization. In SAP BusinessObjects Business Intelligence platform, many of the core Web applications are in a single archive named BOE.war or BOE.ear.

Web application archive (may be WAR or EAR)	Description
BOE	OSGi archive of core Web applications, including: <ul style="list-style-type: none"> • Analytical Reporting • CMC • SAP Crystal Reports • BI Launchpad • Eclipse IDE support • Lifecycle Manager • Monitoring • OpenDocument • BI workspace • Platform search • Platform services • Visual difference • Dashboards

You can modify settings for SAP BusinessObjects BI platform Web applications by overwriting default properties for the BOE.war file. This file is deployed on the machine hosting the Web application server.

The properties contained in the BOE.war file control specifications for default logon behavior, default authentication methods, and settings for single sign-on. The two types of properties you can specify:

- Global properties - these properties affect all the Web applications contained in the BOE.war file.
- Application-specific properties - property settings that affect only a specific Web application.

To modify any of the default properties, use the custom configuration directory to save new settings for either global or application-specific properties. By default, the directory is located at `<DRIVE>:\Program Files (x86)\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\warfiles\webapps\BOE\WEB-INF\config\custom`.



Caution:

Do not modify the properties in the `config\default` directory.

**Note:**

On some web application servers such as the Tomcat version bundled with SAP BusinessObjects BI platform you can access the BOE.war directly. In this scenario, you can set custom settings directly without undeploying the WAR file. When you cannot directly access the deployed Web applications, undeploy, customize, and then redeploy the file.

Global BOE.war Properties

The following table lists the settings included in the default global.properties file for BOE.war. To overwrite any of the settings, create a new file in `<DRIVE → : \Program Files (x86) \SAP BusinessObjects \SAP BusinessObjects Enterprise XI 4.0 \warfiles \webapps \BOE \WEB-INF \config \custom`.

Setting	Description
persistentcookies.enabled	Enables or disables persistent cookies on the Web application logon page.
siteminder.authentication	Specifies what authentication method to use with SiteMinder. The two options are secLDAP and secwinAD.
siteminder.enabled	Enables and disables authentication with SiteMinder.
sso.enabled	Enables and disables single sign-on (SSO) to SAP BusinessObjects BI platform.
sso.sap.primary	Set to true if you want to use SAP SSO as the application's primary single signon mechanism. Only applies to cases where both SAP and SiteMinder SSO are used.
tree.pagesize	Specifies the maximum number of entries that can be displayed in the Web application navigation pane.
trusted.auth.shared.secret	Specifies the session variable name used to retrieve the secret for Trusted Authentication. Only applies if using the Web session to pass the shared secret.
trusted.auth.user.param	Specifies the variable used to retrieve the username for Trusted Authentication. Can be set to one of the following: <ul style="list-style-type: none"> • Header • URL Parameter • Cookie • Session

Setting	Description
trusted.auth.user.retrieval	<p>Specifies the method used to retrieve the username for Trusted Authentication. Can be set to one of the following:</p> <ul style="list-style-type: none"> • REMOTE_USER • HTTP_HEADER • COOKIE • QUERY_STRING • QUERY_STRING • WEB_SESSION • USER_PRINCIPAL <p>Set to empty to disable Trusted Authentication.</p>
trusted.auth.user.namespacesenabled	<p>Enables and disables dynamic binding of aliases to existing user accounts. If property is set to true, Trusted Authentication uses alias binding to authenticate users to SAP BusinessObjects BI platform. With alias binding, your application server can work as a SAML service provider therefore enabling Trusted Authentication to provide SAML SSO to the system. If set to false, Trusted Authentication uses name matching to authenticate users.</p>
vintela.enabled	<p>Used to enable or disable Vintela settings for Windows AD authentication.</p>
pinger.showWarningDialog.cmc	<p>Specifies whether or not to display the warning dialog with the message that indicates the current session will expire soon in the CMC.</p>
pinger.showWarningDialog.bilaunchpad	<p>Specifies whether or not to display the warning dialog with the message that indicates the current session will expire soon in BI Launchpad.</p>
pinger.warningPeriod.pingerIncrementsInSeconds	<p>Specifies how often a Web server request should be sent while the session expiry warning message is displayed. This is important for synchronizing the warning dialog across applications.</p>
pinger.warningPeriod.lengthInMinutes	<p>Specifies how long before session expiry the warning should be displayed.</p>
logoff.on.web session.expiry	<p>Specifies if all application sessions log off when the Web session expires.</p>
pinger.enabled	<p>Enables or disables the session expiry warning messaging mechanism.</p>
system.com.sap.bip.jcomanager.destinations.max size	<p>Specifies the maximum number of cached Java connections.</p>

BusinessObjects Business Intelligence Platform Launch Pad Properties

The following table lists the settings included in the default bilaunchpad.properties file for BOE.war. To overwrite any of the settings, create a new file in <DRIVE → : \Program Files (x86) \SAP BusinessObjects \SAP BusinessObjects Enterprise XI 4.0 \warfiles \webapps \BOE \WEB-INF \config \custom.

Setting	Description
app.name	Specifies the display name of the application. The name appears on the Web application title page and logon screen. Default: app.name=BI launch pad
app.name.greeting	Default: app.name.greeting=BusinessObjects
app.name.short	Specifies the display name of the application. The name appears on the Web application title page and logon screen. Default: app.name.short=BI launch pad
app.url.name	Specifies the URL name of the application, preceded by the "/" character. Default: app.url.name=/BI
authentication.default	<p>Specifies the default authentication method used to authenticate users into the application. You can use any of the following for this setting:</p> <p>Enterprise secEnterprise</p> <p>LDAP secLDAP</p> <p>Windows AD secWinAD</p> <p>SAP secSAPR3</p> <p>PeopleSoft secpsenterprise</p> <p>JD Edwards secPSE1</p> <p>Siebel secSiebel7</p> <p>Oracles EBS secOraApps</p> <p>Default: authentication.default=secEnterprise</p>
authentication.visible	Specifies if users logging into BI Launchpad can view and change the authentication method. Default: authentication.visible=false

Setting	Description
cms.default	Specifies the default CMS name. Default: cms.default=[name of host machine]
cms.visible	Specifies if users logging into BI Launchpad can view and change the CMS name. Default: cms.visible=true
dialogue.prompt.enabled	Specifies if users should be prompted when navigating away from an input page in a dialog box. Default: dialogue.prompt.enabled=false
logontoken.enabled	Specifies whether or not to enable token creation for the session after a user logs into BI Launchpad. Token will be stored in a cookie. Default: logontoken.enabled=false
SMTPFrom	Enables or disables the "From" field when scheduling an object to a destination. Default: SMTPFrom=true
url.exit	Specifies which URL to redirect users after terminating their BI launch pad session. This setting applies only to users who have logged into the application through an external verification process.
disable.locale.preference	Enables or disables the user from viewing and thus modifying the viewing local preferences for BI Launchpad. Default: disable.locale.preference=false
extlogon.allow.logoff	Enables or disables automatically logging off user sessions once they have closed their BI Launchpad session. Set to false if you do not want user sessions not to terminate automatically when users log off BI Launchpad. Default: extlogon.allow.logoff=true

Unit 4

Exercise 4



Modify Web Application Properties

Business Example

As system administrator, you need to change the BI Launchpad default logon page to allow users to switch the authentication mode. Additionally, you want to activate and configure the automatic configuration of the platform for the SAP BI Mobile app.

Modify the BI Launchpad Properties

1. Connect to the Operating System (OS) desktop on your server with the credentials displayed in the table.

SAP BusinessObjects Business Intelligence Platform 4.1 SP2 System	Windows User Accounts	Password
WDFLBMT5072	boadmin	BOTraining
WDFLBMT0573	boadmin	BOTraining

You are now connected to the Operating Desktop of your BI 4.1 platform.

2. Configure the properties of the BI Launchpad Web application in order to:
 - Change the default display name "BI launch pad" in the logon page with the following text:
SAP BOE320 -- Training Course Environment.
 - Display the *Authentication* field with the value *Enterprise* as the default authentication.
3. Restart the modified Web application.
4. Test the modified Web application.

Modify SAP BI Mobile Properties



Note:
The Training Environment cannot be accessed from a mobile device, so this exercise is just for your information.

1. Configure the Properties of the Mobile Server Web Application to activate the automatic configuration properties for the SAP Mobile app on your BI 4 platform.
2. Restart the application.



Modify Web Application Properties

Business Example

As system administrator, you need to change the BI Launchpad default logon page to allow users to switch the authentication mode. Additionally, you want to activate and configure the automatic configuration of the platform for the SAP BI Mobile app.

Modify the BI Launchpad Properties

1. Connect to the Operating System (OS) desktop on your server with the credentials displayed in the table.

SAP BusinessObjects Business Intelligence Platform 4.1 SP2 System	Windows User Accounts	Password
WDFLBMT5072	boadmin	BOTraining
WDFLBMT0573	boadmin	BOTraining

a) Run the Remote Desktop Connection program from the *Start > Programs* menu of your Training Cloud Environment.

b) Enter the following credentials:

You are now connected to the Operating Desktop of your BI 4.1 platform.

2. Configure the properties of the BI Launchpad Web application in order to:
 - Change the default display name "BI launch pad" in the logon page with the following text:
SAP BOE320 -- Training Course Environment.
 - Display the *Authentication* field with the value *Enterprise* as the default authentication.
 - a) In Windows Explorer, display the content of the following folder: `D:\Program Files (x86)\SAP BusinessObjects\tomcat\webapps\BOE\WEB-INF\config\default`
 - b) Copy the `BIlaunchpad.properties` folder to the following destination folder: `D:\Program Files (x86)\SAP BusinessObjects\tomcat\webapps\BOE\WEB-INF\config\custom.`

- c) Edit the copied file `D:\Program Files (x86)\SAP BusinessObjects\tomcat\webapps\BOE\WEB-INF\config\custom\BIlaunchpad.properties` and modify the lines to match the following:

```
app.name= Training Course Environment
app.name.short=SAP BOE320 - Training Course Environment
authentication.visible=true
```

3. Restart the modified Web application.
 - a) Save the file.
 - b) Run the Central Configuration Manager (CCM).
 - c) Select the *Apache Tomcat for BI 4* option from the list.
 - d) Click the *Restart* button in the toolbar of the CCM.
 - e) Wait for one minute before continuing.
4. Test the modified Web application.
 - a) Launch the BI Launchpad. What happened?
When the logon page is displayed, the displayed name of the Web application has changed. The Authentication field is displayed and can be changed at any time by the user. When logged into the BI Launchpad, the name of the Web application displayed in the window title has changed.

Modify SAP BI Mobile Properties



Note:

The Training Environment cannot be accessed from a mobile device, so this exercise is just for your information.

1. Configure the Properties of the Mobile Server Web Application to activate the automatic configuration properties for the SAP Mobile app on your BI 4 platform.
 - a) In Windows Explorer, display the content of the following folder: `D:\Program Files (x86)\SAP BusinessObjects\tomcat\webapps\MOBIServer\WEB-INF\config\default`.
 - b) Copy the `server.properties` file to the following destination folder: `D:\Program Files (x86)\SAP BusinessObjects\tomcat\webapps\MOBIServer\WEB-INF\config\custom`.
 - c) Edit the `server.properties` file by modifying the lines to match the following:

```
mobi.connections=MySAPBIMobileConnection
#
MySAPBIMobileConnection.DisplayName=Mobile Training Environment
MySAPBIMobileConnection.BOBJ_MOBILE_USER_NAME=Administrator
MySAPBIMobileConnection.BOBJ_MOBILE_URL=http://WDFLBMT5072.WDF.SAP.CORP:8080
```

```
MySAPBIMobileConnection.BOBJ_MOBILE_CMS= WDFLBMT5072.WDF.SAP.CORP  
MySAPBIMobileConnection.BOBJ_MOBILE_AUTH_METHOD=secEnterprise
```

2. Restart the application.
 - a) Save the file.
 - b) Run the Central Configuration Manager (CCM).
 - c) Select the *Apache Tomcat for BI 4* option from the list.
 - d) Click the *Restart* button in the toolbar of the CCM.



LESSON SUMMARY

You should now be able to:

- Configure Web Application Container servers



Learning Assessment

1. What are the two different ways to deploy Web applications using the wDeploy tool?

2. Which of the following choices are advantages of using a WACS to host the CMC?

Choose the correct answers.

- A WACS updates the CMC every 10 seconds.
- B WACS removes the need for Java application server administration and maintenance skills.
- C All hosted applications are predeployed on WACS, so that no additional manual steps are required.
- D WACS provides additional security to the CMC.



Learning Assessment - Answers

1. What are the two different ways to deploy Web applications using the wDeploy tool?

The two methods are Standalone mode and Split mode. In Standalone mode all Web application resources are deployed together on a Web application server that serves both dynamic and static content. In Split mode the application's dynamic and static resources are separated. Static content is deployed to a Web server, and dynamic content is deployed to a Web application server.

2. Which of the following choices are advantages of using a WACS to host the CMC?

Choose the correct answers.

- A WACS updates the CMC every 10 seconds.
- B WACS removes the need for Java application server administration and maintenance skills.
- C All hosted applications are predeployed on WACS, so that no additional manual steps are required.
- D WACS provides additional security to the CMC.

UNIT 5

Central Management Server (CMS) Database

Lesson 1

Managing the Central Management Server (CMS) and System Database

110

Lesson 2

Configuring Auditing

119



UNIT OBJECTIVES

- Manage CMS database
- Configure CMS for auditing
- Manage auditing



Managing the Central Management Server (CMS) and System Database

LESSON OVERVIEW

The Central Management Server (CMS) manages the platform services and maintains a database of information about the platform and audited user actions. The CMS system database is maintained by the CMS, and stores various platform information. Together, the CMS and CMS system database perform user validation and authentication, user management, system auditing and monitoring, and program object scheduling. Management of CMS metrics and properties is simple and affects the user experience of the entire platform through authentication, auditing, and data storage.



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Manage CMS database

Central Management Server (CMS)

Central Management Server (CMS)

The CMS maintains a database of information about your SAP BusinessObjects Business Intelligence platform and audited user actions (in the Auditing Data Store). All platform services are managed by the CMS. The CMS also controls access to the system files where documents are stored, and information on users, user groups, security levels (including authentication and authorization), and content.

CMS system database

The CMS system database is used to store SAP BusinessObjects BI platform information, such as user, server, folder, document, configuration, authorization, and authentication details. It is maintained by the Central Management Server (CMS), and is sometimes referred to as the system repository.

CMS User Validation

The CMS implements a simple tracking algorithm. When a user logs on, the user is granted a CMS session, which the CMS preserves until the user logs off, or until the Web application server session variable is released.

The Web application server session is designed to notify the CMS on a recurring basis that it is still active, so the CMS session is retained so long as the Web application server session exists. If the Web application server session fails to communicate with the CMS for a ten-minute period, the CMS destroys the CMS session. This handles scenarios where client-side components shut down irregularly.

CMS User Validation Process

The following steps describe how the CMS validates users and creates a session.

1. The user sends the logon request from the BI launch pad web client through the Web server to the Web application server, where the BI launch pad Web application is running.



Note:

This logon process also applies to other Web clients, such as the Central Management Console (CMC).

2. The Web application server determines that the request is a logon request. The Web application server sends the username, password, and authentication type to the Central Management Server (CMS) for authentication.
3. The CMS validates the username and password against the appropriate database. In this case, Enterprise authentication is used, so user credentials are authenticated against the CMS system database.
4. Upon successful validation, the CMS creates a session for the user in memory.
5. The CMS sends a response to the Web application server to let it know that the validation was successful.
6. The Web application server generates a logon token for the user session in memory. For the rest of this session, the Web application server uses the logon token to validate the user against the CMS. The Web application server also generates the next Web page to send to the Web client.
7. The Web application server sends the next Web page to the Web server.
8. The Web server sends the Web page to the Web client.

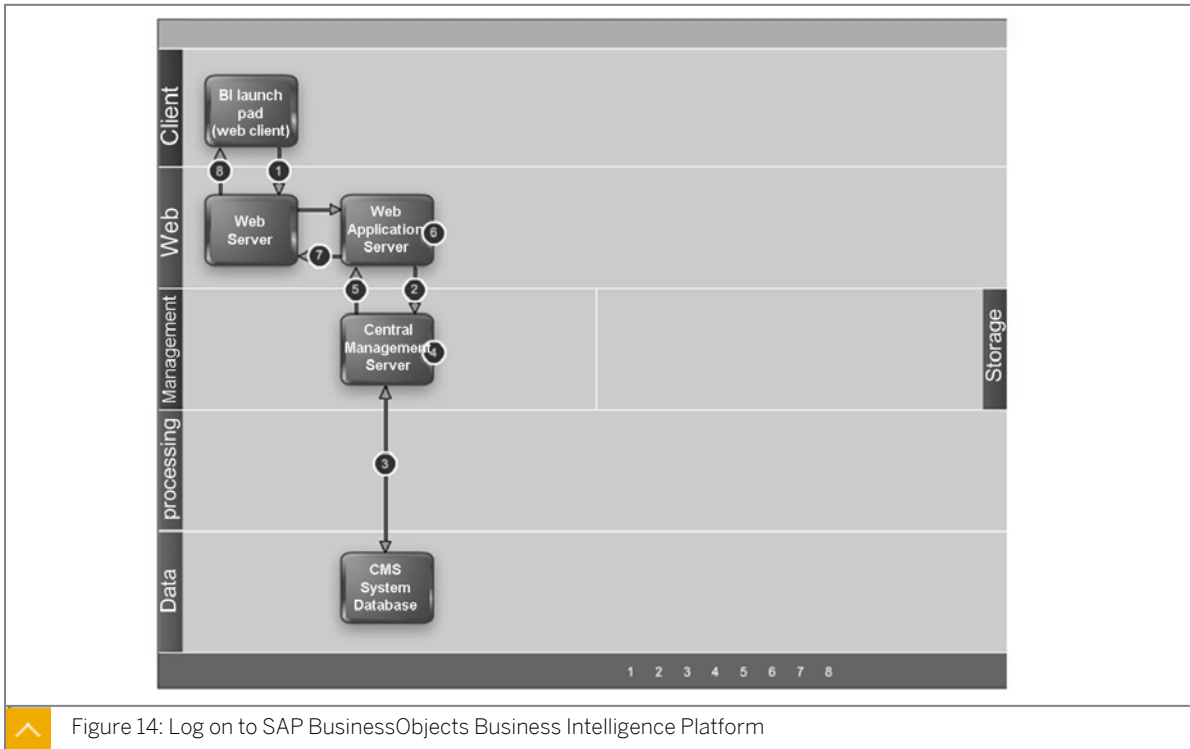


Figure 14: Log on to SAP BusinessObjects Business Intelligence Platform

CMS Process For Scheduling a Program Object

The following steps explain how the CMS functions when you set a schedule for a program object.

1. The user sends the schedule request from the Central Management Console (CMC) Web client through the Web server to the Web application server, where the CMC Web application is running.
2. The Web application server interprets the request and determines that the request is a schedule request. The Web application server sends the schedule time and other required information to the specified Central Management server.
3. The Central Management Server (CMS) checks the CMS system database to ensure that the user has rights to schedule the object. If the user has sufficient rights, the CMS adds a new record to the CMS system database. The CMS also adds the instance to its list of pending schedules.
4. The CMS sends a response to the Web application server to let it know that the schedule operation was successful.
5. The Web application server generates the next Web page and sends it through the Web server to the Web client.

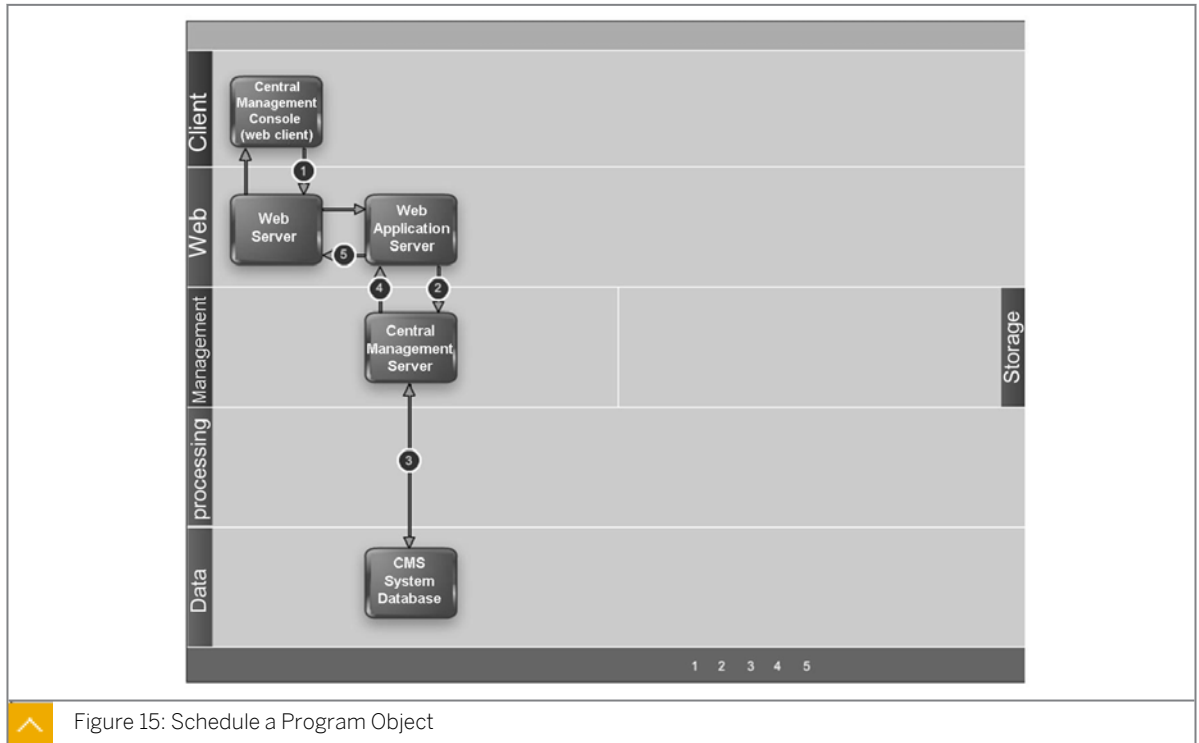


Figure 15: Schedule a Program Object

CMS Properties

When you modify any of these server properties, restart the server for the changes to take effect.

Table 9: CMS Properties

CMS Properties	Description	Default Value
Name Server Port	Specifies the port on which the CMS listens to initial name service requests.	The default value is 6400.
System Database Connections Requested	Specifies the number of CMS system database connections that the CMS attempts to establish. If the server cannot establish all of the requested database connection, the CMS continues to function but at a reduced performance, since fewer concurrent requests can be served simultaneously. The CMS will attempt to establish additional connections, until the requested number of connection is established. The CMS's Established System Database Connections metric shows the current number of established connections.	The default value is 14.

CMS Properties	Description	Default Value
Auto Reconnect to System Database	Specifies whether the CMS automatically attempts to reestablish a connection to the CMS database in the event of a service disruption. If this value is set to FALSE, you can check the integrity of the CMS database before resuming operations. Restart the CMS to reestablish the database connection.	The default value is TRUE.

CMS Metrics

The CMS metrics are listed in the following table:

Table 10: CMS Metrics

CMS Metrics	Description
Connection to Auditing Database is Established	Indicates whether the CMS has a healthy connection to the auditing database. A value of "1" indicates that there is a connection. A value of "0" indicates that there is no connection to the auditing database. If the CMS is an auditor, this value should be "1". If it is "0", investigate why a connection to the Auditing database cannot be established.
CMS Auditor	Indicates if the Central Manager Server (CMS) is acting as an auditor. A value of "1" indicates that the CMS is acting as an auditor. A value of "0" indicates that the CMS is not acting as an auditor.
Auditing Database Connection Name	The name of the auditing database connection. This is not necessarily the name of the auditing database itself. If this metric is empty, it indicates that a connection to the auditing database cannot be established.
Auditing Database User Name	The name of the user account used to connect to the auditing database.
Auditing Database Last Updated On	The most recent date and time that the CMS successfully started to retrieve events from an auditee. If the CMS is an auditor, this metric must show a time that is close to the time that the <i>Metrics</i> page is loaded. If this value is more than two hours prior to the time that the page is loaded, it may indicate that auditing is not working properly.

CMS Metrics	Description
Auditing Thread Last Polling Cycle Duration (seconds)	<p>The duration of the last polling cycle in seconds. This indicates the maximum delay for event data to reach the auditing database during the previous polling cycle.</p> <ul style="list-style-type: none"> • A value of less than 20 minutes indicates a healthy system. • A value between 20 minutes and 2 hours indicates a busy system. • A value of greater than 2 hours indicates a very busy system. If this state persists and you consider the delay too long, we recommend that you either update your deployment to all the auditing database to receive data at a higher rate or decrease the number of auditing events that your system tracks.
Auditing Thread Utilization	<p>The percentage of the polling cycle the auditor CMS spends collecting data from auditees. The remainder is time spent resting between polls. If this value reaches 100%, the auditor is still collecting data from the auditees when the next poll is due to begin. This may cause delays in the events reaching the auditing database. If the Thread Utilization frequently reaches 100%, and remains at this rate for several days, it is recommended that you either update your deployment to allow the auditing database to receive data at a higher rate, or decrease the number of auditing events that your system tracks.</p>
Clustered CMS Servers	<p>A semicolon-separated list of the host names and port numbers of the running Central Management Servers in the cluster.</p>
Number of Sessions Established by Concurrent Users	<p>The total number of sessions for users with concurrent licensing.</p>
Number of Sessions Established by Named Users	<p>The total number of sessions for users with named licensing.</p>
Peak Number of User Sessions Since Startup	<p>The peak number of concurrent user sessions that the CMS has handled since it was started.</p>
Number of Sessions Established by Servers	<p>The number of concurrent sessions that SAP BusinessObjects BI platform servers have created with the CMS. If this number is greater than 250, create an additional CMS.</p>
Number of Sessions Established by All Users	<p>The number of concurrent user sessions that are being handled by the CMS at the time that the <i>Metrics</i> screen loads. The larger this number is, the larger the number of users that are using the system. If this number is greater than 250, create an additional CMS.</p>
Failed Jobs	<p>The total number of failed jobs on the CMS since the Failed Jobs server started.</p>
Pending Jobs	<p>The current number of pending jobs.</p>

CMS Metrics	Description
Running Jobs	The current number of running jobs. This includes jobs that are scheduled but not ready to run because their scheduled time has not arrived.
Completed Jobs	The total number of completed jobs on the CMS since the server started.
Waiting Jobs	The current number of waiting jobs on the CMS. This includes jobs that are scheduled and waiting for free resources.
Concurrent User Licenses	The number of Concurrent User licenses as indicated by the key code.
Named User Licenses	The number of Named User licenses as indicated by the key code.
Build Date	The build date of the CMS.
System Database Connection Name	The name of the CMS system database connection. This is not necessarily the name of the CMS system database itself.
System Database Server Name	The name of the server where the CMS system database is running. This is not necessarily the name of the CMS system database itself.
System Database User Name	The name of the user account used to connect to the CMS system database.
Data Source Name	The name of the CMS system database connection.
Build Number	The build number of the CMS. This number can be used to identify the version of SAP BusinessObjects BI platform that you have installed.
Product Version	The product version of the CMS.
Resource Version	The resource version of the CMS.
Average Commit Response Time Since Startup (msec)	The average length of time in milliseconds that it took the CMS to perform commit operations since the server was started. A response time greater than 1000 milliseconds may indicate a need to tune the CMS or the CMS system database.
Average Query Response Time Since Startup (msec)	The average length of time in milliseconds that it took the CMS to perform query operations since the server was started. A response time greater than 1000 milliseconds may indicate a need to tune the CMS or the CMS system database.
Longest Commit Response Time Since Startup (msec)	The longest length of time in milliseconds that it took the CMS to perform commit operations since the server was started. A response time greater than 10000 milliseconds may indicate a need to tune the CMS or the CMS system database.
Longest Query Response Time Since Startup (msec)	The longest length of time in milliseconds that it took the CMS to perform query operations since the server was started. A response time greater than 10000 milliseconds may indicate a need to tune the CMS or the CMS system database.

CMS Metrics	Description
Number of Commits Since Startup	The number of commits to the CMS system database since the server was started.
Number of Queries Since Startup	The total number of database queries since the server was started. A large number may indicate a more active or heavily loaded system.
Number of User Logons Since Startup	The number of user logons since the server was started. A large number may indicate a more active or heavily loaded system.
Established System Database Connections	The number of connections to the CMS system database that the CMS was able to establish. If a database connection is lost, the CMS attempts to restore the connection. If the number of established database connections is consistently lower than the number of system database connections that are specified by the <i>System Database Connections Requested</i> property, it may indicate that the CMS cannot acquire additional connections, and that the system is not functioning well. A potential solution is to configure the database server to allow more database connections for the CMS.
Currently Used System Database Connections	The number of connections to the CMS system database that the CMS is currently using. The number of connections that are being currently used may be smaller than or equal to the number of established system database connections. If the number of established connections and the number of used connections are identical for some time, this may indicate a bottleneck. Increasing the value for the <i>System Database Connections Requested</i> property may improve the performance of the CMS.
Pending System Database Requests	The number of requests for the CMS system database that are waiting for an available connection. If this number is high, consider increasing the value for the <i>System Database Connections Requested</i> property. Tuning the CMS system database may also improve performance.
Number of Objects in CMS System Cache	The total number of objects that are currently in the CMS system cache.
Number of Objects in CMS System DB	The total number of objects that are currently in the CMS system database.
Existing Concurrent User Accounts	The total number of existing users with concurrent licensing in the cluster.
Existing Named User Accounts	The total number of existing users with named licensing in the cluster.



How to Manage SAP Authentication in BusinessObjects Business Intelligence Platform 4.1



In order to perform this demonstration, you must use the `Training Course BOE320` content in the `Initialize Course` folder in the Training Cloud Environment.

1. Go to the `videos` subfolder in the Training Cloud Environment.
2. Play the `DEMO3 Manage SAP Authentication in BI 4` video file, and explain the following steps:
 - a) Create an SAP user and SAP Role for the BI 4 platform in an SAP BW system.
 - b) Set up the SAP Authentication in the BI 4 platform.
 - c) Assign BI 4 security to SAP user accounts.
 - d) Log on to the BI launch pad with an SAP user account.
 - e) Check the BI 4 user license.
 - f) Synchronize the security on platforms when an SAP user is locked on the SAP BW system.
 - g) Synchronize the security on platforms when an SAP user is deleted on the SAP BW system.



LESSON SUMMARY

You should now be able to:

- Manage CMS database



Configuring Auditing

LESSON OVERVIEW

The CMS audits platform servers and applications. It regularly requests auditing records from the other platform components, and writes data from these records to the Auditing Data Store (ADS). The CMS Auditing page provides administrators with a status summary, and the ability to set events and event details, and configure the CMS for auditing. Auditing workflows to record events vary according to the type of platform component being audited, but all audits write events to the Auditing Data Store (ADS) and delete the events from the auditee temporary files.



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Configure CMS for auditing
- Manage auditing

Auditing

The Central Management Server (CMS) acts as the system auditor, while each SAP BusinessObjects BI platform server or application that triggers an auditable event acts as an auditee. When an audited event is triggered, the auditee will generate a record and store it in a local temporary file. At regular intervals, the CMS communicates with the auditees to request these records and writes the data to the Auditing Data Store (ADS).

The CMS also controls the synchronization of auditing events that occur on different machines. Each auditee provides a time stamp for the auditing events that it records. To ensure that the timestamps of events on different servers are consistent, the CMS periodically broadcasts its system time to the auditees. The auditees then compare this time to their internal clocks. If differences exist, the auditees correct the time recorded for subsequent auditing events.

CMS Auditing Page and Metrics

The *Auditing* page in the CMS has the following areas:

- Auditing Status Summary
- Set Events
- Set Event Details
- Configuration

The *Status Summary* shows a set of metrics that help you optimize your auditing configuration and alerts you to any issues that might affect the integrity of your auditing data. The following table explains the metrics for auditing.

Table 11: Auditing Metrics

Metric	Auditing Metrics
ADS Last Updated on	The date and time the auditor CMS last started polling the auditees for their auditing events.
Auditing Thread Utilization	The percentage of the polling cycle the auditor CMS spends collecting data from auditees, the remainder is time spent resting between polls. If this reaches 100% the figure will be displayed in yellow, and means the auditor is still collecting data from the auditees when the next poll is due to begin. This may cause delays in the events reaching the ADS. If this is happening frequently or persistently, it is recommend you either update your deployment to allow the ADS database to receive data at a higher rate (faster network connections or more powerful database hardware for example), or decrease the number of auditing events your system tracks.
Last Polling Cycle Duration	<p>Duration of the last polling cycle in seconds. This indicates the maximum delay for event data to reach the ADS during the previous polling cycle.</p> <ul style="list-style-type: none"> • If under 20 minutes (1200 seconds), the figure will appear on a green background. • If between 20 minutes and 2 hours (7200 seconds), it will appear on a yellow background. • If over 2 hours, it will appear on a red background. <p>If this state persists and you consider the delay too long, we recommend that you either update your deployment to allow the ADS database to receive data at a higher rate (faster network connections or more powerful database hardware for example), or decrease the number of auditing events your system tracks.</p>
CMS Auditor	The name of the CMS currently acting as auditor.
ADS Database Connection Name	The name of the database connection currently used by the auditor CMS to connect to the Auditing Data Store (ADS). For SQL servers this will be the name of the ODBC connection. For other database types it will be the database name, followed by the server name and connection port.
ADS Database User Name	The user name the auditor CMS is using to log in to the ADS database.

Clients that Support Auditing

The following clients support auditing:

- CORBA clients; for example, WEBI rich client
- HTTP and HTTPS clients; for example, BI launch pad and the CMC

Auditing Workflows

Depending on the type of auditee, the system uses one of the following five workflows to record events.

Server Auditing

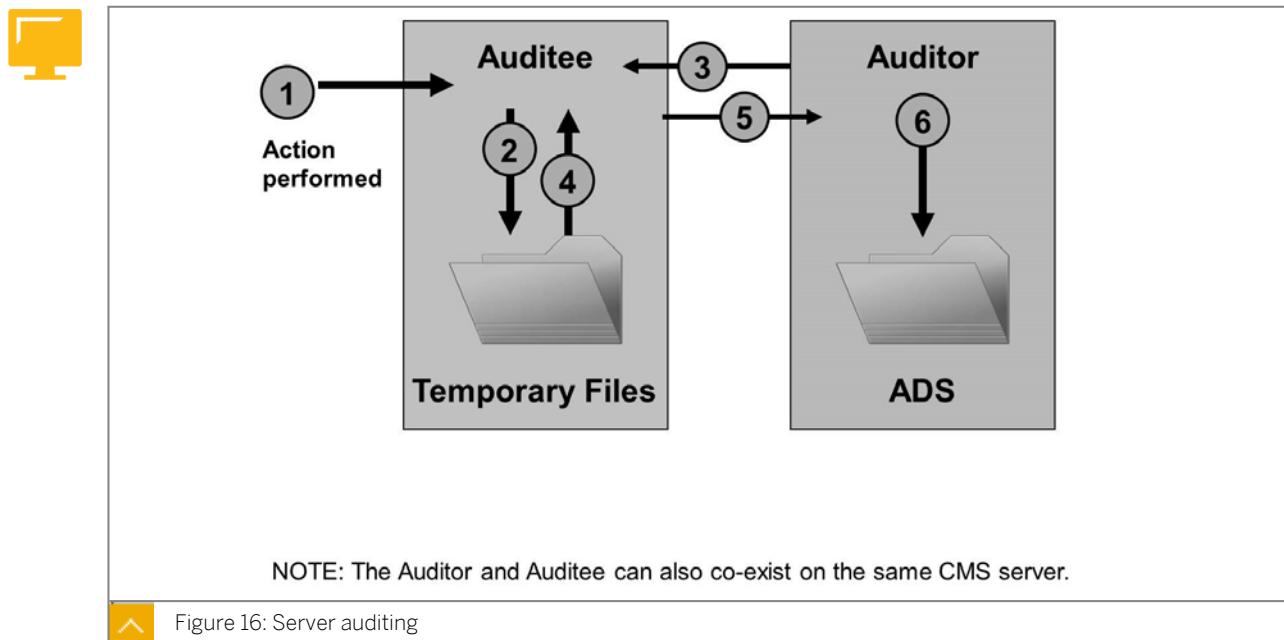
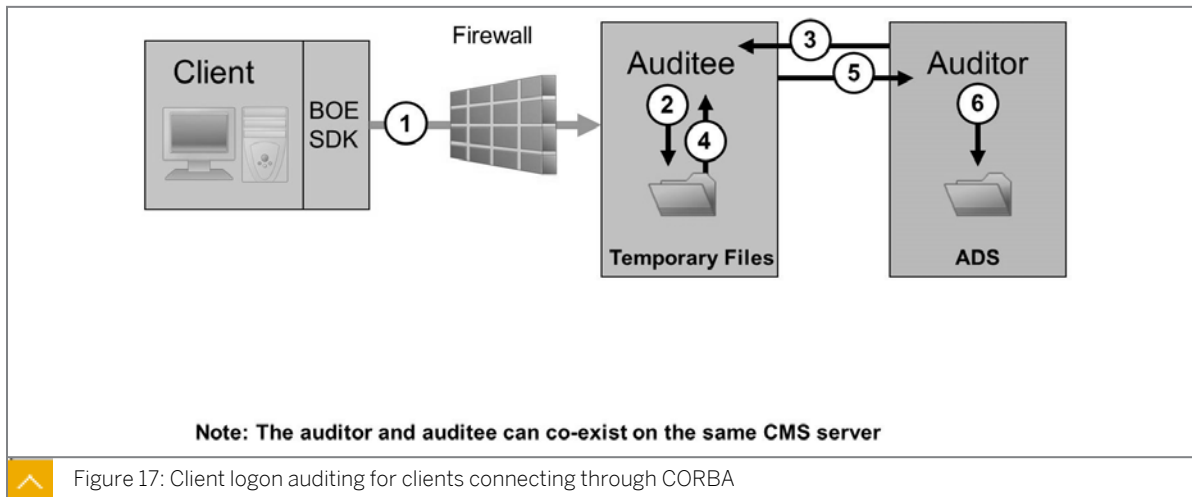


Figure 16: Server auditing

1. An auditable event is performed by the server.
2. The auditee writes events in a temporary file.
3. The auditor polls the auditee and requests a batch of auditing events.
4. The auditee retrieves the events from the temporary files.
5. The auditee transmits the events to the auditor.
6. The auditor writes events to the Auditing Data Store (ADS) and signals the auditee to delete the events from the temporary files.

Client Logon Auditing for Clients Connecting Through CORBA

This auditing process applies to clients that connect through CORBA, including applications like Web Intelligence.



1. The client connects to the CMS, which will act as the auditee. The client provides its IP address and machine name, which the auditee then verifies.



Note:
A port must be open in the firewall between the client and CMS.

2. The auditee writes events in a temporary file.
3. The auditor polls the auditee and requests a batch of auditing events.
4. The auditee retrieves the events from the temporary files.
5. The auditee transmits the events to the auditor.
6. The auditor writes events to the Auditing Data Store (ADS) and signals the auditee to delete the events from the temporary files.

Client Logon Auditing for Clients Connecting Through HTTP

This auditing process applies to clients that connect through HTTP, and includes online applications, such as BI Launchpad, Central Management Console (CMC), and Web Intelligence.

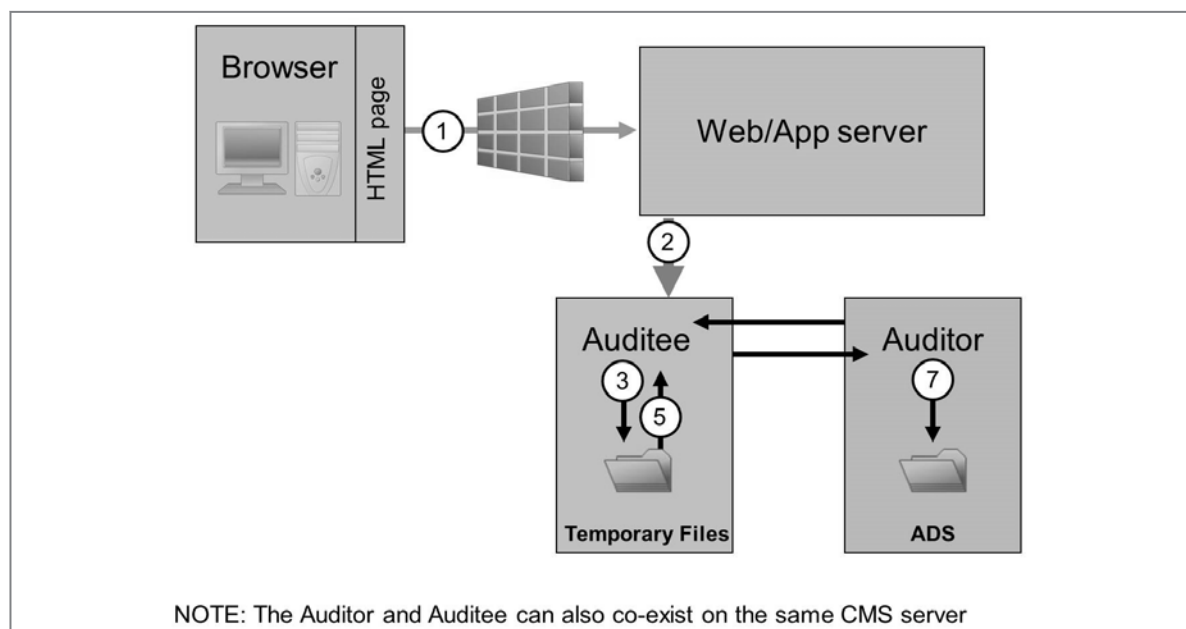
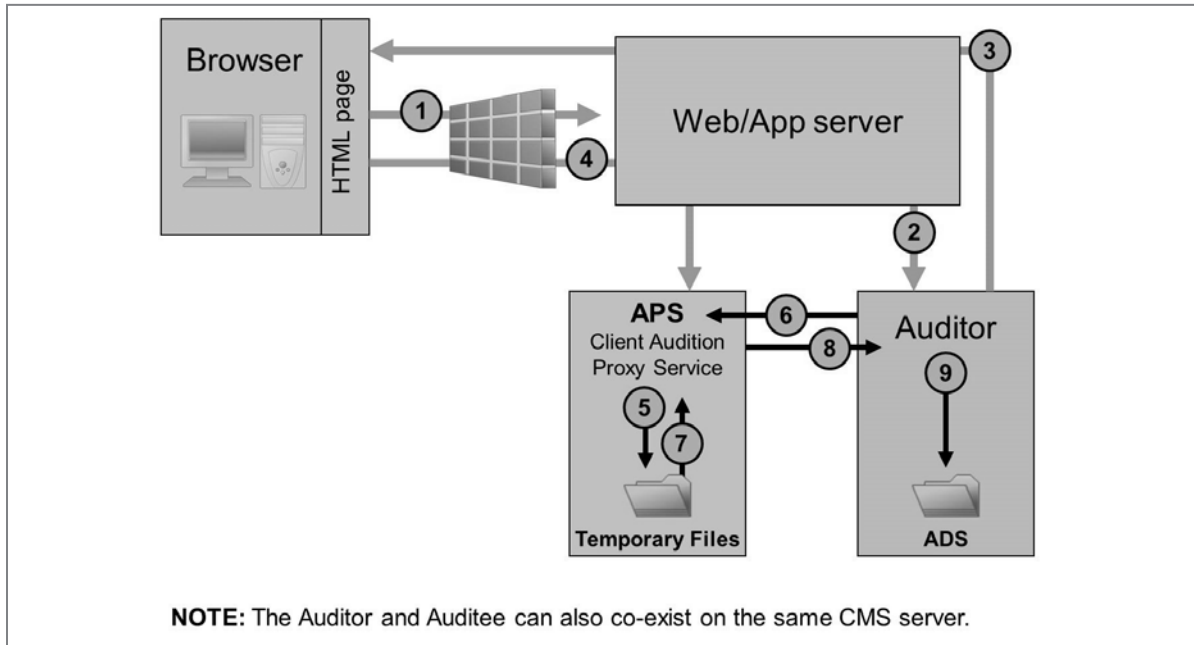


Figure 18: Client logon auditing for clients connecting through HTTP

1. The browser connects to the Web application server, and logon data is submitted to the Web application server.
2. SAP BusinessObjects BI platform SDK submits the logon request to the auditee (CMS), along with the IP address and name of the browser machine.
3. The auditee writes events in a temporary file.
4. The auditor polls the auditee and requests a batch of auditing events.
5. The auditee retrieves the events from the temporary files.
6. The auditee sends events to the auditor.
7. The auditor writes events to the Auditing Data Store (ADS) and signals the auditee to delete the events from the temporary files.

Non-Logon Auditing for Clients Connecting Through CORBA

This workflow applies to auditing Web Intelligence events when connecting through CORBA.



1. The user performs an operation that may be audited.
2. The client contacts the CMS to check if the operation is configured to be audited.
3. If the action is set to be audited, the CMS communicates this information to the client.
4. The client sends the event information to the Client Audition Proxy Service (CAPS), hosted in an Adaptive Processing Server.
5. The CAPS writes events in a temporary file.
6. The Auditor polls the CAPS and requests a batch of auditing events.
7. The CAPS retrieves the events from the temporary files.
8. The CAPS sends the event information to the auditor.
9. The auditor writes events to the Auditing Data Store (ADS) and signals the CAPS to delete the events from the temporary files.

Non-Logon Auditing for Clients Connecting Through HTTP

This workflow applies to auditing Web Intelligence events (except for logon events) when connecting through HTTP.

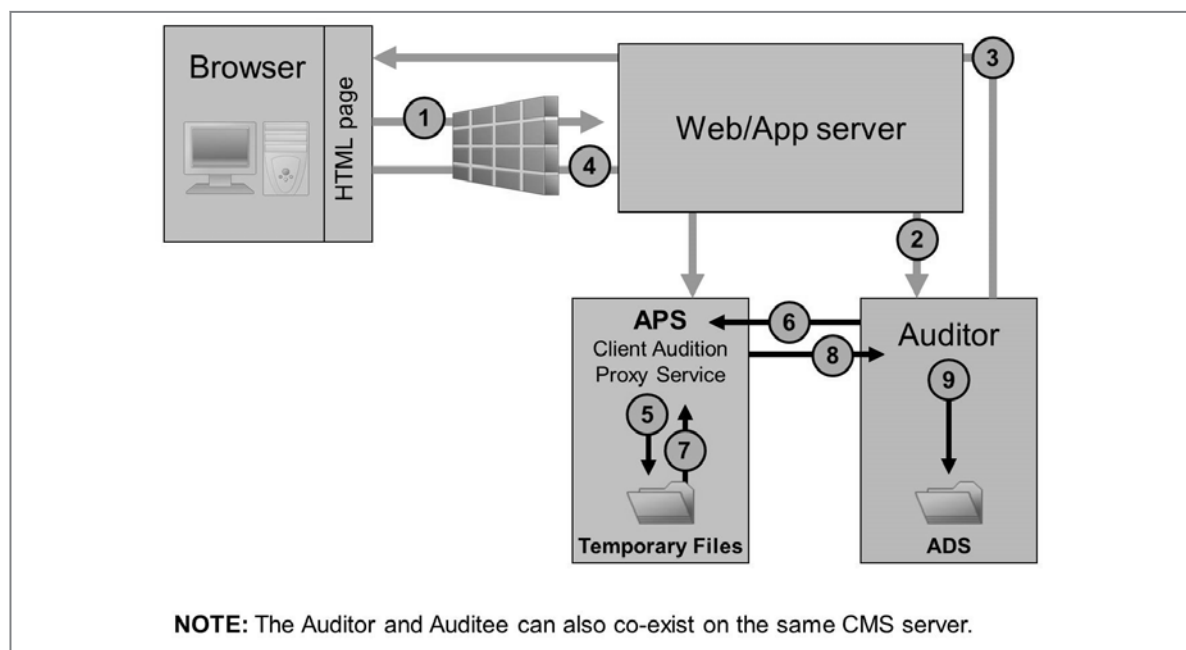


Figure 19: Non-logon auditing for clients connecting through HTTP

1. The user initiates a potentially auditable event. The client application contacts the Web application server.
2. The Web application checks to see if the event is configured to be audited.
3. The CMS returns the audit configuration information to the Web application server, which passes this information back to the client application.
4. If the event is configured to be audited, the client sends the event information to the Web application server, which passes it to the Client Audition Proxy Service (CAPS), hosted in an Adaptive Processing Server (APS).
5. The CAPS writes events in a temporary file.
6. The auditor polls the CAPS and requests a batch of auditing events.
7. The CAPS retrieves the events from the temporary files.
8. The CAPS sends the event information to the auditor.
9. The auditor writes events to the Auditing Data Store (ADS) and signals the CAPS to delete the events from the temporary files.



How to Manage Auditing in BusinessObjects Business Intelligence Platform 4.1



In order to perform this demonstration, you must use the Training Course BOE320 content in the Initialize Course folder in the Training Cloud Environment.



The Development environment that is provided uses Sybase SQL Anywhere databases instead of Microsoft SQL Server. Many students do not have any experience with this database, so the accompanying video demonstration shows the BI 4.1 platform on a MS SQL Server 2008 environment.

1. Go to the `Videos` subfolder in the Training Cloud Environment.
2. Play the `DEMO4 Manage Auditing in BI 4` video file, and explain the following steps:
 - a) Explain the technical prerequisites for installing Auditing on a BI4 environment.
 - b) Design and publish an Auditing Universe on the platform with the Information Design Tool.
 - c) Reporting on the Auditing database with the BI Launchpad.
 - d) Monitor the size of the temporary files in the BI 4 Auditing folder.
 - e) Monitor the Auditing Dashboard in the CMC.



LESSON SUMMARY

You should now be able to:

- Configure CMS for auditing
- Manage auditing



Learning Assessment

1. All platform services are managed by the Central Management Server (CMS)

Determine whether this statement is true or false.

True

False

2. Arrange these process steps in the correct order for scheduling a program object.

Arrange these steps into the correct sequence.

The Central Management Server (CMS) checks the CMS system database to ensure that the user has rights to schedule the object. If the user has sufficient rights, the CMS adds a new record to the CMS system database. The CMS also adds the instance to its list of pending schedules.

The user sends the schedule request from the Central Management Console (CMC) Web client through the Web server to the Web application server, where the CMC Web application is running.

The Web application server generates the next Web page and sends it through the Web server to the Web client.

The Web application server interprets the request and determines that the request is a schedule request. The Web application server sends the schedule time and other required information to the specified CMS.

The CMS sends a response to the Web application server to let it know that the schedule operation was successful.

3. What does a CMS act as?

Choose the correct answer.

A Application database

B Report repository

C System auditor

D Security application

4. Select which of the following are aspects of the CMS Auditing page.

Choose the correct answers.

- A Configuration
- B Set Events
- C Alert Properties
- D Auditing Status Summary

5. How many different workflows can auditing use to record events?

6. Which part of the Auditing page of the CMS shows metrics to optimize your auditing configuration and alert you to any issues that might affect the integrity of your auditing data.

Choose the correct answer.

- A Set Event Details
- B Configuration
- C Auditing Status Summary
- D Set Events



Learning Assessment - Answers

1. All platform services are managed by the Central Management Server (CMS)

Determine whether this statement is true or false.

True

False

2. Arrange these process steps in the correct order for scheduling a program object.

Arrange these steps into the correct sequence.

- 3** The Central Management Server (CMS) checks the CMS system database to ensure that the user has rights to schedule the object. If the user has sufficient rights, the CMS adds a new record to the CMS system database. The CMS also adds the instance to its list of pending schedules.
- 1** The user sends the schedule request from the Central Management Console (CMC) Web client through the Web server to the Web application server, where the CMC Web application is running.
- 5** The Web application server generates the next Web page and sends it through the Web server to the Web client.
- 2** The Web application server interprets the request and determines that the request is a schedule request. The Web application server sends the schedule time and other required information to the specified CMS.
- 4** The CMS sends a response to the Web application server to let it know that the schedule operation was successful.

3. What does a CMS act as?

Choose the correct answer.

- A Application database
- B Report repository
- C System auditor
- D Security application

4. Select which of the following are aspects of the CMS Auditing page.

Choose the correct answers.

- A Configuration
- B Set Events
- C Alert Properties
- D Auditing Status Summary

5. How many different workflows can auditing use to record events?

There are five workflows available to accommodate different auditee types.

6. Which part of the Auditing page of the CMS shows metrics to optimize your auditing configuration and alert you to any issues that might affect the integrity of your auditing data.

Choose the correct answer.

- A Set Event Details
- B Configuration
- C Auditing Status Summary
- D Set Events

UNIT 6

File Repository Server Management

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UNIT OBJECTIVES

- Manage File Repository server
- Use the Repository Diagnostic tool



Managing the File Repository Server

LESSON OVERVIEW

A File Repository Server (FRS) creates file system objects. An FRS may be an Input FRS that stores report and program objects that have been published to the system by administrators or end users. An FRS may also be an Output FRS that stores all of the report instances that are generated by the Job server. Management of the File Repository Servers is simple to perform through the BI launch pad and FRS properties.



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Manage File Repository server

File Repository Servers

File Repository Server

File Repository Server (FRS) is responsible for the creation of file system objects, such as exported reports, and imported files in non-native formats. An Input FRS stores report and program objects that have been published to the system by administrators or end users. An Output FRS stores all of the report instances generated by the Job Server.

Input File Repository Server

The Input File Repository server manages files that contain information to be used in reports. Input File Repository Server file types include: .rpt, .car, .exe, .bat, .js, .xls, .doc, .ppt, .rtf, .txt, .pdf, .wid, .rep, and .unv.

Output File Repository Server

The Output File Repository Server manages reports created by the system. Output File Repository Server file types include: .rpt, .csv, .xls, .doc, .rtf, .txt, .pdf, .wid, and .rep.



Table 12: Servers

Server Type	Service	Service category
Input File Repository Server	Input Filestore Service	Core Services
Output File Repository Server	Output Filestore Service	Core Services

Input File Repository Server Properties



Table 13: Input File Repository Server Properties

Property	Description	Default Value
Maximum Retries for File Access	Specifies the number of times the server tries to access a file.	The default value is 1.
Maximum Idle Time (minutes)	Specifies the length of time that the server waits before it closes inactive connections. Setting a value that is too low can cause a user request to be closed prematurely. Setting a value that is too high can cause excessive consumption of system resources, such as processing time and disk space.	The default value is 10 minutes.
Temporary Directory	Specifies the directory where temporary files are created when necessary.	%DefaultInputFRS Dir/temp%
File Store Directory	Specifies the directory where file repository objects are stored.	%DefaultInputFRS Dir/%



Note:

You may encounter performance issues if this directory does not have adequate disk space. To ensure better performance, we recommend that the Temporary Directory is located on the same file system as the File Store Directory.

Output File Repository Server Properties



Table 14: Output File Repository Server Properties

Property	Description	Default Value
Maximum Retries for File Access	Specifies the number of times the server tries to access a file.	The default value is 1.

Property	Description	Default Value
Maximum Idle Time (minutes)	Specifies the length of time that the server waits before it closes inactive connections. Setting a value that is too low can cause a user request to be closed prematurely. Setting a value that is too high can cause excessive consumption of system resources such as processing time and disk space.	The default value is 10 minutes.
Temporary Directory	Specifies the directory where temporary files are created when necessary.	%DefaultOutputFRS Dir/temp %
File Store Directory	Specifies the directory where file repository objects are stored.	%DefaultOutputFRS Dir/%

**Note:**

You may encounter performance issues if this directory does not have adequate disk space. To ensure better performance, we recommend that the Temporary Directory is located on the same file system as the File Store Directory.

File Repository Server Metrics

The following table describes the server metrics that appear on the *Metrics* screen for Input and Output File Repository Servers.



Table 15: Metrics

Metric	Description
Active Files	The number of files in the File Repository Server that are currently being accessed.
Data Written (MB)	The total number of megabytes written to files on the server.
Data Sent (MB)	The total number of megabytes read from files on the server.
List of Active Files	A table that displays the files in the File Repository Server that are currently being accessed.
Active Connections	The total number of active connections from clients and to other servers.
Available Disk Space in Root Directory (GB)	The total amount of available space on the disk containing the server executable file, in gigabytes.

Metric	Description
Free Disk Space in Root Directory (GB)	The total amount of free space on the disk containing the server executable file, in gigabytes.
Total Disk Space in Root Directory (GB)	The total disk space, in gigabytes, on the disk containing the server executable file.
Available Disk Space in Root Directory (%)	The amount of available disk space, in percentage, on the disk containing the server executable file.

Unit 6

Exercise 5



Manage the Input File Repository Server

Business Example

As the system administrator, you need to identify where all the file repository objects (reports, instances, shortcuts) are located in the BI 4 platform (including the BI launch pad and Query Builder). You must also know where file repository objects inconsistencies come from in the platform.

Manage a BI 4 Report with the File Repository Server

1. Locate where the input file repository objects are stored on the BI 4 platform.
2. Write down the default value of the %DefaultInputFRSDir% entry in the table. Click the *OK* button.

Placeholder	Value
%DefaultInputFRSDir%	
%DefaultOutputFRSDir%	

3. Check the file store directory of the Input File Repository Server.
4. Enter the value that specifies where the file repository objects are stored into the table.

Input Filestore Service	Value
File Store Directory	
%DefaultInputFRSDir%	

5. Check the file store directory of the Output File Repository server.
6. Enter the value that specifies where the file repository objects are stored into the table below.

Output Filestore Service	Value
File Store Directory	
%DefaultOutputFRSDir%	

7. From the BI launch pad, schedule the Crystal Reports "World Sales Report" with the default settings.
8. Go back to the `Demonstration` public folder in the launchpad. What happened?



Note:
This instance is stored as a new file repository object in the platform.

9. From the BI launch pad, copy the Crystal Reports `World Sales Report` to your Favorites folder.
10. From the BI Launchpad, complete the following table with the store location of your two copies of the report, then delete the copied file in Windows Explorer on the server-side. What happened when you tried to display this copied report from the launchpad?

Name of the Private Report	File Name Properties
Shortcut to World Sales Report	
World Sales Report	

11. Go to the operating system of the platform, then rename the file by adding the ".old" file extension for the World Sales Report specified in the previous table.



Hint:
This can be done without stopping any FRS servers.

12. Go to the launchpad. Notice that you can now see the entry of the report in the `Private` folder. An attempt to view the report, however, results in an error message. This is due to an inconsistency in the platform.

Use the Query Builder Tool

1. From the Web application Query Builder tool, locate all of the folders where the `World Sales Report` is published.
2. How many objects relative to the `World Sales Report` are stored in the platform? Why? You will see four file repository objects:
 - Two published Crystal Reports (in the FRS Input folder)
 - One Crystal Reports Instance (in the FRS Output folder)
 - One shortcut to published Crystal Reports (no file in the FRS folders)



Manage the Input File Repository Server

Business Example

As the system administrator, you need to identify where all the file repository objects (reports, instances, shortcuts) are located in the BI 4 platform (including the BI launch pad and Query Builder). You must also know where file repository objects inconsistencies come from in the platform.

Manage a BI 4 Report with the File Repository Server

1. Locate where the input file repository objects are stored on the BI 4 platform.
 - a) Click the *Servers* option and then navigate to *Service Categories --> Core Services*.
 - b) Right-click the *Input File Repository* server and then click the *Placeholders* option.
 - c) Locate the `%DefaultInputFRSDir%` entry. Do not change any value.
2. Write down the default value of the `%DefaultInputFRSDir%` entry in the table. Click the *OK* button.

Placeholder	Value
<code>%DefaultInputFRSDir%</code>	
<code>%DefaultOutputFRSDir%</code>	

3. Check the file store directory of the Input File Repository Server.
 - a) Right-click the *Input File Repository Server* and then click the *Properties* option from the resulting dialog menu.
 - b) In the *Properties* tab, navigate to the *File Store Directory* field. The value specifies the directory where file repository objects are stored.
4. Enter the value that specifies where the file repository objects are stored into the table.

Input Filestore Service	Value
File Store Directory	
<code>%DefaultInputFRSDir%</code>	

5. Check the file store directory of the Output File Repository server.

- a) Right-click the `Output File Repository` server and then click the *Properties* option from the resulting dialog menu.
 - b) In the *Properties* tab, navigate to the `File Store Directory` field. The value specifies the directory where the file repository objects are stored.
6. Enter the value that specifies where the file repository objects are stored into the table below.

Output Filestore Service	Value
File Store Directory	
%DefaultOutputFRSDir%	

7. From the BI launch pad, schedule the Crystal Reports "World Sales Report" with the default settings.
- a) Select the `Demonstration Public` folder.
 - b) Select the *World Sales Report* option from the list of reports that is displayed on the right side of the screen.
 - c) Right-click the report and then click the *Schedule* option from the resulting dialog menu.
 - d) In the new window, click the *Schedule* button to accept all of the default values.
 - e) Wait for about a minute until the status of the job is "Success".
8. Go back to the `Demonstration` public folder in the launchpad. What happened?
- a) A new instance has been created and stored in the platform. (Value "1" n from of the report in the "Instances" column.)



Note:
This instance is stored as a new file repository object in the platform.

9. From the BI launch pad, copy the Crystal Reports `World Sales Report` to your Favorites folder.
- a) Go to the BI Launchpad and select the `Demonstration Public` folder.
 - b) Select the `World Sales Report` from the list of reports on the right side of the screen.
 - c) Select the *Organize* option and then the *Create Shortcut in My Favorites* option from the resulting menu.



Note:
This copy is stored as a new file repository object that links to the original report. You will notice that you see the instance number "1" of the original report.

- d) From the BI Launchpad, select the `Demonstration Public` folder.
- e) Select the `World Sales Report` from the list of reports that is displayed on the right side of the screen.
- f) Click the `Organize` option, and then select the `Copy` option from the dropdown menu.
- g) Select your private `My Favorites` folder.
- h) Click the `Organize` option in the launchpad, and then select the `Paste` option from the dropdown menu. You will see a copy of the `World Sales Report`.



Note:

This copy is stored as a new file repository object and is not a simple link to the original report.

10. From the BI Launchpad, complete the following table with the store location of your two copies of the report, then delete the copied file in Windows Explorer on the server-side. What happened when you tried to display this copied report from the launchpad?

Name of the Private Report	File Name Properties
Shortcut to World Sales Report	
World Sales Report	

- a) Go to the BI Launchpad and select the Private `My Favorites` folder.
- b) Right-click each object in the `My Favorites` folder and select the `Properties` option from the resulting dialog menu.
- c) Enter the file name properties in the following table for each object.



Note:

The `Shortcut to World Sales Report` object does not have any file name properties.

11. Go to the operating system of the platform, then rename the file by adding the ".old" file extension for the `World Sales Report` specified in the previous table.



Hint:

This can be done without stopping any FRS servers.

12. Go to the launchpad. Notice that you can now see the entry of the report in the `Private` folder. An attempt to view the report, however, results in an error message. This is due to an inconsistency in the platform.

Use the Query Builder Tool

1. From the Web application Query Builder tool, locate all of the folders where the `World Sales Report` is published.
 - a) From the Web browser, go to the following URL: `http://wdf/bmt50xx:8080/AdminTools`.
 - b) Enter your Enterprise credentials, then click the *Log On* button.



Note:

The Business Intelligence platform 4.1 security is applied to this tool. You will only see object for you have permissions.

- c) Enter the following query in the text field: `SELECT SI_ID, SI_NAME, SI_FILES FROM CI_INFOOBJECTS WHERE SI_NAME LIKE '%World%'`.
 - d) Click the *Submit Query* button.
2. How many objects relative to the `World Sales Report` are stored in the platform? Why? You will see four file repository objects:
 - Two published Crystal Reports (in the FRS Input folder)
 - One Crystal Reports Instance (in the FRS Output folder)
 - One shortcut to published Crystal Reports (no file in the FRS folders)



LESSON SUMMARY

You should now be able to:

- Manage File Repository server



Using the Repository Diagnostic Tool

LESSON OVERVIEW

The Repository Diagnostic Tool (RDT) is a command line tool that finds and repairs inconsistencies between the Central Management Server (CMS) system database and the File Repository Server (FRS) filestore, or inconsistencies in the InfoObjects' metadata that is stored in the CMS system database. The RDT can be configured to either scan, diagnose, and repair inconsistencies, or scan, diagnose, and log the inconsistencies for later repair by administrators.



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Use the Repository Diagnostic tool

Terminology

The Repository Diagnostic Tool (RDT)

The Repository Diagnostic Tool (RDT) is a command-line tool that scans, diagnoses, and repairs inconsistencies that may occur between your Central Management Server (CMS) system database and the File Repository Servers (FRS) filestore, or inconsistencies that can occur in the metadata of InfoObjects stored in the CMS database.

Inconsistencies

During normal operations, it is unusual for the CMS system database to have inconsistencies. However, inconsistencies may occur during unexpected events such as disaster recovery, back-up restoration, or network outages. During these events, the CMS system database may be interrupted while performing a task. This interruption can cause inconsistencies with objects in the CMS system database.

The RDT scans for two types of inconsistencies.

1. Object inconsistency

These inconsistencies can occur when an InfoObject in the CMS database does not have the corresponding files, which are missing in the File Repositories. For example, a file that is stored in the FRS may be missing a corresponding object in the CMS system database.

2. File Inconsistency

These inconsistencies can occur when a file that is located in the File Repository does not have the corresponding InfoObject in the CMS database. For example, an InfoObject may reference another InfoObject that does not exist in the CMS database.

The RDT performs two functions, depending on the parameters that you provide when you run the tool:

- It scans the CMS system database and FRS filestore, reports inconsistencies, and outputs a log file in XML format with suggested actions to repair the inconsistencies.
- It scans and repairs the inconsistencies identified in the CMS system database and FRS, and outputs the actions taken to a log file in XML format.

**Note:**

- Do not run the RDT against a live CMS database and FRS. Changes that your users make to the CMS or FRS while the RDT is running can create new inconsistencies in your deployment. Repair actions that the RDT takes while users are accessing your deployment can create further inconsistencies.
- We recommend that you back up your CMS database and FRS filestore, and run the RDT against the backed-up version while your SAP BusinessObjects BI platform services are down.
- The RDT does not require the CMS service to be running. The RDT runs directly against the CMS database.

**To Use the Repository Diagnostic Tool**

1. On a Windows computer, open a command window and run the following command.

```
<INSTALLDIR>\SAP BusinessObjects Enterprise XI
4.0\win64_x64\reposcan.exe <arguments>where <arguments> is the list of
parameters you want to specify.
```

The Repository Diagnostic Tool scans your repository for inconsistencies. Depending on the parameters that you specify, it either diagnoses and logs inconsistencies, or it repairs inconsistencies and logs the action that it takes.

Repo_Scan_yyyy_mm_dd_hh_mm_ss.xml lists the inconsistencies that the tool finds. If you had the tool repair the discrepancies that it finds, it also creates the file Repo_Repair_yyyy_mm_dd_hh_mm_ss.xml.

The path to the log files can be specified by the outputdir parameter. If this parameter is not specified, the default directory for the log files is <INSTALLDIR>\SAP BusinessObjects Enterprise XI 4.0\reposcan.

**Note:**

The application also provides a default XSL file that is used with the XML file to produce an HTML page. The XSL file is stored in <INSTALLDIR>\SAP BusinessObjects Enterprise XI 4.0\reposcan.



Table 16: Repository Diagnostic Tool

Mandatory Parameter	Description
dbdriver	The type of driver used to connect to the CMS database. Accepted values are: <ul style="list-style-type: none"> • db2databasesubsystem • maxdbdatabasesubsystem • mysqldatabasesubsystem • oracledatabasesubsystem • sqlserverdatabasesubsystem • sybasedatabasesubsystem
connect	The connection details that are used to connect to the CMS database. For example <code>-connect "UID=root;PWD=<password>;DSN=<dsn>;HOSTNAME=<hostname>;PORT=<portnumber>"</code>
dbkey	Enter the cluster key for your BI platform deployment.
inputfrsdir	The file path of the Input File Repository Server.
outputfrsdir	The file path of the Output File Repository Server.



Note:

For more optional parameter, refer to <http://help.sap.com/>

How to Run Repository Diagnostic Tool

Demonstrate how Reposcan works on the server.

1. Go to the Command Prompt and change the directory to the location where the Repository Diagnostic Tool is located.
2. Run the *reposcan.exe* .

**Note:**

- Remember to put double quotes around the directory path.
- Leave no spaces between -connect parameters.
- Dbdriver - the name of the database type of your CMS system database.
- The command runs the scan without repairing it.
- Be sure to add the dbkey field
- Use this example:


```
D:\Program Files (x86)\SAP BusinessObjects\SAP
BusinessObjects Enterprise XI 4.0 \win64_x64>\reposcan.exe"
-dbdriver sqlserverdatabasesubsystem -connect
"UID=boadmin;PWD=BOTraining;DSN=BOE4x" -dbkey cms123 -
inputfrsdir "D:\Program Files (x86)\SAP BusinessObjects\SAP
BusinessObjects Enterprise XI 4.0\FileStore\Input" -
outputfrsdir "D:\Program Files (x86)\SAP BusinessObjects\SAP
BusinessObjects Enterprise XI 4.0\FileStore\Output
```

3. Navigate to the .xml file location as indicated by the status of the command line to see the output of the Repository Diagnostic Tool.
4. Create a new Folder within the CMC.
You are now going to create an inconsistency between the CMS system database and the specific file in the Input FRS.
5. Copy the existing Crystal Reports to the new folder.
6. Rename the file on the Input FRS.
7. Run the Repository Diagnostic Tool again to look for inconsistencies.
8. Review the output to check for the inconsistency that has been created as a result of your action.

Inconsistencies Between CMS and FRS

The following table describes the inconsistencies that may between a Central Management Server (CMS) database and the File Repository Servers (FRS) that are recognized by the Repository Diagnostic Tool (RDT).



Table 17: Inconsistencies between the CMS and the FRS

Inconsistency	Recommendation	Action
The object exists in the CMS database, but there is no corresponding file in the FRS.	Allow the application to remove the missing files from the object's file list.	The RDT removes the object from the CMS database.

Inconsistency	Recommendation	Action
The file exists in the FRS, but there is no corresponding file in the CMS database.	Republish the file. The application will not publish this file for you.	When you republish the file, an object is created in the CMS database.
The size of the file does not match the InfoObject file size.	Allow the application to update the object with the correct file size.	The RDT updates the file size in the CMS database.
The FRS folder is empty.	Allow the application to remove the directory.	The RDT removes the empty directory.

Inconsistencies in CMS Metadata

The following table describes the inconsistencies that can occur in the metadata of the objects that are in a Central Management Server (CMS) system database that are recognized by the Repository Diagnostic Tool (RDT).



Table 18: Inconsistencies in the CMS Metadata

Inconsistency	Recommendation	Action
The object has a missing or invalid Parent Object ID.	Allow RDT to move the object to the BO Repair folder.	The RDT moves the object and any child objects to a repair folder. Only the administrator has access to this folder.
The object has a missing or invalid Owner Object ID.	Allow the RDT to assign the object to the Administrator.	The RDT assigns the value of the Administrator's ID to the objects Owner ID.
The object has a missing or invalid Submitter Object ID.	<p>The recommendation that the RDT displays depends on whether you have provided a value for the -submitterid parameter.</p> <ul style="list-style-type: none"> If you provide this parameter, then we recommend that you allow the application to update the object with the provided submitter ID. If you do not provide this parameter, then we recommend that you reschedule the object or submit a user ID to use to replace the invalid submitter ID. 	If you provide a value from the -submitterid parameter, the RDT applies the value for the object's submitter ID. If you don't provide a value for this parameter, the RDT takes no action. When you reschedule the object, the CMS applies a new ID.

Inconsistency	Recommendation	Action
The object's last successful instance is missing or invalid.	Allow the application to recalculate the property.	When you reschedule the object, the CMS automatically recalculates the ID.
The object references a calendar that does not exist.	Reschedule the object with an existing calendar. No action can be taken by this application.	When you reschedule the object, the CMS applies a calendar to the object.
The preferred server does not exist.	Reschedule the object and choose an existing server group. No action can be taken by this application.	When you reschedule the object, the CMS applies a server group to the object.
The event or events that this object is waiting on does not exist.	Allow the application to remove the missing events from the object's list of events to wait for.	The RDT removes the missing events.
This object triggers an event that does not exist.	Allow the application to remove the missing events from the object's list of events to trigger.	The RDT removes the missing events.
Orphaned Access Control entry.	Allow the application to remove the missing principal from the object's Access Control List.	The RDT removes the missing principal.
The preferred server does not exist.	Allow the tool to remove the object's invalid entries from its Server Group list.	The RDT removes the objects missing entries from the object's server group list.
A specific user account has multiple Favorites folders.	Allow the application to consolidate multiple Favorites folders into a single Favorites folder.	The RDT consolidates the user's Favorites folders into a single folder.



Run the Repository Diagnostic Tool

Business Example

As the system administrator, you must periodically scan the report for some potential objects and file inconsistencies on your Business Intelligence 4 platform.

Scanning the Platform for Inconsistencies with the Repository Diagnostic Tool

1. Run the Repository Diagnostic Tool for scanning the File Repository objects on the BI 4 platform.
2. Check the `Diagnostic` file created by the Repository Diagnostic Tool. In the previous exercise on the File Repository Servers, you renamed the file repository object with an `.OLD` extension. Did Reposcan discover this inconsistency? Is it an Inconsistent Object or and Inconsistent File?



Run the Repository Diagnostic Tool

Business Example

As the system administrator, you must periodically scan the report for some potential objects and file inconsistencies on your Business Intelligence 4 platform.

Scanning the Platform for Inconsistencies with the Repository Diagnostic Tool

1. Run the Repository Diagnostic Tool for scanning the File Repository objects on the BI 4 platform.
 - a) Double-click the *CMD* server icon on the desktop.
 - b) Change the current directory to the following: `C:> CD "D:\Program Files (x86)\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\win64_x64`, then change the current directory to the following: `C:> D:`, then check that the following directory is correct in the prompt command windows: `D:\Program Files (x86)\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\win64_x64>`
 - c) In the command prompt window, enter the following command line:

```
reposcan.exe
-dbdriver sqlanywheredatabasesubsystem
-connect "UID=dba;PWD=admin41;DSN=BI4_CMS_DSN"
-dbkey CMSkey
-inputfrsdir "d:\Program Files (x86)\SAP BusinessObjects\SAP
BusinessObjects Enterprise XI 4.0\FileStore\Input"
-outputfrsdir "d:\Program Files (x86)\SAP BusinessObjects\SAP
BusinessObjects Enterprise XI 4.0\FileStore\Output"
```

2. Check the *Diagnostic* file created by the Repository Diagnostic Tool. In the previous exercise on the File Repository Servers, you renamed the file repository object with an *.OLD* extension. Did *Reposcan* discover this inconsistency? Is it an *Inconsistent Object* or and *Inconsistent File*?
 - a) Go to the folder that contains the Repository Scan Report by navigating in Windows Explorer to: `D:\Program Files (x86)\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\reposcan.`



Hint:
The Repository Scan Report is an *.XML* file.

- b) In Windows Explorer, double-click the *Repository Scan Report* file to open the report.

c) Evaluate the scan summary and detailed inconsistencies in the report.

The Repository Diagnostic Tool found two inconsistencies with regard to the renamed file repository object:

- One inconsistent object -- The World Sales Report object references files that do not exist in the File Repository Server (FRS)
- One inconsistent file -- The .OLD file exists in the Input or Output FRS, but there is no corresponding InfoObject in the repository.



LESSON SUMMARY

You should now be able to:

- Use the Repository Diagnostic tool



Learning Assessment

1. Which type of server stores report and program objects that have been published to the system by administrators?

Choose the correct answer.

- A Central Management Server
- B Output File Repository Server
- C Audit File Repository
- D Input File Repository Server

2. An Output FRS stores all of the report instances generated by the Job Server.

Determine whether this statement is true or false.

- True
- False

3. Which two types of inconsistencies does the RDT scan for?

Choose the correct answers.

- A Object to file inconsistencies
- B Object to data server inconsistencies
- C InfoObject to CMS inconsistencies
- D InfoObject metadata inconsistencies

4. Match the inconsistency between the CMS and the FRS with the appropriate action.
Match the item in the first column to the corresponding item in the second column.

The FRS folder is empty.
The file exists in the FRS, but there is no corresponding file in the CMS database.
The object exists in the CMS database, but there is no corresponding file in the FRS.
The size of the file does not match the InfoObject file size.

When you republish the file, an object is created in the CMS database.
The RDT removes the empty directory.
The RDT updates the file size in the CMS database.
The RDT removes the object from the CMS database.



Learning Assessment - Answers

1. Which type of server stores report and program objects that have been published to the system by administrators?

Choose the correct answer.

- A Central Management Server
- B Output File Repository Server
- C Audit File Repository
- D Input File Repository Server

2. An Output FRS stores all of the report instances generated by the Job Server.

Determine whether this statement is true or false.

- True
- False

3. Which two types of inconsistencies does the RDT scan for?

Choose the correct answers.

- A Object to file inconsistencies
- B Object to data server inconsistencies
- C InfoObject to CMS inconsistencies
- D InfoObject metadata inconsistencies

4. Match the inconsistency between the CMS and the FRS with the appropriate action.
Match the item in the first column to the corresponding item in the second column.

The FRS folder is empty.
The file exists in the FRS, but there is no corresponding file in the CMS database.
The object exists in the CMS database, but there is no corresponding file in the FRS.
The size of the file does not match the InfoObject file size.

The RDT removes the empty directory.
When you republish the file, an object is created in the CMS database.
The RDT removes the object from the CMS database.
The RDT updates the file size in the CMS database.

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UNIT OBJECTIVES

- Configure the Adaptive Job server
- Configure the Adaptive Processing server
- Manage Multi-Dimensional Analysis service



Managing the Adaptive Job Server

LESSON OVERVIEW

The Adaptive Job server processes scheduled jobs. Job servers can be configured to process reports, documents, programs, or publications, and send the results to selected destinations. The Adaptive Job server hosts various authentication and scheduling services, which support this processing.



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Configure the Adaptive Job server

Adaptive Job Server Services

The Adaptive Job server is a general server that processes scheduled jobs. When you add a Job server to the SAP BusinessObjects Business Intelligence platform, you can configure the Job server to process reports, documents, programs, or publications and send the results to different destinations.

The following table describes each of the services in the Adaptive Job server.



Table 19: Adaptive Job Servers

Service	Service Category	Service Description
Authentication Update Scheduling Service	Core Services	Provides synchronization of updates for third party security plug-ins.
Crystal Reports 2011 Scheduling Service	Crystal Reports Services	Accepts and processes Crystal Reports 2011 reports. It can share data between reports to reduce the number of database accesses.
Crystal Reports Scheduling Service	Crystal Reports Services	Runs scheduled legacy Crystal Reports jobs and publishes the results to a given output location.

Service	Service Category	Service Description
Destination Delivery Scheduling Service	Core Services	Runs scheduled jobs and publishes the results to a given output location, such as the file system, FTP, e-mail, or a user inbox.
Lifecycle Management Scheduling Service	Lifecycle Management Services	Runs scheduled Lifecycle Management jobs.
Platform Search Scheduling Service	Core Services	Runs scheduled search to index all content in the Central Management Server (CMS) repository.
Probe Scheduling Service	Core Services	Provides scheduled Probe jobs and publishes the results to a given output location.
Program Scheduling Service	Core Services	Runs programs that have been scheduled to run at a given time.
Publication Scheduling Service	Core Services	Runs scheduled publishing jobs and publishes the results to a given output location.
Replication Service	Core Services	Runs scheduled federation jobs to replicate content between federated sites.
Security Query Scheduling Service	Core Services	Runs scheduled Security Query jobs.
Visual Difference Scheduling Service	Lifecycle Management Services	Runs scheduled Visual Difference (Lifecycle Management) jobs and publishes the results to a given output location.
Web Intelligence Scheduling Service	Web Intelligence Service	Enables support for scheduled Web Intelligence jobs.

Scheduled Program Running



The Program Scheduling Service now runs on the Adaptive Job server. In the previous version, it was a separate server called the Program Job server.

The following steps explain the interaction of platform components when a scheduled program object is run.

1. The Central Management Server (CMS) checks the CMS system database to determine if there is any scheduled programs to be run at that time.
2. When the scheduled job time arrives, the CMS locates an available Program Scheduling Service running on an Adaptive Job server. The CMS sends the job information to the Program Scheduling Service.
3. The Program Scheduling Service communicates with the Input File Repository Server (FRS) to obtain the program object. Note: this step also requires communication (not shown in this diagram) with the Central Management Server (CMS) and the CMS system database to locate the required server and objects.
4. The Program Scheduling Service launches the program.
5. The Program Scheduling Service updates the CMS periodically with the job status. At this time, the status shows that it is processing.
6. The Program Scheduling Service sends a log file to the Output File Repository Server. The Output File Repository Server notifies the Program Scheduling Service that the object was scheduled successfully by sending an object log file. Note: this step also requires communication (not shown in this diagram) with the Central Management Server (CMS) and the CMS system database to locate the required server and objects.
7. The Program Scheduling Service updates the CMS with the job status. At this time, the status is reported as a success.
8. The Central Management Server (CMS) updates the job status in its memory, and then writes the object instance information to the CMS system database.

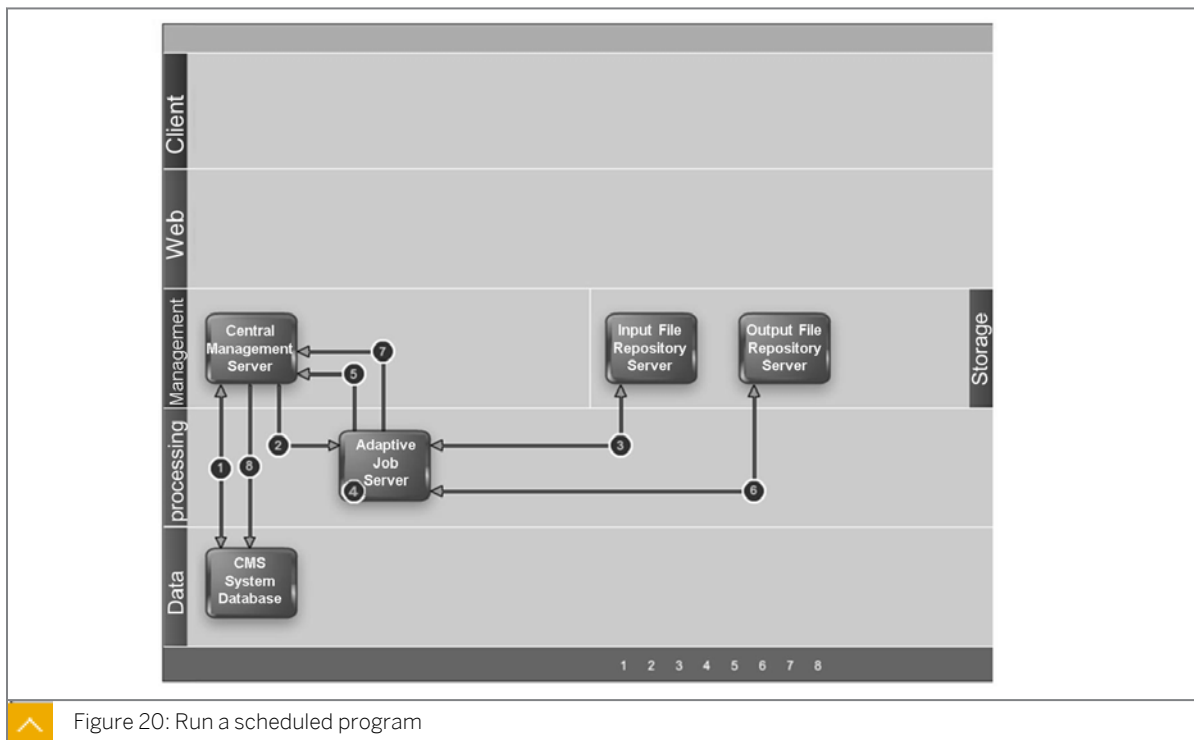


Figure 20: Run a scheduled program

Adaptive Job Server Properties



Table 20: General Properties

Property	Description	Default Value
Temporary Directory	Specifies the directory where temporary files are created on when necessary. You may encounter performance issues if this directory does not have adequate disk space. For better performance, ensure that this directory is located on a local disk.	%DefaultDataDir%



Note:
You must restart the server for changes to take effect.

The Adaptive Job server can host a number of different services. Each service has the following properties:



Table 21: Service Properties

Property	Description	Default Value
Maximum Concurrent Jobs	Specifies the number of concurrent independent processes (child processes) that the server allows. You can adjust the maximum number of jobs to suit your reporting environment. The default setting is acceptable for most reporting scenarios. The ideal setting for your reporting environment depends on your hardware configuration, database software, and reporting requirements.	The default value is 5.
Maximum Child Requests	Specifies the number of jobs the child will process before restarting.	The value is 100.



Manage the Adaptive Job Server

Business Example

As the system administrator, you need to set a default destination for all the scheduling jobs.

Configure the Adaptive Job Server

Configure the Adaptive Job Server to schedule documents to your file system.



Note:

This task needs to be performed on the server side where administrative access to the file system is required. Remote desktop to the server to perform this task.

1. Create a new folder at the root directory of your file system and name it **Train## Folder**.
2. Launch the Central Management Console (CMC) and log on with the following details:

Field Name	Value
System	<hostname>:6400
User name	Administrator
Password	<assigned password>
Authentication	Enterprise

3. In the CMC, navigate to the Adaptive Job server and configure its destination property.
4. Set the destination directory to the new folder you created.

Schedule a Web Intelligence Document to Run Now

1. Log on to SAP BusinessObjects BI Launchpad with the following information.

Field Name	Value
System	<hostname>:6400
User name	administrator
Password	<Assigned password>

2. Schedule the *Charting Samples* document to run.
3. Set the format to PDF and specify the destination to use the Adaptive Job Server's default location.

Schedule a Crystal Report to Run Now

1. Log on to SAP BusinessObjects BI Launchpad with the following information.

Field Name	Value
System	<hostname>:6400
User name	administrator
Password	<Assigned password>

2. Schedule the *customer list report* to run.
3. Set the format to PDF and specify the destination to use the default location of the Adaptive Job Server.

Check the Scheduled Jobs

Check in your directory to ensure that the two jobs are completed.

1. Wait a few minutes and then verify that the documents appear in the File System destination.

The Adaptive Job Server has completed the jobs and sent the files to your specified folder in the file system.



Manage the Adaptive Job Server

Business Example

As the system administrator, you need to set a default destination for all the scheduling jobs.

Configure the Adaptive Job Server

Configure the Adaptive Job Server to schedule documents to your file system.



Note:

This task needs to be performed on the server side where administrative access to the file system is required. Remote desktop to the server to perform this task.

1. Create a new folder at the root directory of your file system and name it **Train## Folder** .
 - a) Navigate to the D: drive of the file system.
 - b) At the root level of D: drive, create a folder and name it **Train## Folder** .
2. Launch the Central Management Console (CMC) and log on with the following details:

Field Name	Value
System	<hostname>:6400
User name	Administrator
Password	<assigned password>
Authentication	Enterprise

- a) Click *Start* → *Programs* → *SAP BusinessObjects BI platform 4* → *SAP BusinessObjects BI platform* → *SAP BusinessObjects BI platform Central Management Console* .
 - b) Log on with your username and password.
3. In the CMC, navigate to the Adaptive Job server and configure its destination property.
 - a) In the CMC *Home* page, click the *Servers* option.
 - b) Click the *Servers List* option.
 - c) Right-click the *Adaptive Job Server* and select the *Destination* menu option.
 4. Set the destination directory to the new folder you created.
 - a) In the *Destination* selection box, select *File System* and click *Add* .

- b) In the *Directory* field, enter the path to the folder you created earlier, for example **D: / Train## Folder** .



Hint:

Type the absolute path to the directory including the correct slashes before the UNC (example: \\servername\train02). The directory can be on a local drive on which the Adaptive Job server runs, or on a UNC path that points to any other locations.

- c) Select the *Use Specific Name* option.
- d) Use the *Add placeholder* selection box to add *Title* to your file name.
- e) Select the *Add File Extension* option.
- f) Click the *Save & Close* button.

Schedule a Web Intelligence Document to Run Now

1. Log on to SAP BusinessObjects BI Launchpad with the following information.

Field Name	Value
System	<hostname>:6400
User name	administrator
Password	<Assigned password>

- a) Click *Start* → *Programs* → *SAP BusinessObjects BI platform 4* → *SAP BusinessObjects BI platform* → *SAP BusinessObjects BI platform Java BI Launch Pad* .
- b) Log on with your username and password.
2. Schedule the *Charting Samples* document to run.
- a) Click the *Documents* tab.
- b) Click the *Folders* option.
- c) Navigate to *All Folders* → *Web Intelligence Samples* .
- d) Right-click *Charting Samples* and select the *Schedule* menu option.
3. Set the format to PDF and specify the destination to use the Adaptive Job Server's default location.
- a) Click the *Formats* tab, select *Adobe Acrobat* in *Format Options for Selected Document* .
- b) Click the *Destinations* tab, select *File System* in the *Destination* selection box.
- c) Ensure that the *Use defaults settings* checkbox is selected.
- d) Click the *Schedule* button.
The *History* page appears. Refresh the page to check if the job ran successfully.

Schedule a Crystal Report to Run Now

1. Log on to SAP BusinessObjects BI Launchpad with the following information.

Field Name	Value
System	<hostname>:6400
User name	administrator
Password	<Assigned password>

- a) Click *Start* → *Programs* → *SAP BusinessObjects BI platform 4* → *SAP BusinessObjects BI platform* → *SAP BusinessObjects BI platform Java BI Launch Pad* .
 - b) Log on with your username and password.
2. Schedule the *customer list report* to run.
 - a) Click the *Documents* tab.
 - b) Click the *Folders* option.
 - c) Navigate to *All Folders* → *Report Samples* → *Demonstration* .
 - d) Right-click *customer list report* and select the *Schedule* menu option.
 3. Set the format to PDF and specify the destination to use the default location of the Adaptive Job Server.
 - a) Click the *Formats* tab, and select *PDF* in the *Format Options for Selected Document* menu.
 - b) Click the *Destinations* tab, and select *File System* in the *Destination* selection box.
 - c) Ensure that the *Use defaults settings* checkbox is selected.
 - d) Click the *Schedule* button.
The *History* page appears. Refresh the page to check if the job ran successfully.

Check the Scheduled Jobs

Check in your directory to ensure that the two jobs are completed.

1. Wait a few minutes and then verify that the documents appear in the File System destination.
 - a) Navigate to the folder you created earlier in the file system.
 - b) There should be two files in your folder, one for the Crystal Rreport and one for the Web Intelligence document. The formats should be PDF.

The Adaptive Job Server has completed the jobs and sent the files to your specified folder in the file system.



LESSON SUMMARY

You should now be able to:

- Configure the Adaptive Job server



Managing the Adaptive Processing Server

LESSON OVERVIEW

The Adaptive Processing server hosts services that process requests from various sources. These services include, but are not limited to, core services, Web Intelligence services, connectivity services, and Lifecycle Management services. The server provides Administrators easy access to management and configuration option through the Metrics and Properties screens.



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Configure the Adaptive Processing server
- Manage Multi-Dimensional Analysis service

Adaptive Processing Server Role

Adaptive Processing server is a generic server that hosts services responsible for processing requests from various sources.

The following table lists all the services that are hosted by the Adaptive Processing server.



Table 22: Adaptive Processing Server Services

Service	Service category	Service description
Adaptive Connectivity Service	Connectivity Services	Provides connectivity services (replaces Connection Server).
BEx Web Application Service	Analysis Services	Provides integration of SAP Business Warehouse (BW) Business Explorer (BEx) Web applications with BI launch pad.
Client Auditing Proxy Service	Core Services	Collects auditing events sent from clients and forwards them to the CMS server.
Custom Data Access Service	Connectivity Services	Provides dynamic connections to data sources that do not require a Connection server.
Data Federation Service	Data Federation Services	Data Federation service.
Document Recovery Service	Web Intelligence Services	Web Intelligence document auto-save and recovery.

Service	Service category	Service description
DSL Bridge Service	Web Intelligence Services	Dual Semantic Layer (DSL) session support.
Excel Data Access Service	Connectivity Services	Supports Excel files uploaded to SAP BusinessObjects BI platform as data sources.
Web Intelligence Monitoring Service	Web Intelligence Services	Monitors Web Intelligence servers.
Lifecycle Management ClearCase Service	LifecycleManagement Services	Provides ClearCase support for LCM.
Lifecycle Management Service	LifecycleManagement Services	Lifecycle Management Core service.
Monitoring Service	Core Services	Provides monitoring functions.
Multi Dimensional Analysis Service	Analysis Services	Provides access to multi-dimensional Online Analytical Processing (OLAP) data; converts the raw data into XML, which can be rendered into Excel, PDF, or Analysis (formerly Voyager) crosstabs and charts.
Platform Search Service	Core Services	Provides searching functionality for the platform.
Publishing Post Processing Service	Core Services	Performs actions on reports after they have completed, such as sending a report to a specific output location.
Publishing Service	Core Services	Coordinates with the Publishing Post Processing Service and Destination Job Service to publish reports to a given output location, such as the file system, FTP, e-mail, or a user's inbox.
Rebean Service	Web Intelligence Services	SDK used by Web Intelligence and Explorer
Security Token Service	Core Services	SAP Single Sign-On support
Translation Service	Core Services	Translates InfoObjects with input from the Translation Manager client.
Visual Difference Service	LifecycleManagement Services	Determines whether documents are visually identical for document promotion and Lifecycle Management.
Visualization Service	Web Intelligence Services	Common Visualization Object Model Service, used by Web Intelligence.

Adaptive Processing Server Properties



Table 23: General Properties

Property	Description	Default Value
Service Startup Timeout (seconds)	<p>Specifies the amount of time, in seconds, that the server will wait for services to start. If a service fails to start within the time specified, there are two possible reasons:</p> <ul style="list-style-type: none"> • The service failed, for example, because a required resource such as a database could not be found, or the service encountered a port conflict. • The service could not start within the specified time, for example, because the system is too slow. <p>To find the reason, check the server log file. If the service could not start within the time specified, consider increasing this value.</p>	The default value is 1200 seconds.

Adaptive Processing Server Metrics

The following table describes the server metrics that appear on the *Metrics* screen for Adaptive Processing servers.



Table 24: Adaptive Processing Server Metrics

Metric	Description
Threads in Transport Layer	The total number of threads in all thread pools of the transport layer.
Transport Layer Thread Pool Size	The total number of shared transport layer threads. These threads can be used by any of the hosted services on the Adaptive Processing server.
Available Processors	The number of processors that are available to the Java Virtual Machine (JVM) on which the server is running.
Maximum Memory (MB)	The maximum amount of memory, in megabytes, that the Java virtual machine will attempt to use.
Free Memory (MB)	The amount of memory, in megabytes, that is available to the JVM for allocating new objects.
Total Memory (MB)	The total amount of memory, in megabytes, in the Java virtual machine. This value may vary over time, depending on the host environment.

Metric	Description
CPU Usage Percentage (last 5 minutes)	The percentage of total CPU time used by the server during the previous five minutes. For example, if a single thread fully utilizes one CPU of a four-CPU system, the utilization is 25%. All processors allocated to the JVM are considered. A value of greater than 80% may indicate a CPU bottleneck.
CPU Usage Percentage (last 15 minutes)	The percentage of total CPU time used by the server during the previous 15 minutes. For example, if a single thread fully utilizes one CPU of a four-CPU system, the utilization is 25%. All processors allocated to the JVM are considered. A value of greater than 70% may indicate a bottleneck.
Percentage of Stopped System During GC (last 5 minutes)	Percentages of stopped system while Garbage Collections (GC) were running during the last five minutes. In this state all APS services are prevented from executing while the virtual machine performs a critical stage of garbage collection that requires exclusive access. Generally, a low, single-digit value should be the normal behavior, even under load. A double-digit value over time might indicate an issue of low throughput and should be investigated.



Manage the Adaptive Processing Server

Business Example

As the system administrator, you must properly configure client auditing by enabling and disabling the Client Auditing Proxy Service (CAPS) located inside the Adaptive Processing Server. In addition, for high availability and load balancing purposes, you want to have 2 Adaptive Processing Servers with CAPS services.

Use the Client Auditing Proxy Service

To enable client auditing (events sent by clients) you must have a least one Adaptive Processing Server with the Client Auditing Proxy Service (CAPS) running. Ensure this service is turned on in the CMC.

1. Launch the CMC and log on with the following details:

Field Name	Value
System	<hostname>:6400
User name	Administrator
Password	<assigned password>
Authentication	Enterprise

2. Navigate to the Adaptive Processing Server.
3. Look up the Client Auditing Proxy Service Metrics.
4. Stop the Adaptive Processing Server.
5. Navigate to the auditing dashboard.
6. Start the Adaptive Processing Server.
7. Look up the Client Auditing Proxy Service Metrics.

Add Another Adaptive Processing Server with Client Auditing Proxy Service

Create another Adaptive Processing Server dedicated only to the Client Auditing Proxy Service. This will significantly improve performance and high availability.

1. In the CMC, navigate to the Servers Management page.
2. In the *Servers List* area, add a new server.
3. Specify the properties and service type for this new server.
4. Enable and start the new Adaptive Processing Server.

A second Adaptive Processing Server is running for high availability.

Create a New Adaptive Processing Server to Manage Transient Universes

Create a new Adaptive Processing server that is dedicated to the management of transient universes for SAP BW Query.

1. In the CMC, navigate to the Server Management page.
2. In the Servers List area, add a new server.
3. Specify the properties and service type for this new server.
4. Configure the JAVA Max Memory Consumption parameter (Xmx) in the properties of this new server.

Create a New Adaptive Processing Server to Manage Multiple Sources

Create a new Adaptive Processing server that is dedicated to manage multiple sources with a BI 4 platform relational universe.

1. In the Central Management Console (CMC), navigate to the Servers Management page.
2. In the Servers List area of the screen, add a new server.
3. Specify the properties and service type for this new server.
4. Configure the JAVA Max Memory Consumption parameter (Xmx) in the properties of this new server.

Create a New Adaptive Processing Server for OLAP Data Sources

Create a New Adaptive Processing server that is dedicated to the management of pure OLAP data sources, such as Microsoft Analysis Services.

1. In the Central Management Console (CMC), navigate to the Server Management page.
2. In the Servers List area, add a new server.
3. Specify the properties and service type for this new server.
4. Configure the JAVA Max Memory Consumption parameter (Xmx) in the properties of this new server.

Create a New Adaptive Processing Server to Manage BIAL Scripting

Create a new Adaptive Processing server that is dedicated to the management of BIAL Scripting for Design Studio Analysis Application and Workbook for Analysis Office (SAP BW only).

1. In the Central Management Console (CMC), click the *Servers* option.
2. In the Servers List area, create a new server.
3. Specify the properties and service type for this new server.
4. Configure the JAVA Max Memory Consumption parameter (Xmx) in the new server properties.



Manage the Adaptive Processing Server

Business Example

As the system administrator, you must properly configure client auditing by enabling and disabling the Client Auditing Proxy Service (CAPS) located inside the Adaptive Processing Server. In addition, for high availability and load balancing purposes, you want to have 2 Adaptive Processing Servers with CAPS services.

Use the Client Auditing Proxy Service

To enable client auditing (events sent by clients) you must have a least one Adaptive Processing Server with the Client Auditing Proxy Service (CAPS) running. Ensure this service is turned on in the CMC.

1. Launch the CMC and log on with the following details:

Field Name	Value
System	<hostname>:6400
User name	Administrator
Password	<assigned password>
Authentication	Enterprise

- a) Click *Start* → *Programs* → *SAP BusinessObjects BI platform 4* → *SAP BusinessObjects BI platform* → *SAP BusinessObjects BI platform Central Management Console* .
 - b) Log on with your username and password.
2. Navigate to the Adaptive Processing Server.
 - a) Click *Servers* .
 - b) Navigate to *Service Category* → *Core Services* .



Hint:

Alternately, you can find the Adaptive Processing Server from the *Server List* .

- c) Right-click the Adaptive Processing Server and click *Properties* .
3. Look up the Client Auditing Proxy Service Metrics.
 - a) Right-click the Adaptive Processing Server and select *Metrics* .

- b) Navigate to the *Client Auditing Proxy Service Metrics* section.



Note:

There should be a metric labeled *Number of Audit Events Received Since Server Startup* . It shows how many client events were routed through this *Client Auditing Proxy Service* . On a busy system and on a long running server this number would not be 0.

- c) Write down the value of the metric.
4. Stop the Adaptive Processing Server.
- a) In the *CMC Home* page, click *Servers* .
 - b) Click *Servers List* .
 - c) Right-click the Adaptive Processing Server and select *Stop Server* .
Wait for a few seconds. A *Stale* flag appears.



Hint:

Refresh the window if needed using the *Refresh* button.

5. Navigate to the auditing dashboard.
- a) In the *CMC Home* page, click *Auditing* .
A warning message appears indicating client auditing is unavailable.



Note:

Warning: Client auditing is unavailable. This indicates that events from client tools (for example, BI launch pad, CMC, Web Intelligence Rich Client, and Crystal Reports) cannot be received and will be lost.

6. Start the Adaptive Processing Server.
- a) In the *CMC Home* page, click *Servers* .
 - b) Click *Servers List* .
 - c) Right-click the Adaptive Processing Server and select *Start Server* .
Wait for a few seconds. The *Stale* flag disappears and the state becomes running.
7. Look up the Client Auditing Proxy Service Metrics.
- a) Right click the Adaptive Processing Server and select *Metrics* .
 - b) Navigate to the *Client Auditing Proxy Service Metrics* section.

There is a new metric for *Number of Audit Events Received Since Server Startup* . This metric should be different from your previous value because you have just restarted this service.



Note:

In a typical environment, the new metric for *Number of Audit Events Received Since Server Startup* would be different from the previous value because you just restarted this service. However, in the training environment, the value is typically zero at the start of the exercise, so there is no change in value.

Add Another Adaptive Processing Server with Client Auditing Proxy Service

Create another Adaptive Processing Server dedicated only to the Client Auditing Proxy Service. This will significantly improve performance and high availability.

1. In the CMC, navigate to the Servers Management page.
 - a) In the *CMC Home* page, click *Servers* .
2. In the *Servers List* area, add a new server.
 - a) Click *Server List* .
 - b) Click *Manage* → *New* → *New Server* .
3. Specify the properties and service type for this new server.
 - a) In the *Service Category* selection box, choose the *Core Services* option.
 - b) In the *Select Service* selection box, choose the *Client Auditing Proxy Service* option.
 - c) Click *Next* .
A window appears to allow you to select additional services for this server.
 - d) Click *Next* .
 - e) Leave the *Node* field and *Server Name* field as default. Enter a brief description for this server.
 - f) Click *Create* .
4. Enable and start the new Adaptive Processing Server.
 - a) In the *Servers* page, right-click your new Adaptive Processing Server and select *Enable Server* .
 - b) Right-click your new Adaptive Processing Server and select *Start Server* .
Wait for a few seconds. The state becomes running and enabled.

A second Adaptive Processing Server is running for high availability.

Create a New Adaptive Processing Server to Manage Transient Universes

Create a new Adaptive Processing server that is dedicated to the management of transient universes for SAP BW Query.

1. In the CMC, navigate to the Server Management page.
 - a) In the CMC, click the *Servers* option.

2. In the Servers List area, add a new server.
 - a) Click the *Server List* option.
 - b) Click the *Manage --> New --> New Server* options from the menus.
3. Specify the properties and service type for this new server.
 - a) In the *Service Category* selection box, choose the *Web Intelligence Services* option.
 - b) In the *Select Service* selection box, select the *DSL Bridge Service* option.
 - c) Click the *Next* button. A window appears that allows you to select additional services for this server.
 - d) Click the *Next* button.
 - e) Leave the *Node* field as the default.
 - f) Enter the following for the *Server Name*:
WDFLBMT50xx.AdaptiveProcessingServerforSAPQueryBW
 - g) Click the *Create* button.

**Note:**

You will see the new Adaptive Processing server in the Web Intelligence services. It is recommended to create such a server when you have platform content (Web Intelligence documents, Crystal Reports Enterprise, Dashboards) that will have direct access to an SAP BW Query (BI 4 platform Transient Universes).

**Caution:**

Do not start the server.

4. Configure the *JAVA Max Memory Consumption* parameter (Xmx) in the properties of this new server.
 - a) In the *Properties* window of the new server, keep the Xmx parameter as the default value in the *Parameters* command line (-Xmx2g, by default).

**Caution:**

Do not start the server.

Create a New Adaptive Processing Server to Manage Multiple Sources

Create a new Adaptive Processing server that is dedicated to manage multiple sources with a BI 4 platform relational universe.

1. In the Central Management Console (CMC), navigate to the Servers Management page.

- a) In the CMC *Home* page, click the *Servers* option. The *Servers Management* page screen appears.
2. In the *Servers List* area of the screen, add a new server.
 - a) Click the *Server List* option.
 - b) Click the *Manage --> New --> New Server* menu options.
3. Specify the properties and service type for this new server.
 - a) In the *Service Category* selection box, choose the *Data Federation Services* option.
 - b) In the *Select Service* selection box, choose the *Data Federation Service* option.
 - c) Click the *Next* button. A window appears that allows you to select additional services for this server.
 - d) Click the *Next* button.
 - e) Leave the *Node* field as the default. Enter the following in the *Server Name* field:
WDFLBMT50xx.AdaptiveProcessingServerforMultiSourceUniverse
 - f) Click the *Create* button.

**Note:**

You will see the new Adaptive Processing server in the Data Federation services. It is recommended to create such a server when you have BI 4 platform content (Web Intelligence documents, Crystal Reports Enterprise, Dashboards) that will have access to several data sources by using a platform relational multisource universe (.UNX).

**Caution:**

Do not start the server.

4. Configure the JAVA Max Memory Consumption parameter (Xmx) in the properties of this new server.
 - a) In the server properties window, change the Xmx parameter to 1Gb in the Parameters command line. (It is set to -Xmx2g by default.)

**Caution:**

Do not start the server.

Create a New Adaptive Processing Server for OLAP Data Sources

Create a New Adaptive Processing server that is dedicated to the management of pure OLAP data sources, such as Microsoft Analysis Services.

1. In the Central Management Console (CMC), navigate to the Server Management page.

- a) In the CMC *Home* page, click the *Servers* option.
2. In the Servers List area, add a new server.
 - a) Click the *Servers List* option.
 - b) Click the *Manage --> New--> New Server* option on the menus.
3. Specify the properties and service type for this new server.
 - a) In the *Service Category* selection box, choose the *Analysis Services* option.
 - b) In the *Select Service* selection box, choose the *Multi Dimensional Analysis Service* option.
 - c) Click the *Next* button. A window appears that allows you to select additional services for this server.
 - d) Click the *Next* button.
 - e) Leave the *Node* field as default. Enter the following name in the *Server Name* field:
WDFLBM50xx.AdaptiveProcessingServerforOLAP .
 - f) Click the *Create* button.

**Note:**

You will see this new Adaptive Processing server in the Analysis Services. It is recommended to create this kind of server when you have BI 4 platform content (such as Analysis OLAP) that will have access to a single OLAP data source.

**Caution:**

Do not start the server.

4. Configure the JAVA Max Memory Consumption parameter (Xmx) in the properties of this new server.
 - a) In the *Properties* window of this new server, change the Xmx parameter in the *Parameters* command line to 1 Gb. It is set to -Xmx2g by default.

**Caution:**

Do not start the server.

Create a New Adaptive Processing Server to Manage BIAL Scripting

Create a new Adaptive Processing server that is dedicated to the management of BIAL Scripting for Design Studio Analysis Application and Workbook for Analysis Office (SAP BW only).

1. In the Central Management Console (CMC), click the *Servers* option.
 - a) In the CMC *Home* page, click the *Servers* option.
2. In the Servers List area, create a new server.

- a) Click the *Server List* option.
- b) Click the *Manage --> New --> New Server* menu options.
3. Specify the properties and service type for this new server.
 - a) In the *Service Category* selection box, choose the *Analysis Services* option.
 - b) In the *Select Service* selection box, choose the *Analysis Application Service* option.
 - c) Click the *Next* button. A window appears that allows you to select additional services for the server.
 - d) Click the *Next* button.
 - e) Keep the *Node* field as default. Enter the following in the *Server Name* field:
WDFLBMT50xx.AdaptiveProcessingServerforSAPBWAnalysis .
 - f) Click the *Create* button.

**Note:**

You will see the new Adaptive Processing server in the Analysis Services. It is recommended to create such a server when you have BI 4 platform content (such as Analysis Office or Design Studio) that has direct access to the SAP BW Query.

**Caution:**

Do not start the server.

4. Configure the JAVA Max Memory Consumption parameter (Xmx) in the new server properties.
 - a) In the new server *Properties* window, change the Xmx parameter in the *Parameters* command line to 1 Gb. It is set to -Xmx2g by default.

**Caution:**

Do not start the server.

Analysis Viewing

The following steps explain the interaction of platform components when you view an Analysis.

1. The user accesses BusinessObjects Analysis edition for OLAP via the BI Launchpad. The Multi-Dimensional Analysis Service (MDAS) now runs on the Adaptive Processing Server. In the previous version, it ran as its own separate server (Multi-Dimensional Analysis Server).
2. The Web application server recognizes the request as a request to view an Analysis workspace. The Web application server checks the Central Management Server (CMS) to ensure that the user has sufficient rights to view the workspace.
3. The CMS checks the CMS system database to determine if the user has the appropriate rights to view the workspace.
4. The CMS sends a response to the Web application server to confirm that the user has sufficient rights to view the workspace. At the same time, the CMS also sends a list of one or more available Multi-Dimensional Analysis Services.
5. The Web application server picks a Multi-Dimensional Analysis Service (MDAS) from the list of available choices and sends a CORBA request to the MDAS to find the appropriate Online Analytical Processing (OLAP) servers to refresh an existing workspace.



Note:
The MDAS is a service that runs on an Adaptive Processing Server.

6. The Multi-Dimensional Analysis Service (MDAS) communicates with the Input File Repository Server (FRS) to retrieve the appropriate workspace document that has information about the underlying OLAP data source and an initial OLAP query saved with it. The Input FRS retrieves the appropriate Information Analyzer workspace (.amw) from the underlying directory and streams that workspace back to the MDAS.



Note:
This step also requires communication (not shown in this diagram) with the Central Management Server (CMS) and the CMS system database to locate the required server and objects.

7. The Multi-Dimensional Analysis Service (MDAS) opens the workspace, formulates a query, and sends it to the OLAP database server. The MDAS has to have an appropriate OLAP database client configured for the OLAP data source so that the Web client query is translated into the appropriate OLAP query. The OLAP database server sends the query result back to the MDAS.
8. The Multi-Dimensional Analysis Service (MDAS) pre-renders the result to enable the Web application server to finish the rendering more quickly. The MDAS sends XML packages of the rendered result back to the Web application server.

9. The Web application server renders the workspace and sends the formatted page or portion of the page through the Web server to the Web client. The Web client displays the updated or newly requested page.

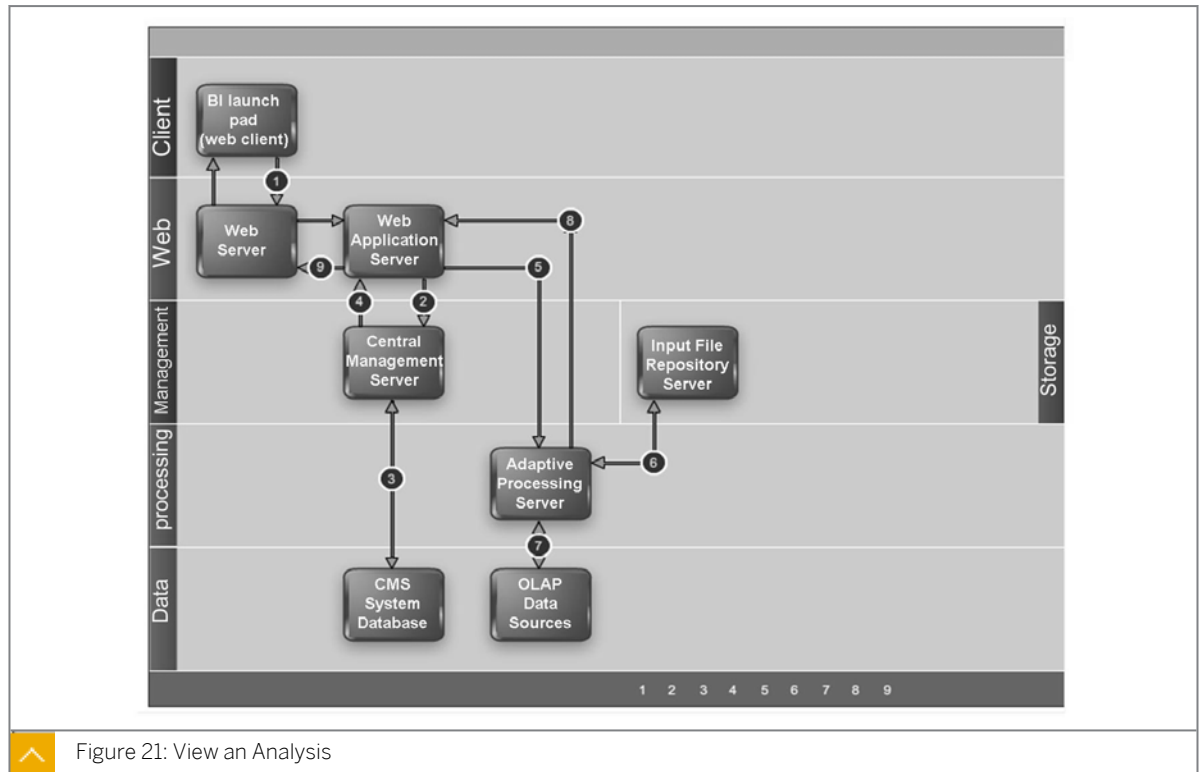


Figure 21: View an Analysis



LESSON SUMMARY

You should now be able to:

- Configure the Adaptive Processing server
- Manage Multi-Dimensional Analysis service



Learning Assessment

1. What is the function of the Adaptive Job server?

2. The Probe Scheduling service is on the Adaptive Job server.

Determine whether this statement is true or false.

True

False

3. Select the services that are hosted on the Adaptive Processing server.

Choose the correct answers.

A Server Security Service

B Platform Search Service

C Excel Data Access Service

D Business Intelligence Reporting Service

E Visualization Service

4. What is the purpose (function) of the Adaptive Processing server?

5. What server hosts the Multi-Dimensional Analysis Service (MDAS)?



Learning Assessment - Answers

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1. What is the function of the Adaptive Job server?

The Adaptive Job server processes scheduled jobs (such as reports, documents, programs, or publications) and send the results to different destinations.

2. The Probe Scheduling service is on the Adaptive Job server.

Determine whether this statement is true or false.

True

False

3. Select the services that are hosted on the Adaptive Processing server.

Choose the correct answers.

A Server Security Service

B Platform Search Service

C Excel Data Access Service

D Business Intelligence Reporting Service

E Visualization Service

4. What is the purpose (function) of the Adaptive Processing server?

The Adaptive Processing server is a generic server that hosts services responsible for processing requests from various sources.

5. What server hosts the Multi-Dimensional Analysis Service (MDAS)?

The Adaptive Processing server hosts the MDAS.

UNIT 8

Crystal Reports Servers

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UNIT OBJECTIVES

- Demonstrate how information flows in Crystal Reports
- Configure Crystal Reports servers
- Manage Crystal Reports servers



Demonstrating Information Flows in Crystal Reports

LESSON OVERVIEW

Crystal Reports servers host several services that run under a Server Intelligence Agent (SIA). The type of server a Crystal Reports server is, depends on which services are running within it. The services also dictate and coordinate the flow of information on Crystal Reports servers. The services coordination of information flow and information sharing helps the platform servers and databases to run efficiently.



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Demonstrate how information flows in Crystal Reports

Crystal Reports Services

The following table describes each of the Crystal Reports services.



Table 25: Crystal Reports Services

Service	Server type	Service Description
Crystal Reports 2011 Processing Service	Crystal Reports Processing Server	Accepts and processes Crystal Reports 2011 reports. It can share data between reports to reduce the number of database accesses.
Crystal Reports 2011 Scheduling Service	Adaptive Job Server	Runs scheduled legacy Crystal Reports jobs and publishes the results to a given output location.
Crystal Reports 2011 Viewing and Modification Service	Report Application Server	Report Application Server
Crystal Reports Cache Service	Crystal Reports Cache Server	Limits the number of database accesses generated from Crystal reports and increases the speed of reporting by managing a cache of reports.

Service	Server type	Service Description
Crystal Reports Processing Service	Crystal Reports Processing Server	Accepts and processes Crystal reports. It can share data between reports to reduce the number of database accesses.
Crystal Reports Scheduling Service	Adaptive Job Server	Runs scheduled new Crystal Reports jobs and publishes the results to a given output location.

Crystal Reports Servers

Servers are collections of services running under a Server Intelligence Agent (SIA) on a host. The type of server is denoted by the services running within it. Servers can be created in the Central Management Console (CMC). The following table lists the different types of servers that can be created in the CMC.



Table 26: Servers

Server kind	Service	Description
Adaptive Job Server	Crystal Reports 2011 Scheduling Service Crystal Reports Scheduling Service	General server that processes scheduled jobs. When you add a Job server to the SAP BusinessObjects Business Intelligence Platform, you can configure the Job server to process reports, documents, programs, or publications and send the results to different destinations.
Crystal Reports Cache Server	Crystal Reports Cache Service	Intercepts report requests sent from clients to the page server. If the cache server cannot fulfill the request with a cached report page, it passes the request on to the Crystal Reports Processing server, which runs the report and returns the results. The cache server then caches the report page for potential future use.

Server kind	Service	Description
Crystal Reports Processing Server	Crystal Reports 2011 Processing Service Crystal Reports Processing Service	Responds to page requests by processing reports and generating encapsulated page format (EPF) pages. The key benefit of EPF is that it supports page-on-demand access, so only the requested page is returned, not the entire report. This improves system performance and reduces unnecessary network traffic for large reports.
Report Application Server	Crystal Reports 2011 Viewing and Modification Service	Provides ad-hoc reporting capabilities that allow users to create and modify Crystal reports via the SAP Crystal Reports Server Embedded Software Development Kit (SDK).



Note:

An Encapsulated Page Format (.epf) file contains all the necessary formatting information to display a complete page of the report.

An Encapsulated Tree Format (.etf) file stores the group tree information for a report. A group tree appears on the left-side panel of the report viewer window when a report is viewed.



LESSON SUMMARY

You should now be able to:

- Demonstrate how information flows in Crystal Reports



Configuring Crystal Reports

LESSON OVERVIEW

The Crystal Reports servers are accessed through the Service Categories container on the CMC. Each server's right-click menu options provide administrators with entry to the server metric information and properties. Crystal Reports servers are easily configured through these individual Properties screens.



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Configure Crystal Reports servers

Crystal Reports Services Properties



Note:

Any properties that apply to both Crystal Reports Cache servers and Crystal Reports Processing servers should be set to the same value. For example, if you set the Viewer Refresh Always Yields Current Data setting to TRUE on the Cache server, you should set the same property to TRUE on the Processing server.

The Crystal Reports service category includes the following servers:

- Crystal Reports Cache server
- Crystal Reports Processing server
- Crystal Reports 2013 Report Application server properties
- Crystal Reports 2013 Processing server



Table 27: Crystal Reports Cache Service Properties

Property	Description
Viewer Refresh Always Yields Current Data	Specifies whether or not all cached pages are ignored and new data is retrieved directly from the database when users explicitly refresh a report.
Share Report Data Between Clients	Specifies whether report data is shared between different clients.

Property	Description
Idle Connection Timeout (minutes)	Specifies the amount of time, in minutes, that the Crystal Reports Cache server waits for a request from an idle connection. There is generally no need to modify the default value.
Security Cache Timeout (minutes)	Specifies the amount of time, in minutes, that the server uses cached logon credentials, report parameters, and database connection information to serve requests before querying the CMS.
Oldest On-Demand Data Given to Clients (seconds)	Specifies the amount of time, in seconds, that the server uses cached data to meet requests from ondemand reports. If the server receives a request that can be met using data that was generated to meet a previous request, and the time elapsed since that data was generated is less than the value set here, then the server will reuse this data to meet the subsequent request. Reusing data in this way significantly improves system performance when multiple users need the same information. When setting this value consider how important it is that users receive up-to-date data. If it is important that all users receive fresh data (perhaps because important data changes frequently) you may need to disallow this kind of data reuse by setting the value to 0.
Maximum Cache Size (KB)	Specifies the amount of hard disk space (in KB) that is used to cache reports. A large cache size may be necessary if the server handles large numbers of reports, or reports that are especially complex.
Cache Files Directory	Specifies the location of the cache file directory.
Java VM Arguments	Specifies the command-line arguments that can be supplied to the JVM.
DLL Name	Specifies the name of the document type plugin that is currently loaded. The property is read only, rasprocReport.


Crystal Reports 2013 Report Application Server Properties



Table 28: Crystal Reports 2013 Report Application Server Properties

Property	Description	Default Value
Allow Report Jobs to Stay Connected to the Database until the Report Job is Closed	Specifies whether or not the report job will remain connected to the database until the process has been executed.	The default value is FALSE.

Property	Description	Default Value
Browse Data Size (records)	Specifies the number of distinct records returned from the database when browsing through a particular field value. The data is retrieved first from the client's cache (if it is available) and then from the server cache. If the data is not in either cache, it is retrieved from the database.	The default value is 100 records.
Idle Connection Timeout (minutes)	Specifies the amount of time, in minutes, that the Report Application server (RAS) waits for requests from an idle client before timing out. Setting a value too low can cause a user request to be closed prematurely. Setting a value that is too high can affect the server scalability. (For instance, if the <code>ReportClient Document</code> object is not closed explicitly, the server will be waiting unnecessarily for an idle job to close.)	The default value is 30 minutes
Batch Size (records)	Specifies how many rows from the result set are returned by the database during each data transfer. For example, if 500 records are requested, and the Batch Size property is set to 100 records, the data will be returned in 5 separate batches of 100 rows. To improve the performance of your RAS, understand your network environment, database, and the type of requests to set the appropriate batch size.	The default value is 100 records.
Number of database records to read when previewing or refreshing a report (-1 for unlimited)	Specifies the number of database records that will be read when viewing or refreshing a report. This setting limits the number of records that the server retrieves from the database when a user runs a query or report. This setting is useful when you want to prevent users from running on-demand reports that return excessively large record sets. You may prefer to schedule such reports, both to make the reports available more quickly to users and to reduce the load on your database from these large queries.	The default value is 20000 records.



Property	Description	Default Value
Maximum Concurrent Report Jobs (0 for unlimited)	Specifies the maximum number of independent jobs allowed to run concurrently on the RAS.	The default value is 75 jobs.
Oldest On-demand Data Given to a Client (minutes)	Specifies the amount of time, in minutes, an on-demand report will serve cached report data.	The default value is 75 jobs.
Temporary Directory	Specifies the directory where temporary files are created when necessary. <div style="border: 1px solid black; padding: 5px; margin: 5px 0;">  Note: You may encounter performance issues if this directory does not have adequate disk space. </div>	%DefaultDataDir%/CrystalReportsRasServer/temp
Single Sign-On Expiry (seconds)	Specifies the time, in seconds, that an SSO connection is valid before expiring.	The default value is 86400 seconds.


Crystal Reports 2013 Processing Server Properties




Table 29: Crystal Reports 2013 Processing Server Properties

Property	Description	Default Value
Idle Job Timeout (minutes)	Specifies the length of time, in minutes, that the Crystal Reports Processing server waits between requests for a given job.	The default value is 20 minutes.
Maximum Lifetime Jobs Per Child	Specifies the maximum number of jobs that each child process can manage per lifetime.	The default value is 1000.

Property	Description	Default Value
Viewer Refresh Always Yields Current Data	<p>Specifies whether, when users explicitly refresh a report, all cached pages are ignored and new data is retrieved directly from the database. It specifies if report data is shared between different clients.</p> <div data-bbox="630 474 1092 957" style="border: 1px solid black; padding: 5px;">  <p>Note: This property can be set on a report object itself, and can vary from report to report. Values specified on the report object override the server settings. To specify a value on the report object, select the report in the CMC, and click <i>Default settings Viewing Server Group</i>.</p> </div>	The default value is FALSE.
Share Report Data Between Clients	<p>Specifies whether report data is shared between different clients. It specifies if report data is shared between different clients.</p> <div data-bbox="630 1167 1092 1482" style="border: 1px solid black; padding: 5px;">  <p>Note: This property can be set on a report object itself, and can vary from report to report. Values specified on the report object override the server settings.</p> </div>	The default value is TRUE.
Idle Connection Timeout (minutes)	Specifies the amount of time, in minutes, that the Crystal Reports Processing server waits for a request from an idle connection. There is generally no need to modify the default value.	The default value is 30 minutes.

Property	Description	Default Value
Maximum Concurrent Jobs (0 for automatic)	Specifies the maximum number of independent jobs allowed to run concurrently on the Crystal Reports Processing server. If the value of this property is set to "0", the server applies a suitable value, based on the CPU and memory of the machine on which the server is running.	The default value is 0.
Oldest On-Demand Data Given to Clients (seconds)	<p>Specifies the amount of time, in seconds, that the server uses cached data to meet requests from ondemand reports.</p> <p>If the server receives a request that can be met using data that was generated to meet a previous request, and the time elapsed since that data was generated is less than the value set here, then the server will reuse this data to meet the subsequent request. Reusing data in this way significantly improves system performance when multiple users need the same information.</p> <p>When setting this value, consider how important it is that your users receive up-to-date data. If it is important that all users receive fresh data (perhaps important data changes frequently) you may need to disallow this kind of data reuse by setting the value to 0. This property can be set on a report object itself, and can vary from report to report. Values specified on the report object override the server settings.</p> <div data-bbox="570 1549 1036 1864" style="border: 1px solid black; padding: 5px;">  <p>Note: This property can be set on a report object itself, and can vary from report to report. Values specified on the report object override the server settings.</p> </div>	The default value is 0.

Property	Description	Default Value
Maximum Number of Prestarted Children	Specifies the maximum number of prestarted child processes that are allowed by the server. If this value is too low, the server creates child processes as soon as requests are made, and a user may experience latency. If this value is too high, system resources may be unnecessary wasted by idle child processes.	The default value is 1 child.
Temporary Directory	Specifies the directory where temporary files are created when necessary. <div style="border: 1px solid black; padding: 5px; margin: 5px 0;">  Note: You may encounter performance issues if this directory does not have adequate disk space. </div>	%Default DataDir%/CrystalReports2013ProcessingServer/temp
Allow Report Jobs to Stay Connected to the Database until the Report Job is Closed	Specifies whether the report job will remain connected to the database until the job is closed.	The default value is FALSE.
Database Records Read When Previewing or Refreshing	Specifies the number of database records that will be read when viewing or refreshing a report. This setting limits the number of records that the server retrieves from the database when a user runs a query or report. This setting is useful when you want to prevent users from running on-demand reports that return excessively large record sets. You may prefer to schedule such reports, both to make the reports available more quickly to users and to reduce the load on your database from these large queries.	The default value is 20000.
Single Sign-On Expiry (seconds)	Specifies the time, in seconds, that an SSO connection is valid before expiring.	The default value is 86400 seconds.

Crystal Reports Services Metrics

The Crystal Reports server metrics are listed in the following table:

Table 30: Crystal Reports Processing Server Metrics

Metric	Description
Open Jobs	The number of currently open jobs that the server and its child processes are currently processing.
Number of Requests Served	The total number of requests that the server has served since it started.
Number of Open Jobs	The number of currently open jobs that the server and its child processes are currently processing/
Object Type	The type of InfoObject that the server primarily deals with. The value for this metric does not change.
Average Processing Time (milliseconds)	The average time, in milliseconds, the server has spent processing on of the last 500 requests that the server has received. If this number is consistently high and growing, consider creating additional servers on other machines.
Maximum Processing Time (milliseconds)	The maximum time, in milliseconds, that the server has spent processing one of the last 500 requests. If this number is consistently high and growing, consider creating additional servers on other machines.
Minimum Processing Time (milliseconds)	The minimum time, in milliseconds, that the server has spent processing one of the last 500 requests. If this number is consistently high and growing, consider creating additional servers on other machines.
Number of Queued Requests	The number of requests that are either waiting to be processed or are being processed. If this number is consistently high and growing, consider creating additional servers on other machines.
Object Dll Name	The name of the processing plug-in for the server. The value of this metric does not change.
Number of Open Connections	The number of connections that are currently open between the server and clients.
Request Failure Rate	The number of requests that the server failed to process as a percentage of the last 500 requests that the server has received.

Metric	Description
Data Transferred (KB)	The total amount of data, in kilobytes, that have been transferred to clients since the server was started.
Number of Requests Failed	The number of requests that the server was unable to complete since the server started.
Maximum Number of Child Processes	The maximum number of concurrent child processes that are allowed on the server.

Crystal Reports Cache Server Metrics

The following table describes the server metrics that appear on the *Metrics* screen for Crystal Reports Cache servers.

Table 31: Crystal Reports Cache Server Metrics



Metric	Description
Cache Hit Rate (%)	The percentage of requests, over the last 500 requests, that have been served with cached data.
Connected Processing Servers	A table listing of the Crystal Reports Processing servers in your deployment. The table lists the name of the server and the number of connections that are currently open with the server.
Number of Requests Served	The total number of requests that the server has served since it started.
Object Type	The type of InfoObject that the server primarily deals with. The value for this metric does not change.
Average Processing Time (milliseconds)	The average time, in milliseconds, the server has spent processing the last 500 requests that the server has received. If this number is consistently high and growing, consider creating additional servers on other machines.
Maximum Processing Time (milliseconds)	The maximum time, in milliseconds, that the server has spent processing one of the last 500 requests. If this number is consistently high and growing, consider creating additional servers on other machines.



Metric	Description
Minimum Processing Time (milliseconds)	The minimum time, in milliseconds, that the server has spent processing one of the last 500 requests. If this number is consistently high and growing, consider creating additional servers on other machines.
Number of Queued Requests	The number of requests that are either waiting to be processed, or are being processed. If this number is consistently high and growing, consider creating additional servers on other machines.
Object Dll Name	The name of the processing plugin for the server. The value of this metric does not change.
Cache Size (KB)	The amount of data, in kilobytes, that is currently open between the server and clients.
Number of Open Connections	The number of connections that are currently open between the server and clients.
Data Transferred (KB)	The total amount of data, in kilobytes, that have been transferred to clients since the server was started.

Crystal Reports 2013 Report Application Server Metrics

The following table describes the server metrics that appear on the Metrics screen for Crystal Reports 2013 report Application servers.

Table 32: Crystal Reports 2013 Report Application Server Metrics

Metric	Description
Metric_currentdoccount  Note: This metric appears as "document_s_" on the <i>Monitoring</i> page of the CMC.	The number of documents that are currently being processed by the server.
Metric_totaldoccount  Note: This metric appears as "document_s_" in the <i>Monitoring</i> page of the CMC	The number of documents that have been processed by the server since it started.

Metric	Description
Metric_currentagentthreadcount  <p>Note: This metric appears as "agent thread_s_" on the <i>Monitoring</i> page of the CMC</p>	The number of threads that are currently being processed by the server.
Metric_totalagentthreadcount  <p>Note: This metric appears as "agent thread_s_" on the <i>Monitoring</i> page of the CMC</p>	The number of threads that have been processed by the server since it started.



How to Access the Crystal Reports Server and Monitor the Metrics

Follow these steps to access the Crystal Reports servers in the CMC and monitor metrics.

1. Log on to the CMC as an administrator. Close out the *System Configuration Wizard* if it appears soon after you log on.
2. Navigate to the *Servers* area of the CMC and then expand the *Service Categories* container.
3. Observe the contents of the *Service Categories*.
4. In the *Service Categories* container, select the *Crystal Report Services* container.
5. Observe the different Crystal Reports servers in the following order:
 - a) Adaptive Job server
 - b) Crystal Reports 2013 Processing server
 - c) Crystal Reports 2013 Report Application server
 - d) Crystal Reports Cache server
 - e) Crystal Reports Processing server
6. View metric information for each of the servers.
 - a) In the *Crystal Report Services* container, right-click each server and select the *Metrics* menu option.
 - b) Observe the distinct server metric information. Notice that each server has a different set of metrics.

7. In the *Metrics* window, click the *Refresh* button in the top right corner of the screen to view the latest metrics.



How to Configure the Crystal Reports Cache and Processing Servers

Follow these steps to configure the Crystal Reports Cache server.

1. Log on to the CMC as an administrator. Close out the *System Configuration Wizard* if it appears soon after you log on.
2. Navigate to the *Servers* area of the CMC and then expand the *Service Categories* container.
3. In the *Service Categories* container, select the *Crystal Reports Services* container.
4. In the *Crystal Reports Services* container, right-click the *Crystal Reports Cache* server and select the *Properties* menu option.
5. In the *Properties* window, scroll down to the *Crystal Reports Cache Service* area.
6. Refer students to the *Crystal Reports Cache Service Properties* portion of their handbooks, and change the appropriate configuration options.

Follow these steps to configure the Crystal Reports Processing server.

7. Return to the *Crystal Reports Services* container.
8. Right-click the *Crystal Reports Processing* server and select the *Properties* menu option.
9. In the *Properties* window, scroll down to the *Crystal Reports Processing Service* area.
10. Refer students to the *Crystal Reports Processing Service Properties* portion of their handbooks, and change the appropriate configuration options.



LESSON SUMMARY

You should now be able to:

- Configure Crystal Reports servers



Managing Crystal Reports Servers

LESSON OVERVIEW

Managing Crystal Reports servers entails setting a schedule for a report, running a scheduled report, viewing reports on demand, and viewing reports when they are in cache and when they are not. The Crystal Reports servers can be configured through each server's Properties screen, which in turn, is accessed through the CMC. The BI launch pad provides access to view the reports, and the ability to send a schedule request. The CMS locates an available Crystal Reports Scheduling service to receive job information and schedule the report.



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Manage Crystal Reports servers

SAP Crystal Report Scheduling

The following steps explain the interaction of platform components when you set a schedule for a Crystal Reports 2011 report or a Crystal Reports for Enterprise report.

1. The user sends the schedule request in a URL from the BI launch pad Web client through the Web server to the Web Application server, where the BI launch pad Web Application is running.
2. The Web Application server interprets the URL request and determines that the request is a schedule request. The Web Application server sends the schedule time, database login values, parameter values, destination, and format to the specified Central Management server.
3. The Central Management Server (CMS) checks the CMS system database to ensure that the user has rights to schedule the object. If the user has sufficient rights, the CMS adds a new record to the CMS system database. The CMS also adds the instance to its list of pending schedules.
4. The CMS sends a response to the web application server to let it know that the schedule operation was successful.
5. The Web Application server generates the next HTML page and sends it through the Web server to the Web client.

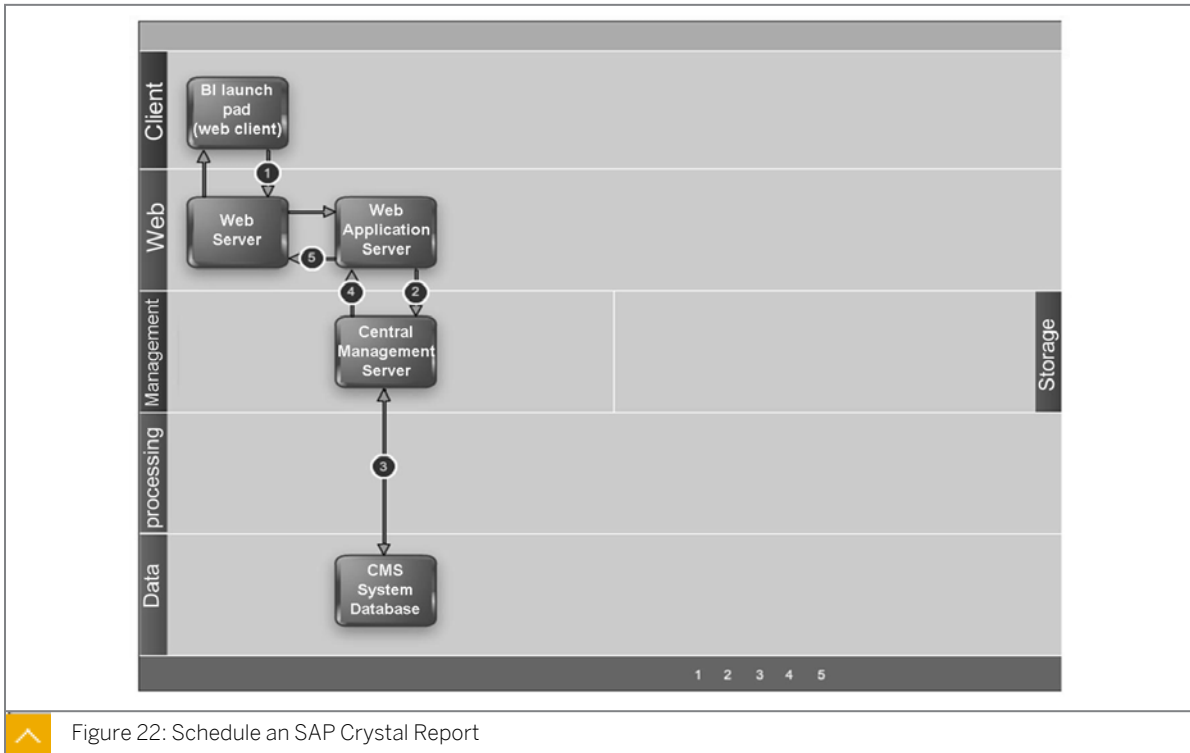


Figure 22: Schedule an SAP Crystal Report

Report Schedule Running

Run a Scheduled SAP Crystal Reports for Enterprise Report

The following steps explain the interaction of platform components when a scheduled Crystal Reports for Enterprise report is run to create a report instance.

1. The Central Management Server (CMS) checks the CMS system database to determine if there are any scheduled SAP Crystal Reports for Enterprise reports to be run at that time.
2. When the scheduled job time arrives, the CMS locates an available Crystal Reports Scheduling Service running on an Adaptive Job server. The CMS sends the job information to the Crystal Reports Scheduling Service. The job information includes report ID, format, destination, logon information, parameters, and selection formulas.
3. The Crystal Reports Scheduling Service communicates with the Input File Repository Server (FRS) to obtain a report template as per the requested report ID, as well as the universe (UNX) on which the report is based. Note: this step also requires communication (not shown in this diagram) with the Central Management Server (CMS) and the CMS system database to locate the required server and objects.
4. The Crystal Reports Scheduling Service launches the processes needed to generate the report and retrieve records from the data source (in this case a relational database) as indicated by the universe on which the report is based.
5. The Crystal Reports Scheduling Service updates the CMS periodically with the job status. At this time, the status shows that it is processing.
6. Once the report is compiled into the memory of the Crystal Reports Scheduling Service, it may be exported to a different format, such as Portable Document Format (PDF).

7. The report with saved data is sent to be stored by the Output File Repository server. It may also be submitted to a scheduled location, such as email. Note: this step also requires communication (not shown in this diagram) with the Central Management Server (CMS) and the CMS system database to locate the required server and objects.
8. Once the process is finished, the Crystal Reports Scheduling Service updates the CMS with the job status. At this time, the status is reported as a success.
9. The CMS updates the job status in its memory, and then writes the instance information to the CMS system database.

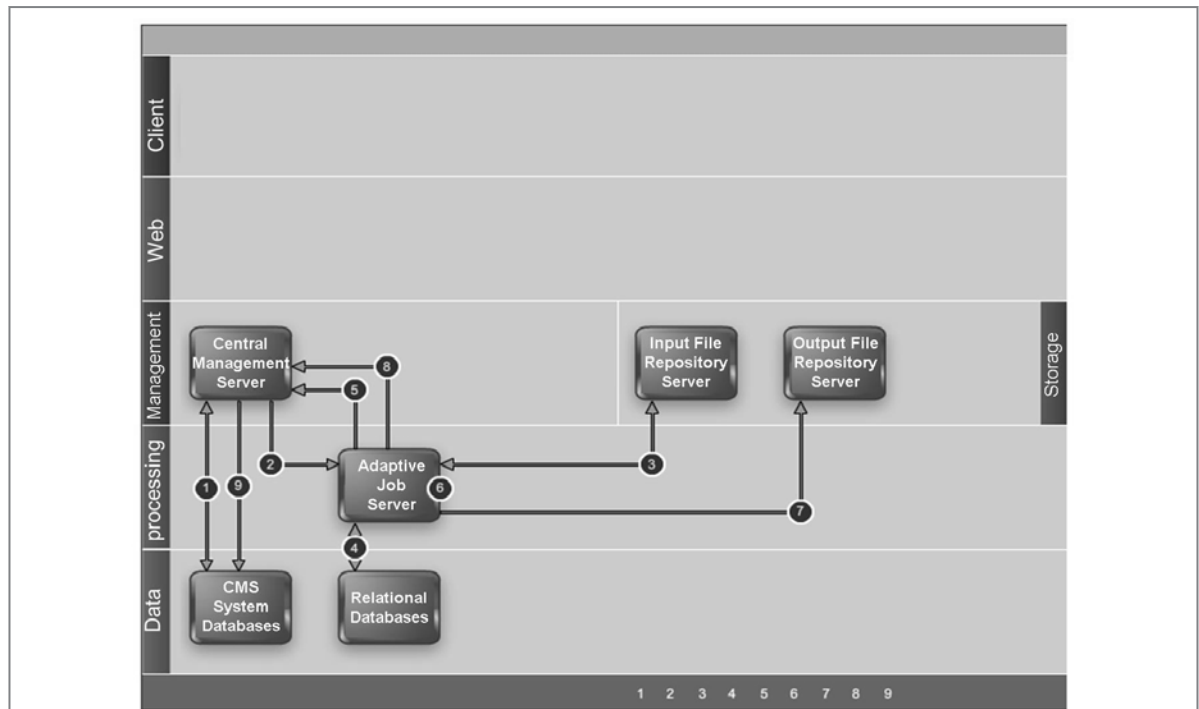


Figure 23: Run a Scheduled SAP Crystal Reports for Enterprise Report

Run a Scheduled SAP Crystal Reports 2011 Report

The following steps explain the interaction of platform components when a scheduled Crystal Reports 2011 report is run to create a report instance.

1. The Central Management Server (CMS) checks the CMS system database to determine if there is any scheduled SAP Crystal report to be run at that time.
2. When the scheduled job time arrives, the CMS locates an available Crystal Reports 2011 Scheduling Service running on an Adaptive Job server. The CMS sends the job information to the Crystal Reports 2011 Scheduling Service. The job information includes report ID, format, destination, logon information, parameters, and selection formulas.
3. The Crystal Reports 2011 Scheduling Service communicates with the Input File Repository Server (FRS) to obtain a report template as per the requested report ID. Note: this step also requires communication (not shown in this diagram) with the CMS and the CMS system database to locate the required server and objects.

4. The Crystal Reports 2011 Scheduling Service launches the JobChildserver process. The JobChildserver process launches the ProcReport.dll upon receipt of the report template from the Input File Repository server. The ProcReport.dll contains all of the parameters that were passed from the CMS to the Crystal Reports 2011 Scheduling Service. The ProcReport.dll launches the crpe32.dll that processes the report according to all the parameters that were passed.
5. While crpe32.dll is still processing the report, records are retrieved from the data source (in this case a relational database) as defined within the report.
6. The Crystal Reports 2011 Scheduling Service updates the CMS periodically with the job status. At this time, the status shows that it is processing.
7. Once the report is compiled into the memory of the Crystal Reports 2011 Scheduling Service, it may be exported to a different format, such as Portable Document Format (PDF). When exporting to PDF, the crxfpdf.dll is used.
8. The report with saved data is sent to be stored by the Output File Repository server. It may also be submitted to a scheduled location, such as email. Note: this step also requires communication (not shown in this diagram) with the CMS and the CMS system database to locate the required server and objects.
9. Once the process is finished, the Crystal Reports 2011 Scheduling Service updates the CMS with the job status. At this time, the status is reported as a success.
10. The CMS updates the job status in its memory, and then writes the instance information to the CMS system database.

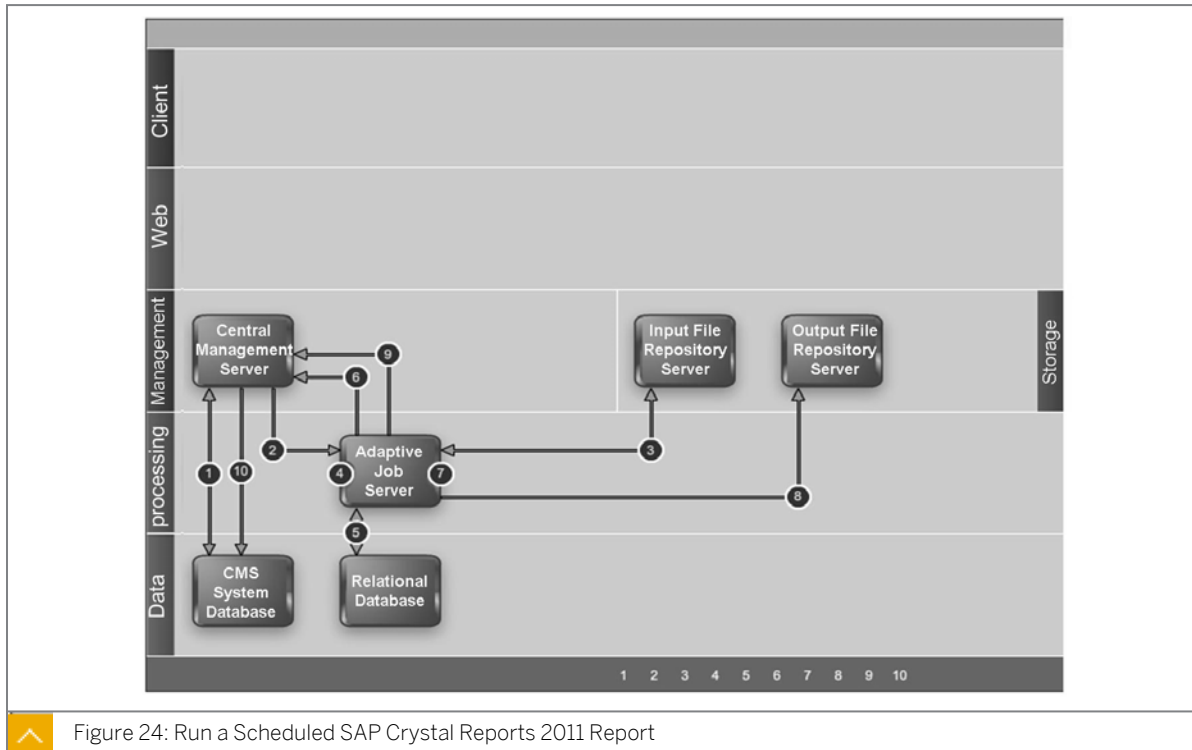


Figure 24: Run a Scheduled SAP Crystal Reports 2011 Report

Crystal Report Instance Viewing

View a Report Instance When the Page is in Cache

The following steps explain the interaction of platform components when you view an existing Crystal Reports 2011 or Crystal Reports for Enterprise report instance when the required report page is already stored in the cache.

1. The user sends the view request from the BI launch pad Web client through the Web server to the Web Application server, where the BI launch pad Web Application is running.
2. The Web Application server recognizes the request as a request to view a report page. The Web Application server checks the Central Management Server (CMS) to ensure that the user has sufficient rights to view the report.
3. The CMS checks the CMS system database to determine if the user has the appropriate rights to view the report.
4. The CMS sends a response to the Web Application server to confirm the user has sufficient rights to view the report.
5. The Web Application server sends a request to the Crystal Reports Cache server for the requested report page (.EPF file).
6. The Crystal Reports Cache server determines if the requested .EPF file exists in the cache directory. The requested .EPF file is found in the cache directory.
7. The Crystal Reports Cache server sends the requested report page to the Web Application server.
8. The Web Application server forwards the report page to the Web server.
9. The Web server sends the requested report page to the report viewer in the Web client.

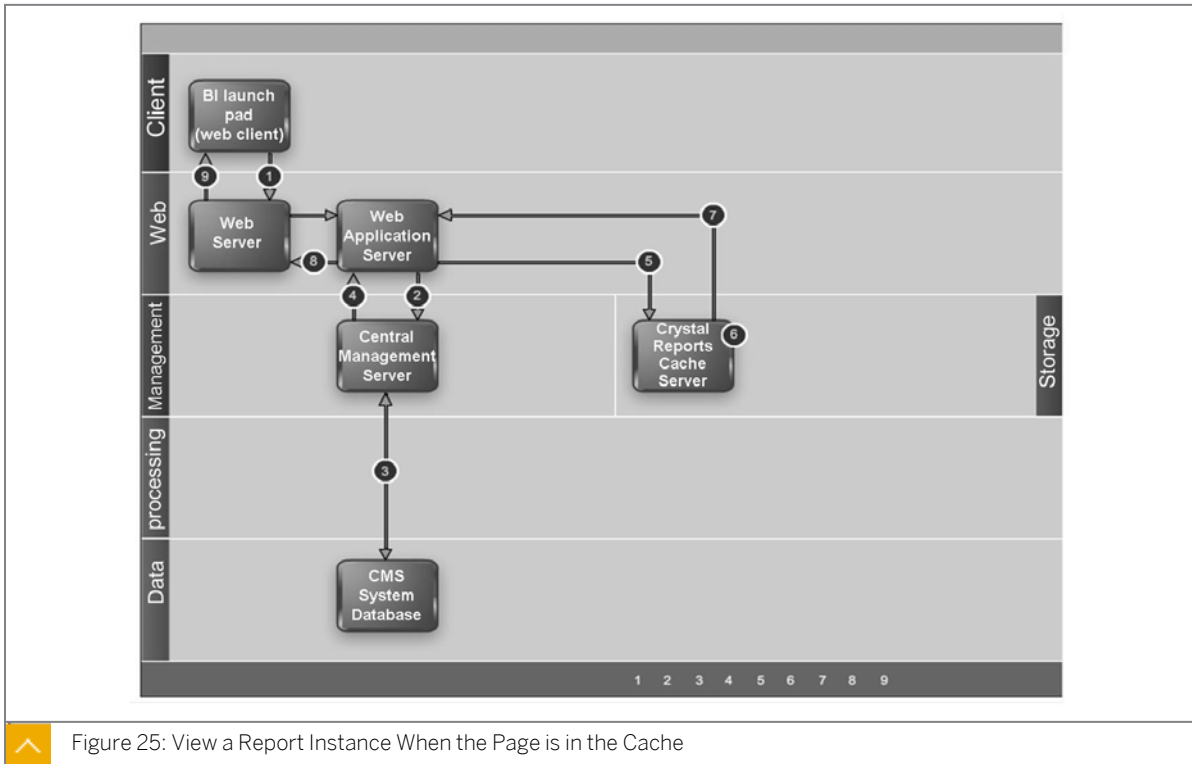


Figure 25: View a Report Instance When the Page is in the Cache

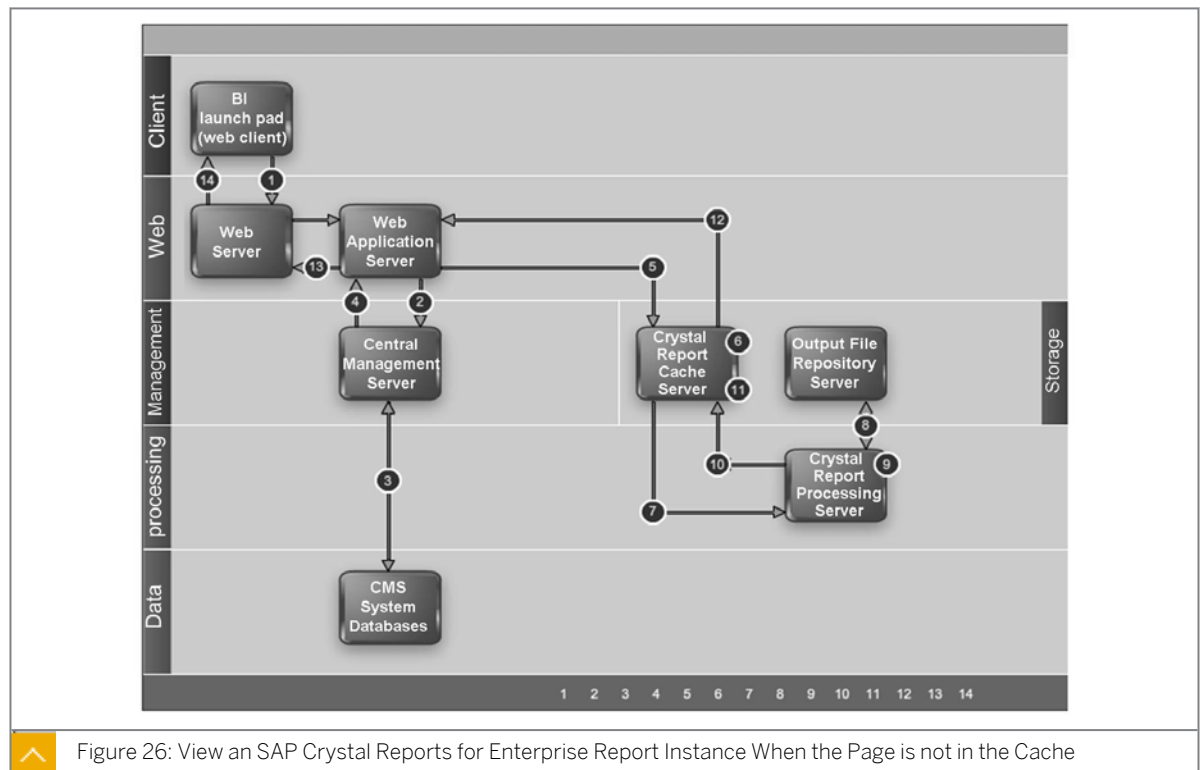
View a Crystal Reports for Enterprise Report Instance When the Page is not in the Cache

The following steps explain the interaction of platform components when you view an existing Crystal Reports for Enterprise report instance when the required report page is not already stored in the cache.

1. The user sends the view request from the BI launch pad Web client through the Web server to the Web application server, where the BI launch pad Web Application is running.
2. The Web Application server recognizes the request as a request to view a report page. The Web Application server checks the Central Management Server (CMS) to ensure that the user has sufficient rights to view the report.
3. The CMS checks the CMS system database to determine if the user has the appropriate rights to view the report.
4. The CMS sends a response to the Web Application server to confirm the user has sufficient rights to view the report.
5. The Web Application server sends a request to the Crystal Reports Cache server for the requested report page (.EPF file).
6. The Crystal Reports Cache server determines if the requested .EPF file exists in the cache directory. The requested .EPF file is not found in the cache directory.
7. The Crystal Reports Cache server sends the request to the Crystal Reports Processing server.
8. The Crystal Reports Processing server contacts the Output File Repository Server (FRS) for the requested report instance. The Output FRS sends the requested report instance to the

Crystal Reports Processing server. Note: this step also requires communication (not shown in this diagram) with the CMS and the CMS system database to locate the required server and objects.

9. The Crystal Reports Processing server opens the report instance and checks the report to determine if it has data. The Crystal Reports Processing server determines that the report contains data and creates the .EPF file for the requested report page without having to connect to the production database.
10. The Crystal Reports Processing server sends the .EPF file to the Crystal Reports Cache server.
11. The Crystal Reports Cache server writes the .EPF file to the cache directory.
12. The Crystal Reports Cache server sends the requested report page to the Web Application server.



View an SAP Crystal Reports 2011 Report Instance When the Page is not in the Cache

The following steps explain the interaction of platform components when you view an existing Crystal Reports 2011 report instance when the required report page is not already stored in the cache.

1. The user sends the view request from the BI launch pad Web Client through the Web server to the Web Application server, where the BI launch pad Web Application is running.
2. The Web Application server recognizes the request as a request to view a report page. The Web Application server checks the Central Management Server (CMS) to ensure that the user has sufficient rights to view the report.

3. The CMS checks the CMS system database to determine if the user has the appropriate rights to view the report.
4. The CMS sends a response to the web application server to confirm the user has sufficient rights to view the report.
5. The Web Application server sends a request to the Crystal Reports Cache server for the requested report page (.EPF file).
6. The Crystal Reports Cache server determines if the requested .EPF file exists in the cache directory. The requested .EPF file is not found in the cache directory.
7. The Crystal Reports Cache server sends the request to the Crystal Reports 2011 Processing server.
8. The Crystal Reports 2011 Processing server contacts the Output File Repository Server (FRS) for the requested report instance. The Output FRS sends the requested report instance to the Crystal Reports 2011 Processing server. Note: this step also requires communication (not shown in this diagram) with the CMS and the CMS system database to locate the required server and objects.
9. The Crystal Reports 2011 Processing server opens the report instance and checks the report to determine if it has data. The Crystal Reports 2011 Processing server determines that the report contains data and creates the .EPF file for the requested report page without having to connect to the production database.
10. The Crystal Reports 2011 Processing server sends the .EPF file to the Crystal Reports Cache server.
11. The Crystal Reports Cache server writes the .EPF file to the cache directory.
12. The Crystal Reports Cache server sends the requested page to the Web Application server.
13. The Web Application server forwards the file to the Web server.
14. The Web server sends the requested page to the report viewer in the Web client.

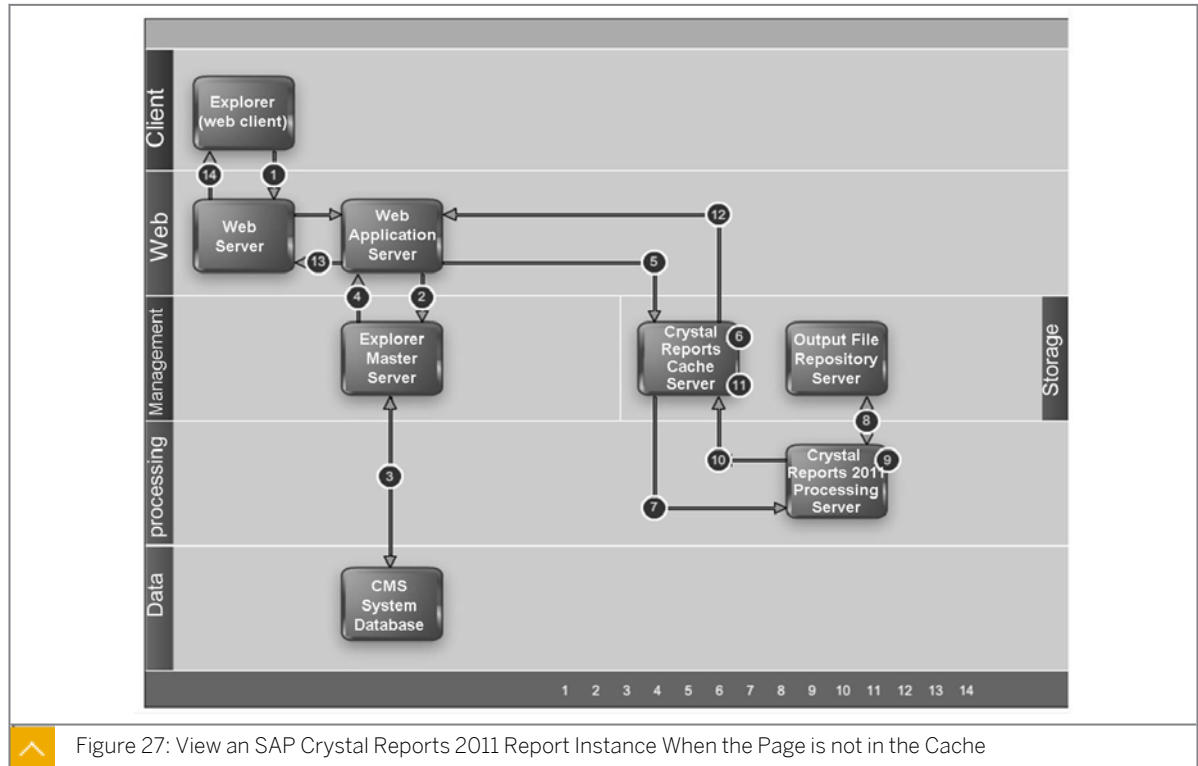


Figure 27: View an SAP Crystal Reports 2011 Report Instance When the Page is not in the Cache

View an SAP Crystal Reports for Enterprise Report on Demand

The following steps explain the interaction of platform components when you view a Crystal Reports for Enterprise report on demand to see the most current data available.

1. The user sends the view request from the BI launch pad Web client through the Web server to the Web application server, where the BI launch pad Web Application is running.
2. The Web Application server recognizes the request as a request to view a report page. The Web Application server checks the Central Management Server (CMS) to ensure that the user has sufficient rights to view the report.
3. The CMS checks the CMS system database to determine if the user has the appropriate rights to view the report.
4. The CMS sends a response to the Web Application server to confirm the user has sufficient rights to view the report.
5. The Web Application server sends a request to the Crystal Reports Cache server for the requested report page (.EPF file).
6. The Crystal Reports Cache server checks its cache to see if the report page already exists. Unless the report meets the requirements for On Demand report sharing (within a set time of another On Demand request, with appropriate parameter values and database logon credentials), the Crystal Reports Cache server sends a request for the Crystal Reports Processing server to generate the report page.
7. The Crystal Reports Processing server requests the report object, and the universe (UNX) that the report is based on, from the Input File Repository server. The Input File Repository

server sends a copy of the report object and the universe to the Crystal Reports Processing server. Note: this step also requires communication (not shown in this diagram) with the CMS and the CMS system database to locate the required server and objects.

8. The Crystal Reports Processing server opens the report in its memory and checks to see if the report contains data. In this case there is no data in the report object, so the Crystal Reports Processing server connects to the data source (according to the universe that the report is based on) to retrieve data and generate the report.
9. The Crystal Reports Processing server sends the report page (.EPF file) to the Crystal Reports Cache server. The Crystal Reports Cache server writes the .EPF file to its cache directory.
10. The Crystal Reports Cache server sends the requested report page to the Web Application server.

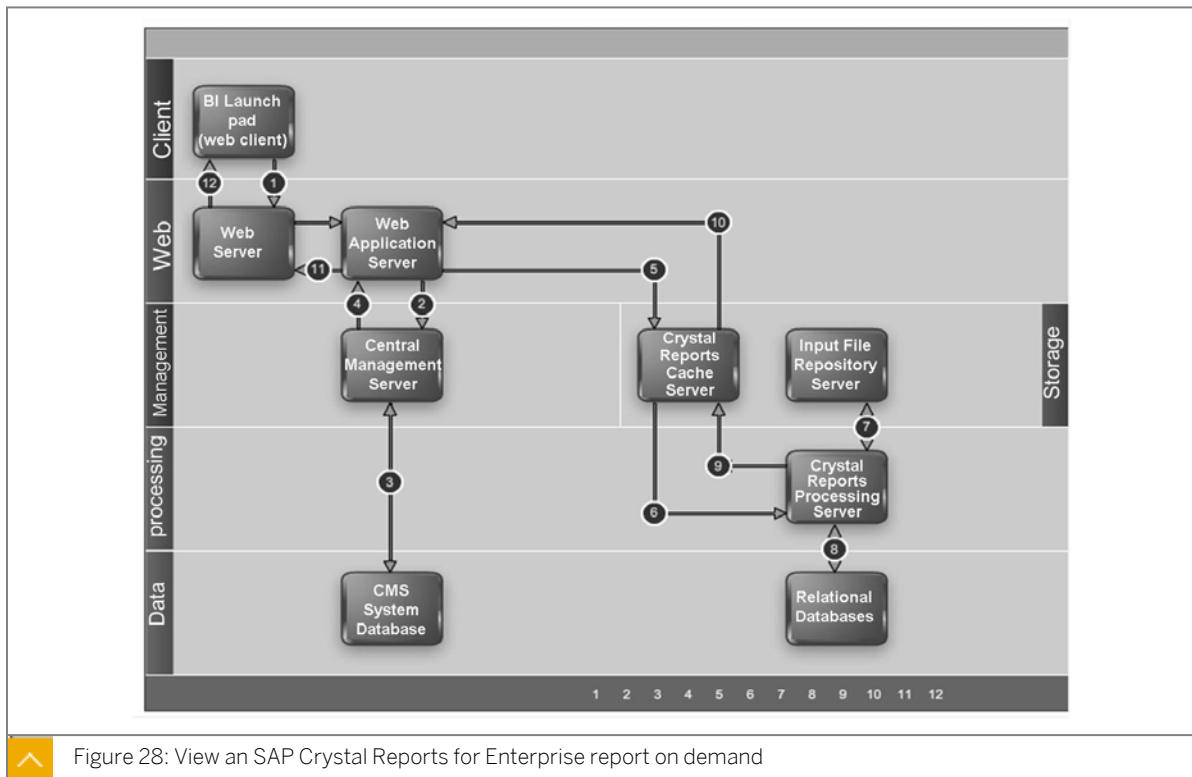


Figure 28: View an SAP Crystal Reports for Enterprise report on demand

View an SAP Crystal Reports 2011 Report on Demand

The following steps explain the interaction of platform components when you view a Crystal Reports 2011 report on demand to see the most current data available.

1. The user sends the view request from the BI launch pad Web client through the Web server to the Web application server, where the BI launch pad Web Application is running.
2. The Web Application server recognizes the request as a request to view a report page. The Web Application server checks the Central Management Server (CMS) to ensure that the user has sufficient rights to view the report.
3. The CMS checks the CMS system database to determine if the user has the appropriate rights to view the report.

4. The CMS sends a response to the Web Application server to confirm the user has sufficient rights to view the report.
5. The Web Application server sends a request to the Crystal Reports Cache server for the requested report page (.EPF file).
6. The Crystal Reports Cache server checks its cache to see if the page already exists. Unless the report meets the requirements for On Demand report sharing (within a set time of another On Demand request, with appropriate parameter values and database logon credentials), the Crystal Reports Cache server sends a request for the Crystal Reports 2011 Processing server to generate the page.
7. The Crystal Reports 2011 Processing server requests the report object from the Input File Repository server. The Input File Repository server sends a copy of the report object to the Crystal Reports 2011 Processing server. Note: this step also requires communication (not shown in this diagram) with the CMS and the CMS system database to locate the required server and objects.
8. The Crystal Reports 2011 Processing server opens the report in its memory and checks to see if the report contains data. In this case there is no data in the report object, so the Crystal Reports 2011 Processing server connects to the data source to retrieve data and generate the report.
9. The Crystal Reports 2011 Processing server sends the report page (.EPF file) to the Crystal Reports Cache server. The Crystal Reports Cache server writes the .EPF file to its cache directory.
10. The Crystal Reports Cache server sends the requested page to the Web Application server.
11. The Web Application server forwards the report page to the Web server.
12. The Web server sends the requested page to be rendered in the report viewer in the Web client.

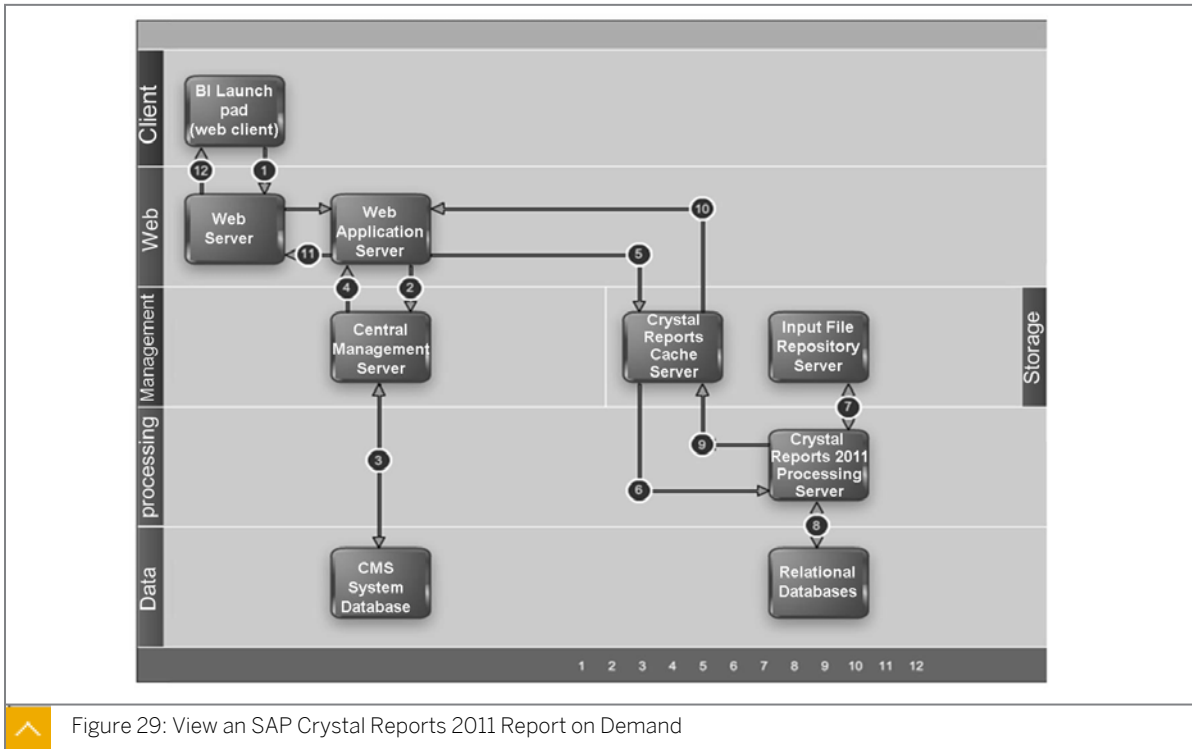


Figure 29: View an SAP Crystal Reports 2011 Report on Demand



Manage and Monitor Crystal Reports Cache Server and Crystal Reports Processing Server

Business Example

As the system administrator, you need to improve system performance when multiple users need the same information. You want to enable servers to use cached data to meet request from on-demand queries. Reusing data in this way significantly improves server performance.

Configure the Crystal Reports Cache Server

Change settings on the Crystal Reports Cache Server to allow sessions to be shared between users.

1. Launch the CMC and logon with the following details:

Field Name	Value
System	<hostname>:6400
User name	Administrator
Password	<assigned password>
Authentication	Enterprise

2. Go to the Servers area in the Central Management Console and select the Crystal Reports Cache Server.
3. Change the setting *Oldest On-Demand Data Given to Clients (seconds)* from 0 (no sharing) to 300.
4. Restart the Crystal Reports Cache Server.

Configure the Crystal Reports Processing Server

Change settings on the Crystal Reports Processing Server to allow sessions to be shared between users.



Note:

The settings on the Crystal reports Cache server and the Crystal Reports Processing Server work together and need to be modified in both places.

1. Go to the Servers area in the Central Management Console and select the Crystal Reports Processing Server.

2. Change the setting *Oldest On-Demand Data Given to Clients (seconds)* from 0 (no sharing) to 300.



Note:

The settings on the Crystal reports Cache server and the Crystal Reports Processing Server work together and need to be modified in both places.

3. Restart the Crystal Reports Processing Server.

View a Crystal report

Launch BI launch pad and log in as an end user to view the customer list report. Then launch another instance of BI launch pad and log in as another user and view the same report. Make sure that you log in within 300 seconds (5 minutes) from the first viewing of the report to ensure that the sessions are shared between the two users.

1. Log onto SAP BusinessObjects BI launch pad with the following information:

Field Name	Value
System	<hostname>:6400
User name	Train-XX
Password	Assigned password

2. Open the customer list report.
3. Log on to SAP BusinessObjects BI launch pad with the following information:

Field Name	Value
System	<hostname>:6400
User name	Train-XX (different from the user above)
Password	Assigned password

4. Open the customer list report.

Monitor the Cache Files

Monitor the cache files for viewing Crystal Reports files in the Business Intelligence (BI) launch pad.

1. Each time a user views a new page within Crystal Reports, new cache files are created and hosted by the BI 4 platform. Go to the Operating System of the BI 4 platform, and then find the folder that contains the cache files. Enter the location of this folder in the table below.



Note:

To find the location of the cache files, check the properties of the Crystal Reports server.

Crystal Reports

Cache folder



Manage and Monitor Crystal Reports Cache Server and Crystal Reports Processing Server

Business Example

As the system administrator, you need to improve system performance when multiple users need the same information. You want to enable servers to use cached data to meet request from on-demand queries. Reusing data in this way significantly improves server performance.

Configure the Crystal Reports Cache Server

Change settings on the Crystal Reports Cache Server to allow sessions to be shared between users.

1. Launch the CMC and logon with the following details:

Field Name	Value
System	<hostname>:6400
User name	Administrator
Password	<assigned password>
Authentication	Enterprise

- a) Click *Start* → *Programs* → *SAP BusinessObjects BI platform 4* → *Custom Link to CMC home page*.
 - b) Log on with your username and password.
2. Go to the *Servers* area in the Central Management Console and select the Crystal Reports Cache Server.
 - a) Click *Servers*.
 - b) Navigate to *Service Category* → *Crystal Reports Services*.



Hint:
Alternately, you can find the Crystal Reports Cache Server from the *Server List*.

- c) Right-click the Crystal Reports Cache Server and click *Properties*.
3. Change the setting *Oldest On-Demand Data Given to Clients (seconds)* from 0 (no sharing) to 300.

- a) Under the *Crystal Reports Cache Service* section, click inside the *Oldest On-Demand Data Given to Clients (seconds)* field.



Note:

This field is used to specify the amount of time, in seconds, that the server uses cached data to meet requests from on demand reports. If the server receives a request that can be met using data that was generated to meet a previous request, and the time elapsed since that data was generated is less than the value set here, then the server will reuse this data to meet the subsequent request. Reusing data in this way significantly improves system performance when multiple users need the same information. When setting this value consider how important it is that your users receive up-to-date data. If it is very important that all users receive fresh data (perhaps because important data changes very frequently) you may need to set the value to 0.

- b) Enter **300**.
 - c) Click *Save & Close*.
A flag appears next to the Crystal Reports Cache Server inside the *Stale* column.
4. Restart the Crystal Reports Cache Server.
 - a) Right-click the Crystal Reports Cache Server.
 - b) Click *Restart Server*.
Wait for a few seconds for the server to restart.
 - c) Click the *Refresh* button.
The stale flag disappears and the server state is changed to *Running*.

Configure the Crystal Reports Processing Server

Change settings on the Crystal Reports Processing Server to allow sessions to be shared between users.



Note:

The settings on the Crystal reports Cache server and the Crystal Reports Processing Server work together and need to be modified in both places.

1. Go to the Servers area in the Central Management Console and select the Crystal Reports Processing Server.
 - a) In the *CMC home page*, Click *Servers*.
 - b) Navigate to *Service Category* → *Crystal Reports Services*.



Hint:
Alternately, you can find the Crystal Reports Processing Server from the *Server List*.

- c) Right-click the Crystal Reports Processing Server and click *Properties*.
2. Change the setting *Oldest On-Demand Data Given to Clients (seconds)* from 0 (no sharing) to 300.



Note:
The settings on the Crystal reports Cache server and the Crystal Reports Processing Server work together and need to be modified in both places.

- a) Under the *Crystal Reports Processing Service* section, click inside the *Oldest On-Demand Data Given to Clients (seconds)* field.



Note:
This field is used to specify the amount of time, in seconds, that the server uses cached data to meet requests from ondemand reports. If the server receives a request that can be met using data that was generated to meet a previous request, and the time elapsed since that data was generated is less than the value set here, then the server will reuse this data to meet the subsequent request. Reusing data in this way significantly improves system performance when multiple users need the same information. When setting this value consider how important it is that your users receive up-to-date data. If it is very important that all users receive fresh data (perhaps because important data changes very frequently) you may need to set the value to 0.

- b) Enter **300**.
 - c) Click *Save & Close*.
A flag appears next to the Crystal Reports Processing Server inside the *Stale* column.
3. Restart the Crystal Reports Processing Server.
 - a) Right-click the Crystal Reports Processing Server.
 - b) Click *Restart Server*.
Wait for a few seconds for the server to restart.
 - c) Click the *Refresh* button.
The stale flag disappears and the server state is changed to *Running*.

View a Crystal report

Launch BI launch pad and log in as an end user to view the customer list report. Then launch another instance of BI launch pad and log in as another user and view the same report. Make sure that you log in within 300 seconds (5 minutes) from the first viewing of the report to ensure that the sessions are shared between the two users.

1. Log onto SAP BusinessObjects BI launch pad with the following information:

Field Name	Value
System	<hostname>:6400
User name	Train-XX
Password	Assigned password

- a) Click *Start* → *Programs* → *SAP BusinessObjects BI platform 4* → *Custom Link to BI launch pad*.
 - b) Log on with your username and password.
2. Open the customer list report.
- a) Navigate to *All Folders* → *Report Samples* → *Demonstration*.
 - b) Double-click *customer list report*.
The report opens with customer information inside. You should see there are 416 pages in total.
 - c) Navigate the pages using the *Go to Next Page* button.



Note:

Only individual viewable pages are being passed from the Processing Server to the Cache Server. If page has not been requested yet it is not delivered to the Cache Server. This mechanism is sometimes referred to as viewing on demand (only demanded pages get created and saved in anticipation for future requests).

3. Log on to SAP BusinessObjects BI launch pad with the following information:

Field Name	Value
System	<hostname>:6400
User name	Train-XX (different from the user above)
Password	Assigned password

- a) Click *Start* → *Programs* → *SAP BusinessObjects BI platform 4* → *Custom Link to BI launch pad*.
 - b) Log on with your username and password.
4. Open the customer list report.
- a) Navigate to *All Folders* → *Report Samples* → *Demonstration*.
 - b) Double-click *customer list report*.



Hint:

Make sure that you log in within 300 seconds (5 minutes) since the first viewing the report, so that the viewable sessions can be shared between the two users.

The report opens with customer information inside. You should see there are 416 pages in total.

- c) Navigate the pages using the *Go to Next Page* button.



Note:

Only individual viewable pages are being passed from the Processing Server to the Cache Server. If page has not been requested yet it is not delivered to the Cache Server. This mechanism is sometimes referred to as viewing on demand (only demanded pages get created and saved in anticipation for future requests).

Monitor the Cache Files

Monitor the cache files for viewing Crystal Reports files in the Business Intelligence (BI) launch pad.

1. Each time a user views a new page within Crystal Reports, new cache files are created and hosted by the BI 4 platform. Go to the Operating System of the BI 4 platform, and then find the folder that contains the cache files. Enter the location of this folder in the table below.



Note:

To find the location of the cache files, check the properties of the Crystal Reports server.

- a) In Windows Explorer, monitor the Crystal Reports cache files (.ETF and .EPF files) that are created automatically when pages are viewed in a Crystal Reports document.



Hint:

Encapsulated Page Files (.EPF) are the Crystal Reports cache files for data. Each of these files is mandatory for viewing a single page of data within the Crystal Reports report.



Hint:

Encapsulated Tree Files (.ETF) files are the Crystal Reports files for the navigation tree. Each of these files is mandatory for navigating in groups within the Crystal Reports report.

Crystal Reports

Cache folder



LESSON SUMMARY

You should now be able to:

- Manage Crystal Reports servers



Learning Assessment

- Match the server with the Crystal Reports services it hosts.

Match the item in the first column to the corresponding item in the second column.

Crystal Reports Processing Server
Report Application Server
Crystal Reports Cache Server
Adaptive Job Server

Crystal Reports Cache Service
Crystal Reports 2011 Scheduling Service and Crystal Reports Scheduling Service
Crystal Reports 2011 Viewing and Modification Service
Crystal Reports 2011 Processing Service and Crystal Reports Processing Service

- Crystal Reports 2011 Scheduling Service runs on demand Crystal Reports jobs and publishes the results to the Adaptive Job Processing server.

Determine whether this statement is true or false.

True

False

- Any properties that apply to both Crystal Reports Cache servers and Crystal Reports Processing servers should be set to the same value.

Determine whether this statement is true or false.

True

False

4. Identify the correct menu path to configure the Crystal Reports Processing server properties.
Choose the correct answer.

- A** Go to CMC --> Services --> Servers -->Crystal Reports Server. Double click the *Crystal Reports Processing server* and then click the *Properties* button.
- B** Go to CMS --> Services --> Servers --> *Crystal Reports Services*. Double click the *Crystal Reports Processing service* and then click the *Properties* button.
- C** Go to CMC --> Servers --> *Service Categories* --> *Crystal Reports Services*. Right click *Crystal Reports Processing server* and select the *Properties* menu option.
- D** Go to the CMS --> *Service Categories* --> *Properties* --> *Crystal Reports Processing service*.

5. The interaction of platform components is the same, regardless of whether you set a schedule for a Crystal Reports 2011 report or a Crystal Reports for Enterprise report.

Determine whether this statement is true or false.

- True
- False



Learning Assessment - Answers

1. Match the server with the Crystal Reports services it hosts.

Match the item in the first column to the corresponding item in the second column.

Crystal Reports Processing Server
Report Application Server
Crystal Reports Cache Server
Adaptive Job Server

Crystal Reports 2011 Processing Service and Crystal Reports Processing Service
Crystal Reports 2011 Viewing and Modification Service
Crystal Reports Cache Service
Crystal Reports 2011 Scheduling Service and Crystal Reports Scheduling Service

2. Crystal Reports 2011 Scheduling Service runs on demand Crystal Reports jobs and publishes the results to the Adaptive Job Processing server.

Determine whether this statement is true or false.

True

False

3. Any properties that apply to both Crystal Reports Cache servers and Crystal Reports Processing servers should be set to the same value.

Determine whether this statement is true or false.

True

False

4. Identify the correct menu path to configure the Crystal Reports Processing server properties.

Choose the correct answer.

- A** Go to CMC --> Services --> Servers -->Crystal Reports Server. Double click the *Crystal Reports Processing* server and then click the *Properties* button.
- B** Go to CMS --> Services --> Servers --> *Crystal Reports Services*. Double click the *Crystal Reports Processing* service and then click the *Properties* button.
- C** Go to CMC --> Servers --> *Service Categories* --> *Crystal Reports Services*. Right click *Crystal Reports Processing* server and select the *Properties* menu option.
- D** Go to the CMS --> *Service Categories* --> *Properties* --> *Crystal Reports Processing* service.

5. The interaction of platform components is the same, regardless of whether you set a schedule for a Crystal Reports 2011 report or a Crystal Reports for Enterprise report.

Determine whether this statement is true or false.

- True
- False

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UNIT OBJECTIVES

- Manage Web Intelligence document schedules
- View Web Intelligence documents
- Configure a Web Intelligence Processing server
- Configure a Connection server



Managing Web Intelligence Document Schedules

LESSON OVERVIEW

The Web Intelligence Processing server hosts four services that support Web Intelligence document processing. The Central Management Console (CMC) makes it easy for administrators to manage Web Intelligence document schedules. The CMC offers a Schedule option on the document right click menu. This function allows users to select the recurrence for the document schedule to run. Document schedule requests are flawlessly processed from the BI launch pad, through the Web Application Server, to the CMS, and back with a confirmation.



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Manage Web Intelligence document schedules

Web Intelligence Processing Server

Web Intelligence Processing server is responsible for processing SAP BusinessObjects Web Intelligence documents.

The Web Intelligence Processing server properties are grouped into the following services:



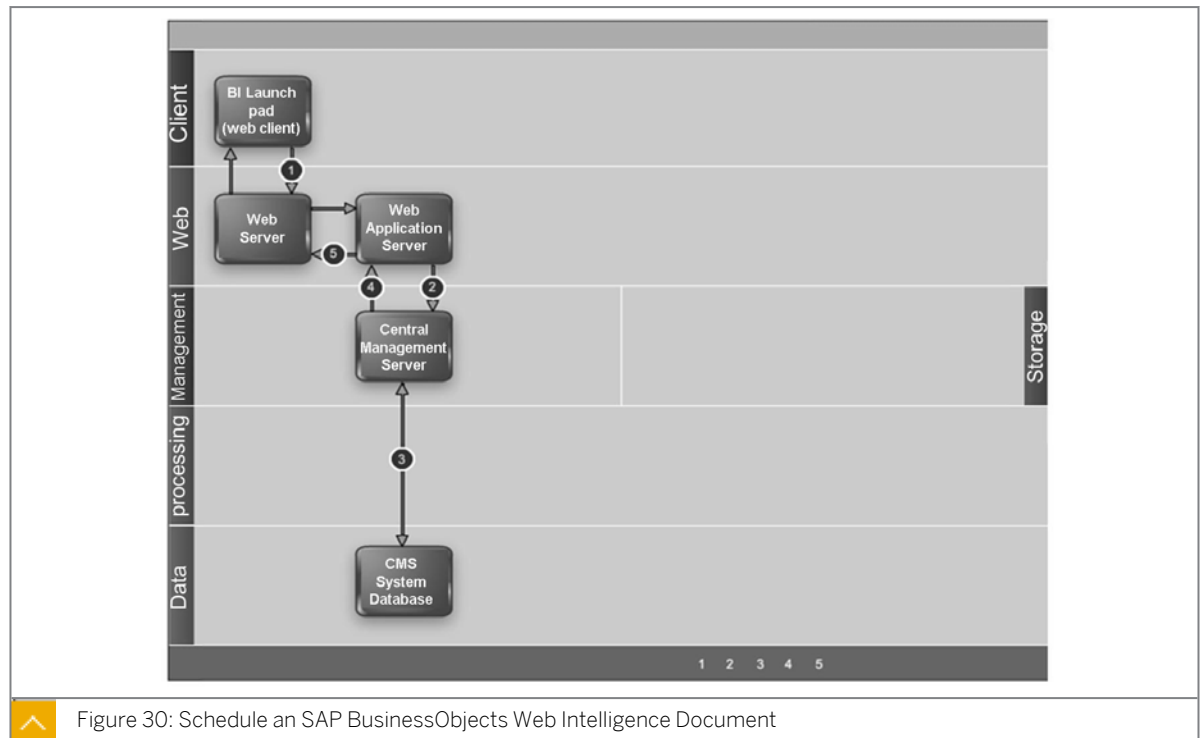
Table 33: Web Intelligence Processing Server

Server	Service	Service Description
Web Intelligence Processing Server	Information Engine Service	Service required for Web Intelligence documents processing.
	Web Intelligence Common Service	Supports Web Intelligence documents processing.
	Web Intelligence Core Service	Supports Web Intelligence documents processing.
	Web Intelligence Processing Service	Accepts and processes Web Intelligence documents.

Schedule Setting for a Web Intelligence Document

The following steps explain the interaction of platform components when you set a schedule for a Web Intelligence document.

1. The user sends the schedule request from the BI launch pad Web client through the Web server to the Web application server, where the Launchpad Web Application is running.
2. The Web Application server interprets the request and determines that the request is a schedule request. The Web Application server sends the schedule information, including time and destination, to the specified Central Management Server (CMS).
3. The Central Management Server (CMS) checks the CMS system database to ensure that the user has rights to schedule the object. If the user has sufficient rights, the CMS adds a new record to the CMS system database. The CMS also adds the instance to its list of pending schedules.
4. The CMS sends a response to the Web Application server to let it know that the schedule operation was successful.
5. The Web Application server generates the next HTML page and sends it through the Web server to the Web client.



Schedule Running for Web Intelligence Documents

The following steps explain the interaction of platform components when a scheduled Web Intelligence document is run to create a document instance.

1. The Central Management Server (CMS) checks the CMS system database to determine if there is any scheduled Web Intelligence document to be run at that time.
2. When the scheduled job time arrives, the CMS locates an available Web Intelligence Scheduling Service running on an Adaptive Job Server. The CMS sends the schedule request and all information about the request to the Web Intelligence Scheduling Service.

3. The Web Intelligence Scheduling Service locates an available Web Intelligence Processing Server based on the Maximum Jobs Allowed value configured on each Web Intelligence Processing server.
4. The Web Intelligence Processing server determines the location of the Input File Repository Server (FRS) that houses the document and the universe metalayer file on which the document is based. The Web Intelligence Processing server then requests the document from the Input FRS. The Input FRS locates the Web Intelligence document as well as the universe file on which the document is based, and then streams them to the Web Intelligence Processing server.



Note:

This step also requires communication (not shown in this diagram) with the Central Management Server (CMS) and the CMS system database to locate the required server and objects.

5. The Web Intelligence document is placed in a temporary directory on the Web Intelligence Processing server. The Web Intelligence Processing server opens the document in memory. The QT.dll generates the SQL from the universe on which the document is based. The Connection server libraries included in the Web Intelligence Processing server are used to connect to the data source, which is a relational database in this example. The queried data passes through QT.dll back to the Report Engine in the Web Intelligence Processing server, where the document is processed. A new successful instance is created.
6. The Web Intelligence Processing server uploads the document instance to the Output File Repository server. Note: this step also requires communication (not shown in this diagram) with the Central Management Server (CMS) and the CMS system database to locate the required server and objects.
7. The Web Intelligence Processing server notifies the Web Intelligence Scheduling Service (on the Adaptive Job server) that document creation is completed. If the document is scheduled to go to a destination such as file system, FTP, SMTP, or Inbox, the Adaptive Job server retrieves the processed document from the Output File Repository server and delivers it to the specified destinations. That is not the case in this example.
8. The Web Intelligence Scheduling Service updates the CMS with the job status.
9. The CMS updates the job status in its memory, and then writes the instance information to the CMS system database.

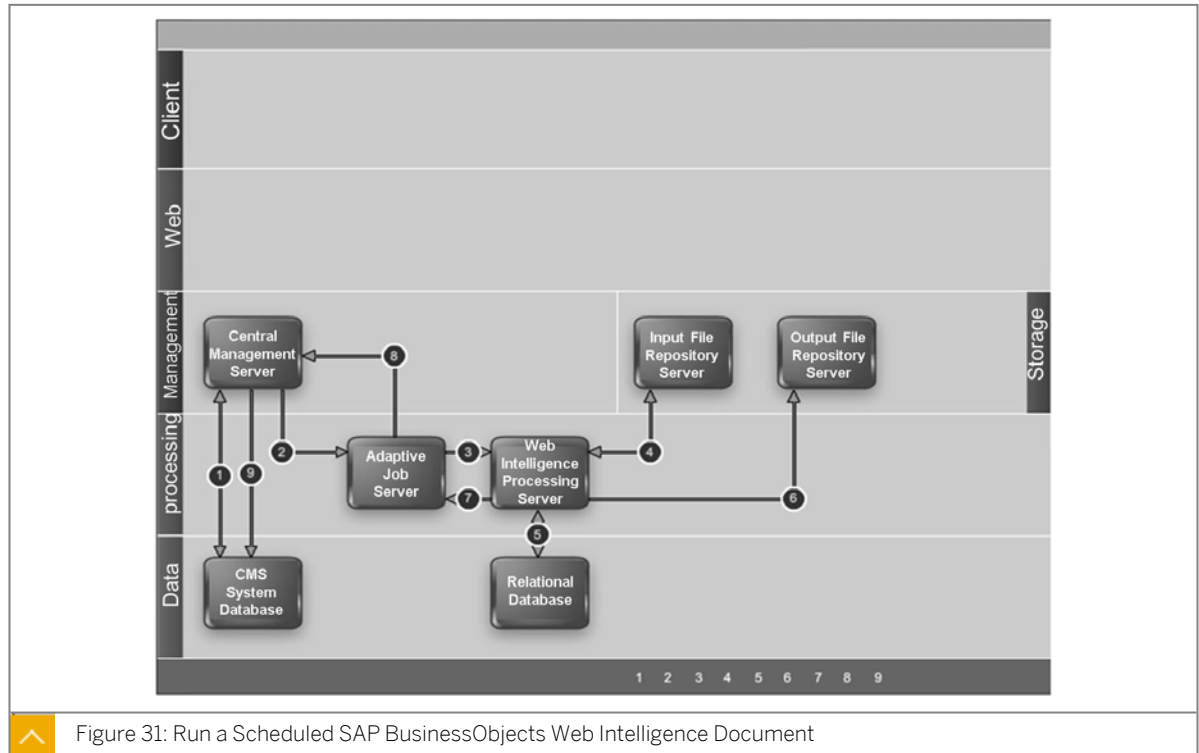


Figure 31: Run a Scheduled SAP BusinessObjects Web Intelligence Document



How to Set and Run a Schedule for a Web Intelligence Document

Demonstrate how to set and run a schedule for a Web Intelligence document from the CMC with the following steps.

1. Log on to the CMC as an administrator.
2. Navigate to the folder that contains the Web Intelligence document that you want to schedule.
3. Right-click the document and select *Schedule* from the menu options. The *Schedule* window opens.
4. In the *Schedule* window, select the *Weekly* option (or whichever option you prefer) from the *Recurrence Run Object* dropdown list.
5. Click the *Schedule* button at the bottom right of the screen. The scheduled document appears listed in the *Documents > History* window.



LESSON SUMMARY

You should now be able to:

- Manage Web Intelligence document schedules



Viewing Web Intelligence Documents

LESSON OVERVIEW

Web Intelligence documents are easily viewed on demand with a request sent from the BI launch pad. The request is pushed through the Web Application server, to the Central Management Server (CMS) for verification, and then Web Intelligence Processing server requests the document from the Input File Repository Server (FRS). The requested document and its accompanying metalayer information is then sent back through the system to be viewed by the user on the BI launch pad. A similar process is enacted to export or refresh a Web Intelligence document.



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- View Web Intelligence documents

Web Intelligence Document Viewing on Demand

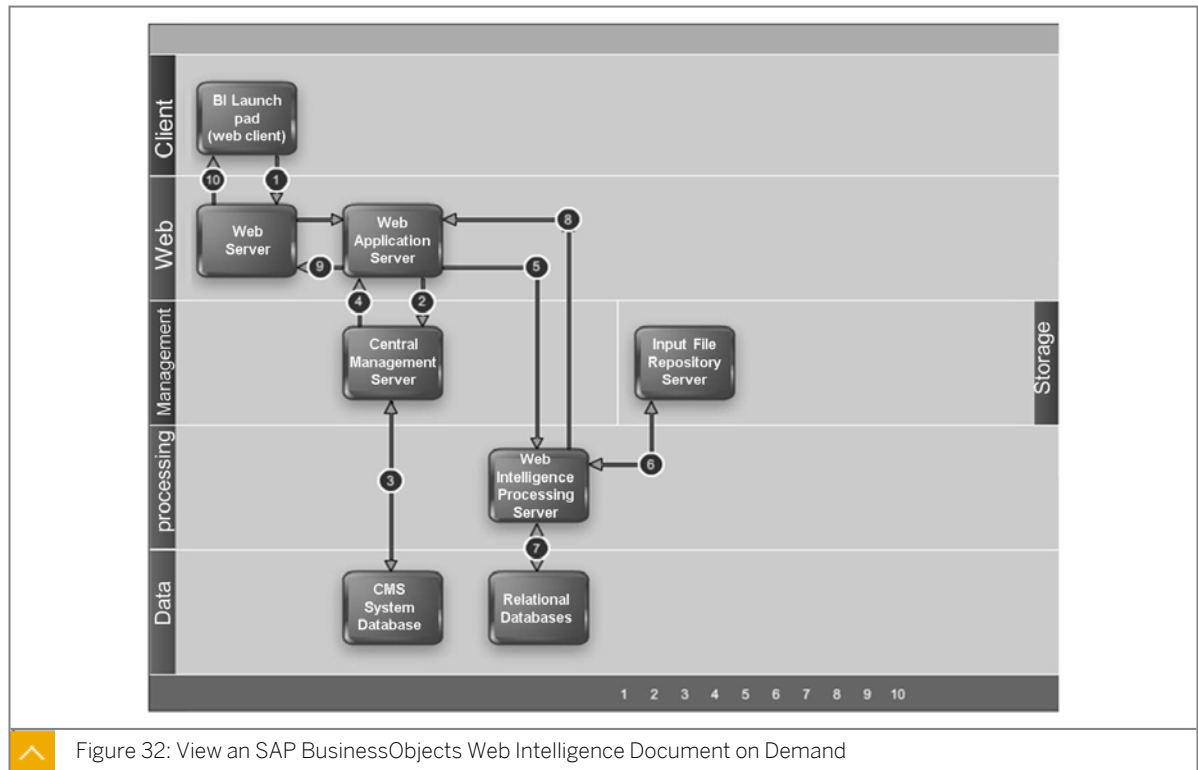
The following steps explain the interaction of platform components when you view a Web Intelligence document on demand to see the most current data available.

1. The user sends the view request from the BI launch pad web client through the Web server to the Web Application server, where the BI launch pad Web Application is running.
2. The Web Application server recognizes the request as a request to view a Web Intelligence document. The Web Application server checks the Central Management Server (CMS) to ensure that the user has sufficient rights to view the document.
3. The CMS checks the CMS system database to determine if the user has the appropriate rights to view the document.
4. The CMS sends a response to the web application server to confirm that the user has sufficient rights to view the document.
5. The Web Application server sends a request to the Web Intelligence Processing server, requesting the document.
6. The Web Intelligence Processing server requests the document, and the universe file on which the requested document is built, from the Input File Repository Server (FRS). The universe file contains metalayer information, including row-level and column-level security. The Input FRS sends a copy of the document and the universe to the Web Intelligence Processing server.

**Note:**

This step also requires communication (not shown in this diagram) with the Central Management Server (CMS) and the CMS system database to locate the required server and objects.

7. The Web Intelligence Report Engine runs on the Web Intelligence Processing server. The Report Engine opens the document in memory and launches QT.dll and a Connection server in process. QT.dll generates, validates, and regenerates the SQL and connects to the database to run the query. The Connection server uses the SQL to obtain the data from the database to the Report Engine, where the document is processed.
8. The Web Intelligence Processing server sends the viewable document page that was requested to the Web Application server.
9. The Web Application server forwards the document page to the Web server.
10. The Web server sends the requested page to be rendered in the Web client.



Document Exportation

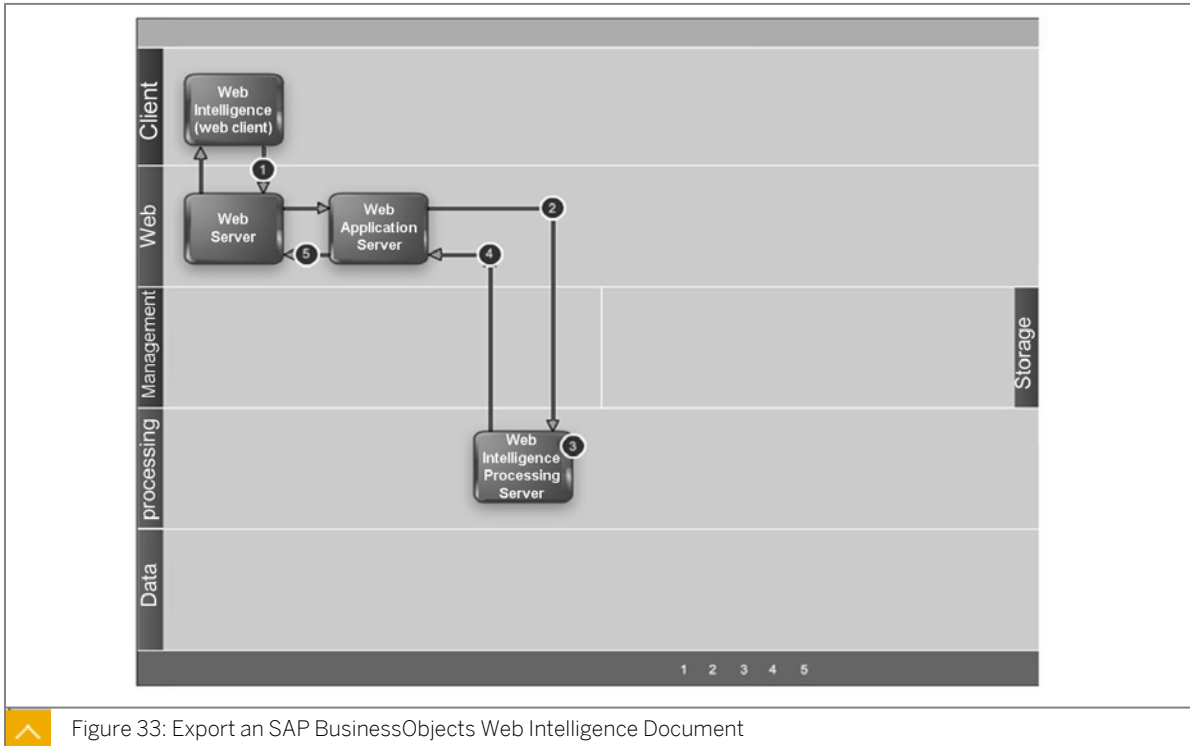
The following steps explain the interaction of platform components when you export a Web Intelligence document.

1. The user sends the export request from the Web Intelligence Web client through the web server to the Web Application server, where the Web Intelligence Web Application is running.

**Note:**

The user previously logged on to the SAP BusinessObjects Business Intelligence platform through BI launch pad. Rights were checked and the document was opened in the Web Intelligence Web client.

2. The Web Application server sends a request to the Web Intelligence Processing server to export the currently open document.
3. The Web Intelligence Processing server processes the document into the requested export format (PDF or Excel).
4. The Web Intelligence Processing server sends the formatted document to the Web Application server.
5. The Web Application server sends the formatted document through the Web server to the Web client.



Document Refresh

Document Refresh Based on a Multi-Source Universe

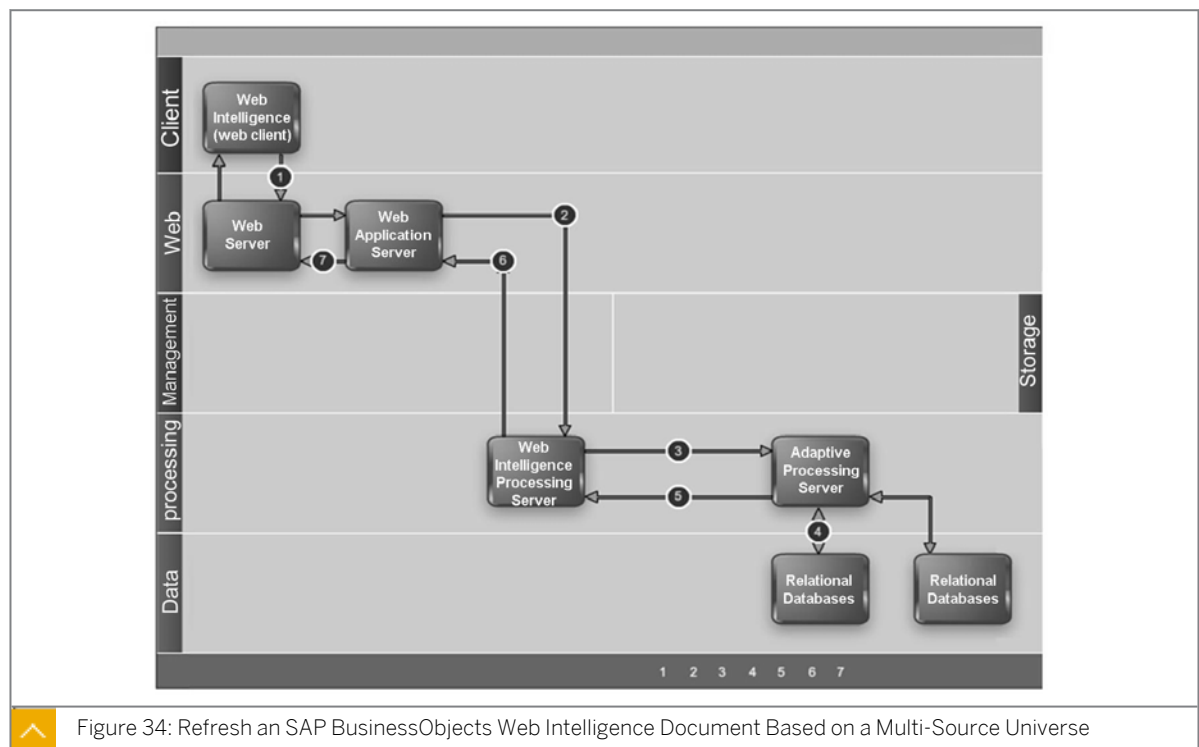
The following steps explain the interaction of platform components when you refresh a Web Intelligence document based on a multi-source universe.

1. The user sends the refresh request from the Web Intelligence Web client through the Web server to the Web Application server, where the Web Intelligence Web application is running.

**Note:**

The user previously logged on to the SAP BusinessObjects Business Intelligence platform through BI launch pad. Rights were checked and the document was opened in the Web Intelligence Web client.

2. The Web Application server sends a request to the Web Intelligence Processing server to refresh the document with current data.
3. The Web Intelligence Report Engine runs on the Web Intelligence Processing server. It sends a request to the Data Federation Service (running on an Adaptive Processing server) to obtain the current data from the multiple data sources.
4. The Data Federation Service (running on the Adaptive Processing server) obtains the current data from the multiple data sources, which are different types of relational databases in this example.
5. The Data Federation Service (running on the Adaptive Processing server) sends the current data to the Web Intelligence Processing server, where the Web Intelligence Report Engine uses the data to build the refreshed document.
6. The Web Intelligence Processing server sends the refreshed document with the current data to the Web Application server.
7. The Web Application server sends the refreshed document through the Web server to be rendered in the Web client.



Refresh a Document Based on a Dimensional Universe

The following steps explain the interaction of platform components when you refresh a Web Intelligence document based on a dimensional universe.

1. The user sends the refresh request from the Web Intelligence Web client through the Web server to the Web Application server, where the Web Intelligence Web application is running.
Note: The user previously logged on to the SAP BusinessObjects Business Intelligence platform through BI launch pad. Rights were checked and the document was opened in the Web Intelligence Web client.
2. The Web Application server sends a request to the Web Intelligence Processing server to refresh the document with current data.
3. The Web Intelligence Report Engine runs on the Web Intelligence Processing server. It sends a request to the DSL Bridge Service (running on an Adaptive Processing server) to obtain the current data from the OLAP data source.
4. The DSL Bridge Service (running on the Adaptive Processing server) obtains the current data from the OLAP data source.
5. The DSL Bridge Service (running on the Adaptive Processing server) sends the current data to the Web Intelligence Processing server, where the Web Intelligence Report Engine uses the data to build the refreshed document.
6. The Web Intelligence Processing server sends the refreshed document with the current data to the Web Application server.
7. The Web Application server forwards the refreshed document through the Web server to be rendered in the Web client.

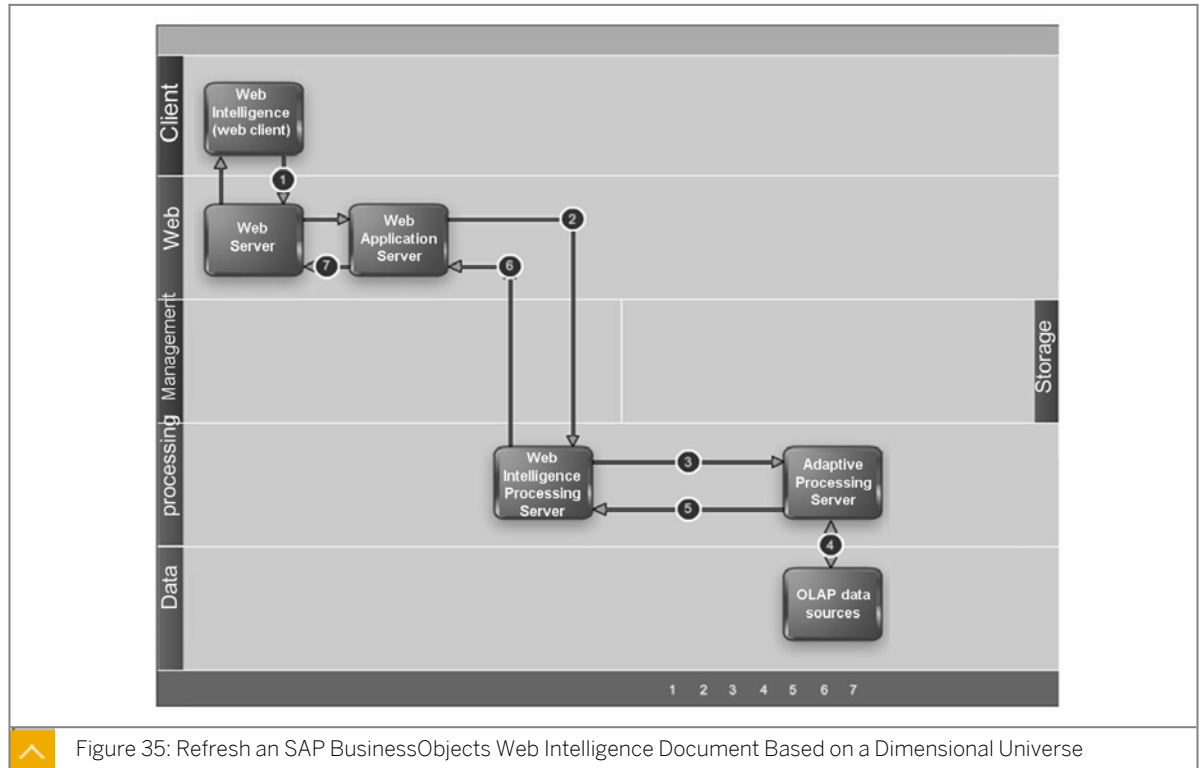


Figure 35: Refresh an SAP BusinessObjects Web Intelligence Document Based on a Dimensional Universe

Document Refresh in Web Intelligence Desktop in One-tier Mode

The following steps explain the interaction of platform components when you refresh a document in SAP BusinessObjects Web Intelligence Desktop in one-tier mode

1. The SAP BusinessObjects Web Intelligence Desktop client runs all processes necessary to obtain current data from the data source to refresh the Web Intelligence document with current data.



Note:

All middleware required is installed locally on the same machine as the Web Intelligence Desktop client.

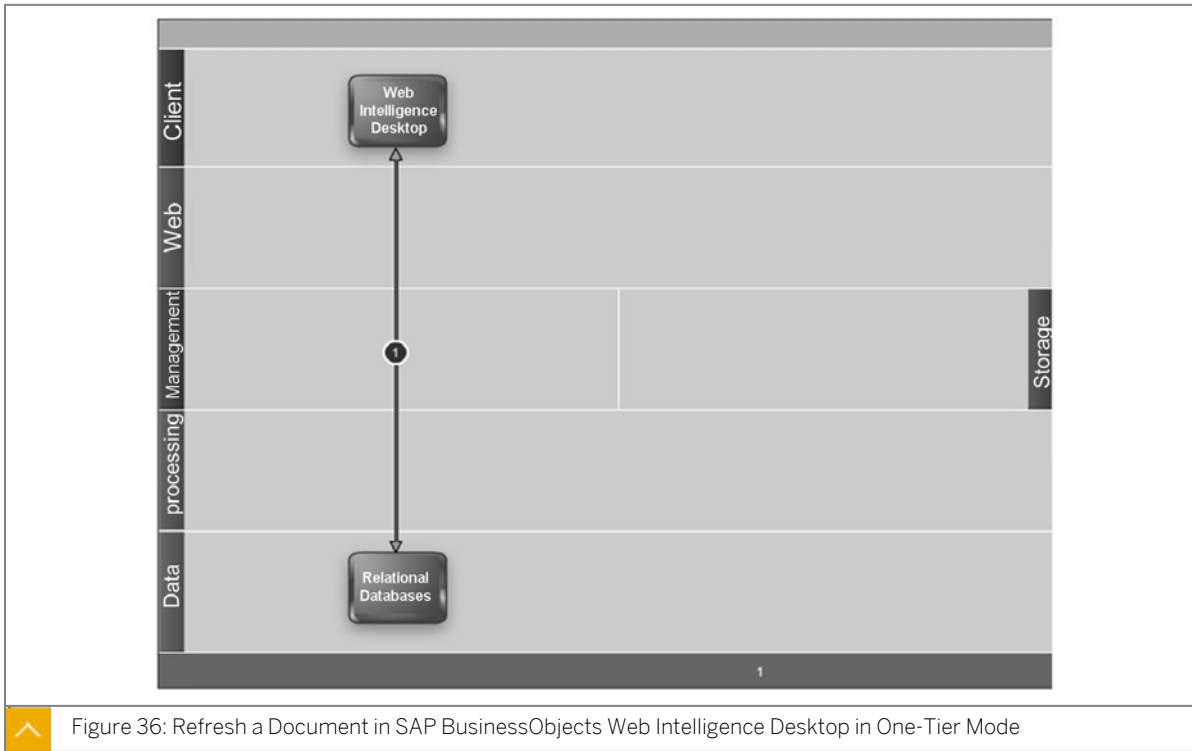


Figure 36: Refresh a Document in SAP BusinessObjects Web Intelligence Desktop in One-Tier Mode



LESSON SUMMARY

You should now be able to:

- View Web Intelligence documents



Configuring a Web Intelligence Processing Server

LESSON OVERVIEW

The Web Intelligence Processing server and service properties are easy to configure from the CMC. Simply navigate to the *Web Intelligence Services* container, right click it, and select the *Properties* option. All configuration for the server and its hosted services can be performed on this *Properties* screen.



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Configure a Web Intelligence Processing server

Web Intelligence Processing Server Properties

The Web Intelligence Processing server properties are grouped into the following services:

- Information Engine Service Settings
- Web Intelligence Processing Server Properties
- Web Intelligence Processing Service Settings
- Web Intelligence Common Service Settings

Information Engine Service Settings

Property	Description
Enable List of Values Cache	Specifies whether caching is enabled for List of Values on the Web Intelligence Processing server.
List of Values Batch Size (entries)	Specifies the maximum number of entries (or values) for each List of Values batch.
Maximum Custom Sort Size (entries)	Specifies the maximum number of entries in the custom sort.
Universe Cache Maximum Size (Universes)	Specifies the number of universes to be cached on the Web Intelligence Processing server.
Maximum List of Values Size (entries)	Specifies the maximum number of entries (or values) for each List of Values.

Web Intelligence Processing Server Properties



Property	Description
Timeout Before Recycling (seconds)	Specifies the time, in seconds, the server is idle before the Server Intelligence Agent (SIA) stops and restarts the server when the total number of documents processed is above the value specified with the Maximum Documents Before Recycling property.
Idle Document Timeout (seconds)	Specifies the amount of time, in seconds, before the Web Intelligence Processing server session will be swapped. Therefore, when the client is not generating requests during this period of time, the session will be swapped onto the hard disk, freeing up resources for an active session.
Server Polling Interval (seconds)	Specifies the interval, in seconds, that must pass before the server polls for new thread requests. When the server is in the polling phase, it performs cleanup actions like swapping unused documents to keep the server memory under the upper memory threshold.
Maximum Documents per User	Specifies the maximum number of active sessions (Web Intelligence documents) that can be associated with a user at any given time. Therefore, if the default value is 5, the user can use up to 5 active sessions at once.
Maximum Documents Before Recycling	Specifies the number of Web Intelligence documents that can be processed before the server will be considered for recycling. If the number of processed documents has been reached, and the server is idle, then the server is closed and the Server Intelligence Agent (SIA) starts a new instance of the server. However, there will be a time delay before a new instance of the server is started. The time delay is defined by the Timeout Before Recycling property.
Allow Document Map Maximum Size Errors	Specifies whether the Maximum Connections property is restricted. If this property is enabled, then the value set for the Maximum Connections property is recognized by the server; otherwise the property is disregarded.

Property	Description
Idle Connection Timeout (minutes)	Specifies the amount of time, in minutes, that the server waits for a request from an idle connection. Setting a value that is too low can cause a request to close prematurely. Setting a value that is too high can cause requests to be queued while the server waits for idle requests to be closed.
Maximum Connections	Specifies the maximum number of simultaneous sessions that can be opened at one time. This is an approximate number; this setting does not count the inactive sessions that are swapped, or the session that is created to analyze the number of sessions. If this limit is reached, and no other server is available to handle the request, the user will receive an error message.
Enable Memory Analysis	<p>Specifies whether memory analysis is enabled. If this property is enabled then the following properties will be active and recognized by the server:</p> <ul style="list-style-type: none"> • Memory Maximum Threshold • Memory Upper Threshold • Memory Lower Threshold <p>When the server process memory is above the Memory Upper Threshold , the only operation that is allowed is saving documents. When the process memory is above the Memory Maximum Threshold , all operations stop and fail.</p>
Memory Maximum Threshold (MB)	Specifies the maximum threshold for memory consumption.
Memory Upper Threshold (MB)	Specifies the memory upper threshold. The default value is 1500MB for memory consumption.
Memory Lower Threshold (MB)	Specifies the lower threshold for memory consumption.
Enable PJS Service Monitoring	Enables monitoring of the server by the PJS service, hosted on the Adaptive processing server.
Retry Count on PJS Service Ping Failure	Specifies the number of times the server will try to reach the PJS Service before deciding that it is unable to reach it.

Property	Description
PJS Service Monitoring Thread Period	Specifies the period of delay between attempts to reach the PJS Service.

Web Intelligence Processing Service Settings

Property	Description
Enable use of HTTP URL	Specifies whether the server is able to access files that are stored remotely.
Proxy Value	Specifies the address of your network proxy server. It is only necessary to specify a value if your network uses a proxy server and you attempt to access files that are stored remotely.

Web Intelligence Common Service Settings

Property	Description
Cache Timeout (minutes)	Specifies the amount of time, in minutes, before the contents of the document cache will be cleared. The timeout depends on the most recent access date per document.
Document Cache Clean-up Interval (minutes)	Specifies the time interval, in minutes, that the document cache is scanned and is checked against the Maximum Document Cache Size , Maximum Document Cache Reduction Space , and Maximum Document in Cache settings.
Disable Cache Sharing	Specifies whether cache sharing is disabled. By default, cache sharing is enabled, which means that all Web Intelligence Processing server instances will share the same cache. However, if you prefer to have one cache per instance of Web Intelligence Processing server then you must enable this property.
Enable Document Cache	Specifies whether the document cache is enabled. If the property is enabled, then the cache can be pre-loaded with scheduled Web Intelligence documents.
Enable Real-Time Cache	Specifies whether the real-time cache is enabled. If the property is enabled, then the cache can be loaded dynamically. Therefore, the Web Intelligence Processing server caches Web Intelligence documents when they are viewed. The server also caches the documents when they run as a scheduled job, if the pre-cache was enabled in the document.

Property	Description
Maximum Document Cache Size (KB)	Specifies whether the real-time cache is enabled. If the property is enabled, then the cache can be loaded dynamically. Therefore, the Web Intelligence Processing server caches Web Intelligence documents when they are viewed. The server also caches the documents when they run as a scheduled job, if the pre-cache was enabled in the document.
Maximum Document Cache Reduction Space	Specifies the percentage of cache that is emptied to allow newer actions and results to be stored in the cache. Documents with the oldest "last access time" are purged.
Maximum Character Stream Size (MB)	Specifies the maximum character stream size, in MB, sent to the Web Intelligence client.
Binary Stream Maximum Size (MB)	Specifies the maximum size, in MB, of a binary stream sent to the Web Intelligence client.
Maximum Documents in Cache	The maximum number of Web Intelligence documents that can be stored in the cache. There is never more than this many documents in the cache; the total size of the cache is never greater than the value specified with the Maximum Document Cache Reduction Space (MB) setting.
Images Directory	Specifies the location of the image directory.
Output Cache Directory	Specifies the location of the cache.

Web Intelligence Processing Server Metrics



Table 34: Server Metrics

Metric	Description
Cache size (KB)	The current amount, in kilobytes, of data that is stored in the cache.
Number of Out-of-Date Documents in Cache	The number of documents deleted from the cache, because they were too old, since the server was started.
Cache High Mark Count	The number of times that the cache has reached the maximum size allowed on the server since it was started.
CPU Usage (%)	The percentage of total CPU time spent by the server since the server was started.

Metric	Description
Total CPU Time (seconds)	The total CPU time, in seconds, spent by the server since it was started.
Memory High Threshold Count	The number of times that the high memory threshold has been reached on the server since it was started.
Memory Max Threshold Count	The number of times that the maximum memory threshold has been reached on the server since it was started.
Virtual Memory Size (MB)	The total amount of memory, in megabytes, that are assigned to the server.
Current Number of Client Calls	The current number of CORBA calls that the server is processing.
Current Number of Tasks	The current number of tasks that are being executed on the server.
Total Number of Client Calls	The total number of CORBA calls that the server has received since it was started.
Total Number of Tasks	The total number of tasks that have been executed on the server since it was started.
Idle Time (seconds)	The amount of time, in seconds, that have elapsed since the last request that the server has received from a client.
Current Number of Active Sessions	The current number of sessions that are able to accept requests from clients.
Number of Documents	The number of documents that are currently open on the server.
Current Number of Sessions	The current number of sessions that have been created on the server.
Number of Document Swap	The number of documents for which a cleanup thread has scheduled swap requests.
Number of Swapped Documents	The number of documents that have been swapped by swap requests.
Number of Sessions Timeout	The number of sessions that have timed out since the server was started.
Total Number of Sessions	The number of sessions that have been created on the server since the server was started.
Number of Users	The total number of users that are connected to the server.



How to Configure the Web Intelligence Processing Server



Refer students to the Web Intelligence Processing Server Properties portion of their handbook to follow along with this demonstration.

Follow these instructions to configure the Web Intelligence Processing server properties.

1. Log on to the CMC as an administrator. Close the System Configuration Wizards if it appears after you log on.
2. Navigate to the *Servers > Service Categories* container and expand it.
3. Select the *Web Intelligence Services* container.
4. In the *Web Intelligence Services* container, right-click the *node.WebIntelligenceProcessing server* and select the *Properties* menu option.
5. In the *Properties* window, scroll down and locate the *Information Engine Service* portion of the window.
6. Make the appropriate changes to the *Information Engine Service* properties.
7. Scroll down the *Properties* window and locate the *Web Intelligence Core Service* portion.
8. Make the appropriate changes to the *Web Intelligence Core Service* properties.
9. Continue to scroll down the *Properties* window until you reach the *Web Intelligence Processing Service* portion.
10. Make your choice of changes to the *Web Intelligence Processing Service* properties.
11. Continue to scroll down the *Properties* window until you reach the *Web Intelligence Common Service* portion.
12. Make the appropriate changes to the *Web Intelligence Common Service* properties.

Unit 9

Exercise 10



Manage and Monitor the Web Intelligence Processing Server

Business Example

As the system administrator, you must configure the Web Intelligence Processing Server to close idle connections after a certain amount of time and observe the impact of changing this number on the viewing of Web Intelligence reports.



Caution:
To do this exercise, use the new Training Course BOE320 content in the Initialize Course procedure.

Modifying Time Out for the Web Intelligence Processing Server

Configure the Web Intelligence Processing Server to close idle connections after two minutes.

1. Launch the CMC and logon with the following details:

Field Name	Value
System	<hostname>:6400
User name	Administrator
Password	<assigned password>
Authentication	Enterprise

2. Go to the Servers area in the Central Management Console (CMC) and select the *Web Intelligence Processing Server Properties*.
3. Set the *Idle Connection Timeout* of the Web Intelligence Processing Server to 2 minutes.
4. Restart the chosen Web Intelligence Processing Server.

Publish an Excel File in the Platform

Publish an Excel file in the Business Intelligence 4.x platform.

1. Open your `My Documents` folder with Windows Explorer in your Training Cloud Environment. Make sure that you have uncompressed your `Course Environment` as requested by your instructor at the beginning of the training course.
2. As an administrator, publish the local `EuropeTargets.xls` file to your `Personal` folder in the BI 4.x platform.

Create a Web Intelligence Document with a Published Excel File as a Datasource

1. From the BI 4.x launchpad, launch the Web Intelligence Web Application.
2. Create a New Web Intelligence Document with a published Excel file as the datasource.
3. In the Web Intelligence document, format the data in the Year column.



Note:
The data in the Year column is not date data.

4. Create a section for the year data.
5. Create a break for the country data.
6. Add a total to the performance measure at the section level.
7. Add a subtotal on all other measures at the break level.
8. Complete the Web Intelligence document by adding and applying a new conditional format rule for totals and subtotals on the Performance measure.

Conditions	Color
Performance >0	Background: Green
	Text: Black
Performance <= 0	Background: Red
	Text: White

9. Save the Web Intelligence document with the name **WEBI-Europe Targets** to your Personal folder in the BI 4.x platform.
10. Close the Web Intelligence document.

Auto-Disconnect Web Intelligence Document Users

1. From the BI launch pad, open the **WEBI-Europe Targets** Web Intelligence document and refresh it.
2. Keep the document open for three minutes. Do not touch the Web browser. After two minutes of idle time, the Web Intelligence document automatically closes and all Web Intelligence users are automatically disconnected from the BI launch pad.



Note:
This automatic log-off of the Web Intelligence application and BI launch pad is the result of the Timeout parameter that was set to "2 minutes" in the Properties of the Web Intelligence Processing Server.



Manage and Monitor the Web Intelligence Processing Server

Business Example

As the system administrator, you must configure the Web Intelligence Processing Server to close idle connections after a certain amount of time and observe the impact of changing this number on the viewing of Web Intelligence reports.



Caution:
To do this exercise, use the new Training Course BOE320 content in the Initialize Course procedure.

Modifying Time Out for the Web Intelligence Processing Server

Configure the Web Intelligence Processing Server to close idle connections after two minutes.

1. Launch the CMC and logon with the following details:

Field Name	Value
System	<hostname>:6400
User name	Administrator
Password	<assigned password>
Authentication	Enterprise

- a) Click *Start* → *Programs* → *SAP BusinessObjects BI platform 4* → *Custom Link to CMC homepage page* .
 - b) Log on with your username and password.
2. Go to the Servers area in the Central Management Console (CMC) and select the *Web Intelligence Processing Server Properties* .
 - a) Click *Servers* .
 - b) Navigate to *Service Category* → *Web Intelligence Services* .



Hint:
Alternately, you can find the Web Intelligence Processing Server from the *Server List* .

- c) Right-click the Web Intelligence Processing Server and click *Properties* .
3. Set the *Idle Connection Timeout* of the Web Intelligence Processing Server to 2 minutes.
 - a) Under the *Web Intelligence Core Service* section, set the *Idle Connection Timeout (minutes)*: to **2** .
 - b) Click *Save & Close* .
A flag appears next to the Web Intelligence Processing Server inside the *Stale* column.
4. Restart the chosen Web Intelligence Processing Server.
 - a) Right-click the Web Intelligence Processing Server.
 - b) Click *Restart Server* .
Wait for a few seconds for the server to restart.
 - c) Click the *Refresh* button.
The stale flag disappears and the server state is changed to *Running* .

Publish an Excel File in the Platform

Publish an Excel file in the Business Intelligence 4.x platform.

1. Open your *My Documents* folder with Windows Explorer in your Training Cloud Environment. Make sure that you have uncompressed your *Course Environment* as requested by your instructor at the beginning of the training course.
2. As an administrator, publish the local *EuropeTargets.xls* file to your *Personal* folder in the BI 4.x platform.
 - a) Log on to the Central Management Console (CMC) and select *Personal Folders* .
 - b) Select the *Administrator* folder.
 - c) Click the *Manage Add-Local Document* menu options.
 - d) Browse to your local folder and select the local *EuropeTargets.xls* file.
 - e) Click the *Add* button to publish the Excel file to your BI 4.x personal folder.
The local Excel file is now published to the BI 4.x platform.

Create a Web Intelligence Document with a Published Excel File as a Datasource

1. From the BI 4.x launchpad, launch the Web Intelligence Web Application.
 - a) Log on to the launchpad as the Administrator.
 - b) Click the *Web Intelligence* icon to launch it. Wait a couple of seconds for the application to load.
2. Create a New Web Intelligence Document with a published Excel file as the datasource.
 - a) Click the *New* icon to create a new Web Intelligence document.
 - b) Select the *Excel* option and then click the *OK* button.



Note:

This is a new feature of the BI Launchpad in the BI 4.x.1 SP2 platform.

- c) In your *Personal* folder, select the *EuropeTargets.xls* file and click the *Open* button.
 - d) Accept all of the default values in the dialog box and then click the *OK* button.
 - e) In the *Query Panel* dialog box, modify the following properties of the "Year" object in the Query:
 - a) Select the *Year* object in the Query panel.
 - b) In the Object Properties portion of the window, change the entry in the *Qualification* field to **Dimension**.
 - c) In the Object Properties portion of the window, change the entry in the *Type* field to **Date**.
 - f) Click the *Run Query* button to generate the Web Intelligence document. The Web Intelligence document is now generated.
3. In the Web Intelligence document, format the data in the Year column.



Note:

The data in the Year column is not date data.

- a) Select all of the data in the Year column of the Web Intelligence document.
 - b) Right-click on the selected data. On the resulting menu, click the *Format Numbers* option.
 - c) Select the *Number* option from the list.
 - d) In the list of values, select the *1235;-1235* option.
 - e) Click the *OK* button. The year data is now formatted correctly in the Web Intelligence document.
4. Create a section for the year data.
- a) In the Web Intelligence document, select all of the data in the "Year" column.
 - b) Right-click on the selected data. On the resulting menu, select the *Set as Section* option.
 - c) Resize the width of the cell for the section according to your own preferences. The Web Intelligence document is now grouped by year.
5. Create a break for the country data.
- a) In the Web Intelligence document, select all of the data in the "Country" column.
 - b) Right-click on the selected data. On the resulting menu, select the *Break > Add Break* options.

- c) Resize the width of the cell for the break according to your own preferences.
The Web Intelligence document is now grouped by year and contains breaks by country.
6. Add a total to the performance measure at the section level.
- a) In the Web Intelligence document, drag the *Performance* object on the left-side of the window to the right-side of the Year section (just above the Performance column header).
The Web Intelligence document is now grouped by year, contains breaks by country, and shows the performance measure which is automatically aggregated at the section level.
7. Add a subtotal on all other measures at the break level.
- a) In the Web Intelligence document, drag the *Sold* object from the left-side of the window, to the inside of the break cells of the Sold column.
- b) Drag the *Target* object from the left-side of the window, to the inside of the break cell of the Target column.
- c) Drag the *Performance* object from the left-side of the window, to the inside of the break cell of the Performance column.
The Web Intelligence document is now grouped by year, contains breaks by country, and shows totals and subtotals at the section and break level.
8. Complete the Web Intelligence document by adding and applying a new conditional format rule for totals and subtotals on the Performance measure.

Conditions	Color
Performance > 0	Background: Green
	Text: Black
Performance < = 0	Background: Red
	Text: White

- a) Select the *Analysis Condition* options in the application toolbar.
- b) Click the *New Rule* button.
- c) Create the first condition as shown in the previous table.
- d) Create the second condition as shown in the previous table.
- e) Click the *OK* button.
- f) In the Web Intelligence document, select the *Total Value of Performance* at the Section level. Then select the *Formatting Rules -- Conditional Format* option in the toolbar.
The new rule is evaluated and the conditional format is applied to Totals in the Web Intelligence document.
- g) In the Web Intelligence document, select the *subtotal* value of Performance at the Break level. Then select *Formatting Rules -- Conditional Format* option in the toolbar.
The new rule is evaluated and the conditional format is applied to subtotals in the Web Intelligence document.

- h) In the Web Intelligence document, select all the other data in the Performance column. Then select the *Formatting Rules -- Conditional Format* option in the toolbar. The new rule is evaluated and the conditional format is now applied to all of the Performance data in the Web Intelligence document.
9. Save the Web Intelligence document with the name **WEBI-Europe Targets** to your Personal folder in the BI 4.x platform.
 10. Close the Web Intelligence document.

Auto-Disconnect Web Intelligence Document Users

1. From the BI launch pad, open the **WEBI-Europe Targets** Web Intelligence document and refresh it.
2. Keep the document open for three minutes. Do not touch the Web browser. After two minutes of idle time, the Web Intelligence document automatically closes and all Web Intelligence users are automatically disconnected from the BI launch pad.



Note:

This automatic log-off of the Web Intelligence application and BI launch pad is the result of the Timeout parameter that was set to "2 minutes" in the Properties of the Web Intelligence Processing Server.



LESSON SUMMARY

You should now be able to:

- Configure a Web Intelligence Processing server



Configuring a Connection Server

LESSON OVERVIEW

A Connection server provides database access to source data. The Connection server manages connection and interaction with various data sources and provides a common feature set to clients. It is an integral step in the process to refresh a document in either two tier or three tier mode. The Connection server hosts two services: Native Connectivity service and Native Connectivity service (32-bit). The Connection server's few properties are easily configured from the CMC.



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Configure a Connection server

Connection Server Role

Connection server provides database access to source data. It supports relational databases, as well as OLAP and other formats. The Connection server is responsible for handling connection and interaction with the various data sources and providing a common feature set to clients.

The following table lists all the services that are hosted by the Connection server.



Table 35: Services

Service	Service category	Service description
Native Connectivity Service	Connectivity Services	Provides Native Connectivity services for 64-bit architectures.
Native Connectivity Service (32-bit)	Connectivity Services	Provides Native Connectivity services for 32-bit architectures.

Document Refresh in Web Intelligence Desktop in Two-Tier Mode

The following steps explain the interaction of platform components when you refresh a document in SAP BusinessObjects Web Intelligence Desktop in two-tier mode

1. The SAP BusinessObjects Web Intelligence Desktop client sends a CORBA request to the Central Management Server (CMS) to locate an available Connection server.

**Note:**

The user previously logged on to the SAP BusinessObjects Business Intelligence platform. Rights were checked and the document was opened in the Web Intelligence Desktop client. The CMS checks the CMS system database to locate an available Connection server, and then sends this information to the Web Intelligence Desktop client.

2. The Web Intelligence Desktop client sends a CORBA request to the Connection server to obtain current data for the Web Intelligence document.
3. The Connection server launches the required processes and obtains the current data from the data source, a relational database in this case.
4. The Connection server sends the current data to the Web Intelligence Desktop client, where the current data is displayed to refresh the Web Intelligence document.

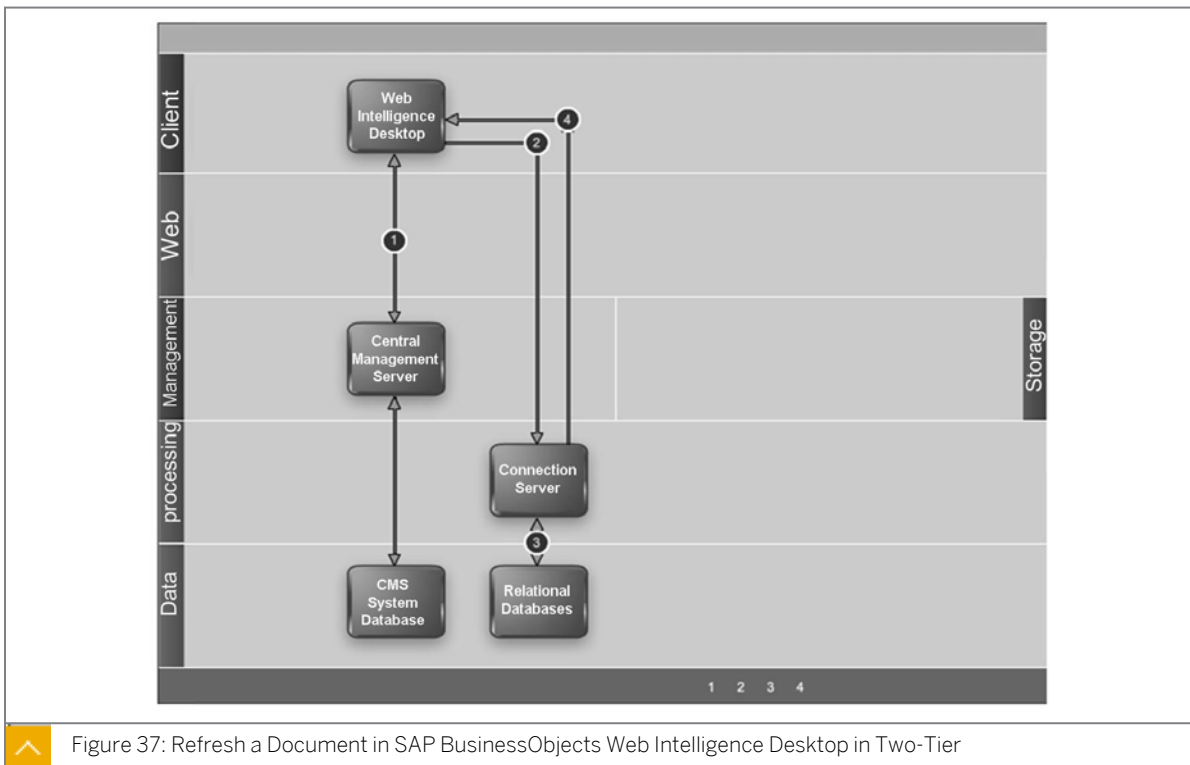


Figure 37: Refresh a Document in SAP BusinessObjects Web Intelligence Desktop in Two-Tier

Document Refresh in Web Intelligence Desktop in Three-Tier Mode

The following steps explain the interaction of platform components when you refresh a document in SAP BusinessObjects Web Intelligence Desktop in three-tier mode.

1. The user sends the HTTP request (to refresh the Web Intelligence document) from the SAP BusinessObjects Web Intelligence Desktop client through the Web server to the Web Application server.

**Note:**

The user previously logged on to the SAP BusinessObjects Business Intelligence platform. Rights were checked and the document was opened in the Web Intelligence Desktop client.

2. The Web Application server recognizes the request as a request to refresh a Web Intelligence document. The web application server requests an available Connection server from the Central Management Server (CMS). The CMS checks the CMS system database to locate an available Connection server, and then sends this information to the Web Application server.
3. The Web Application server sends a request to the Connection server to obtain current data for the Web Intelligence document.
4. The Connection server launches the required processes and obtains the current data from the data source, a relational database in this case.
5. The Connection server sends the current data to the Web Application server.
6. The Web Application server forwards the current data through the web server to the SAP BusinessObjects Web Intelligence Desktop client, where the current data is displayed to refresh the document.

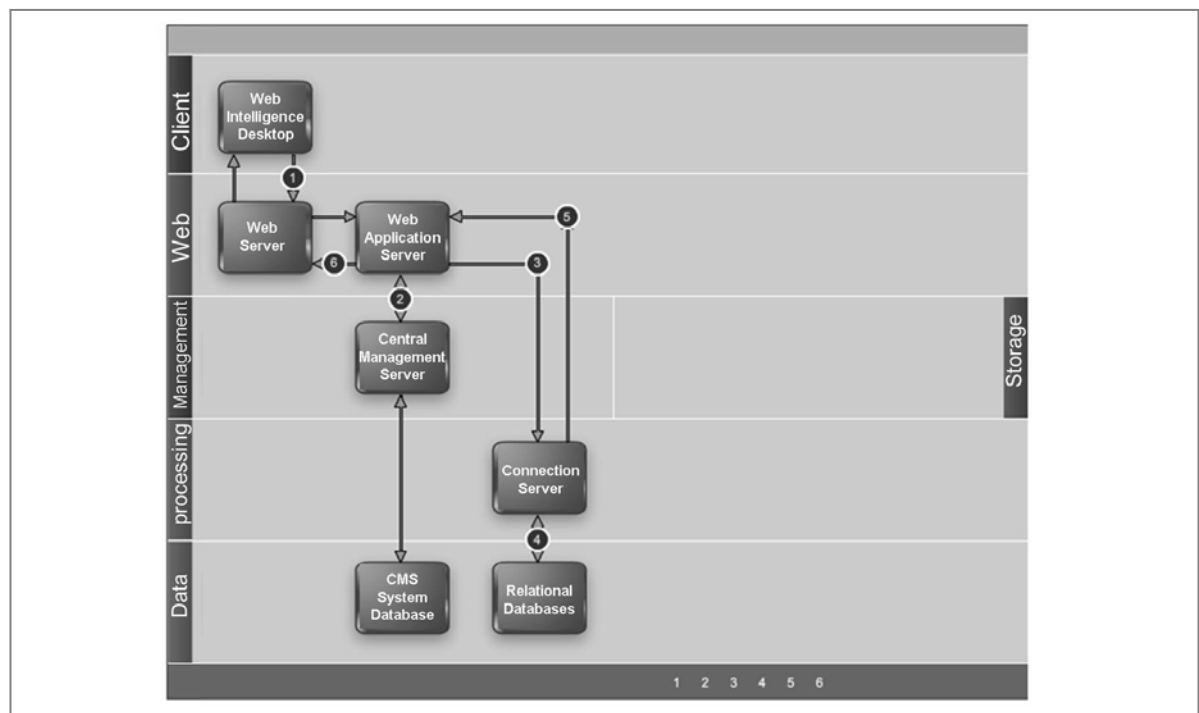


Figure 38: Refresh a Document in SAP BusinessObjects Web Intelligence Desktop in Three-Tier Mode

Connection Server Metrics

The Connection Server and Connection Server 32 metrics are listed in the following table:



Table 36: Connection Server Metrics

Server	Metrics
Connection Server	Busy Server Threads
	CPUs
	Disk Size
	PID
	RAM
	Server Enabled State
	Server Running State
	Used Disk Space

Table 37: Connectivity Service Metrics

Metric	Description
Data Sources	<p>Displays the following information for each network layer and database pair:</p> <ul style="list-style-type: none"> • <i>Status</i> : current status of the driver • <i>Available Connections</i> : number of pool connections that can be used • <i>Jobs (CORBA)</i> : number of jobs that are being processed (2-tier deployment) • <i>Jobs (HTTP)</i> : number of jobs that are being processed processing (web tier deployment)

**LESSON SUMMARY**

You should now be able to:

- Configure a Connection server



Learning Assessment

1. Match the Web Intelligence Processing Server Service with the appropriate description.
Match the item in the first column to the corresponding item in the second column.

Information Engine Service
Web Intelligence Core Service
Web Intelligence Processing Service
Web Intelligence Common Service

Service required for Web Intelligence documents processing.
Accepts and processes Web Intelligence documents.
Supports Web Intelligence documents processing.
Supports Web Intelligence documents processing.

2. Arrange the steps to set and run a schedule for a Web Intelligence Document into the proper order.
Arrange these steps into the correct sequence.

- Log on to the CMC as an administrator.
- Click the *Schedule* button at the bottom right of the screen. The scheduled document appears listed in the *Documents > History* window.
- In the *Schedule* window, select the *Weekly* option (or whichever option you prefer) from the *Recurrence Run Object* dropdown list.
- Navigate to the folder that contains the Web Intelligence document that you want to schedule.
- Right-click the document and select *Schedule* from the menu options. The *Schedule* window opens.

3. Arrange these steps to match the sequence of the interaction of platform components when you export a Web Intelligence document.

Arrange these steps into the correct sequence.

- The Web Application server sends a request to the Web Intelligence Processing server to export the currently open document.
 - The Web Application server sends the formatted document through the Web server to the Web client.
 - The user sends the export request from the Web Intelligence Web client through the web server to the Web Application server, where the Web Intelligence Web Application is running.
 - The Web Intelligence Processing server sends the formatted document to the Web Application server.
 - The Web Intelligence Processing server processes the document into the requested export format (PDF or Excel).
4. How many platform interactions are involved in the process to refresh a document in Web Intelligence Desktop in one-tier mode?

Choose the correct answer.

- A 1
 - B 2
 - C 3
 - D 4
5. Select the correct menu path for accessing the Web Intelligence Processing server properties.

Choose the correct answer.

- A Go to CMC > Services > Web Intelligence Services > Service Properties .
- B Go to CMC > Servers > Web Intelligence Servers > Web Intelligence Processing server > Properties .
- C Go to the CMC > Servers>Service Categories > Web Intelligence Services . Right click Web Intelligence Processing server and select the Properties option from the resulting options menu.
- D Go to CMS > Services > Web Intelligence Services . Right click Web Intelligence Processing server and select the Properties menu option.



Learning Assessment - Answers

1. Match the Web Intelligence Processing Server Service with the appropriate description.
Match the item in the first column to the corresponding item in the second column.

Information Engine Service
Web Intelligence Core Service
Web Intelligence Processing Service
Web Intelligence Common Service

Service required for Web Intelligence documents processing.
Supports Web Intelligence documents processing.
Accepts and processes Web Intelligence documents.
Supports Web Intelligence documents processing.

2. Arrange the steps to set and run a schedule for a Web Intelligence Document into the proper order.
Arrange these steps into the correct sequence.

- 1** Log on to the CMC as an administrator.
- 5** Click the *Schedule* button at the bottom right of the screen. The scheduled document appears listed in the *Documents > History* window.
- 4** In the *Schedule* window, select the *Weekly* option (or whichever option you prefer) from the *Recurrence Run Object* dropdown list.
- 2** Navigate to the folder that contains the Web Intelligence document that you want to schedule.
- 3** Right-click the document and select *Schedule* from the menu options. The *Schedule* window opens.

3. Arrange these steps to match the sequence of the interaction of platform components when you export a Web Intelligence document.

Arrange these steps into the correct sequence.

2 The Web Application server sends a request to the Web Intelligence Processing server to export the currently open document.

5 The Web Application server sends the formatted document through the Web server to the Web client.

1 The user sends the export request from the Web Intelligence Web client through the web server to the Web Application server, where the Web Intelligence Web Application is running.

4 The Web Intelligence Processing server sends the formatted document to the Web Application server.

3 The Web Intelligence Processing server processes the document into the requested export format (PDF or Excel).

4. How many platform interactions are involved in the process to refresh a document in Web Intelligence Desktop in one-tier mode?

Choose the correct answer.

A 1

B 2

C 3

D 4

5. Select the correct menu path for accessing the Web Intelligence Processing server properties.

Choose the correct answer.

A Go to CMC > Services > Web Intelligence Services > Service Properties .

B Go to CMC > Servers > Web Intelligence Servers > Web Intelligence Processing server > Properties .

C Go to the CMC > Servers>Service Categories > Web Intelligence Services . Right click Web Intelligence Processing server and select the Properties option from the resulting options menu.

D Go to CMS > Services > Web Intelligence Services . Right click Web Intelligence Processing server and select the Properties menu option.

Lesson 1

Configuring Dashboard Servers

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Lesson 2

Managing Dashboard Design Servers

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Exercise 11: Create and Manage Dashboards

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UNIT OBJECTIVES

- Configure Dashboards servers
- Manage Dashboards Design servers



Configuring Dashboard Servers

LESSON OVERVIEW

Dashboard Design is a tool that provides data visualization with an embedded Excel spreadsheet on a Flash interface. This powerful tool updates data dynamically from the platform and exports it to the user's preferred format. The Dashboard Design Cache server and the Dashboard Processing server are the Dashboard Design servers. These servers can be configured by accessing their properties through the CMC.



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Configure Dashboards servers

SAP Business Objects Dashboards Design Servers

SAP BusinessObjects Dashboards Design

SAP BusinessObjects Dashboards Design (formerly Xcelsius) is a tool for data visualization and the creation of dynamic, interactive Dashboards. Data and formulae are imported or directly entered into an embedded Excel spreadsheet. A Flash interface provides a canvas that can display a variety of analytics and Dashboards. Data can be updated dynamically from SAP BusinessObjects BI platform, and exported to a variety of different formats that can be viewed by data consumers in standard formats, such as PowerPoint, PDF, or Flash.



Table 38: Dashboards Design Servers

Server kind	Description
Dashboards Cache Server	Intercepts report requests sent from clients to the Dashboards Processing Server. If the cache server cannot fulfill the request with a cached report page, it passes the request on to the Dashboards Processing server, which runs the report and returns the results. The cache server then caches the report page for potential future use.
Dashboards Processing Server	Responds to Dashboards Design requests and shares data between reports to reduce the number of database accesses.

Dashboards Processing Server Properties


Table 39: Dashboards Processing Server Properties

Property	Description	Default Value
Maximum Concurrent Jobs	Specifies the maximum number of independent jobs allowed to run concurrently on the server. If the value of this property is set to "0", the server applies a suitable value that is based on the CPU and memory of the machine that the server is running on.	The default value is 0.
Maximum Lifetime Jobs Per Child	Specifies the maximum number of jobs that each child process can manage per lifetime.	The default value is 10000.
Maximum Number of Prestarted Children	Specifies the maximum number of prestarted child processes that are allowed by the server. If this value is too low, the server creates child processes as soon as requests are made. A user may experience latency. If this value is too high, system resources may be unnecessarily wasted by idle child processes.	The default value is 1.
Idle Connection Timeout (minutes)	Specifies the amount of time, in minutes, that the server waits for a request from an idle connection. There is generally no need to modify the default value.	The default value is 15 minutes.
Idle Job Timeout (minutes)	Specifies the length of time (in minutes) that the server waits between requests for a given job.	the default value is 15 minutes.
Java Child VM Arguments	Species the command line arguments that are supplied to child processes that are created by the server.	Xmx858M,Dswfinjection.lang.director y=%CommonJavaLibDir%,Dbusinesobjects.connectivity.director y=%CONNECTIONSERVER_DIR%

Dashboards Cache Server Properties

Table 40: Dashboards Cache Server Properties

Property	Description	Default Value
Maximum Cache Size (KB)	Specifies the amount of hard disk space, in kilobytes, that is used to cache queries. A large cache size may be necessary if the server needs to handle large numbers of queries or highly complex queries.	The default value is 256000 KB.
Idle Connection Timeout (minutes)	Specifies the amount of time, in minutes, that the Dashboards Cache Server waits for a request from an idle connection. There is not normally a need to modify the default value.	The default value is 15 minutes.
Share Data Between Clients	Specifies whether report data is shared between different clients.	The default value is TRUE.

Property	Description	Default Value
Oldest On Demand Data Given to Clients (seconds)	<p>Specifies the amount of time, in seconds, that the server uses cached data to meet requests from ondemand queries.</p> <p>If the server receives a request that can be met using data that was generated to meet a previous request, and the time elapsed since that data was generated is less than the value set here, then the server will reuse this data to meet the subsequent request. Reusing data in this way significantly improves system performance when multiple users need the same information.</p> <p>When setting this value, consider how important it is that your users receive up-to-date data. If it is very important that all users receive fresh data (important changes happen frequently) you may need to disallow this kind of data reuse by setting the value to 0.</p> <div data-bbox="716 1257 1092 1570" style="border: 1px solid black; padding: 5px; margin-top: 10px;">  <p>Note: This property can be set in a report object itself. The values specified on the report object override the server settings.</p> </div>	The default value is 0 seconds.
Security Cache Timeout (minutes)	Specifies the amount of time, in minutes, that the server uses cached logon credentials, query properties, and database connection information to server requests before querying the CMS.	The default value is 20 minutes.

Property	Description	Default Value
Java VM Arguments	Specifies the command line arguments that can be supplied to the JVM.	Xmx858M

Dashboards Server Metrics



Table 41: Dashboards Processing Server Metrics

Metric	Description
Open Jobs	A table listing of the jobs that are currently being run on the server. The table includes the ID and Name of the document, the name of the user running the job, the date that the document was last accessed, and the amount of time that the job has been running.
Number of Requests Served	The total number of requests that the server has served since it started.
Number of Open Jobs	The number of currently jobs that the server and its child processes are currently processing.
ObjectType	The type of InfoObject that the server primarily deals with. The value for this metric does not change.
Average Processing Time (msec)	The average time, in milliseconds, the server has spent processing the last 500 requests that the server has received. If this number is consistently high and growing, consider creating additional servers on other machines.
Maximum Processing Time (msec)	The maximum time, in milliseconds, that the server has spent processing one of the last 500 requests. If this number is consistently high and growing, consider creating additional servers on other machines.
Minimum Processing Time (msec)	The minimum time, in milliseconds, that the server has spent processing one of the last 500 requests. If this number is consistently high and growing, consider creating additional servers on other machines.
Number of Queued Requests	The number of requests that are either waiting to be processed or are being processed. If this number is consistently high and growing, consider creating additional servers on other machines.
ObjectDllName	The name of the processing plug-in for the server. The value of this metric does not change.
Number of Open Connections	The number of connections that are currently open between the server and clients.
Request Failure Rate	The number of requests that the server failed to process as a percentage of the last 500 requests that the server has received.

Metric	Description
Data Transferred (KB)	The total amount of data, in kilobytes, that have been transferred to clients since the server was started.
Number of Requests Failed	The number of requests that the server was unable to complete since the server started.
MaxChildProcesses	The maximum number of concurrent child processes that are allowed on the server.

Dashboards Cache Server Metrics



Table 42: Dashboards Cache Server Metrics

Metric	Description
Cache Hit Rate (%)	The percentage of requests, over the last 500 requests, that have been served with cached data.
Connected Processing Servers	A table listing of the Dashboards Design Processing servers in your deployment. The table lists the name of the server and the number of connections that are currently open with the server.
Number of Requests Served	The total number of requests that the server has served since it started.
ObjectType	The type of InfoObject that the server primarily deals with. The value for this metric does not change.
Average Processing Time (msec)	The average time, in milliseconds, the server has spent processing the last 500 requests that the server has received. If this number is consistently high and growing, consider creating additional servers on other machines.
Maximum Processing Time (msec)	The maximum time, in milliseconds, that the server has spent processing one of the last 500 requests. If this number is consistently high and growing, consider creating additional servers on other machines.
Minimum Processing Time (msec)	The minimum time, in milliseconds, that the server has spent processing one of the last 500 requests. If this number is consistently high and growing, consider creating additional servers on other machines.
Number of Queued Requests	The number of requests that are either waiting to be processed or are being processed. If this number is consistently high and growing, consider creating additional servers on other machines.
ObjectDllName	The name of the processing plug-in for the server. The value of this metric does not change.
Cache Size (KB)	The amount of data, in kilobytes, that is currently being cached by the server on the disk.

Metric	Description
Number of Open Connections	The number of connections to clients that are currently open.
Data Transferred (KB)	The total amount of data, in kilobytes, that have been transferred to clients since the server was started.

Dashboards Cache Server

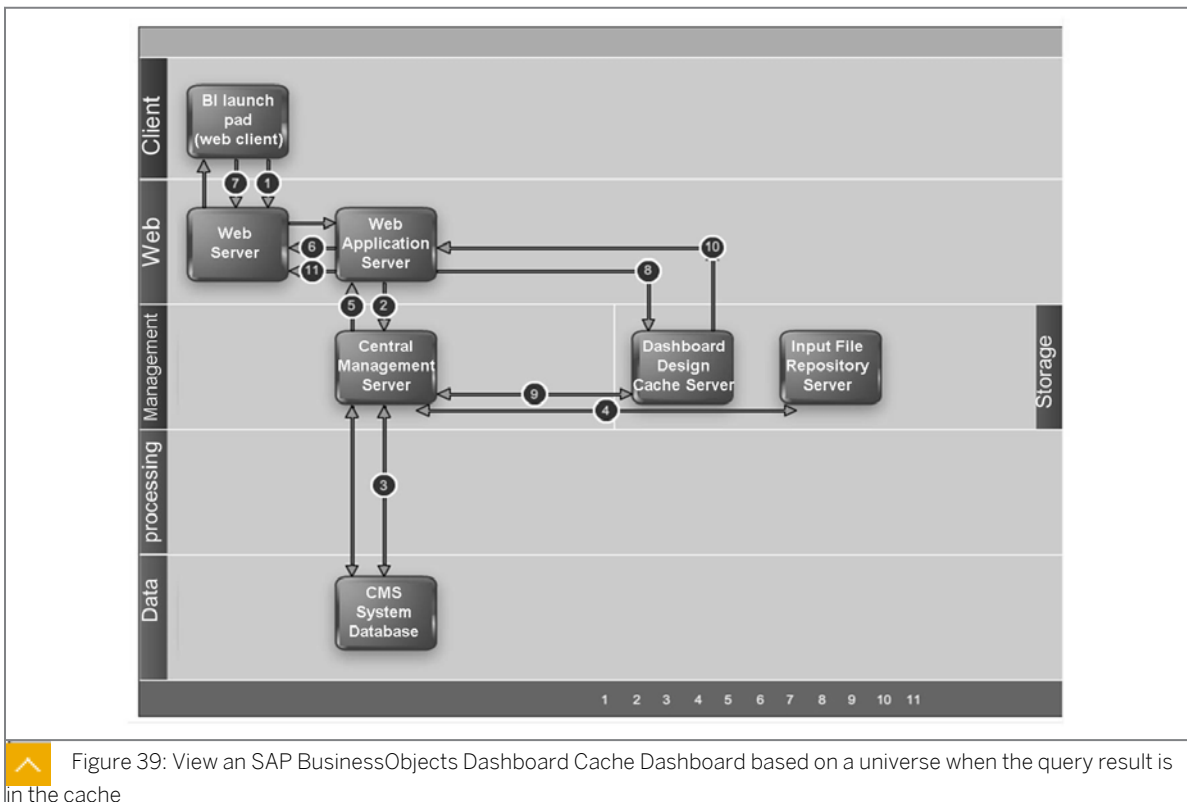


Figure 39: View an SAP BusinessObjects Dashboard Cache Dashboard based on a universe when the query result is in the cache

The following steps describe the interaction of components when a user views a Dashboard that is based on a universe.

1. The user sends the view request from the BI Launchpad web client through the Web server to the Web application server, where the Launchpad web application is running.
2. The Web Application server recognizes the request as a request to view the Dashboards of a Dashboards Design object. The Web Application server communicates with the Central Management Server (CMS) to obtain the Dashboards SWF file in the language corresponding to the user's preferred viewing locale (PVL).
3. The CMS checks the CMS system database to locate the Dashboards SWF file.
4. The CMS obtains the Dashboards SWF file from the Input File Repository server.
5. The CMS provides the Dashboards SWF file to the Web Application server.

6. The Web Application server sends the Dashboards SWF file through the web server to the Web client, where the SWF is rendered.
7. The SWF sends a request through the Web server to XcelsiusWebServices (which is a web service running on the Web Application server) to retrieve the universe (UNX) query result set.

**Note:**

The Dashboards may require one or more query results, depending on the visualization components included on the Dashboards.

8. XcelsiusWebServices sends the request to the Dashboards Cache server, requesting the universe (UNX) query result set.
9. The Dashboards Cache server checks with the Central Management Server (CMS) to see if the user has rights to run a query off the universe. The CMS checks the CMS system database and returns confirmation that the user has rights to run the query.
10. The Dashboards Cache server checks to see if the query result set already exists in its cache. In this case, the result set does exist, so the Dashboards Cache server returns the result set to XcelsiusWebServices.
11. XcelsiusWebServices sends the query result set back through the web server to the SWF on the Web client, to load up the Dashboards with current data.

**LESSON SUMMARY**

You should now be able to:

- Configure Dashboards servers



Managing Dashboard Design Servers

LESSON OVERVIEW

The Dashboard Design servers enable Dashboard creation, Dashboard design, Dashboard previewing, and Dashboard viewing when the query result is not in the cache. A New Query wizard provides easy steps to create a new query based on a BI universe on dashboards. Dashboard design offers simple configuration options through the Dashboard Components Panel. Administrators can test and publish a Dashboard to the platform with just a few mouse clicks.



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Manage Dashboards Design servers

Dashboards Previewing

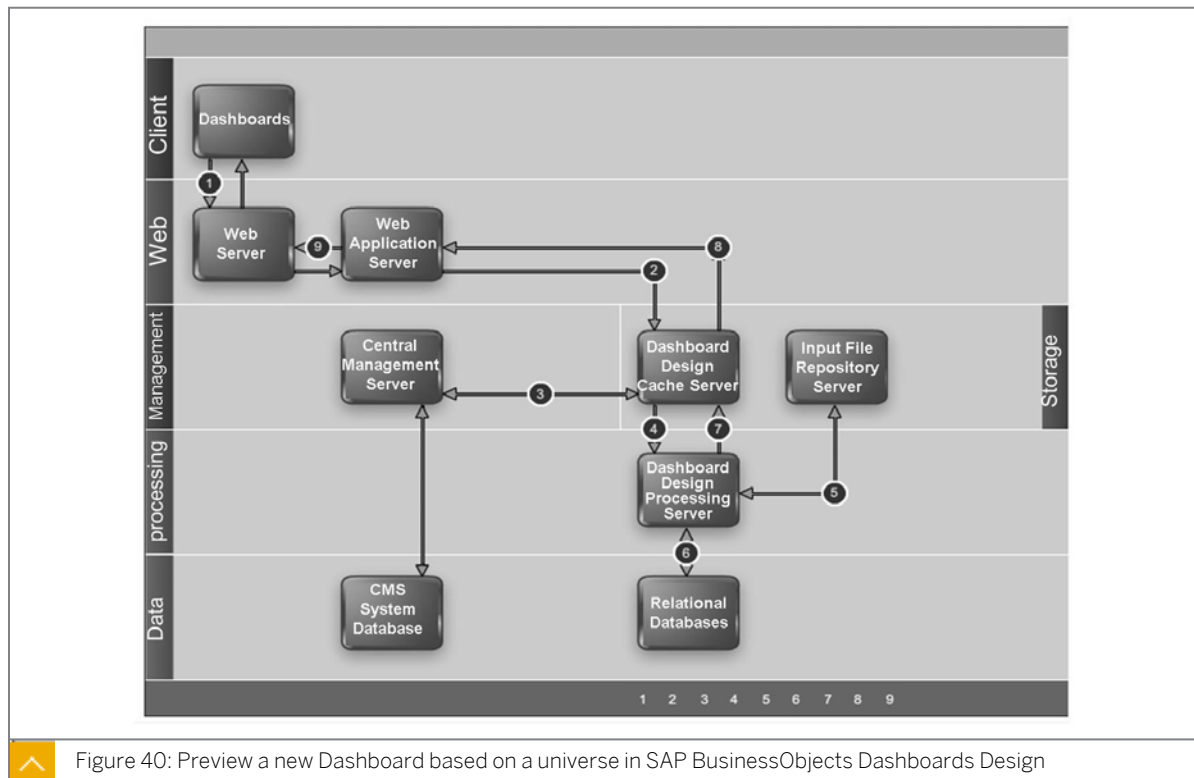


Figure 40: Preview a new Dashboard based on a universe in SAP BusinessObjects Dashboards Design

1. SAP BusinessObjects Dashboards Design sends an HTTP request through the web server to XcelsiusWebServices (which is a Web service running on the Web application server) to

retrieve the universe (UNX) query result set. Note: The Dashboards may require one or more query results, depending on the visualization components included on the Dashboards. Note: This process assumes the user previously logged on to the SAP BusinessObjects Business Intelligence platform from SAP BusinessObjects Dashboards Design to access the universe (UNX) on which to design the new Dashboards.

2. XcelsiusWebServices sends the request to the Dashboards Design Cache server, requesting the universe (UNX) query result set.
3. The Dashboards Design Cache server checks with the Central Management Server (CMS) to see if the user has rights to run a query off the universe. The CMS checks the CMS system database and returns confirmation that the user has rights to run the query.
4. The Dashboards Design Cache server checks to see if the query result set already exists in its cache. In this case the result does not exist, so the Dashboards Design Cache server sends the request to the Dashboards Design Processing server to retrieve the query result set.
5. The Dashboards Design Processing server launches the processes required to connect to the data source to obtain the query result set.
6. The Dashboards Design Processing server obtains the query result data from the data source, in this case a relational database.
7. The Dashboards Design Processing server returns the query result set to the Dashboards Design Cache server. The Dashboards Design Cache server saves the query result set in its cache directory.
8. The Dashboards Design Cache server returns the query result set to XcelsiusWebServices.
9. XcelsiusWebServices sends the query result set through the web server to SAP BusinessObjects Dashboards Design, to load current data into the Dashboards.

Dashboards Viewing When the Query Result is not in the Cache

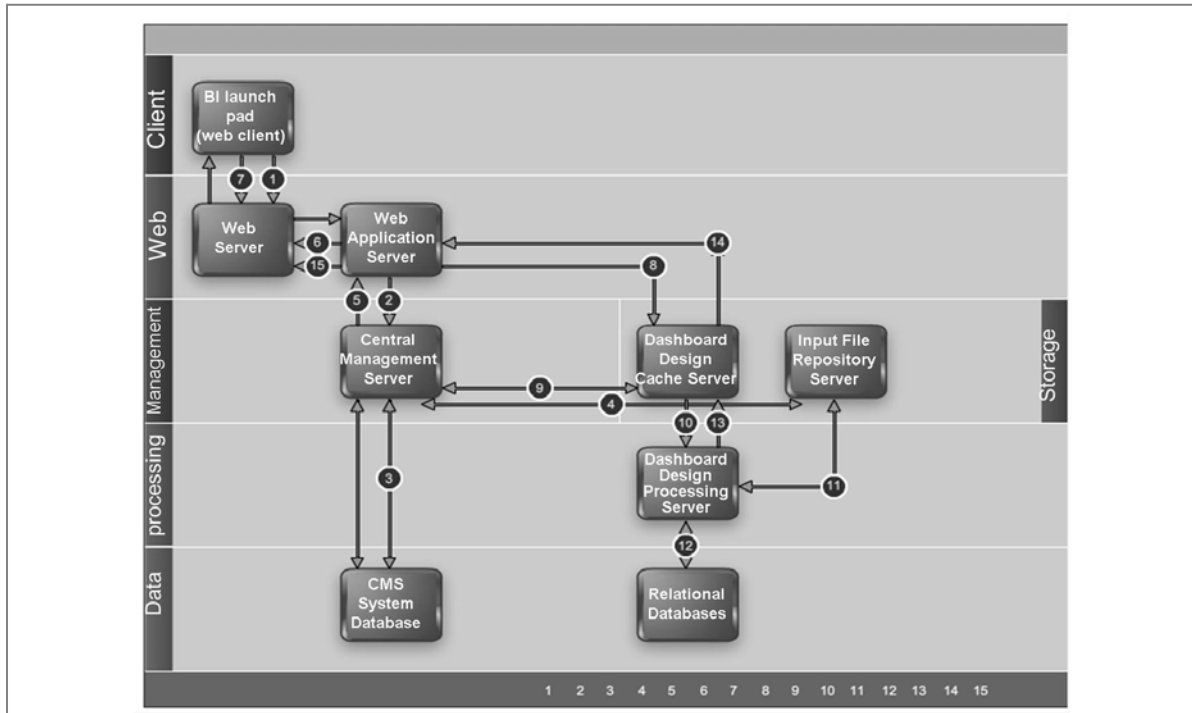


Figure 41: View an SAP BusinessObjects Dashboards Design Dashboards on a Universe When the Query Result is not in the Cache

1. The user sends the view request from the BI launch pad Web client through the web server to the web application server, where the BI launch pad Web Application is running.
2. The Web Application server recognizes the request as a request to view the Dashboards of a Dashboards Design object. The Web Application server communicates with the Central Management Server (CMS) to obtain the Dashboards SWF file in the language corresponding to the user's preferred viewing locale (PVL).
3. The CMS checks the CMS system database to locate the Dashboards SWF file.
4. The CMS obtains the Dashboards SWF file from the Input File Repository server.
5. The CMS provides the Dashboards SWF file to the Web Application server.
6. The Web Application server sends the Dashboards SWF file through the web server to the web client, where the SWF is rendered.
7. The SWF sends a request through the web server to XcelsiusWebServices (which is a Web service running on the Web Application server) to retrieve the universe (UNX) query result set.

**Note:**

The Dashboards may require one or more query results, depending on the visualization components included on the Dashboards.

8. XcelsiusWebServices sends the request to the Dashboards Design Cache server, requesting the universe (UNX) query result set.
9. The Dashboards Design Cache server checks with the Central Management Server (CMS) to see if the user has rights to run a query off the universe. The CMS checks the CMS system database and returns confirmation that the user has rights to run the query.
10. The Dashboards Design Cache server checks to see if the query result set already exists in its cache. In this case the result does not exist, so the Dashboards Design Cache server sends the request to the Dashboards Design Processing server to retrieve the query result set.
11. The Dashboards Design Processing server launches the processes required to connect to the data source to obtain the query result set. These processes obtain any required objects, such as the universe (UNX), from the Input File Repository server. Note: this step also requires communication (not shown in this diagram) with the Central Management Server (CMS) and the CMS system database to locate the required server and objects.
12. The Dashboards Design Processing server obtains the query result data from the data source, in this case a relational database.
13. The Dashboards Design Processing server returns the query result set to the Dashboards Design Cache server. The Dashboards Design Cache server saves the query result set in its cache directory.
14. The Dashboards Design Cache server returns the query result set to XcelsiusWebServices.
15. XcelsiusWebServices sends the query result set back through the web server to the SWF on the web client, to load up the Dashboards with current data.

Dashboards Design Based on an Universe in SAP BusinessObjects Dashboards Design

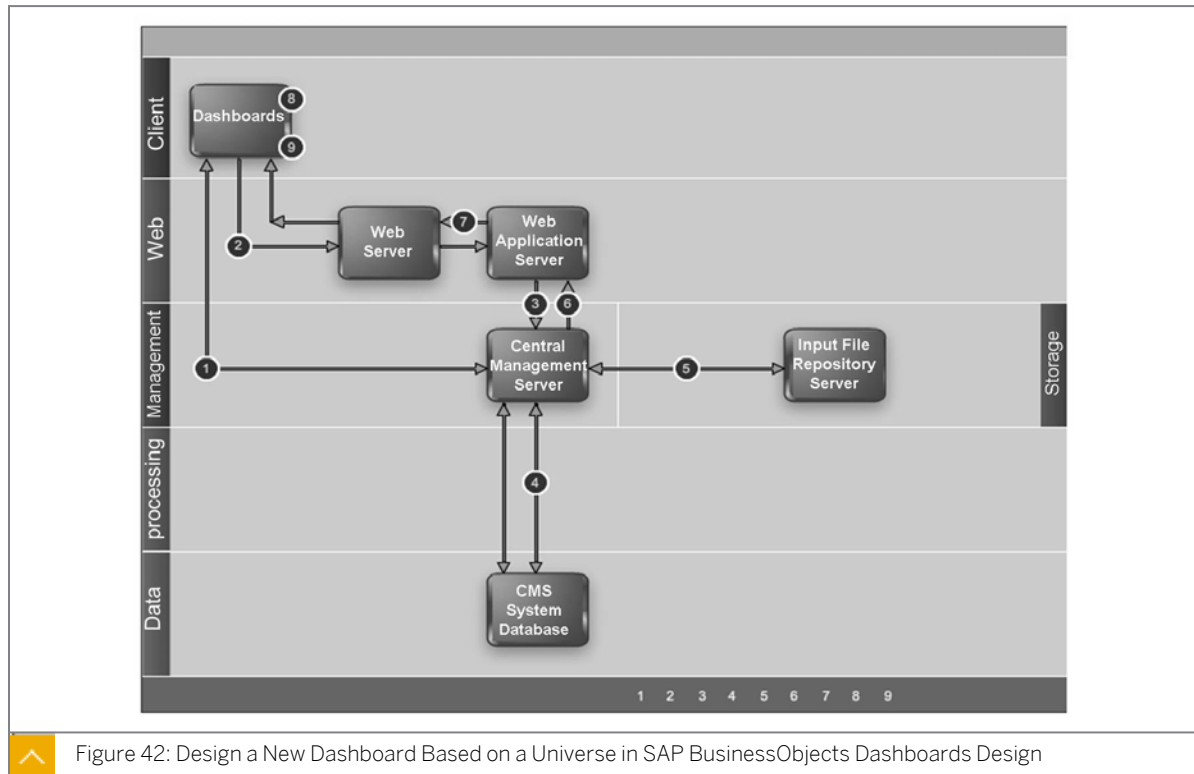


Figure 42: Design a New Dashboard Based on a Universe in SAP BusinessObjects Dashboards Design

1. SAP BusinessObjects Dashboards Design sends a CORBA message to the Central Management Server (CMS) for the user to log on to the SAP BusinessObjects Business Intelligence platform. The CMS checks the CMS system database to authenticate the user and check rights. The CMS returns information about log on success and user rights to SAP BusinessObjects Dashboards Design.
2. SAP BusinessObjects Dashboards Design sends HTTP requests (to obtain information about universes (UNX) available to the user) through the web server to the web application server, where the XcelsiusWebServices Web service is running.
3. XcelsiusWebServices sends requests to the Central Management server to obtain information about the universes (UNX) available to the user.
4. The Central Management Server (CMS) checks the CMS system database to determine which universes (UNX) are available to the user and where the universe files are stored.
5. The CMS Management server obtains required resources, such as universe (UNX) files, from the Input File Repository server.
6. The CMS sends the information (about universes available to the user) to XcelsiusWebServices.
7. XcelsiusWebServices sends the information (about universes available to the user) through the web server to SAP BusinessObjects Dashboards Design.

8. The user selects an universe (UNX) and builds a query based on that universe in the SAP BusinessObjects Dashboards Design query panel.
9. The user binds the query to a visualization.



Note:

A Dashboard can include multiple visualizations, and each can be bound to a different query.

Dashboards Saved to SAP Business Objects Business Intelligence Platform

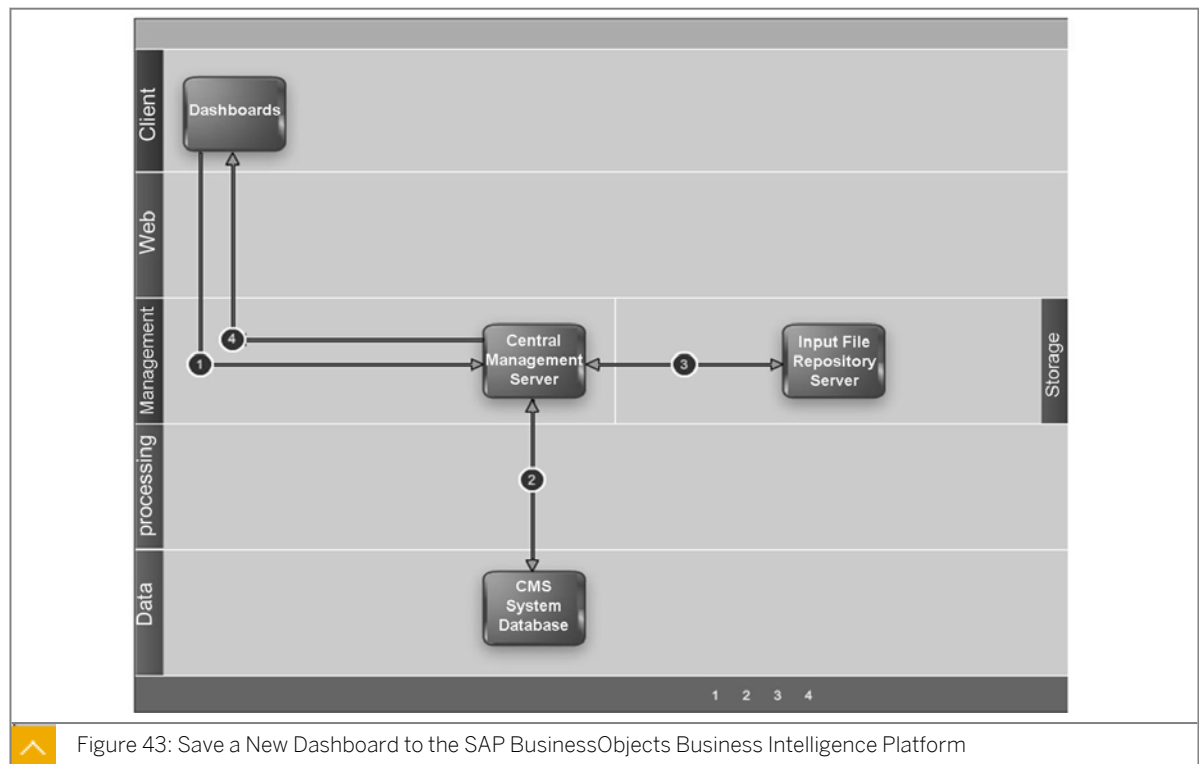


Figure 43: Save a New Dashboard to the SAP BusinessObjects Business Intelligence Platform

1. SAP BusinessObjects Dashboards Design sends a CORBA message to the Central Management Server (CMS) to save the new Dashboards to the SAP BusinessObjects Business Intelligence platform. Note: This process assumes the user previously logged on to the SAP BusinessObjects Business Intelligence platform from SAP BusinessObjects Dashboards Design to design the new Dashboards based on an universe (UNX).
2. The Central Management Server (CMS) creates all required metadata about the new Dashboards and stores it as an InfoObject in the CMS system database.
3. The CMS communicates with the Input File Repository server to store the new Dashboards runtime SWF file and the new Dashboards definition XLF file.
4. The CMS returns information about save success to SAP BusinessObjects Dashboards Design.

Unit 10

Exercise 11



Create and Manage Dashboards

Business Example

As the system administrator, you understand how the Dashboards servers manage the visualization of some BI 4 platform Dashboard.



Caution:

You use the new Training course BOE320 content in the Initialize Course folder to do this exercise.

Create a Query based on a BI 4 Universe on Dashboards

1. From the Cloud Training Environment, go to *Start* → *Programs* → *SAP Business Intelligence* → *SAP BusinessObject Dashboards 4*, and run the Dashboards 4 application.
2. Begin to create a new query on the Warehouse.unx universe with the *Add Query* button.
3. Enter your BI 4 Administrator credentials.
4. In the Wizard, select the appropriate options for your query.
5. In the *Add Query* window, drag and drop the following objects into the Result Objects panel:
 - Country
 - Quantity
 - Net Sales
 - Margin
6. In the *Add Query* window, drag and drop the *Year* object into the Filters panel.
7. In the *Filters* panel, perform the following steps:
8. Keep the default prompt value, and then click the *Run* button.
9. Click the *Next* button, and then click the *OK* button to create the query.



Hint:

You can see your query in the Query Browser panel on the left side of the screen.

Design the Dashboards

1. Add a bar chart to your Dashboards.
2. Begin to configure the properties of your bar chart component by entering the following title:
Incoming Orders Per Country.
3. In the Data by Series area, perform the following steps:
 - Enter **Quantity** for the Name value.
 - Select *Quantity* from the Query Data option for Values(X).
4. Add a second series in the Data by Series area and provide the following information for the series:
 - Enter **Net Sales** for the Name value.
 - Select the *Net Sales* from the Data Query option for Values(X).
5. Add a third series in the Data By Series area. Provide the following information for the series.
 - Enter **Margin** for the Name value.
 - Select *Margin* from the Query Data option for Values(X).
 - Choose *Country* as the Category Label (Y) from the Query Data option.

Your bar chart is now properly configured.

6. From the Components Panel on the left side of the Dashboard window, drag the Query Prompt Selector component to the position above the Bar Chart Component to add a Query Prompt Selector in your Dashboards.
7. Configure the properties of the Query Prompt Selector component to refresh.
 - Select your query prompt displayed in the Source Prompt dropdown list.
 - Select the *Refresh Queries* checkbox in front of Query 1.

Your query prompt selector is now configured.

Test and Publish your Dashboards to the Platform

1. Locally test your Dashboards.
2. Publish your Dashboards as **Incoming Orders Dashboards** onto the BI 4 platform in your *Personal* folder.

Publish and Test Dashboards Servers (Cache and Processing)

1. In the Cloud Training Environment, open and publish *World Sales by Region.XLF* from another local Dashboard to your BI 4 *Personal* folder.



Note:

This sample Dashboard is a standalone Dashboard. It does not use BI 4 Queries.

2. In the BI launch pad, open the `World Sales by Region` standalone Dashboards. What happened?
Your standalone Dashboards is correctly displayed with data.
3. In the BI launch pad, open `Incoming Orders Dashboards` using the `Incoming Orders Dashboards BI 4 Query`. What happened?
Your Query Dashboards is correctly displayed with data.
4. In the CMC, stop the Dashboards Cache server. Try to view the two previous Dashboards again. What happened?
Your standalone Dashboards can continue to display data because it does not use the Dashboards Cache server for visualization. Your Query Dashboards cannot display data because the Cache server has stopped. Data that comes from a BI 4 Query is stored and managed by the Dashboards Cache server.
5. In the CMC, stop the Dashboards Processing server. Try to view the two previous Dashboard again. What happened?
Your standalone Dashboards can continue to display data. It does not use the Dashboards Processing server for visualization. Your Query Dashboards cannot display data because the Cache server is still stopped. Data that comes from a BI 4 Query is generated by the Dashboards Processing server.



Create and Manage Dashboards

Business Example

As the system administrator, you understand how the Dashboards servers manage the visualization of some BI 4 platform Dashboard.



Caution:

You use the new `Training` course `BOE320` content in the `Initialize Course` folder to do this exercise.

Create a Query based on a BI 4 Universe on Dashboards

1. From the Cloud Training Environment, go to *Start* → *Programs* → *SAP Business Intelligence* → *SAP BusinessObject Dashboards 4* , and run the Dashboards 4 application.
2. Begin to create a new query on the Warehouse.unx universe with the *Add Query* button.
 - a) Select the *View-Query Browser* menu option.
 - b) On the left side of the *Query Browser* window, click the *Add Query* button to create the query.
3. Enter your BI 4 Administrator credentials.
4. In the Wizard, select the appropriate options for your query.
 - a) Select the *Universe* option and then click the *Next* button.
 - b) Select the *Warehouse.unx* option from the list and then click the *Next* button.
5. In the *Add Query* window, drag and drop the following objects into the Result Objects panel:
 - Country
 - Quantity
 - Net Sales
 - Margin
6. In the *Add Query* window, drag and drop the *Year* object into the Filters panel.
7. In the *Filters* panel, perform the following steps:
 - a) In the *Filters* panel, select the *List of Values* from the list box.
 - b) Select *2006* and click *>* to move the value to the *Selected member* window.

- c) Click the *OK* button and then click the *Next* button.
8. Keep the default prompt value, and then click the *Run* button.
9. Click the *Next* button, and then click the *OK* button to create the query.



Hint:

You can see your query in the Query Browser panel on the left side of the screen.

Design the Dashboards

1. Add a bar chart to your Dashboards.
 - a) In the Components Panel on the left side of the window, drag and resize the *Bar Chart* component on your canvas in Dashboard.
2. Begin to configure the properties of your bar chart component by entering the following title: **Incoming Orders Per Country**.
3. In the Data by Series area, perform the following steps:
 - Enter **Quantity** for the Name value.
 - Select *Quantity* from the Query Data option for Values(X).
4. Add a second series in the Data by Series area and provide the following information for the series:
 - Enter **Net Sales** for the Name value.
 - Select the *Net Sales* from the Data Query option for Values(X).
 - a) Click the + sign to add a second series in the Data By Series area. Provide the listed information for the series.
5. Add a third series in the Data By Series area. Provide the following information for the series.
 - Enter **Margin** for the Name value.
 - Select *Margin* from the Query Data option for Values(X).
 - Choose *Country* as the Category Label (Y) from the Query Data option.
 - a) Click the + sign to add a third series in the Data By Series area. Then provide the listed information for the series.

Your bar chart is now properly configured.
6. From the Components Panel on the left side of the Dashboard window, drag the Query Prompt Selector component to the position above the Bar Chart Component to add a Query Prompt Selector in your Dashboards.
 - a) In the Components Panel on the left side of the window, drag the *Query Prompt Selector* component to the position above the Bar Chart component, on the top of your canvas in Dashboard.

7. Configure the properties of the Query Prompt Selector component to refresh.
 - Select your query prompt displayed in the Source Prompt dropdown list.
 - Select the *Refresh Queries* checkbox in front of Query 1.

Your query prompt selector is now configured.

Test and Publish your Dashboards to the Platform

1. Locally test your Dashboards.
 - a) Click the *Preview* button.
 - b) Enter all of your credentials.
 - c) Choose any year option in the Prompt Values field.
 - d) Click the *Apply* button.
2. Publish your Dashboards as **Incoming Orders Dashboards** onto the BI 4 platform in your `Personal` folder.
 - a) Select the *File > Save to Platform* menu options from the Dashboard application.
 - b) Select your `Personal` folder.
 - c) Enter the following to name your Dashboards: **Incoming Orders Dashboards**.
 - d) Click the *Save* button.

Your Dashboards is now published on the BI 4 platform.

Publish and Test Dashboards Servers (Cache and Processing)

1. In the Cloud Training Environment, open and publish `World Sales by Region.XLF` from another local Dashboard to your BI 4 `Personal` folder.



Note:

This sample Dashboard is a standalone Dashboard. It does not use BI 4 Queries.

2. In the BI launch pad, open the `World Sales by Region` standalone Dashboards. What happened?

Your standalone Dashboards is correctly displayed with data.
3. In the BI launch pad, open `Incoming Orders Dashboards` using the *Incoming Orders Dashboards* BI 4 Query. What happened?

Your Query Dashboards is correctly displayed with data.
4. In the CMC, stop the Dashboards Cache server. Try to view the two previous Dashboards again. What happened?

Your standalone Dashboards can continue to display data because it does not use the Dashboards Cache server for visualization. Your Query Dashboards cannot display data because the Cache server has stopped. Data that comes from a BI 4 Query is stored and managed by the Dashboards Cache server.

5. In the CMC, stop the Dashboards Processing server. Try to view the two previous Dashboard again. What happened?

Your standalone Dashboards can continue to display data. It does not use the Dashboards Processing server for visualization. Your Query Dashboards cannot display data because the Cache server is still stopped. Data that comes from a BI 4 Query is generated by the Dashboards Processing server.



LESSON SUMMARY

You should now be able to:

- Manage Dashboards Design servers



Learning Assessment

1. Which servers are Dashboards Design servers?

Choose the correct answers.

- A Dashboards Processing Server
- B Dashboards Adaptive Server
- C Dashboards Enterprise Server
- D Dashboards Cache Server

2. Dashboards Design is a tool for data storage and the creation of on demand reports.

Determine whether this statement is true or false.

- True
- False

3. Arrange the following steps for saving a Dashboard to the Business Intelligence Platform in the correct order.

Arrange these steps into the correct sequence.

- The CMS communicates with the Input File Repository server to store the new Dashboards runtime SWF file and the new Dashboards definition XLF file.
- SAP BusinessObjects Dashboards Design sends a CORBA message to the Central Management Server (CMS) to save the new Dashboards to the SAP BusinessObjects Business Intelligence platform.
- The CMS creates all required metadata about the new Dashboards and stores it as an InfoObject in the CMS system database.
- The CMS returns information about save success to SAP BusinessObjects Dashboards Design.



Learning Assessment - Answers

1. Which servers are Dashboards Design servers?

Choose the correct answers.

- A Dashboards Processing Server
- B Dashboards Adaptive Server
- C Dashboards Enterprise Server
- D Dashboards Cache Server

2. Dashboards Design is a tool for data storage and the creation of on demand reports.

Determine whether this statement is true or false.

- True
- False

3. Arrange the following steps for saving a Dashboard to the Business Intelligence Platform in the correct order.

Arrange these steps into the correct sequence.

- 3** The CMS communicates with the Input File Repository server to store the new Dashboards runtime SWF file and the new Dashboards definition XLF file.
- 1** SAP BusinessObjects Dashboards Design sends a CORBA message to the Central Management Server (CMS) to save the new Dashboards to the SAP BusinessObjects Business Intelligence platform.
- 2** The CMS creates all required metadata about the new Dashboards and stores it as an InfoObject in the CMS system database.
- 4** The CMS returns information about save success to SAP BusinessObjects Dashboards Design.

Lesson 1

Configuring Explorer Servers

294

Lesson 2

Managing Information Spaces

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Exercise 12: Manage a Geographic Information Space

307



UNIT OBJECTIVES

- Configure Explorer servers
- Manage information spaces



Configuring Explorer Servers

LESSON OVERVIEW

SAP BusinessObjects Explorer is an application that can be launched from the BI launch pad. Explorer installs four servers that are added to the Central Configuration Manager (CCM) and the Central Management Console (CMC). These servers manage information exploration, indexing, and search queries for the platform. Explorer servers are easily configured by accessing the server properties through the CMC.



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Configure Explorer servers

SAP BusinessObjects Explorer

You launch SAP BusinessObjects Explorer from within the BI launch pad. You can launch the Explorer as an application, or you can open and explore an Information Space directly from the BI Launchpad document list on the *Documents* tab.

When you install SAP BusinessObjects Explorer, the following servers are added to the Central Configuration Manager (CCM) and Central Management Console (CMC):

- Explorer Master Server
- Explorer Indexing Server
- Explorer Search Server
- Explorer Exploration Server



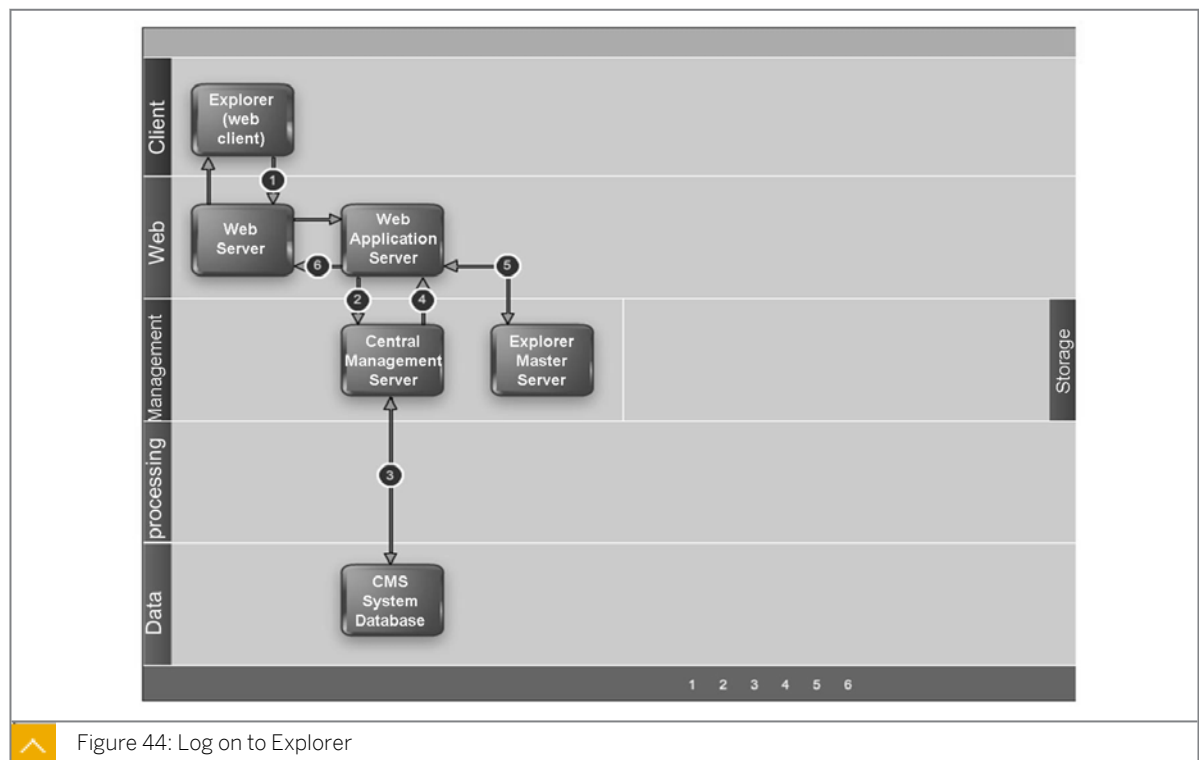
Table 43: Explorer Servers

Server kind	Description
Explorer Master Server	Manages all of the Explorer servers.
Explorer Indexing Server	Provides and manages the indexing of information space data and metadata.
Explorer Search Server	Processes search queries and returns the results.
Explorer Exploration Server	Provides and manages the information space exploration and analysis capabilities including search on data, filtering, and aggregation.

SAP BusinessObjects Explorer User Verification

The following steps explain the interaction of platform components when you log on to SAP BusinessObjects Explorer.

1. The SAP BusinessObjects Explorer web client sends the user credentials through the web server to the Web Application server, where the SAP BusinessObjects Explorer web application is running.
2. The Web Application server determines that the request is a logon request and sends the user credentials to the Central Management Server (CMS) for authentication.
3. The Central Management Server (CMS) validates the user credentials against the appropriate database. In this case, Enterprise authentication is used, so user credentials are authenticated against the CMS system database.
4. Upon successful validation, the Central Management Server (CMS) creates a session for the user in memory. The CMS returns a session token to the Web Application server to confirm that the validation was successful.
5. The Web Application server sends a request to the Explorer Master server to open an Explorer session. The Explorer Master server returns confirmation that it has opened an Explorer session.
6. The Web Application server sends the session token through the Web server to the Web client. For the rest of this session, the Web Application server uses the session token to validate the user.





How to Modify Explorer Properties

You can define which features your users have access to for SAP BusinessObjects Explorer by settings its security rights from the Applications area of the CMC.

1. Go to the *Applications* area of the CMC.
2. Click *Explorer* from the list of Applications.
3. Click *Manage* → *Properties* .
4. Define the SAP BusinessObjects Explorer settings that you want.
5. Click the *Save & Close* button.



Hint:

Explorer server properties may also be configured by navigating to *Servers>ServiceCategories>Explorer Services* . Right-click *Explorer Services* and select the *Properties* option from the menu. The *Properties* window opens for configuration.

Server Administration in CMS

You manage Explorer server administration tasks such as auditing, monitoring, and the integration into Solution Manager Diagnostics in the same way as any other server in the CMS. The key metrics for Explorer servers include:

- Number of users currently logged-in
- Number of indexations in progress response time
- Number of replications in progress
- Exploration response time
- Search response time
- Information space opening



Note:

SAP BusinessObjects Explorer allows you to access the following data sources:

- Universes in the format .UNX (relational sources only)
- Excel files (average aggregation method added)



LESSON SUMMARY

You should now be able to:

- Configure Explorer servers



Managing Information Spaces

LESSON OVERVIEW

The Explorer application *Home* tab displays a list of information spaces. Information spaces can be created or indexed from an Excel file or a universe. These spaces are indexed and stored on the Explorer Indexing server and the Explorer Exploration server. Information spaces can be viewed with a request sent from the Explorer web client.



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Manage information spaces

Information Spaces Displayed in Explorer

The following steps explain the interaction of platform components when the list of information spaces is displayed on the *Home* tab in SAP BusinessObjects Explorer.

1. The SAP BusinessObjects Explorer web client sends a request (for the list of information spaces) through the web server to the web application server, where the SAP BusinessObjects Explorer web application is running.
2. The web application server requests the list of information spaces from the Explorer Search Server.
3. The Explorer Search Server provides the index reference of the index in use to the Explorer Master Server. The Explorer Master Server uses a reference counter to manage resources.
4. The Explorer Search Server sends a request to the Central Management Server (CMS) to obtain the list of information spaces available to the user. The CMS checks the CMS system database to identify the information spaces available to the user, and the CMS returns the list of information spaces to the Explorer Search Server.
5. The Explorer Search Server sends the list of information spaces to the web application server.
6. The web application server sends the list of information spaces through the web server to the SAP BusinessObjects Explorer web client, where the list of information spaces is displayed on the *Home* tab.

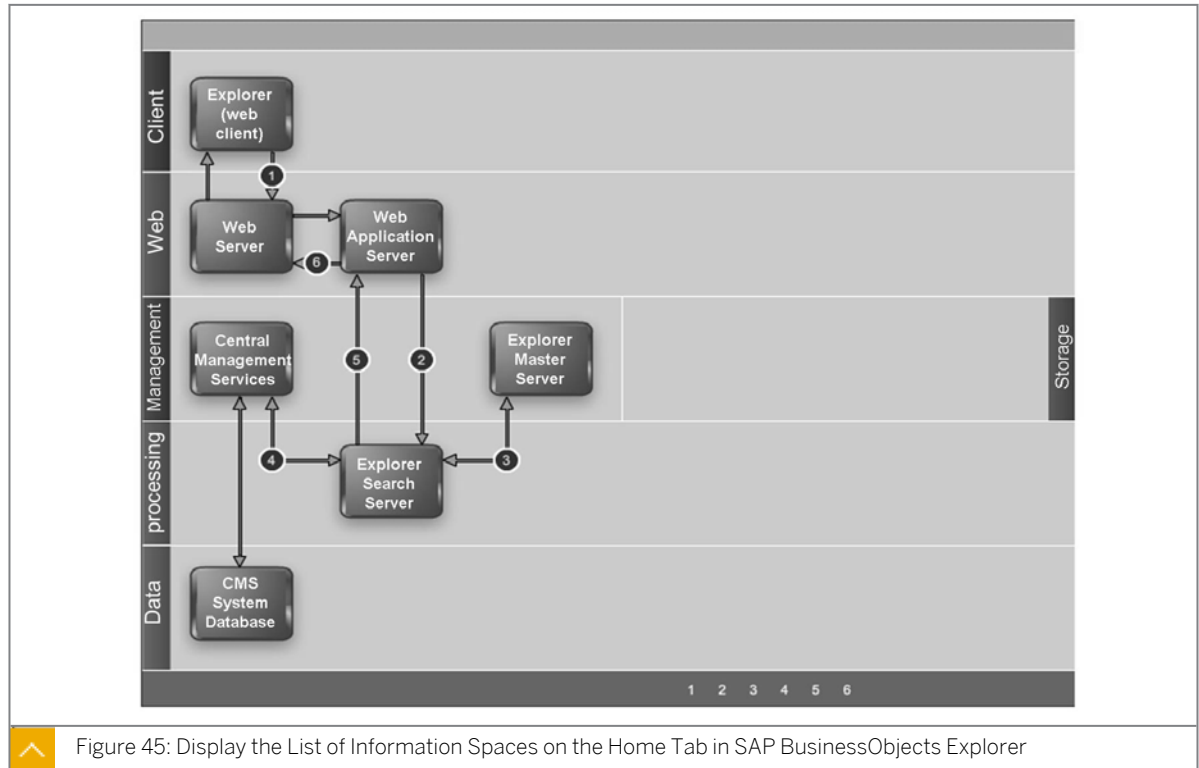


Figure 45: Display the List of Information Spaces on the Home Tab in SAP BusinessObjects Explorer

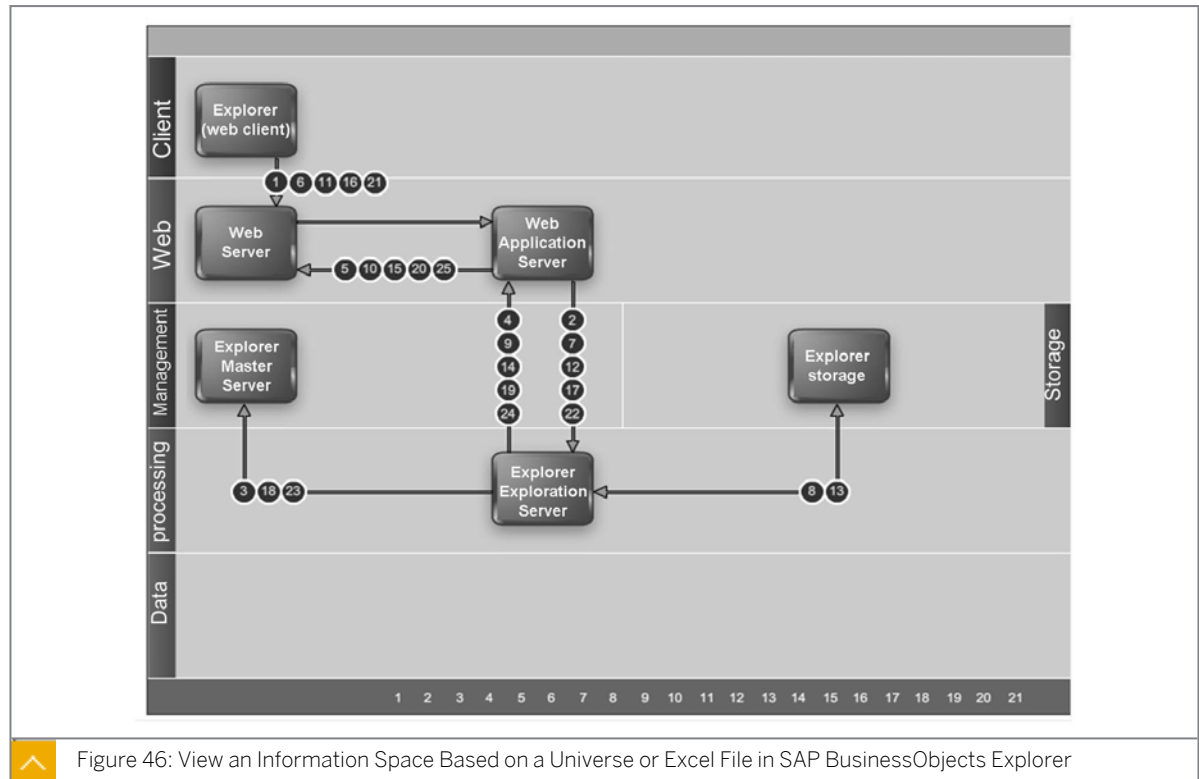
Information Space Viewing

The following steps explain the interaction of platform components when you view an information space based on a universe or an Excel file in SAP BusinessObjects Explorer.

1. The SAP BusinessObjects Explorer web client sends a request (to open the selected information space) through the Web server to the Web Application server, where the SAP BusinessObjects Explorer web application is running.
2. The Web Application server sends the request (to open the information space) to the Explorer Exploration server.
3. The Explorer Exploration server notifies the Explorer Master server that the information space index is in use. The Explorer Master server sets a timeout and increments the reference counter that it uses for resource management.
4. The Explorer Exploration server creates an Explorer context (containing the name, ID, and other properties) for the selected information space. The Explorer Exploration server opens the information space and returns information, such as last refresh date, to the Web Application server. Note: The Explorer Exploration server uses the personalized information space (if one is bound to the selected information space) to apply restrictions on the selected information space at consume time.
5. The Web Application server returns information about the selected information space, such as last refresh date, through the Web server to the Web client.
6. The Web client sends a request through the Web server to the Web Application server to obtain measures, facets, and other metadata for the selected information space.

7. The Web Application server sends a request to the Explorer Exploration server to obtain measures, facets, and other metadata for the selected information space.
8. The Explorer Exploration server reads the structure in Explorer storage that stores the index metadata.
9. The Explorer Exploration server returns the index metadata for the selected information space to the Web Application server.
10. The Web Application server returns the index metadata for the selected information space through the Web server to the Web client.
11. The Web client sends a request through the Web server to the Web Application server to obtain facet values (index data) for the selected information space to display in the facets panel on the *Explore* tab.
12. The Web Application server sends a request to the Explorer Exploration server to obtain facet values (data) for the selected information space.
13. The Explorer Exploration server uses the Lucene connectivity plugin to read the structure in Explorer storage that stores the index data (facet values) for information spaces based on Excel or universe (UNX) data sources.
14. The Explorer Exploration server returns the index data (facet values) for the selected information space to the Web Application server.
15. The Web Application server returns the index data (facet values) for the selected information space through the Web server to the SAP BusinessObjects Explorer web client, where the facet values are displayed in the facet panel on the *Explore* tab.
16. The Web client sends a request through the Web server to the Web Application server to determine the best chart to display in the visualization panel on the *Explore* tab.
17. The Web Application server sends a request to the Explorer Exploration server to determine the best chart to display in the visualization panel.
18. The Explorer Exploration server notifies the Explorer Master server that the index is in use. The Explorer Master server resets the timeout.
19. The Explorer Exploration server returns a list of available charts, and the best chart selected, to the Web Application server.
20. The Web Application server returns the list of available charts, and the best chart selected, through the Web server to the Web client.
21. The Web client sends a request through the web server to the Web application server to generate the chart to display in the visualization panel on the *Explore* tab.
22. The Web Application server sends a request to the Explorer Exploration server to generate the chart to display in the visualization panel.
23. The Explorer Exploration server notifies the Explorer Master server that the index is in use. The Explorer Master server resets the timeout.
24. The Explorer Exploration server generates the chart and returns it to the Web Application server.

25. The Web Application server returns the chart through the Web server to the SAP BusinessObjects Explorer web client, where the chart is rendered in the visualization panel on the *Explore* tab.



Information Space Creation

You can create an information space based on an Excel file or a universe.

Information Space Creation Based on an Excel File

The following steps explain the interaction of platform components when you create an information space based on an Excel file in SAP BusinessObjects Explorer.

1. The SAP BusinessObjects Explorer web client sends a request (for data objects in the selected data source) through the Web server to the Web application server, where the SAP BusinessObjects Explorer web application is running.
2. The Web Application server sends a request (for data objects in the selected data source) to the Explorer Master server.
3. The Explorer Master server uses the Excel connectivity plugin to communicate with the Central Management Server (CMS). The CMS checks the CMS system database to locate the Excel file stored by the Input File Repository Server. The Excel connectivity plugin reads the Excel file to obtain the data objects in the Excel file.
4. The Explorer Master server sends the data objects (from the selected data source) to the Web Application server.

5. The Web Application server sends the data objects (from the selected data source) through the Web server to the SAP BusinessObjects Explorer web client.
6. The user designs the information space based on the data objects shown in the SAP BusinessObjects Explorer web client.
7. The SAP BusinessObjects Explorer web client sends the request (to create the new information space in the SAP BusinessObjects Business Intelligence platform) through the Web server to the Web Application server, where the SAP BusinessObjects Explorer Web Application is running.
8. The Web Application server sends the request (to create the new information space) to the Explorer Master server.
9. The Explorer Master server sends the request (to create the new information space) to the Central Management Server (CMS). The CMS sends the new information space definition to be stored by the Input File Repository Server, and the CMS creates a new InfoObject in the CMS system database to represent the new information space. The CMS returns confirmation that the new information space was created, back through the Explorer Master server to the Web Application server, to the Web server, and finally to the SAP BusinessObjects Explorer web client.

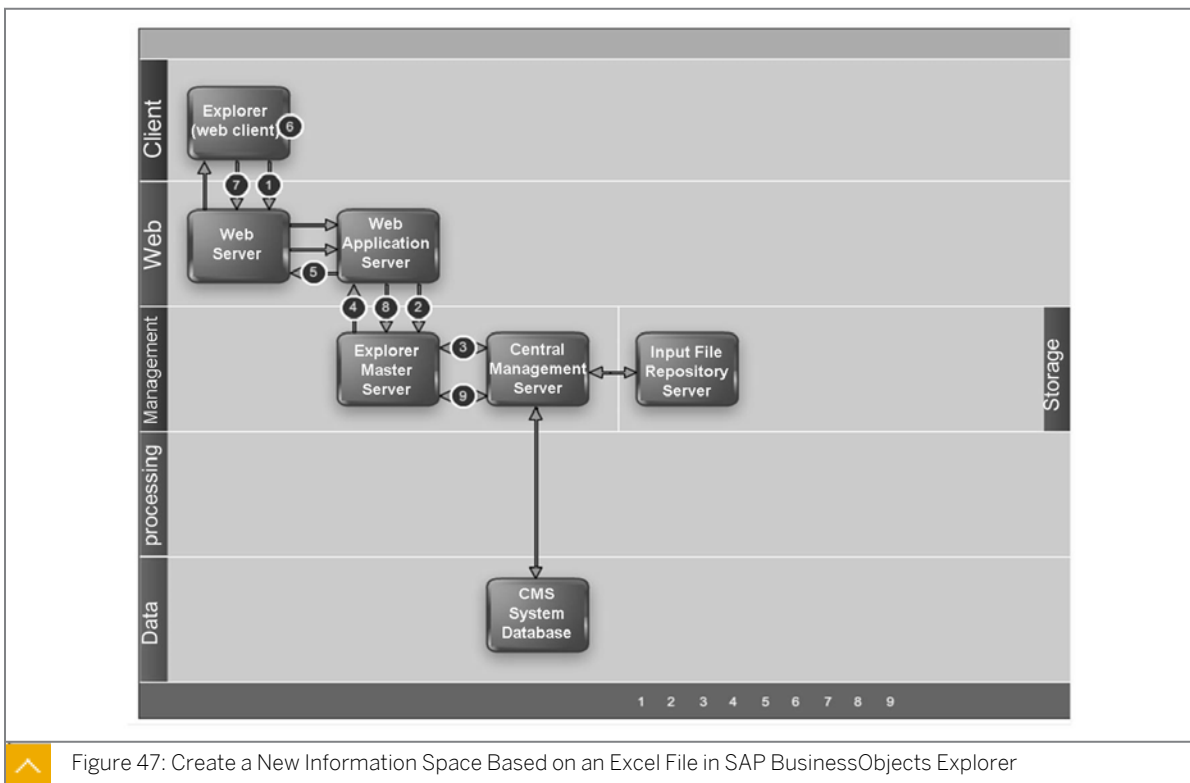


Figure 47: Create a New Information Space Based on an Excel File in SAP BusinessObjects Explorer

Information Space Creation Based on a Universe

The following steps explain the interaction of platform components when you create an information space based on a universe (UNX) in SAP BusinessObjects Explorer.

1. The SAP BusinessObjects Explorer web client sends a request (for data objects in the selected data source) through the Web server to the Web Application server, where the SAP BusinessObjects Explorer web application is running.
2. The Web Application server sends a request (for data objects in the selected data source) to the Explorer Master server.
3. The Explorer Master server uses the DSL connectivity plugin to communicate with the Central Management Server (CMS). The CMS checks the CMS system database to locate the universe (UNX) file stored by the Input File Repository Server. The DSL connectivity plugin reads the universe (UNX) file to obtain the data objects in the universe.
4. The Explorer Master server sends the data objects (from the selected data source) to the Web Application server.
5. The Web Application server sends the data objects (from the selected data source) through the Web server to the SAP BusinessObjects Explorer web client.
6. The user designs the information space based on the data objects shown in the SAP BusinessObjects Explorer web client.
7. The SAP BusinessObjects Explorer web client sends the request (to create the new information space in the SAP BusinessObjects Business Intelligence platform) through the Web server to the Web Application server, where the SAP BusinessObjects Explorer web application is running.
8. The Web Application server sends the request (to create the new information space) to the Explorer Master server.
9. The Explorer Master server sends the request (to create the new information space) to the Central Management Server (CMS). The CMS sends the new information space definition to be stored by the Input File Repository Server, and the CMS creates a new InfoObject in the CMS system database to represent the new information space. The CMS returns confirmation that the new information space was created, back through the Explorer Master server to the Web Application server, to the Web server, and finally to the SAP BusinessObjects Explorer web client.

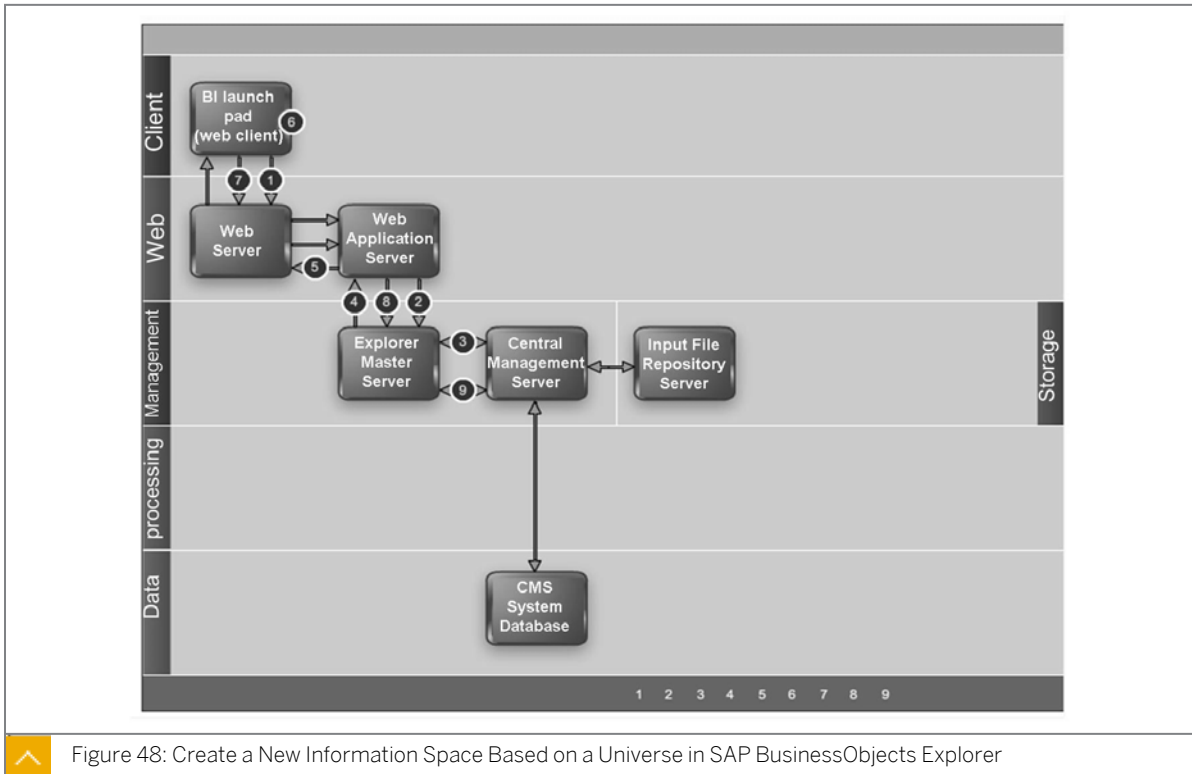


Figure 48: Create a New Information Space Based on a Universe in SAP BusinessObjects Explorer

Information Space Indexing

You can index an information space based on an Excel file or a universe in SAP BusinessObjects Explorer.

Information Space Indexing Based on an Excel File

The following steps explain the interaction of platform components when you index an information space based on an Excel file in SAP BusinessObjects Explorer.

1. The SAP BusinessObjects Explorer web client sends a request (to index a new information space) through the Web server to the Web Application server, where the SAP BusinessObjects Explorer web application is running.
2. The Web Application server sends the request (to index a new information space) to the Explorer Master Server.
3. The Explorer Master Server sends a request to the Central Management Server (CMS) to obtain the ID of the information space to be indexed. The CMS checks the CMS system database and returns the information space ID to the Explorer Master server.
4. The Explorer Master server sends the information space ID to the Explorer Indexing server.
5. The Explorer Indexing server uses the Excel connectivity plugin to communicate with the Central Management Server (CMS). The CMS checks the CMS system database to locate the information space definition and the Excel file stored by the Input File Repository Server. The Excel connectivity plugin reads the Excel file to obtain the required data from the Excel file.

6. The Explorer Indexing server indexes the Excel data and stores the information space index in Explorer storage. Explorer storage includes two distinct structures. One structure stores index metadata, and the other structure stores index data from the Excel file.
7. The Explorer Indexing server returns the index status to the Explorer Master server.
8. The Explorer Master server returns the index status to the Web Application server.
9. The Web Application server returns the index status through the Web server to the SAP BusinessObjects Explorer web client.

Information Space Indexing Based on a Universe

The following steps explain the interaction of platform components when you index an information space based on a universe in SAP BusinessObjects Explorer.

1. The SAP BusinessObjects Explorer web client sends a request (to index a new information space) through the Web server to the Web Application server, where the SAP BusinessObjects Explorer Web Application is running.
2. The Web Application server sends the request (to index a new information space) to the Explorer Master server.
3. The Explorer Master server sends a request to the Central Management Server (CMS) to obtain the ID of the information space to be indexed. The CMS checks the CMS system database and returns the information space ID to the Explorer Master server.
4. The Explorer Master server sends the information space ID to the Explorer Indexing server.
5. The Explorer Indexing server uses the DSL connectivity plugin to communicate with the Central Management Server (CMS). The CMS checks the CMS system database to locate the information space definition and the universe (UNX) file stored by the Input File Repository Server.
6. The Explorer Indexing server uses the DSL connectivity plugin to communicate with the Connection server to obtain data as required by the information space definition. The Connection server connects to the data source on which the universe (UNX) is based (a relational database in this example) and returns data to the DSL connectivity plugin.
7. The Explorer Indexing server indexes the data and stores the information space index in Explorer storage. Explorer storage includes two distinct structures. One structure stores index metadata, and the other structure stores the actual index data from the universe (UNX) data source.
8. The Explorer Indexing server returns the index status to the Explorer Master server.
9. The Explorer Master server returns the index status to the Web Application server.
10. The Web Application server returns the index status through the Web server to the SAP BusinessObjects Explorer web client.

Unit 11

Exercise 12



Manage a Geographic Information Space

Business Example

As the system administrator, you must understand how the Explorer servers are working together in a BI4 platform.

Create an Information Space with Geographic Dimension on a BI 4 Universe

1. From the BI launch pad, run the *Explorer* web application to create a new Information Space.
2. On the *Home* page of the Explorer app, click the *Manage Spaces* menu.
3. Select the *Warehouse.unx* BI 4 universe. Click the *New* button to create a new Information Space that is based on the Warehouse universe.
4. Configure and validate the new Information Space.
5. Click the *OK* button to create your new Information Space.
Your new Information Space is created and displayed in the *Manage Spaces* tab.

Index an Information Space

1. In the Explorer application, select the *Index* value in the dropdown list of your new Information Space.



Note:

Indexing of the Information Space has started. After a couple of minutes, data will be ready to view in the Information Space.

2. When the Status is "Succeeded," close the *Manage Spaces* tab to return to the Explorer *Home* page. Click the *Refresh List* button to update the *Home* page.
Your new Information Space is ready to display data.

View Information Space Data

1. Click the Information Space link to open it.
2. Filter the data to see the net sales of the "Top 3 Country" by Quarter for 2006. Which country is did the best in 2006?
3. Filter the Geographic data to see the net sales of the "Top 3 Products" in Canada for 2006. Which product has the best net sales in Canada for 2006?
4. Filter the data to see the net sales of the "Top 3 Products" in Canada for each quarter in 2006. Which quarter has the biggest net sales for this product in Canada in 2006?

5. Filter the data to see the net sales of the "Top 3 Products" worldwide for each quarter of 2006. Which quarter and product has the biggest net sales worldwide in 2006?
6. Filter the data to see the net sales of the "Top 3 Products" worldwide in 2006. Which product has the biggest net sales figure worldwide in 2006?

Manage the Explorer Servers

1. Find the Information Space indexing files.
2. Stop the Explorer Search server. Can you still explore data in the current Information Space? Can you still search information data in the current Information Space?
3. Stop the Explorer Indexing server. Can you still explore data in the current Information space? Can you still index your Information Space in the *Manage Spaces* section of Explorer?
4. Stop the Explorer Exploration server. Can you still explore data in the current information space?
5. Close the Explorer application, and then stop the Explorer Master server. Can you still access and run the Explorer web application from the BI launch pad?
6. Restart all of the stopped Explorer servers in the CMC.



Manage a Geographic Information Space

Business Example

As the system administrator, you must understand how the Explorer servers are working together in a BI4 platform.

Create an Information Space with Geographic Dimension on a BI 4 Universe

1. From the BI launch pad, run the *Explorer* web application to create a new Information Space.
2. On the *Home* page of the Explorer app, click the *Manage Spaces* menu.
3. Select the *Warehouse.unx* BI 4 universe. Click the *New* button to create a new Information Space that is based on the Warehouse universe.
4. Configure and validate the new Information Space.
 - a) On the *Properties* tab, configure the following data:
 - Enter **Customer Sales Data** in the Name field.
 - Enter **Customer Sales Data showing data from the Warehouse universe** in the Description field.
 - Select the *Availability* checkbox.
 - b) On the *Objects* tab, set the following measures:
 - Net Sales (Increasing)
 - Quantity (Increasing)
 - Discount (Increasing)
 - Gross Sales (Increasing)
 - Occurrences
 - c) On the *Objects* tab, set the following facets:
 - Country (Dimension: Geography, Sort Largest to Smallest)
 - Region (Dimension: Standard, Sort Largest to Smallest)
 - City (Dimension: Geography, Sort Largest to Smallest)
 - Customer (Dimension: Standard, Sort Largest to Smallest)

- Date (Dimension: Standard, Sort Largest to Smallest)
- Quarter (Dimension: Standard, Sort Largest to Smallest)
- Year (Dimension: Standard, Sort Largest to Smallest)
- Day of Week (Dimension: Day, Sort Largest to Smallest)
- Month Name (Dimension: Month, Sort Largest to Smallest)
- Product (Dimension: Standard, Sort Largest to Smallest)
- Line (Dimension: Standard, Sort Largest to Smallest)
- Category (Dimension: Standard, Sort Largest to Smallest)



Caution:

Ensure that you enter the facets in the order shown here; otherwise, you might encounter an indexing failure.

5. Click the *OK* button to create your new Information Space.
Your new Information Space is created and displayed in the *Manage Spaces* tab.

Index an Information Space

1. In the Explorer application, select the *Index* value in the dropdown list of your new Information Space.



Note:

Indexing of the Information Space has started. After a couple of minutes, data will be ready to view in the Information Space.

2. When the Status is "Succeeded," close the *Manage Spaces* tab to return to the Explorer *Home* page. Click the *Refresh List* button to update the *Home* page.
Your new Information Space is ready to display data.

View Information Space Data

1. Click the Information Space link to open it.
2. Filter the data to see the net sales of the "Top 3 Country" by Quarter for 2006. Which country is did the best in 2006?
 - a) Filter the "Year" dimension data by the 2006 value.
 - b) Filter the data with the *Net Sales* measure.
 - c) Select the *Quarter* option.
 - d) Sort the data by *Country, only Top 3*.
Canada is the best country in net sales for each quarter in 2006.

3. Filter the Geographic data to see the net sales of the "Top 3 Products" in Canada for 2006. Which product has the best net sales in Canada for 2006?
 - a) Select the *Country* option (instead of *Quarter*).
 - b) Sort by *None*.
 - c) Select the colored geographic view at the bottom of the left-side window.
 - d) Double-click on *Canada*.
 - e) Select *Product, only Top 3*.
 - f) Do not sort.
Black Diamond 8800 is the best selling product in Canada in 2006.
4. Filter the data to see the net sales of the "Top 3 Products" in Canada for each quarter in 2006. Which quarter has the biggest net sales for this product in Canada in 2006?
 - a) Sort the data by *Quarter (Ascending)*.
The third quarter of 2006 generated the best Net Sales for the Black Diamond 8800 product in Canada.
5. Filter the data to see the net sales of the "Top 3 Products" worldwide for each quarter of 2006. Which quarter and product has the biggest net sales worldwide in 2006?
 - a) Remove the *Canada* filter.
The Descent Competition Bicycle product sold in the third quarter had the best net sales worldwide in 2006.
6. Filter the data to see the net sales of the "Top 3 Products" worldwide in 2006. Which product has the biggest net sales figure worldwide in 2006?
 - a) Do not sort the data.
The Descent Competition Bicycle product had the most net sales worldwide in 2006.

Manage the Explorer Servers

1. Find the Information Space indexing files.
 - a) In the CMC, go to the *Servers View*.
 - b) Select the *Properties* of either the ExplorerExplorationServer, the ExplorerIndexingServer, or the ExplorerSearchServer.
The Explorer server indexing files are located in `D:\Program Files (x86)\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\Data\Polestar\index`.
2. Stop the Explorer Search server. Can you still explore data in the current Information Space? Can you still search information data in the current Information Space?
You can still explore data in the current Information Space. You cannot search any Information Space in the *Home* tab of the Explorer server.
3. Stop the Explorer Indexing server. Can you still explore data in the current Information space? Can you still index your Information Space in the *Manage Spaces* section of Explorer?
You can still explore data in the current Information Space. You cannot index your Information Space.

4. Stop the Explorer Exploration server. Can you still explore data in the current information space?

You cannot explore data in the current Information Space.

5. Close the Explorer application, and then stop the Explorer Master server. Can you still access and run the Explorer web application from the BI launch pad?

You cannot run the Explorer application when the Explorer Master server is stopped.

6. Restart all of the stopped Explorer servers in the CMC.



LESSON SUMMARY

You should now be able to:

- Manage information spaces



Learning Assessment

1. Name the four servers that are added to the Central Configuration Manager (CCM) and Central Management Console (CMC) when you install Explorer.

2. Select the correct menu path to access Explorer properties.

Choose the correct answer.

- A Go to CMS → Servers → Explorer → Manage → Properties .
- B Go to CMC → Servers → Explorer → Properties .
- C Go to CMS → Servers → Explorer → Applications → Manage → Properties .
- D Go to CMC → Applications → Explorer → Manage → Properties.

3. What are the two basis upon which you can create an information space.

Choose the correct answers.

- A Excel File
- B Universe
- C Database
- D Explorer Dashboard



Learning Assessment - Answers

1. Name the four servers that are added to the Central Configuration Manager (CCM) and Central Management Console (CMC) when you install Explorer.

The four servers that are added to the CCM and the CMC when Explorer is installed are: Explorer Master Server, Explorer Indexing Server, Explorer Search Server, and Explorer Exploration Server.

2. Select the correct menu path to access Explorer properties.

Choose the correct answer.

- A Go to CMS → Servers → Explorer → Manage → Properties .
- B Go to CMC → Servers → Explorer → Properties .
- C Go to CMS → Servers → Explorer → Applications → Manage → Properties .
- D Go to CMC → Applications → Explorer → Manage → Properties.

3. What are the two basis upon which you can create an information space.

Choose the correct answers.

- A Excel File
- B Universe
- C Database
- D Explorer Dashboard

Lesson 1

Configuring Event Servers

318

Lesson 2

Managing Event Servers

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Exercise 13: Schedule a Report with Events

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UNIT OBJECTIVES

- Configure Event servers
- Manage Event servers



Configuring Event Servers

LESSON OVERVIEW

An Event server hosts the Event service that monitors for file events on a File Repository Server (FRS). Event server properties determine how often the cleanup utility is run, and how often the server polls for a file that triggers an event. If the default property values are not appropriate, administrators can easily modify them. The *Metrics* screen displays the Event server metrics, namely a list of monitored files and the total number of monitored files.



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Configure Event servers

Event Server Responsibilities

Events

Events are objects that represent occurrences in the system. Depending on the event type, events can be used for various purposes, including the following:

- Events act as scheduling dependencies which trigger specific actions once a scheduled job runs.
- Events trigger alert notifications.
- Events allow system administrators to monitor the health of the system.

File events

When you define a file-based event, you specify a filename that the Event server should monitor for a particular file. When the file appears, the Event server triggers the event. For instance, you might want to make some reports dependent upon the regular file output of other programs or scripts. File events are stored in the **System Events** folder.

Schedule events

When you define a schedule-based event, you select an object whose existing recurrence schedule will serve as the trigger for your event. In this way, schedule-based events allow you to set up contingencies or conditions between scheduled objects. For instance, you might want certain large reports to run sequentially, or you might want a particular sales summary report to run only when a detailed sales report runs successfully. Schedule events are stored in the **System Events** folder.

Custom events

When you create a custom event, you create a shortcut for triggering an event manually. Custom events are stored in the **Custom Events** folder.

The following table describes the server that handles the Event service.



Table 44: Event Server

Server kind	Service	Service Category	Description
Event Server	Event Service	Core Services	Monitors for file events on a File Repository Server (FRS). Monitors the system for events, which can act as a trigger for running a report. When you set up an event trigger, the Event server monitors the condition and notifies the CMS that an event has occurred. The CMS can then start any jobs that are set to run upon the event.

Event Server Properties

The following table describes the server properties of Event servers.



Table 45: Server Properties

Property	Description	Default Value
Cleanup Interval (minutes)	Specifies how often, in minutes, the cleanup utility runs.	The default value is 20 minutes.
Event Poll Interval (seconds)	Specifies how often, in seconds, the server polls for a file that triggers an event.	The default value is 10 seconds. The range of allowed values is 1 to 1200 seconds.

Event Server Metrics

The following table describes the server metrics that appear on the *Metrics* screen for Event servers.



Table 46: Server Metrics

Property	Description
List of Monitored Files	A table that lists the files that are being monitored by the Event server. The Filename column displays the name and path of the file. The Last Notified Time column displays the latest timestamp of when the server did a poll and found that the file exists.
Monitored Files	The total number of files that are being monitored by the Event server.



LESSON SUMMARY

You should now be able to:

- Configure Event servers



Managing Event Servers

LESSON OVERVIEW

The Event server monitors the system for events. When an event has occurred, the Event server notifies the Central Management Server (CMS) to start the job that is set to run upon the event. The Event server manages these file-based events in the storage tier. Administrators can manage the frequency that the Event server polls for a particular file in the *Event Service Properties*. Events can be easily created, scheduled, and managed from the Central Management Console (CMC).



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Manage Event servers

Event Server Management

The Event server monitors the system for events, which can act as a trigger for running a schedule for a report. When you set up an event trigger, the Event Server monitors the condition and notifies the CMS that an event has occurred. The CMS can then start any jobs that are set to run upon the event. The Event server manages file-based events that occur in the storage tier.

The Event server properties contain a property that dictates how often the Event server polls for a particular file that is located in an unmanaged disk. the default is 10 seconds, and this property can be modified to any desired timeframe. This polling activity is minimal, and it does not disrupt system performance.



The screenshot shows a configuration window titled "Event Service". It contains the following elements:

- Use Configuration Template
- Event Poll Interval (seconds):
- Cleanup Interval (minutes):
- Restore System Defaults
- Set Configuration Template

Figure 49: Event Service Poll Properties

**Note:**

The Event server polls for a file that has been placed in an unmanaged disk. It does not poll to check if the file simply exists in the unmanaged disk. The file itself does not need to have content. To manage a recurring schedule (such as, daily), delete the file from the unmanaged disk space for each schedule run. This causes the Event server to poll successfully and find the file name that is being monitored the next time the report schedule is triggered. You can use the Adaptive Job server's Program Job Scheduling service to process a batch file that deletes the file being monitored by the Event server every time a report schedule is triggered by the file event.

**How to Schedule Reports with Events**

Create a file event and schedule a report to run when the event occurs.

1. Click *Events* in the Central Management Console (CMC).
2. Navigate to the *System Events* folder.
3. Go to the *Manage* menu and select *New* → *New Event* .
4. In the *Type* list, select *File* .
5. Enter a name for the event: **MyFile** and complete the *Description* field.
6. In the *Server* list, select the Event Server that will monitor the specified file.
7. Enter a file name and the location where the file event is to occur, for example **D: \Myfile.txt** .
8. Click the *OK* button.
9. You have created a file-based event. Now you must schedule a report to run when this file event occurs. Go to the *Folders* area of the CMC, and select *Report Samples* → *Featured Samples* → *Drilldown report* .
10. From the *Action* menu, click *Schedule* . On the *Recurrence* tab, select to run object *Now* .
11. On the *Events* tab, select your file event from the list of available events, and move it to the *Events to wait for* window.
12. Click the *Schedule* button to schedule the report.
13. Click the *Refresh* button to update the schedule information.
Notice that the report status is pending. Click the *Status* button to view instance properties. The report is waiting for the file event to occur.
14. To trigger the file event, open Windows Explorer. Browse to view **D: ** .
15. Open Notepad. Create a new file and save it as **Myfile.txt** .

16. Go back to the *Folders* area of the CMC and click *Report Samples* → *Featured Samples* → *Drilldown report* and access the *History* by clicking on *Action Menu*.
Notice that the report ran successfully.
-

Unit 12

Exercise 13



Schedule a Report with Events

Business Example

As the system administrator, you must start the scheduling of Web Intelligence documents only when your data warehouse will be correctly updated.



Caution:
You must use the new `Training Course BOE320` content in the `Initialize Course` folder to do this exercise.

Prerequisites for Managing a File-Based Event

1. Connect to the Operating System (OS) of your BI 4.x platform with the following Remote Desktop Connection credentials.

SAP BusinessObjects Business Intelligence Platform 4.1 SP2 System	Windows User Account	Password
WDFLBMT5072	boadmin	BOTraining
WDFLBMT5073	boadmin	BOTraining

2. Once connected to the OS, create a new folder with Windows Explorer on the `D:\` drive. Name the folder **Event** (`D:\Event`).



Note:
This folder will contain the file that will trigger the report scheduling.

3. Minimize the Remote Desktop Connection window and return to your Training Cloud Environment.
4. In the Training Cloud Environment window, publish the `CREATE.BAT` and the `DELETE.BAT` batch files from the uncompressed training course environment to your BI 4.x `Personal` folder.
5. Configure the Program Logon properties for both of the newly published program files.
6. Set the program objects right to allow users to run scripts/binaries on the platform.
7. Test the batch files.

Create a File-Based Event

1. In the CMC *Home* page, click *Events*
2. In the `Event` folder, right-click *System Events* folder and create a new event based on the presence of the `D:\Event\GO.TXT` file.

Create Two Schedule Events

1. In the CMC *Home* page, click `Events` folder.
2. In the `Events` folder, right-click the `System Events` folder and create a new event based on the success of scheduling a BI 4.x report.
3. In the `Event` folder, right-click the `System Events` folder and create a new event based on the failure of scheduling a BI 4.x report.

Manage Subscribers to Event Alerts

1. In the CMC *Home* page, click *Events* .
2. Configure the `Event GO` file-based event to send an alert message to the Administrator user account on the BI 4.x Launchpad when the event is triggered.
3. Repeat step 2 for the `Event Schedule KO` and the `Schedule Event OK` events.



Note:

These events will send alert messages to the Administrator user account on the BI launch pad *Home* page when they are successfully triggered by the platform.

Schedule Objects in BI 4.x

1. In the CMC *Home* page, click `Folders` .
2. Schedule the Charting Samples BI 4.x Web Intelligence document with the following trigger condition:
 - Events to wait for: Event GO
 - Events to trigger on completion:
 - Event Schedule KO
 - Event Schedule OK
3. Return to the CMC *Home* page and click the *Personal Folders* icon.
4. Schedule the `DELETE` program object with the following trigger condition:
 - Events to wait for: Event Schedule OK

Trigger the File-Based Event to Start the Daisy Chain Job.

1. In the CMC *Home* page, click the *Personal Folders* icon.
2. Run now the `CREATE` program object to start the first job.

3. Monitor the D:\Event folder on the server side. Has the GO.TXT file been created?
4. Monitor the History of the Web Intelligence document. Was an instance created?
5. Monitor the D:\Event folder on the server side. Has the GO.TXT file been created?



Note:

After the second job has successfully run, the environment is ready for another run.

6. Connect to the BI launch pad with the Administrator user account. Did you receive Event Alerts?



Schedule a Report with Events

Business Example

As the system administrator, you must start the scheduling of Web Intelligence documents only when your data warehouse will be correctly updated.



Caution:

You must use the new `Training Course BOE320` content in the `Initialize Course` folder to do this exercise.

Prerequisites for Managing a File-Based Event

1. Connect to the Operating System (OS) of your BI 4.x platform with the following Remote Desktop Connection credentials.

SAP BusinessObjects Business Intelligence Platform 4.1 SP2 System	Windows User Account	Password
WDFLBMT5072	boadmin	BOTraining
WDFLBMT5073	boadmin	BOTraining

2. Once connected to the OS, create a new folder with Windows Explorer on the `D:\` drive. Name the folder **Event** (`D:\Event`).



Note:

This folder will contain the file that will trigger the report scheduling.

3. Minimize the Remote Desktop Connection window and return to your Training Cloud Environment.
4. In the Training Cloud Environment window, publish the `CREATE.BAT` and the `DELETE.BAT` batch files from the uncompressed training course environment to your BI 4.x `Personal` folder.
 - a) Go to the CMC and select the `Personal Folders` menu.
 - b) Select the `Administrator` folder.

- c) Right-click the selected `Administrator` folder and select the *Add > Program File* menu options.
- d) Browse to the uncompressed training course environment and select the `CREATE.BAT` file.
- e) Click the *OK* button to publish this file to your `Personal` folder.
- f) Repeat steps C through E to publish the `DELETE.BAT` file.
You can now see two new programs published in the `Administrator > Personal` folder.

5. Configure the Program Logon properties for both of the newly published program files.

- a) Select the `CREATE.BAT` program file that is published in the `Administrator > Personal` folder.
- b) Right-click the file, then click *Default Settings* on the context menu.
- c) Select the *Program Logon* option and enter the following credentials.

User Name	Password
boadmin	BOTraining

- d) Click the *Save and Close* button.
 - e) Select the `DELETE.BAT` program file that is published in the `Administrator > Personal` folder. Repeat steps B through D to configure the Program Logon properties for this file.
You have configured the Windows users accounts that will be used by the platform to run these batch files.
6. Set the program objects right to allow users to run scripts/binaries on the platform.
- a) Go to *CMC Home* page and select *Applications* from the menu.
 - b) Select the *Central Management Console* entry, right-click it, and select the *Program Objects Rights* option from the context menu.
 - c) In the *Program Rights* window, select the *Run scripts/binaries* checkbox.
 - d) Click the *Save and Close* button.
The Administrator has granted program files to be run on the BI 4.x platform.
7. Test the batch files.
- a) In the *CMC Home* page, select `Personal folders` from the menu, and then select the content of the `Administrator` folder.
 - b) Right-click the `CREATE.BAT` program object and select the *Run Now* option from the context menu. After a couple of seconds the batch file will end with success. (This can be checked in the history of the program object.)
You will see a new file (`D:\Event\GO.TXT`) has been created on the server side.

- c) Right-click the `DELETE.BAT` program object and select the *Run Now* option from the context menu. After a couple of seconds the back file will end with success. (This can be checked in the history of the program object.)
You will see a new file (`D:\Event\GO.TXT`) has been successfully deleted from the server side.

Create a File-Based Event

1. In the *CMC Home* page, click *Events*
2. In the `Event` folder, right-click *System Events* folder and create a new event based on the presence of the `D:\Event\GO.TXT` file.
 - a) Right-click on the `System Events` folder and then select *New > New Event* from the context menu.
 - b) In the *New Event* window, enter the following parameter.

Type	File
Event Name	Event GO
File Name	D:\Event\GO.TXT
Alerting Enabled	Checked
Alerting Message	This is an information message to warn that a File-Based even has been triggered with success on the BI 4.x platform.

- c) Click the *OK* button to save this new file-based event.



Note:

This event will send an alert message when it is triggered by the BI 4.x platform.

Create Two Schedule Events

1. In the *CMC Home* page, click *Events* folder.
2. In the `Events` folder, right-click the `System Events` folder and create a new event based on the success of scheduling a BI 4.x report.
 - a) Right-click the `System Events` folder and then select the *New > New Event* context menu options.
 - b) In the *New Event* window, enter the following parameter.

Type	Schedule
Event Name	Event Schedule OK
Result	Success

Type	Schedule
Alerting Enabled	Checked

- c) Click the *OK* button to save this new success-based event.
This event will send an alert message when it is successfully triggered by the BI 4.x platform.
3. In the `Event` folder, right-click the `System Events` folder and create a new event based on the failure of scheduling a BI 4.x report.
 - a) Right-click the `System Events` folder and then select the *New > New Event* context menu options.
 - b) In the *New Event* window, enter the following parameter.

Type	Schedule
Event Name	Event Schedule KO
Result	Failure
Alerting Enabled	Checked

- c) Click the *OK* button to save this new failure-based event.
This event will send an alert message when it has been triggered by the BI 4.x platform.

Manage Subscribers to Event Alerts

1. In the *CMC Home* page, click *Events* .
2. Configure the `Event GO` file-based event to send an alert message to the Administrator user account on the BI 4.x Launchpad when the event is triggered.
 - a) In the `System Events` folder, right-click the `Events GO` object and then select the *Subscribe* option from the context menu.
 - b) Select the *My Alerts* checkbox and then click the *Save* button.
 - c) Select the *Manage Subscribers > Subscriber List* options to check that the Administrator account has been added to the Subscriber List.
 - d) Click the *Save and Close* button.
3. Repeat step 2 for the `Event Schedule KO` and the `Schedule Event OK` events.



Note:

These events will send alert messages to the Administrator user account on the BI launch pad *Home* page when they are successfully triggered by the platform.

Schedule Objects in BI 4.x

1. In the *CMC Home* page, click *Folders* .

2. Schedule the Charting Samples BI 4.x Web Intelligence document with the following trigger condition:
 - Events to wait for: Event GO
 - Events to trigger on completion:
 - Event Schedule KO
 - Event Schedule OK
 - a) Right-click the `Charting Samples Web Intelligence` document and then add the three events described in the bullets above.
 - b) Select the *Schedule > Events* property and then add the three events that are described in the bullet list above.
 - c) Click the *Schedule* button to run the job.
 - d) Check the status of the job, then close the *History* window.

**Note:**

The first job will have a status of "Pending". It will wait for the `D:\Event\GO.TXT` file for scheduling the Web Intelligence document.

3. Return to the CMC *Home* page and click the *Personal Folders* icon.
4. Schedule the `DELETE` program object with the following trigger condition:
 - Events to wait for: Event Schedule OK
 - a) Right click the `DELETE` program object. Select the *Schedule* option from the context menu.
 - b) Select *Schedule > Events* and then add the even listed in Step 4.
 - c) Click the *Schedule* button to run the job.
 - d) Check the status of the job; then close the *History* window.

**Note:**

This second job will have a status of "Pending". It will wait for the successful end of the first job to start.

Trigger the File-Based Event to Start the Daisy Chain Job.

1. In the CMC *Home* page, click the *Personal Folders* icon.
2. Run now the `CREATE` program object to start the first job.
 - a) Right-click the `CREATE` program object. Select the *Run Now* context menu option.
3. Monitor the `D:\Event` folder on the server side. Has the `GO.TXT` file been created?

This action will create the D:\Event\GO.TXT file on the server side for a few seconds. It will also automatically launch the first job.

4. Monitor the History of the Web Intelligence document. Was an instance created?
The GO.TXT file launches the first job, which successfully creates an instance for the Web Intelligence document.
5. Monitor the D:\Event folder on the server side. Has the GO.TXT file been created?
After a couple of seconds the D:\Event\GO.TXT is deleted on the server side. The second job has been successfully run, based on the "Success" status of the first job.



Note:

After the second job has successfully run, the environment is ready for another run.

6. Connect to the BI launch pad with the Administrator user account. Did you receive Event Alerts?
Yes, the Administrator user account has received two alert messages. One alert message is called "Event GO," and the other is called "Event Schedule OK." Notice that the name of the alert message is the name of the event.



LESSON SUMMARY

You should now be able to:

- Manage Event servers



Learning Assessment

1. What are the three types of events?

2. Select the correct event server description.

Choose the correct answer.

- A Event servers store event alerts.
- B Event servers trigger events on the Input File Repository server.
- C Event Servers control the Events database.
- D Event servers monitor for file events on a File Repository Server (FRS).

3. What is the default setting for how often the Event server polls for a particular file that is located in an unmanaged disk.

Choose the correct answer.

- A 60 seconds
- B 5 seconds
- C 10 seconds
- D 30 seconds



Learning Assessment - Answers

1. What are the three types of events?

There are File events, Schedule events, and custom events.

2. Select the correct event server description.

Choose the correct answer.

- A Event servers store event alerts.
- B Event servers trigger events on the Input File Repository server.
- C Event Servers control the Events database.
- D Event servers monitor for file events on a File Repository Server (FRS).

3. What is the default setting for how often the Event server polls for a particular file that is located in an unmanaged disk.

Choose the correct answer.

- A 60 seconds
- B 5 seconds
- C 10 seconds
- D 30 seconds

UNIT 13

SAP BusinessObjects Business Intelligence Platform 4.1 Monitoring

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UNIT OBJECTIVES

- Monitor the BusinessObjects Business Intelligence platform 4.1
- Monitor a metric
- Monitor servers with alerts
- Monitor servers with probes



Monitoring the SAP BusinessObjects Business Intelligence Platform 4.1

LESSON OVERVIEW

The platform Monitoring web application is integrated with the Central Management Console (CMC), and monitors the system environment. This application collects and visualizes a set of counters that are related to the operating system and application servers of the platform. Monitoring collects and graphically reports system and application counters so that administrators can accurately evaluate platform performance. Monitoring also stores the collected metrics in a dedicated database, and when a malfunction is found, alerts the designated recipients of the error.



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Monitor the BusinessObjects Business Intelligence platform 4.1

Monitoring Application Role

The SAP BusinessObjects BI 4 platform allows an administrator to have a standard application and an integrated solution for monitoring its system environment (development, quality, and production). This solution is available from the BI 4.0 version, and it comes in the form of a web application (Monitoring option) that is integrated with the Central Management Console (CMC).

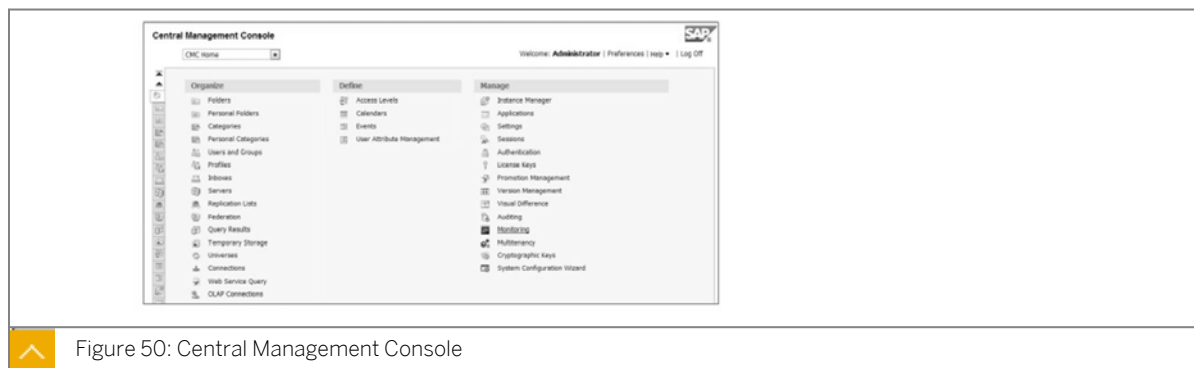


Figure 50: Central Management Console

The Monitoring application allows you to collect and return a set of counters as graphs. These graphs are related to the operating system and the application servers of the platform. The Monitoring application performs many roles, including the following:

- Monitoring the performance of the application servers of the platform
- Monitoring the overall health of the platform

- Aiding the diagnostics and performance tests on the platform
- Alerting in the event of a problem on one or more application servers

Functions of the Monitoring Application

The application performs the following functions:

- The application collects, in real time, and graphically reports system and application counters. This metric collection allows an administrator to accurately and objectively evaluate the performance of the BI 4 platform.
- The application stores the collected metrics in a centralized, dedicated database. This database is Open Source (JAVA Derby), and installed automatically with the platform. It collects and logs monitoring metrics to allow the administrator to establish a regular diagnostic on the health of the platform.
- Upon detection of a malfunction on an application server, the monitoring application sends message alerts automatically to designated recipient addresses that may be internal or external to the platform.
- The application is able to test periodically the health and performance of a set of Business Intelligence services on the platform.

Monitoring Application Properties

The BI 4 Monitoring application has a default configuration that is editable from the *Applications* section of the Central Management Console (CMC).



Note:

All changes to the Monitoring application properties (except for the activation of the service) are reflected in the operation of the system after a manual restart of the BI 4 Application server (the default Adaptive Processing server). The Adaptive Processing server hosts the service that runs the Monitoring application on the platform.

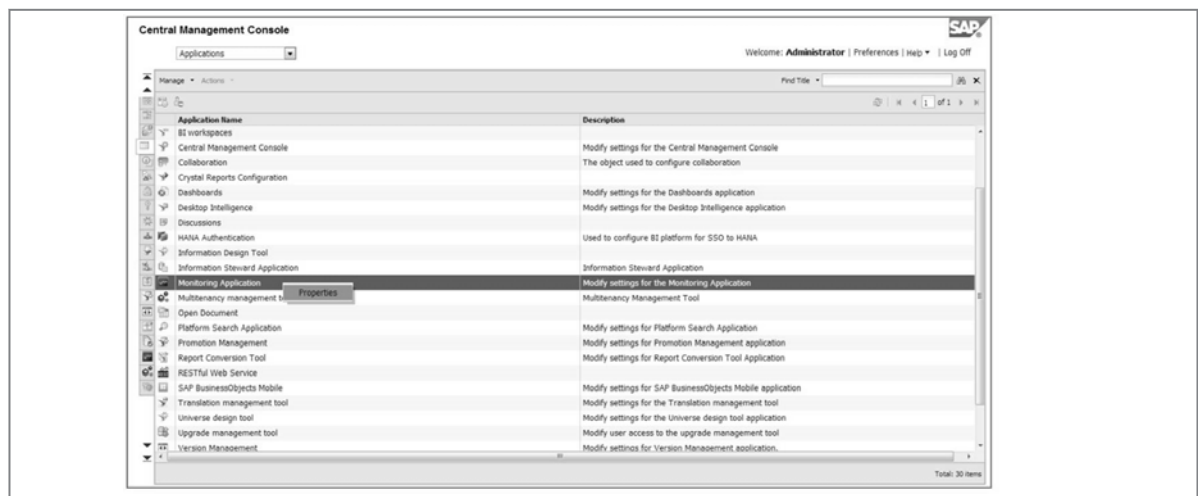


Figure 51: Monitoring Application Properties Option

Monitoring Application Enablement Property

The Monitoring application works through the BI 4 Monitoring service. It is hosted by the Adaptive Processing server, and is installed by default on the BI 4 platform. The platform administrator may enable or disable the Monitoring service by performing the following steps:

1. Go to the Central Management Console.
2. Right click the *Monitoring Application* option and select the resulting *Properties* menu option. The *Monitoring Application Properties* screen appears.
3. Select the *Enable Monitoring Application* checkbox to enable the service. Deselect the checkbox to disable the service.

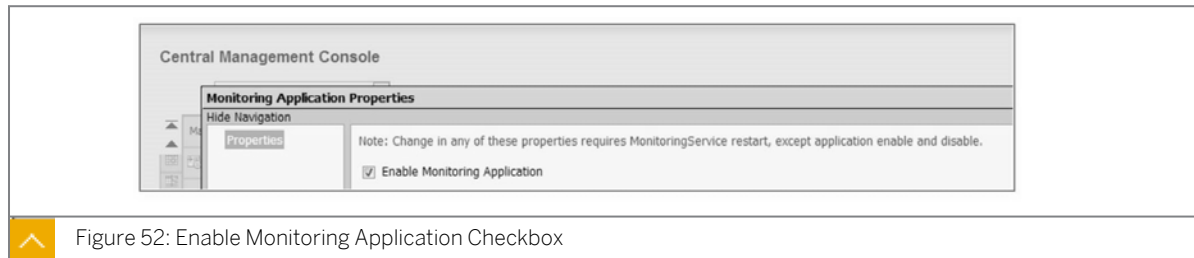


Figure 52: Enable Monitoring Application Checkbox



Note:

Any failure of the default Adaptive Processing Server implies the immediate cessation of the hosted monitoring service. Therefore, the functions of the monitoring service (collecting and reporting) have also stopped. Only the probes will remain operational, but it is not possible to consult the monitoring database to see the history.



Caution:

It is not advisable to disable the monitoring service on a production environment.



Note:

For safety, we recommend that administrators create a new Adaptive Processing server that is dedicated to the Monitoring service. This way the service is isolated from the other application servers that are running on the platform, and it ensures high quality and availability of the Monitoring service on the platform.

The JAVA Web Service for Monitoring

Monitoring the platform data can also be accessed from external applications like CORBA or JAVA, rather than through the CMC. The external client application accesses Monitoring through a URL connection that is defined in the CMC. This URL is the address of the Web Service JAVA JMX that is hosted by the BI 4 platform.

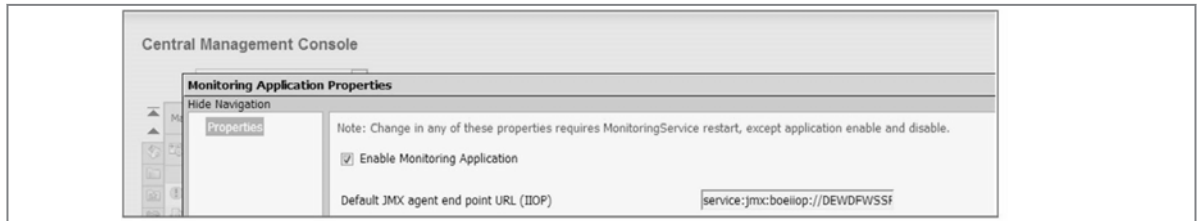


Figure 53: Monitoring Default JMX Agent URL



Note:
The JMX agent end point URL is platform specific and not editable.

Monitoring Application Properties

The Monitoring Application database has many parameters that are configurable from the CMC. The *Monitoring Application Properties* screen allows administrators to configure the database settings, such as storage configuration, backups, exportation, and database cleanup.

Monitoring data is stored in the embedded database (Derby JAVA) by default. This setting can be changed in the *Monitoring Application Properties* screen. Select the *Use Audit Database* radio button to store Monitoring data on the Auditing (relational) database.

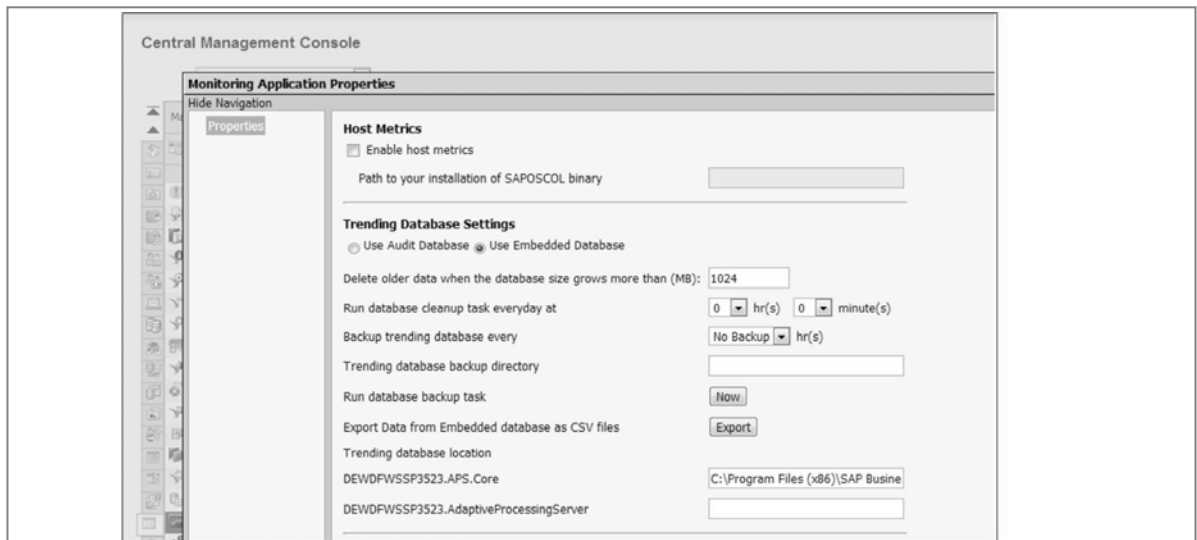


Figure 54: Monitoring Application Properties



Note:
Monitoring data is stored on the server in the form of flat files. These files are located in the following local directory: `C:\ProgramFiles (x 86)\SAPBusinessObjects\SAP BusinessObjects Enterprise XI 4.0\Data\TrendingDB.`

Backup and Cleaning the Monitoring Data

The backup and automatic cleaning of the Monitoring data is configurable on the *Monitoring Application Properties* screen of the CMC.



Caution:

The location and frequency (schedule) of the database backup is set by the administrator because Monitoring data is not saved automatically.

When a backup of the Monitoring data is launched, the BI 4 platform copies the content to the C:\Program Files (x86)\SAP BusinessObjects Enterprise XI4.x\TrendingDB\Derby directory. To restore the database from the backup, simply copy the contents of the backup directory and place it in the directory that is configured in the CMC.

Set a limit to how much data is stored in the database before it is cleaned in the *Delete older data when the database size grows more than (MB)* field. Enter an amount of data, in megabytes, that will trigger the deletion of the oldest data.



Note:

There is no parameter that sets a maximum size limit for the database. It is important that the administrator regularly monitors the database size.

Other Monitoring Parameters

Other settings found on the *Monitoring Application Properties* screen include the Metric Refresh Interval, Monitoring UI auto refresh interval, and the Alert Reminder Frequency.




Figure 55: Other Property Settings

Table 47: Other Monitoring Parameters

Parameter	Default Setting
Metric Refresh Interval (seconds)	60
Monitoring UI auto refresh interval (seconds)	15
Alert Reminder Frequency (days)	1



Caution:

Decreasing the default settings of the Other Settings can cause a more rapid growth of the database and downgrade the system performance.



LESSON SUMMARY

You should now be able to:

- Monitor the BusinessObjects Business Intelligence platform 4.1



Using the SAP BusinessObjects Business Intelligence Platform 4.1 Monitoring Dashboard

LESSON OVERVIEW

The Monitoring application is accessed on the Central Management Console (CMC). The application dashboard offers five tabs that help administrators manage and monitor the different aspects of the platform. The dashboard allows administrators to create and monitor a metric, to create and monitor an alert, and test or restart the server with probes.



LESSON OBJECTIVES

After completing this lesson, you will be able to:

- Monitor a metric
- Monitor servers with alerts
- Monitor servers with probes

Monitoring Dashboard Overview

The Monitoring dashboard is a JAVA Web application in the CMC that allows you to view and analyze monitoring data from the past or in real time. This dashboard contains five main features that are presented in unique tabs on the Central Management Console: Dashboard tab (main page), Metrics tab, Watchlist tab, Probes tab, and Alerts tab.

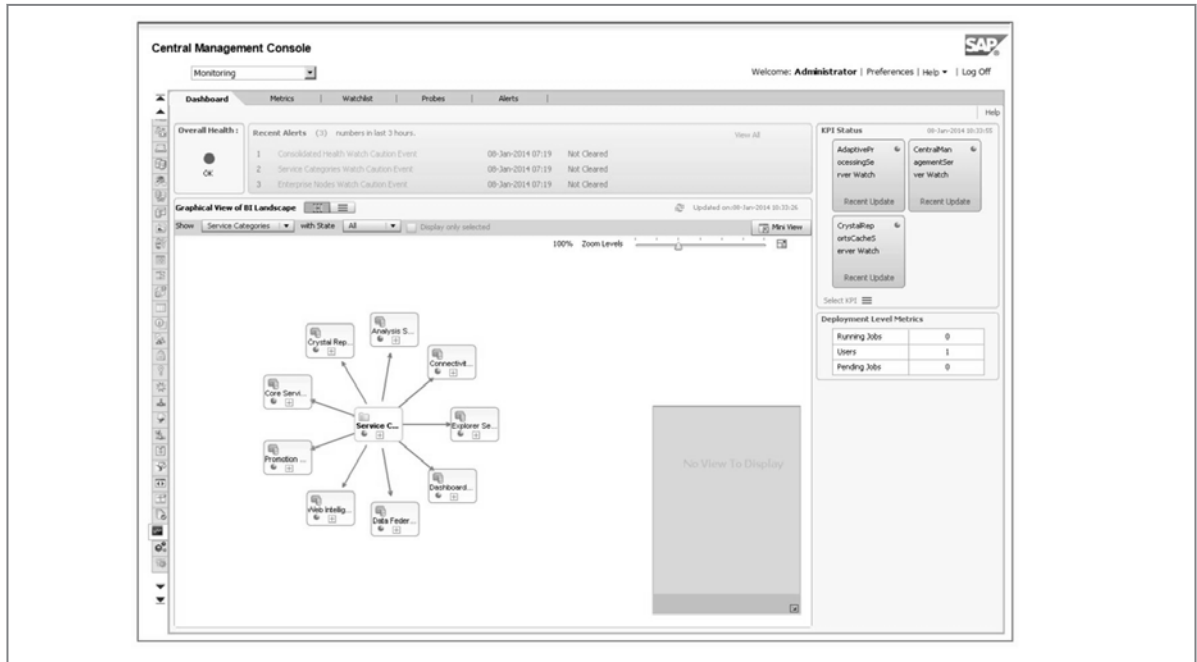


Figure 56: Monitoring Dashboard Graphical View



Note:

The Monitoring dashboard is a web application that was developed in Flash format. Therefore, to view this application, it is necessary to install the latest version of Flash Player on the client side.

Dashboard Tab

The Monitoring application dashboard tab is comprised of several parts that provide general information on the platform monitoring. The main sections of the Dashboard tab are:

- Overall Health
- Recent Alerts
- KPI Status
- Deployment Level Metrics
- Graphical View
- Tabular View

Overall Health

The first part of the Dashboard tab that you are likely to notice is the Overall Health indicator. This icon indicates the state of the BI 4 platform.

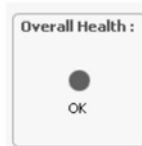


Figure 57: Overall Health Status



Note:

In the case of a multi-node BI 4 clustering, this flag only gives the general state of the first application node that is installed on the platform. To view the status of the other nodes, go to the *Tabular View of BI Landscape* area, or to the *Metric* area of each node.

Recent Alerts

This second section of the Dashboard tab displays a summary of the most recent monitoring alerts that are received from the platform.



Recent Alerts (3) numbers in last 3 hours. View All			
1	Consolidated Health Watch Caution Event	08-Jan-2014 07:19	Not Cleared
2	Service Categories Watch Caution Event	08-Jan-2014 07:19	Not Cleared
3	Enterprise Nodes Watch Caution Event	08-Jan-2014 07:19	Not Cleared

Figure 58: Recent Monitoring Alerts

Alert Details

Each alert in the list reflects the name the watch that generated it. Click on the alert to view the following data:

- Watch Name
- Alert Status (Caution or Danger)
- Time of Alert
- Caution Rule
- Danger Rule
- Cause
- Action

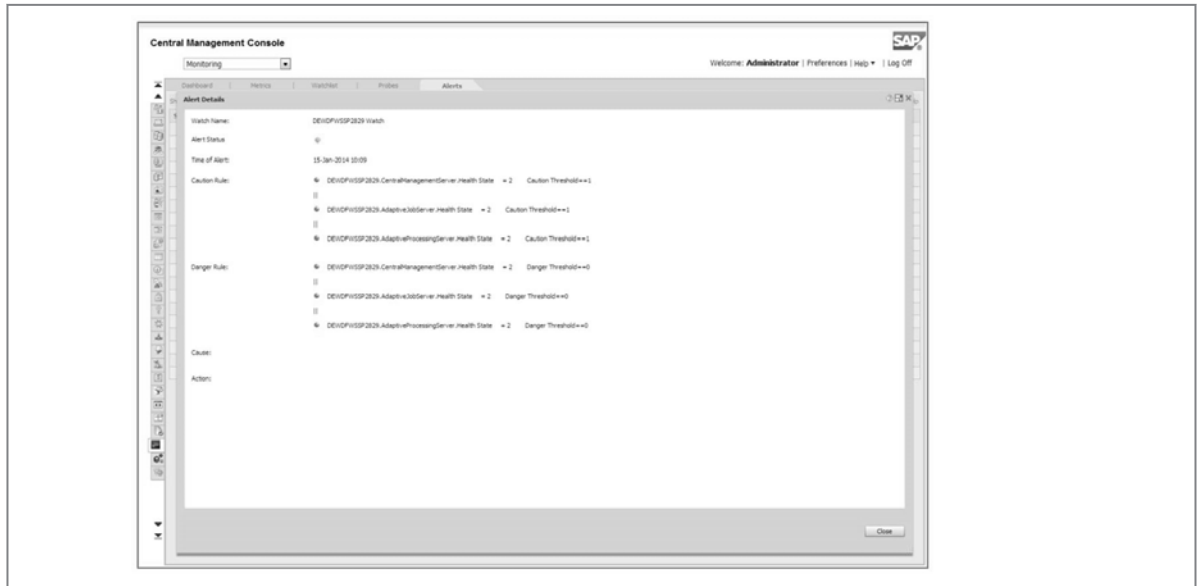


Figure 59: Alert Details



Hint:
These alerts are also available for analysis on the *Alerts* tab.

KPI Status

This third section of the Dashboard tab shows some key indicators of performance of the platform. It monitors platform watches by default, and the administrator can reconfigure these KPIs by selecting the corresponding watch.



Figure 60: KPI Status



Note:
The administrator can select up to four monitoring watches to customize the KPI Status area.

Deployment Level Metrics

This fourth section of the Dashboard tab displays the following metrics in real time:

- Running Jobs
- Users
- Pending Jobs



Figure 61: Development Level Metrics

KPI Details Users

Click on one of these metrics to view details of the selected metric.

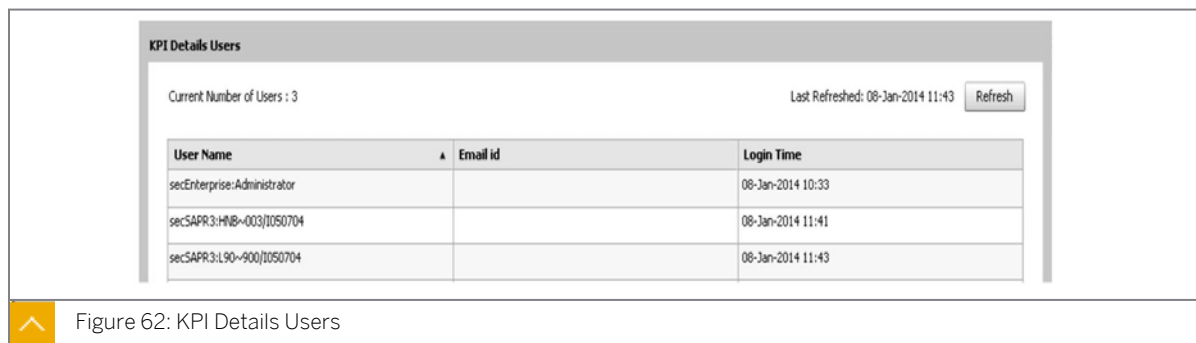


Figure 62: KPI Details Users



Note:

It is not possible to configure the *KPI Details Users* screen.

Graphical View

This fifth and final section of the Dashboard tab shows the overall status of each platform server. Several types of views are available, including the following:

- Enterprise Nodes view
- Server Groups view
- Service Categories view

Each of these views can be presented in either a graphical style or in a tabular style.

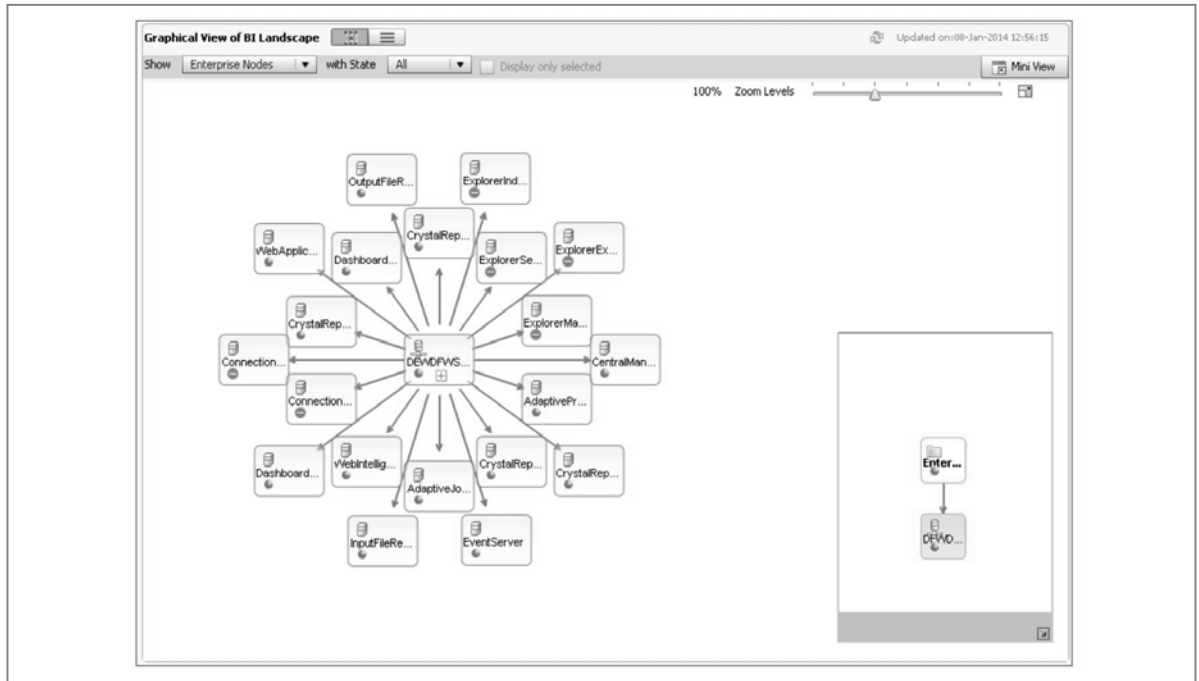


Figure 63: Graphical View of BI Landscape

Tabular View of BI Landscape



The table displays the following data:

Name	Overall Status
DEWDFWSSP2829	
CentralManagementServer	●
AdaptiveProcessingServer	●
CrystalReportsCacheServer	●
CrystalReports2013ProcessingServer	●
EventServer	●
AdaptiveJobServer	●
InputFileRepository	●
WebIntelligenceProcessingServer	●
DashboardsCacheServer	●
ConnectionServer	●
ConnectionServer32	●
CrystalReports2013ReportApplicationServer	●
WebApplicationContainerServer	●
DashboardsProcessingServer	●
OutputFileRepository	●
CrystalReportsProcessingServer	●
ExplorerIndexingServer	●

Figure 64: Tabular View of BI Landscape

Watch Details

By default, each platform server is monitored by a watch. Double-click a server to view the following performance details:

- The current health state of the server is evaluated through a calculation rule on one or more metrics (OK, Warning, Danger)
- Performance (live or history) based on metrics are the two most commonly accessed performance details

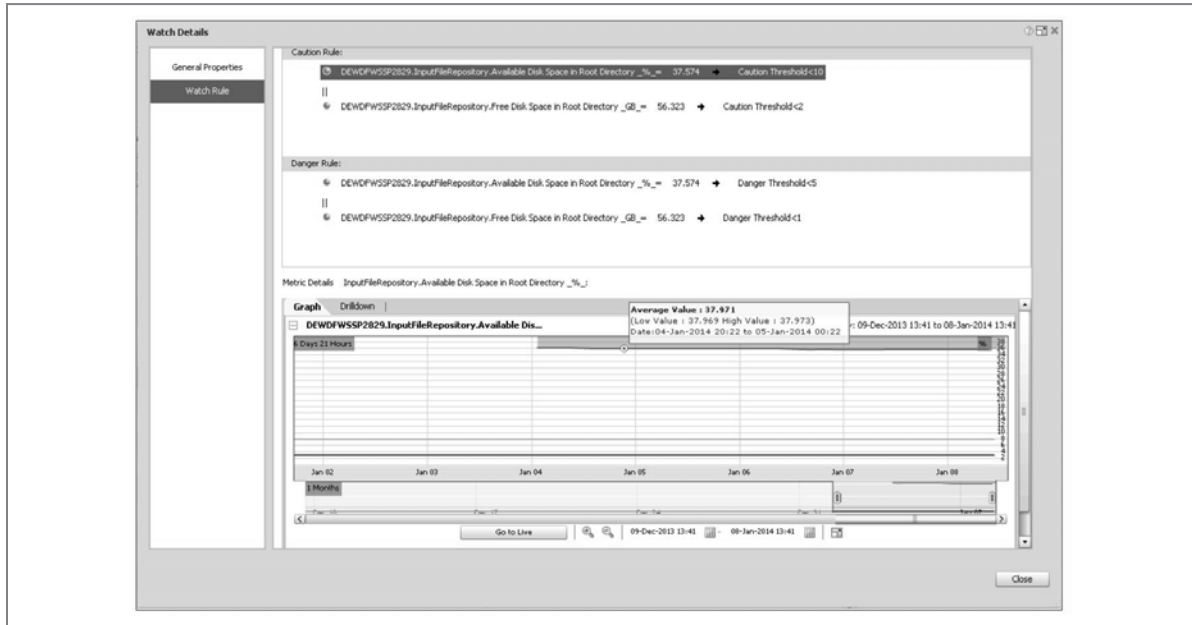


Figure 65: Watch Details



Hint:

You can also view data collected in the past by looking at the history.

Monitoring Dashboard Metrics

Business Intelligence platform relies on a set of indicators called metrics. These metrics can be viewed on the *Metrics* tab of the *Monitoring* application on the CMC. Administrators may create new metrics or select from many choices of metrics from the following five categories:

- System Metric
- Application Server Metric
- Probe Metric
- Topology Metric
- Derived Metric

System Metrics

System metrics are indicators of the performance of the operating system (RAM, CPU, disk space, number of used file) that hosts the platform. Every platform server has a set of predefined system metrics.

These metrics are immediately available from the *Servers* option on the Metrics tab. You can evaluate the metrics in the form of a chart that is updated automatically every 15 seconds.

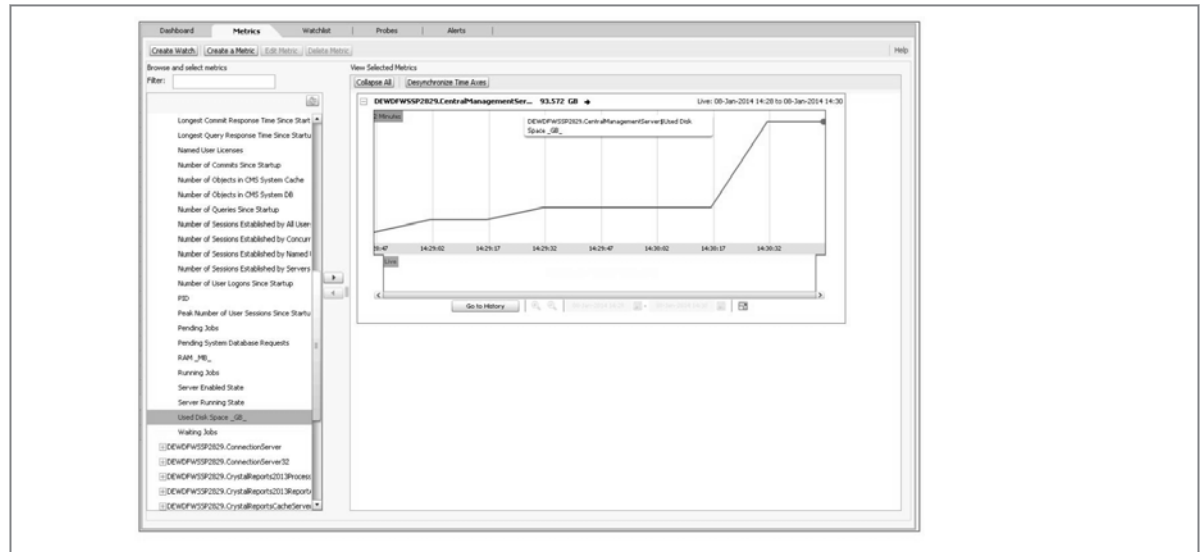


Figure 66: System Metrics



Caution:

A system metric cannot be edited or deleted.



Note:

If a metric is within a monitoring watch, you can view a history of the metric because its data was collected and stored in the monitoring database.

Application Server Metrics

Application server metrics are an indicator of the performance of the Application server. These metrics monitor things like:

- Frequency of auditing
- Number of user connections
- Number of opened WEBI documents

Each platform server has its own set of predefined application metrics.

Application server metrics are immediately available from the *Servers* option on the Metrics tab. You can monitor and graphically view the values of each of these metrics. (Graphics are updated, by default, every 15 seconds.)

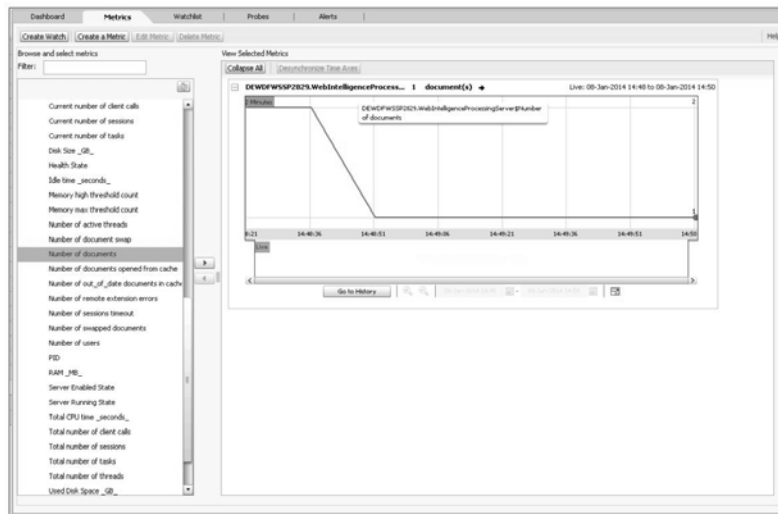


Figure 67: Application Server Metrics



Caution:
A system metric cannot be edited or deleted.



Note:
If a metric is within a monitoring watch, you can view a history of the metric because its data was collected and stored in the monitoring database.

Probes Metrics

Probes metrics are performance indicators that are returned when available by the monitoring application test BI 4 probe. There are only two specific indicators for probes:

- **Roundtrip time Metrics** : This is the value that is returned by the metric which indicates the execution time of the test of the probe (in milliseconds). The larger the value, the larger the load is and the worse the performance on the platform.
- **Result Metrics** : This is the value that indicates the result of the execution of a probe. The value will be either Pass (Success) or Fail (Failure).

This metric is immediately available from the Servers option in the Metrics tab. You can monitor and graphically view values for each of these metrics. The graphics are updated every 15 seconds by default.

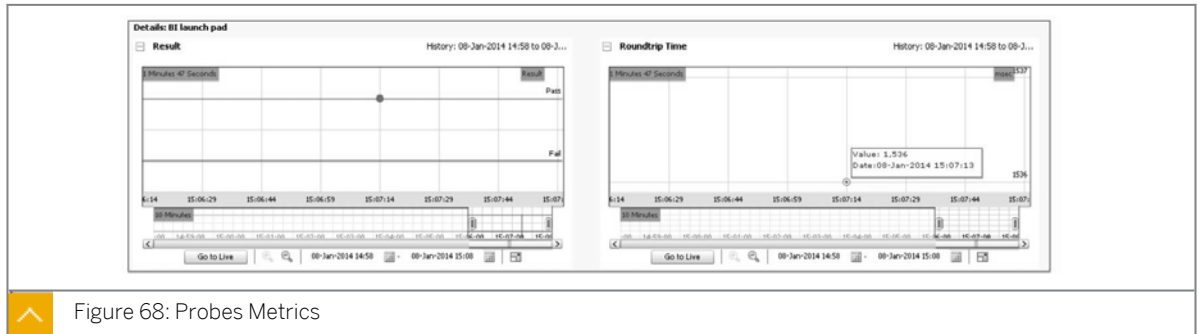


Figure 68: Probes Metrics

**Caution:**

A system metric cannot be edited or deleted.

**Note:**

If a metric is within a monitoring watch, you can view a history of the metric because its data was collected and stored in the monitoring database.

Topology Metrics

The Topology metrics are not performance indicators. Instead, these metrics indicate the state of the general health of the service categories in the platform. These metrics also indicate the general health of the platform nodes, in the case of clustering nodes in BI 4. There is one specific indicator for Topology Metrics: Health State metrics. The value returned by this metric gives one of the following statuses:

- Unknown Value -- This value means that the server has stopped. It is black in color.
- 0 -- This value means "Danger" and has a red color.
- 1 -- This value means "Caution" and has an amber color.
- 2 -- This value means "OK" and has a green color.

The Topology metrics are immediately available from the Servers option in the Metrics tab. You can monitor and graphically view the values for this metric on the Metrics tab. Graphics are updated every 15 seconds by default



Figure 69: Topology Metrics



Caution:
A system metric cannot be edited or deleted.



Note:
If a metric is within a monitoring watch, you can view a history of the metric because its data was collected and stored in the monitoring database.

Derived Metrics

Derived Metrics is an indicator of user performance that can be customized by the administrator. To create a new Derived Metric, click the *Create a Metric* button on the *Monitoring* tab. Write a formula for calculating the value of the new metric for each rule. It is possible to validate the syntax of the formula.

New metrics can be saved by the administrator as either a Derived metric, a Probe metric, an Application server metric, or as a System metric.

This metric is immediately available in the Metrics tab. You can monitor and graphically view values for each of these metrics. Graphics are updated every 15 seconds by default.

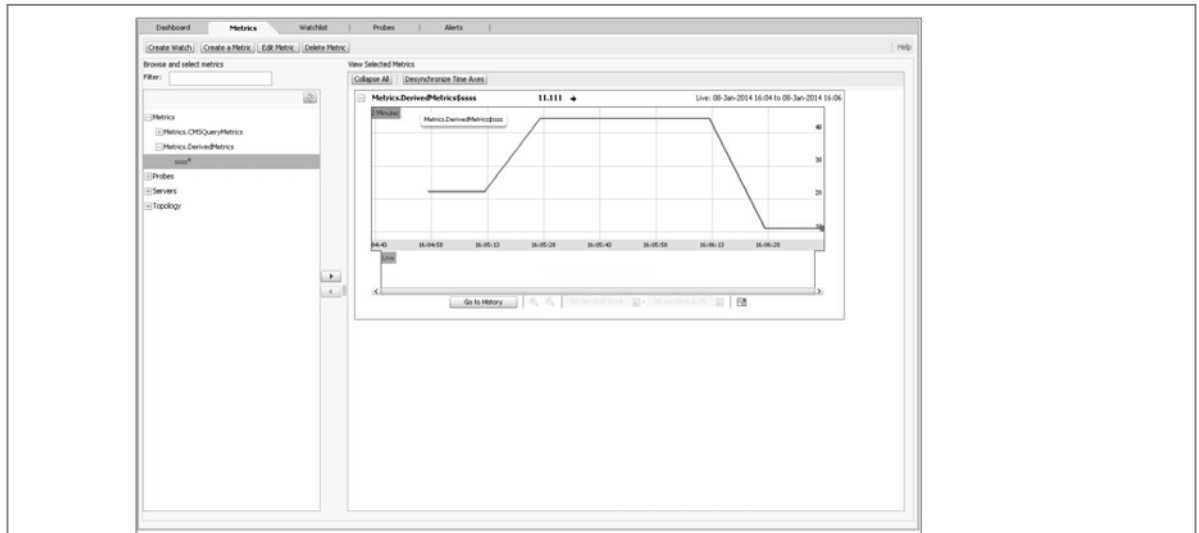


Figure 70: Derived Metrics

Edit Derived Metrics



Note:
It is possible to modify or delete any derived metric.



The screenshot shows the 'Edit Derived Metric' dialog box. It has a 'Metric Name' field containing 'esse'. Below it is a 'Browse and select metrics' section with a filter and a tree view. The 'Metric Formula' field contains the following expression: $([DEWD\WSP523.CentralManagementServer]\text{Number of Sessions Established by All Users} / ([DEWD\WSP523.CentralManagementServer]\text{Existing Concurrent User Accounts}) + [DEWD\WSP523.CentralManagementServer]\text{Existing Named User Accounts}) * 100$.

Figure 71: Edit Derived Metrics



Create and Monitor a Metric

Business Example

As the system administrator, you must monitor the percentage of connected users on your production BI 4 platform in real time.

Properties of the Monitoring Application on the BI 4 Platform

1. Open the Central Management Console (CMC) application and select the *Application* menu.
2. Display the Monitoring Application properties.
 - Is the Monitoring application service enabled?
 - What is the maximum size of the Monitoring database?
 - Where is the Monitoring database stored on the platform?
3. Run a database backup in the `D:\` directory. What can you see on the server side?
4. How long does it take to back up the Monitoring database on the server?
5. What is the size of the backup folder?
6. How do you restore a Monitoring database backup, if necessary?
7. What is the platform server that is running and hosting the Monitoring service?

Create a New Metric and Monitor the Percentage of Connected Users on the Platform

1. In the Central Management Console (CMC), run the Monitoring Dashboard. Click the *Metrics* tab.
2. Create a new metric called My Rate of BI4 User Connections to monitor the percentage of established BI 4 platform user connections.
3. Monitor the current value displayed by your new metric. What does this value stand for?
4. Open a new BI launch pad session (in a new Internet Explorer window) with your Administrator user account. What is the new value of the metric in the graphic?
5. Log off from the new BI launch pad session you had open. What is the new value of the metric in the graphic?
6. Go to the history of this metric. What do you see and why?



Create and Monitor a Metric

Business Example

As the system administrator, you must monitor the percentage of connected users on your production BI 4 platform in real time.

Properties of the Monitoring Application on the BI 4 Platform

1. Open the Central Management Console (CMC) application and select the *Application* menu.
2. Display the Monitoring Application properties.
 - Is the Monitoring application service enabled?
Yes, the *Enable Monitoring Application* option is selected.
 - What is the maximum size of the Monitoring database?
The maximum size of the Monitoring database is 1024 Mb. When the limit is reached, the oldest data will be automatically deleted.
 - Where is the Monitoring database stored on the platform?
The Monitoring database is stored in the following folder: D:\Program Files (x86)\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.x\Data\TrendingDB.
3. Run a database backup in the D:\ directory. What can you see on the server side?
 - a) Enter D:\ in the *Trending database backup directory* field.
 - b) Click the *Save* button.
 - c) Click the *Now* button. Do not close the *Monitoring Application Properties* window.
The Monitoring database backup is stored in a new folder (D:\Derby) that is located at the Operating System (OS) level on the platform.
4. How long does it take to back up the Monitoring database on the server?
The Monitoring database backup to the D:\ drive only takes a couple of minutes.
5. What is the size of the backup folder?
The size of the backup folder is ~224 Mb.
6. How do you restore a Monitoring database backup, if necessary?

Copy the contents of the backup folder, D:\Derby, and paste it to D:\Program Files (x86)\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\Data\TrendingDB\Derby.

7. What is the platform server that is running and hosting the Monitoring service?

The Adaptive Processing server hosts the Monitoring service by default. It can be moved to a single, dedicated Adaptive Processing server to secure this service on the platform.

Create a New Metric and Monitor the Percentage of Connected Users on the Platform

1. In the Central Management Console (CMC), run the Monitoring Dashboard. Click the *Metrics* tab.
2. Create a new metric called My Rate of BI4 User Connections to monitor the percentage of established BI 4 platform user connections.
 - a) Click the *Create a Metric* button.
 - b) Enter the following for the metric name: **My Rate of BI 4 User Connections**.
 - c) Expand the Central Management Server list and select the correct metrics to build the following metric formula:


```
(wdfldbmt5072.CentralManagementServer$'Number of Sessions Established by All Users' / (wdfldbmt5072.CentralManagementServer$'Existing Concurrent User Accounts' + wdfldbmt5072.CentralManagementServer$'Existing Named User Accounts')) * 100
```
 - d) Click the *Evaluate* button to evaluate the syntax.
 - e) Click the *Save* button to create your new metric.
3. Monitor the current value displayed by your new metric. What does this value stand for?
 - a) Select the *Metrics > Metrics.DerivedMetrics > My Rate of BI 4 User Connections* options.
 - b) Click the ">" button.



Hint:

The graphic shows the current percentage of connected users on the BI 4 platform, and it is updated periodically.

4. Open a new BI launch pad session (in a new Internet Explorer window) with your Administrator user account. What is the new value of the metric in the graphic? **A new user connection was made, so the metric increased in the graphic.**
5. Log off from the new BI launch pad session you had open. What is the new value of the metric in the graphic? **A user connection has closed, so the metric increased in the graphic.**
6. Go to the history of this metric. What do you see and why? **The history for this metric is empty because a metric only displays current values in the system, and it does not keep a history of them in the Monitoring database. To see a history of the metrics, create a Watch that is based on this metric.**

Watch and Alerts

The Monitoring Watch application is a new tool for the BI 4 platform.

Monitoring Watch Features



- Automatically archives the monitoring data that is collected in the platform monitoring database
- Can be activated or deactivated to help control the volume of data that is stored in the platform monitoring database
- Can automatically send alert messages in the case of caution or danger encountered on the platform



The screenshot displays the 'Central Management Console' (CMC) interface, specifically the 'Monitoring' section. The top navigation bar includes 'Dashboard', 'Metrics', 'Watchlist', 'Probes', and 'Alerts'. The 'Watchlist' tab is active, showing a search bar and a table of watches. The table has columns for 'Status', 'Watches', 'Attributes', and 'Description'. Below the table, there are sections for 'Core Services Watch Metrics' and a list of server health status cards, each showing a server name, a status indicator (e.g., '2'), and a 'Live' timestamp.

Figure 72: CMC Watchlist Tab

Monitoring watches

By default, the platform offers nine predefined and operational watches that monitor the health status and performance of the installed default servers on the platform. The nine watches are:

Types of Monitoring Watches



- Analysis Services watch
- Connectivity Services watch
- Consolidated Health watch
- Core Services watch
- Crystal Reports Services watch
- Dashboards Services watch

- Data Federation Services watch
- Application Server watch
- Adaptive Job Server watch



Note:
There is no predefined watch for the Explorer servers.

Functions of the Monitoring Application

The monitoring application performs the following functions:



- Analyzes the data that is collected by the monitoring watches
- Manages the watches
- Creates new watches

Analysis of the Data Collected by Monitoring Watches

The administrator can immediately analyze the data that is collected by a watch by clicking on the watch. A detailed panel appears that graphically presents all of the metrics that constitute the watch. This allows administrators to gather and monitor a set of metrics within the same monitoring tool.

The metrics can be analyzed by a watch in three ways:

- By color code:
 - Black indicates that the server has stopped.
 - Red indicates that the server status is Danger.
 - Amber indicates that the server status is Caution.
 - Green indicates that the server status is Ok.
- By Value:
 - An unknown value indicates that the server has stopped.
 - A value of 0 indicates that the server status is Danger.
 - A value of 1 indicates that the server status is Caution.
 - A value of 2 indicates that the server status is OK.
- By analysis chart (Metrics can be more finely parsed through the graphical analysis of data.):
 - Go To Live is a type of visualization (default) that shows the current value of the metric in the system.
 - Go To History shows the different values of the metric collected in the past, since the creation of the watch. It provides a detailed analysis of the history of this metric.

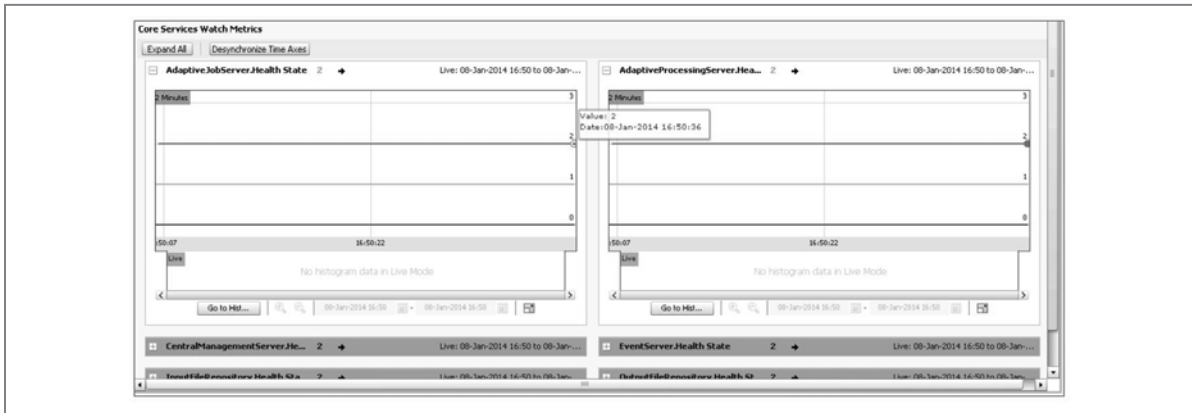


Figure 73: Watch Metrics Graphic Analysis

Watch Management

The Watchlist tab provides a management toolbar that includes the following options:

- New -- Create a new watch
- Edit -- View watch properties and edit the configuration
- Copy -- Copy a watch
- Enable/Disable -- Enable or disable a watch
- Disable or enable monitoring alerts
- Add the watch as a new KPI in the dashboard

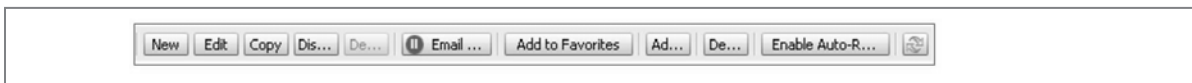


Figure 74: Managing a Watch Toolbar

New Watch Creation

Watches are useful to monitor a set of metrics that are gathered within the Monitoring application. An administrator can create a customized watch through the *Watchlist* tab toolbar. Click the *New* button and a wizard launches that guides you through the following steps:

1. Define the General properties
2. Define the Metrics and Rules
3. Define the Periods and Alerts

On the *General Properties* screen, enter the following data:

1. Name the watch.
2. Select the type of watch. A two state watch alerts of statuses Ok and Danger. A three state watch alerts of the statuses OK, Caution, and Danger.



Note:

The state of a monitoring watch can change when a threshold value is reached or exceeded.

- Under *Settings*, select *Write collected data to the Monitoring Database (Trending DB)* and *Add this watch within the KPIs list of watch*.



Note:

A new watch is not set as a new KPI and does not keep data in the monitoring DB by default. The administrator can change these settings any time.



Figure 75: New Watch - General Properties

Watch Caution Rule Screen

The definition of metrics and rules is made on the *Caution Rule* screen. This stage of the creation of a watch defines the rules for a Danger or Caution status. For each state (Danger and Warning), the administrator must choose at least one metric and assign a threshold value and a condition.

Click the plus sign (+) next to a metric type to expand its view and show the individual metrics nested within them. Select the metrics you want to add to the watch, and click the right arrow button to move these metrics over to the *Added Metrics* portion of the screen. You can select metrics, probes, servers, and topology in this fashion on this screen.



Note:

You can define simple operators to combine the rules (and, or).

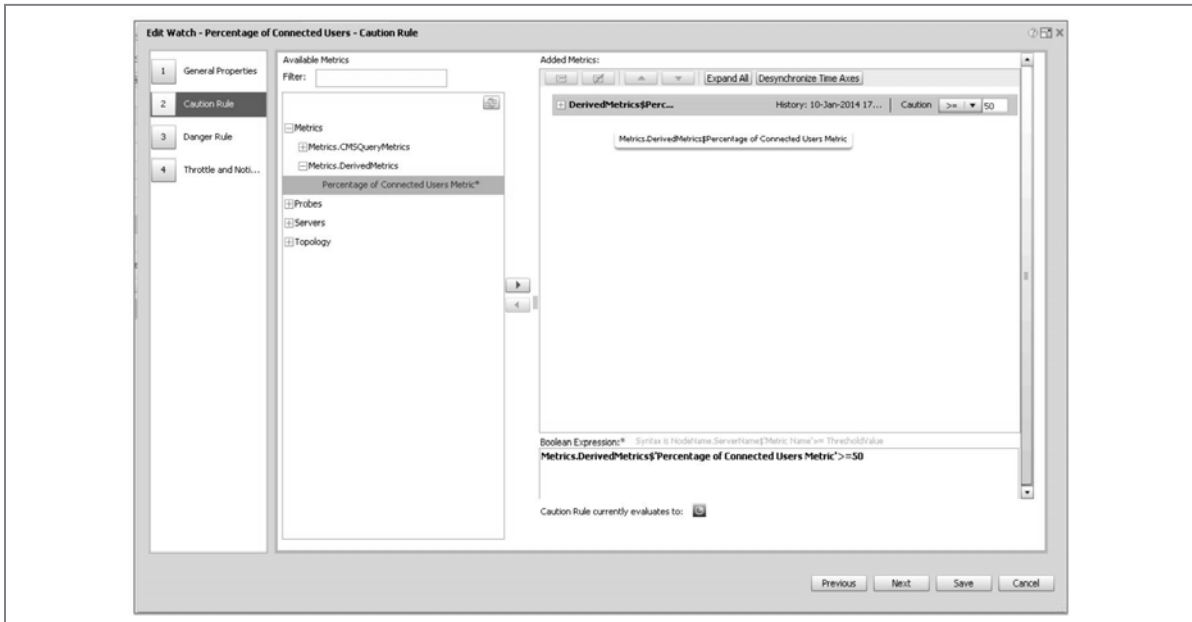


Figure 76: Watch Caution Rule Screen

Watch Danger Rule Screen

To view the details of a selected metric, right-click the metric. A popup screen appears with details on the metric.

Once all metrics are selected for the Caution rule, click the *Next* button to move on to the *Danger Rule* screen. The same method of metric selection discussed previously apply to the Danger rule as well.

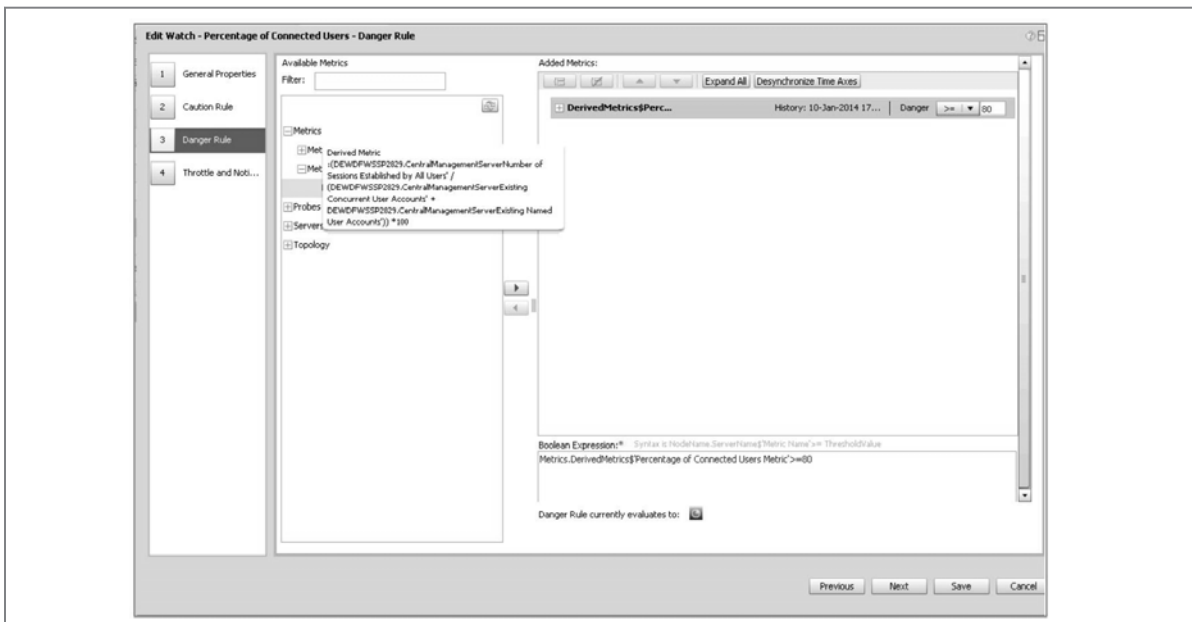


Figure 77: Watch Danger Rules Screen

Once all of the Danger Rule metrics have been added to the watch, click the *Next* button to move on to the *Throttle and Notifications* screen. This last step toward creating a watch defines two important elements:

- The alert frequency and duration of monitoring
- Recipients and alerting methods

Administrators can select one of two frequency and duration options:

- A frequency of alerts without any time limit for all rules. This option is the *Change watch state every time Caution or Danger Rule evaluates to true* radio button.
- A frequency and a time limitation for each rule and period. This option is the *Change watch state according to Throttling criteria below* radio button.

Throttle and Notification Watch Screen

- Select the *Add Metric Trend History As Attachment* checkbox to send the graphic view of the state that generated the alert to the selected recipients as an email attachment.

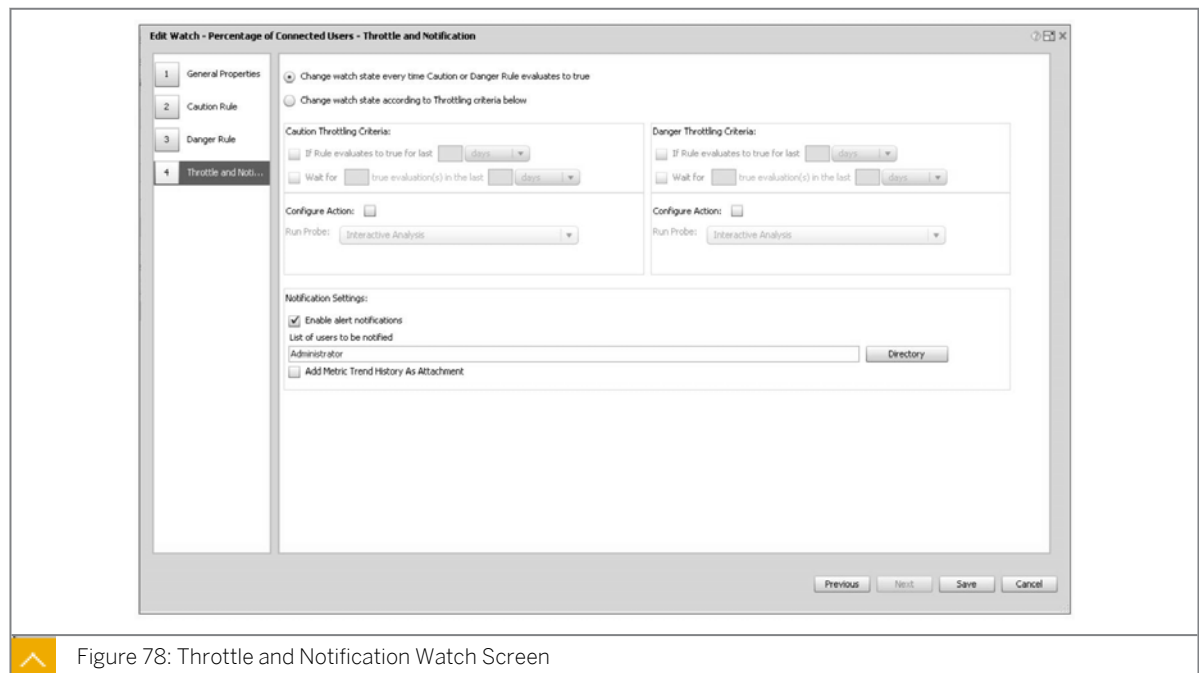


Figure 78: Throttle and Notification Watch Screen

Directory Window

The second part of the *Throttle and Notification* screen is the *Notification* settings. This section refers to the watch recipients and alerts. Administrators can select from the following options:

- Select the *Enable alert notifications* checkbox to turn on notifications.
- Select a list of internal or external (email addresses) recipients to receive the alerts. Click the *Directory* button to select the appropriate recipients. The *Directory* window appears. Select the recipients and then click on the *Alert Settings* dropdown menu to select the alerts the recipients receive. The selected recipients will display in the *List of users to be notified* field on the *Throttle and Notification* screen.

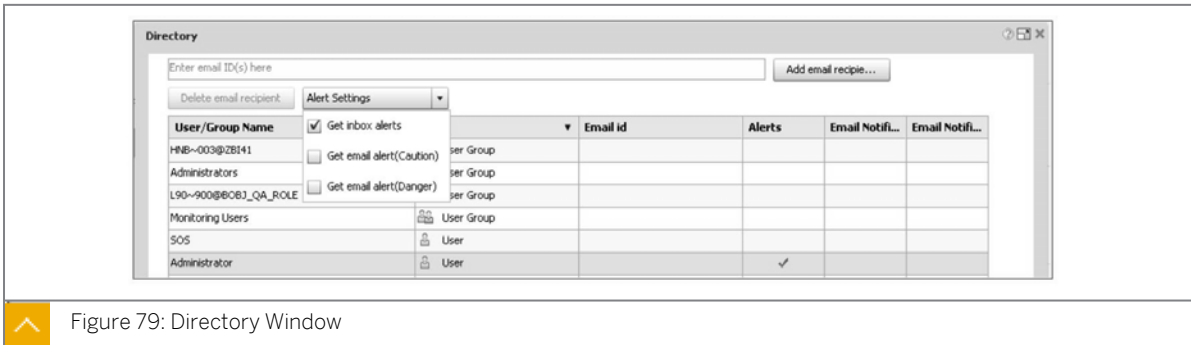


Figure 79: Directory Window

New Watch Displayed in Watchlist Tab

When you are done with the *Throttle and Notification* screen, click the *Save* button. The new watch is listed in the *Watchlist* tab. The administrator can look at its historical data or data in real time.

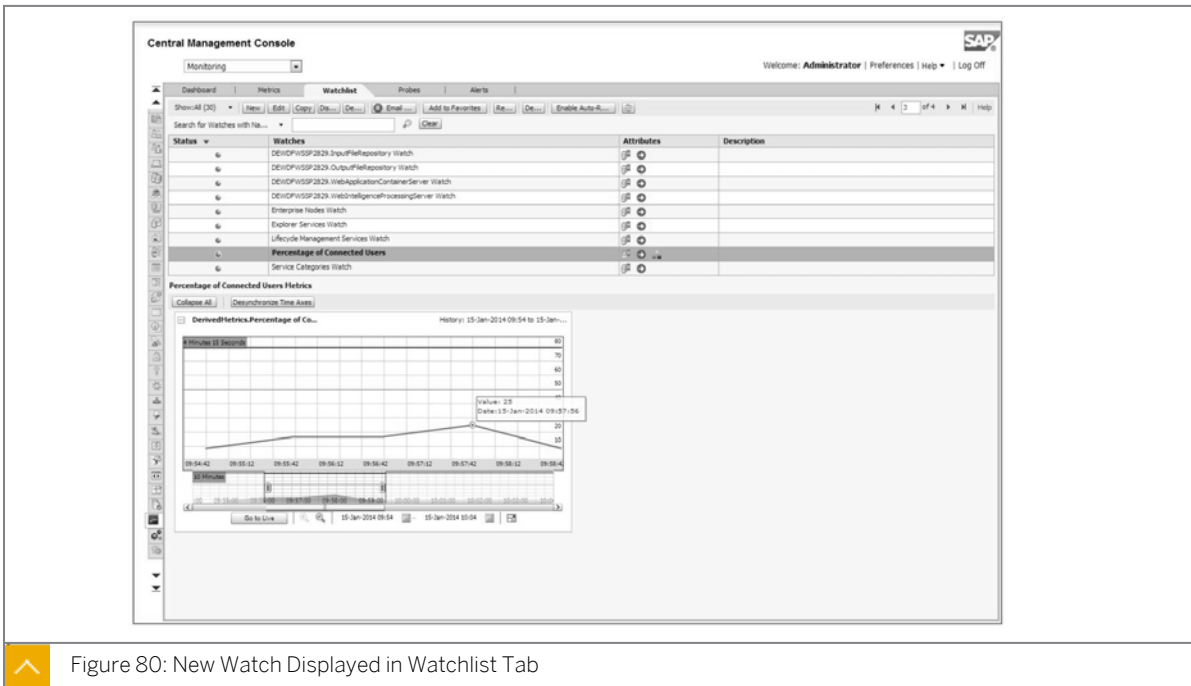


Figure 80: New Watch Displayed in Watchlist Tab

New Watch as KPI

When a watch is added as a new KPI, it will appear in the *KPI Status* portion of the *Monitoring Dashboard* tab.

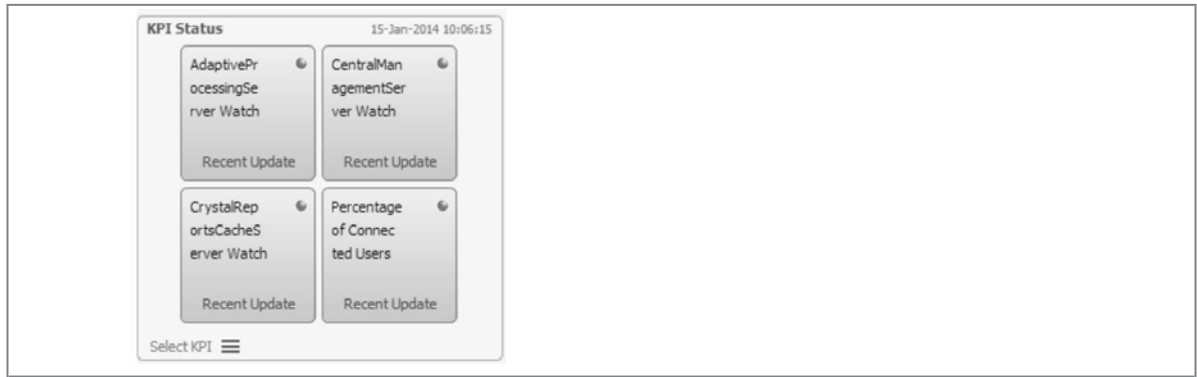


Figure 81: New Watch as KPI

Alerts

Previously, we learned that a monitoring alert is defined by rules (Danger and Caution) within a watch. As soon as one of the rules is evaluated to be true by the platform, the Monitoring application automatically broadcasts an alert message by mail or in the BI launch pad to the recipients defined in the watch.

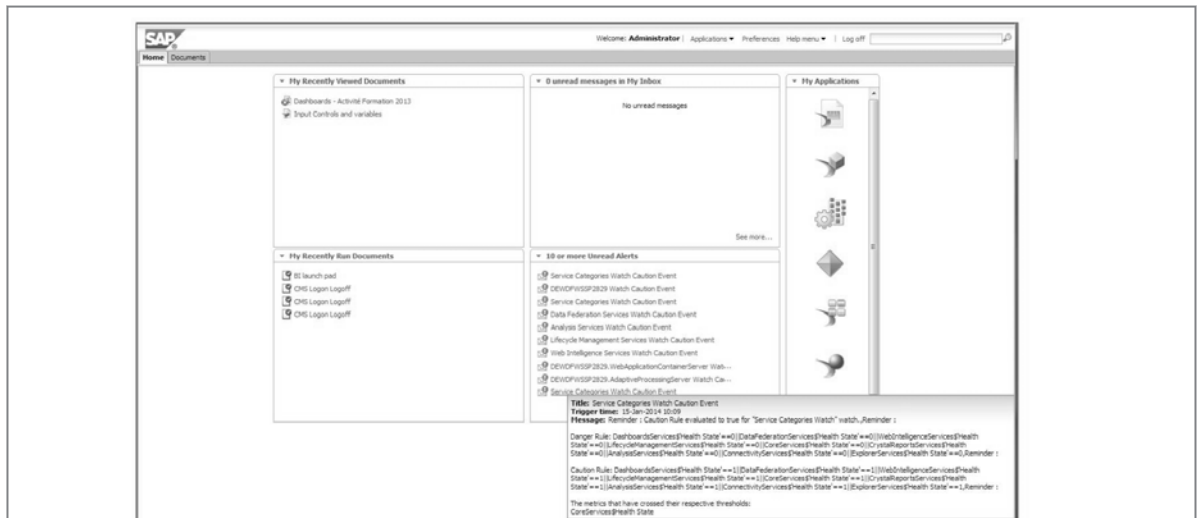


Figure 82: Unread Alerts

Monitoring Alert Toolbar

The alert message is also automatically maintained in the Monitoring application on the *Alerts* tab. This tab displays the history of all monitoring alerts and the watch the alert is associated with. The *Alerts* tab has a toolbar that provides analysis and management of alerts through the following functions:

- *Filter* text field that allows you to show alerts from a specific service.
- *Browse* button that allows you to search for specific alerts.
- *Clear* button that clears filters from the *Alerts* tab.
- *Filter* drop-down menu provides a set of common filter options, such as *Read* or *Unread*.

- *Confirm* alert button.
- *Delete* alert button.
- *Enable Auto-Refresh* of the *Alerts* tab button.

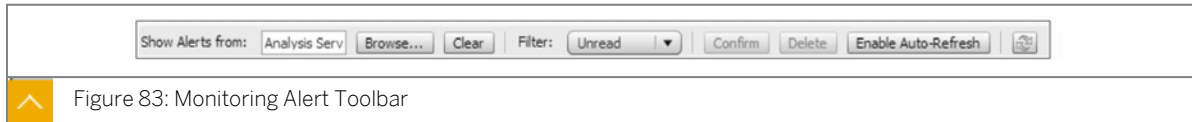


Figure 83: Monitoring Alert Toolbar

Analysis of Alert Messages

To view and analyze the details of an alert to determine its cause, click the *Alerts* tab on the Monitoring application. A list of the alerts is displayed that includes the watch, the time, and the status of the alert. (An amber icon indicates a status of Caution and a red icon indicates a status of Danger.)

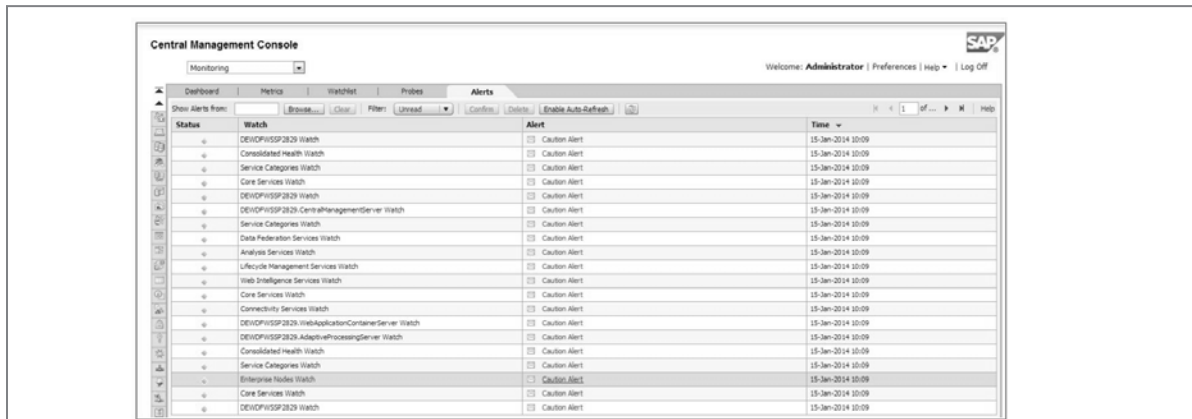


Figure 84: Alerts Tab

Alert Details Screen

Click on an alert to view further details of the alert. The *Alert Details* screen displays details on the watch, the status rules, and Cause and Action information when available. Click the *Close* button to return to the *Alerts* tab of the Monitoring application.

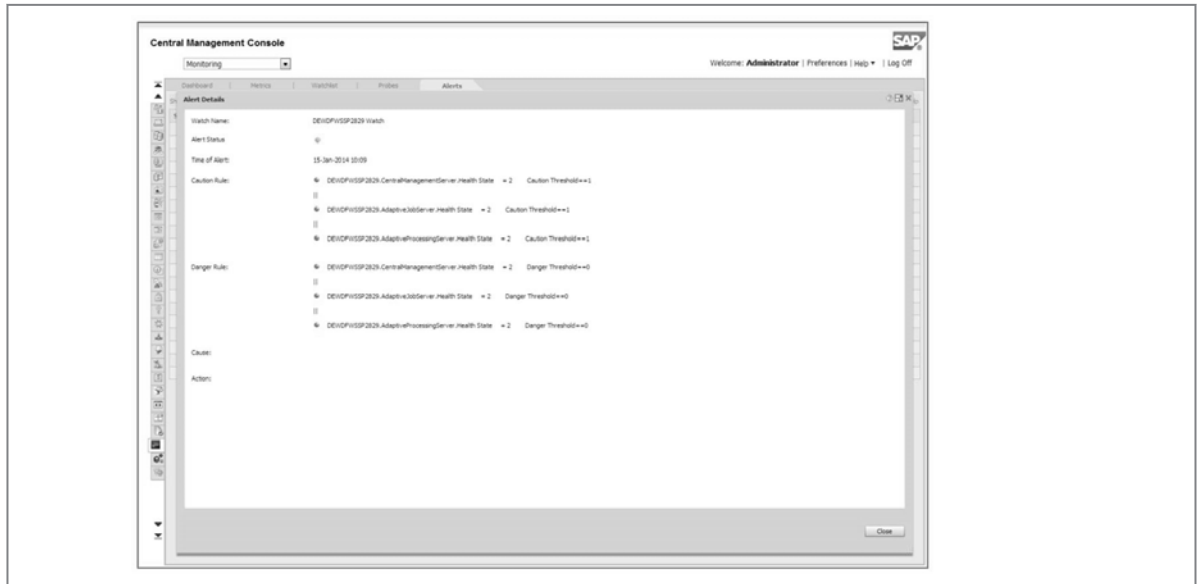


Figure 85: Alert Details Screen

Alert Management

Alerts can be managed from the *Alerts* tab of the Monitoring application. Select an alert on this tab to activate management options on the *Alerts* tab toolbar. Management options include:

- Alert Confirmation
- Alert Deletion
- Analysis of Alert Statistics

To confirm an alert, click the *Confirm* button on the toolbar. The *Enter possible cause and action* popup window appears. Enter the cause of the alert in the *Cause* text field. Enter the action necessary to correct the problem in the *Action* text field. Click the *OK* button to complete the alert confirmation.



Figure 86: Confirm an Alert



Note:

These alert confirmation comments are saved in the alert. They remain preserved in the Alerts history.

To delete an alert, click the *Delete* button on the *Alerts* tab toolbar.



Caution:
Deleted alerts are permanently deleted from the Monitoring database.

Alert Statistics

Alert statistics can be viewed by sorting and filtering alerts with the option on the *Alerts* tab toolbar. The number of Monitoring alerts can be viewed by Watch and by Type of Alert. The *Select Watches* window shows how many Caution and Danger status alerts have been issued for each watch. Select a watch to view the details of the alerts.



Select Watches

You can select multiple items by Ctrl+click

Watch	No. of Alerts
Analysis Services Watch	0 ■, 119 ◆
Connectivity Services Watch	0 ■, 119 ◆
Consolidated Health Watch	0 ■, 284 ◆
Core Services Watch	0 ■, 284 ◆
DEWDFWSSP2829 Watch	0 ■, 248 ◆
DEWDFWSSP2829.AdaptiveProcessingServ	0 ■, 133 ◆
DEWDFWSSP2829.CentralManagementSer	13 ■, 181 ◆
DEWDFWSSP2829.WebApplicationContaine	0 ■, 133 ◆
Data Federation Services Watch	0 ■, 119 ◆
Enterprise Nodes Watch	0 ■, 248 ◆

OK Cancel

Figure 87: Select Watches Window

Unit 13

Exercise 15



Create and Monitor Alerts

Business Example

As the system administrator, you must monitor and store the percentage of connected users on your production BI 4 platform in the Monitoring database. Additionally, you want to receive alerts in your BI launch pad *Home* page when a special overload of user connections is detected on the platform.

Create a Watch

Create a Watch that monitors and alerts on overloading user connections on the BI 4 platform.

1. In the Central Management Console (CMC), open the *Monitoring Dashboard* and go to the *Watchlist* tab.
2. Create a new Watch that monitors connections and sends alerts when existing platform connections are overloaded. Name this new watch: **My User Connections Watchlist**.
3. Set the general properties for the new Watch according to the following table:

Watch Name:	My User Connections Watchlist
Metric Description:	My Rate of BI 4 User Connections
Number of States:	Three (Ok, Caution, Danger)
Settings:	Write to Trending Database and Add as KPI

4. Set the Caution Rule for the new Watch according to the following table.

Added Metrics	My Rate of BI 4 User Connections
Caution Rule:	Caution ≥ 50

5. Set the Danger Rule for the new Watch according to the following table.

Added Metrics:	My Rate of BI 4 User Connections
Danger Rule:	Danger ≥ 75

6. Set the Throttle and Notification for the new Watch according to the following table.

Throttle:	All default settings
Notification:	Administrator (Alerts only)

Monitor the Watch

1. Add the new Watch as a KPI Dashboard tab in the Monitoring application. What is its current KPI status?
2. Click the new My User Connections Watchlist KPI, and monitor the current value that is displayed by your new Watch. What does this value signify?
3. Open a new BI launch pad session (in a new Internet Explorer window) with your Administrator user account. What is the new value of the metric in the graphic?
4. Log off from the new BI launch pad session. What is the new value of the metric in the graphic?
5. Go to the *History* page for this Watch. What can you see and why?

Watch Alerts

1. In the CMC, open the *Monitoring Dashboard* and go to the *Alerts* tab. What do you see?
2. Study the details on the Caution and Danger alerts that were sent by your Watch. What do you notice?
3. Log on to the BI launch pad *Home* page with your Administrator user account. What do you see?



Create and Monitor Alerts

Business Example

As the system administrator, you must monitor and store the percentage of connected users on your production BI 4 platform in the Monitoring database. Additionally, you want to receive alerts in your BI launch pad *Home* page when a special overload of user connections is detected on the platform.

Create a Watch

Create a Watch that monitors and alerts on overloading user connections on the BI 4 platform.

1. In the Central Management Console (CMC), open the *Monitoring Dashboard* and go to the *Watchlist* tab.
2. Create a new Watch that monitors connections and sends alerts when existing platform connections are overloaded. Name this new watch: **My User Connections Watchlist**.
 - a) Click the *New* button.
3. Set the general properties for the new Watch according to the following table:

Watch Name:	My User Connections Watchlist
Metric Description:	My Rate of BI 4 User Connections
Number of States:	Three (Ok, Caution, Danger)
Settings:	Write to Trending Database and Add as KPI

- a) Enter the following in the metric *Name* field: **My Rate of BI 4 User Connections**.
 - b) Select the *Three* option for the Number of states (OK, Caution, Danger).
 - c) Select all of the settings checkboxes (*Write to Trending Database* and *Add as KPI*).
 - d) Click the *Next* button.
4. Set the Caution Rule for the new Watch according to the following table.

Added Metrics	My Rate of BI 4 User Connections
Caution Rule:	Caution >=50

- a) Select the *My Rate of BI 4 User Connections* metric to be added to the *Added Metrics* table.
- b) Change the *Caution Rule* to **Caution >=50**.

c) Click the *Next* button.

5. Set the Danger Rule for the new Watch according to the following table.

Added Metrics:	My Rate of BI 4 User Connections
Danger Rule:	Danger >=75

a) Select the *My Rate of BI 4 User Connections* metric to be added to the *Added Metrics* table.

b) Configure the *Danger Rule* to **Danger >=75**.

c) Click the *Next* button.

6. Set the Throttle and Notification for the new Watch according to the following table.

Throttle:	All default settings
Notification:	Administrator (Alerts only)

a) Keep the default *Change watch state every time Caution or Danger Rule evaluates to true* settings.

b) Keep *Enable alert notifications* enabled.

c) Click the *Directory* button.

d) In the new window, select the *Administrator* account. Then select the *Alert Settings* option from the dropdown list.

e) Select the *Get inbox alerts* checkbox.

f) Click the *OK* button to return to the previous screen.

g) Click the *Save* button to create the new watch.

Monitor the Watch

1. Add the new Watch as a KPI Dashboard tab in the Monitoring application. What is its current KPI status?

a) In the *Dashboard* tab of the Monitoring application, click the *Select KPI* option in the KPI Status area.

b) Select *My User Connections Watchlist* in the Watchlist area, and then click outside of the window.



Hint:

The KPI Status shows the current status of your Watch. Green signifies the status is "OK". Orange signifies that the status is "Caution". Red signifies that the status is "Danger".

2. Click the new My User Connections Watchlist KPI, and monitor the current value that is displayed by your new Watch. What does this value signify?

The Watchlist displays a color coded value that corresponds to the caution threshold for the metric. For instance, if the color of the `My User Connections Watchlist` is orange, then the current value for the percentage of connected users on the BI 4 platform is =50%.

3. Open a new BI launch pad session (in a new Internet Explorer window) with your Administrator user account. What is the new value of the metric in the graphic?
The Watchlist displays a red value that corresponds to the Danger threshold for the percentage (=75%) of connected users on the platform.
4. Log off from the new BI launch pad session. What is the new value of the metric in the graphic?**The Watchlist displays an orange value that corresponds to the Caution threshold (=50%), because a user connection has been closed.**
5. Go to the *History* page for this Watch. What can you see and why?**The history for this new metric contains data, because the Watch keeps a history of all values for the metrics that it collects. It stores these values within the Monitoring database.**

Watch Alerts

1. In the CMC, open the *Monitoring Dashboard* and go to the *Alerts* tab. What do you see?**All of the alerts that were sent by the Watch (Danger and Caution alerts) are displayed in the list.**
2. Study the details on the Caution and Danger alerts that were sent by your Watch. What do you notice?
 - a) Select the *Caution* alert that was sent by your Watch.
 - b) Click the *Caution Alert* hyperlink to open the details of this alert.**The details of the alert show that the Caution threshold of =50% had been reached, so the Caution Rule is true.**
 - c) Click the *Close* button.
 - d) Select the *Danger* alert that was sent by your Watch.
 - e) Click the *Caution Alert* hyperlink to open the details of this alert.**The details of the alert show that the Danger threshold of =75% had been reached, so the Danger Rule is true.**
3. Log on to the BI launch pad *Home* page with your Administrator user account. What do you see?
 - a) Log on to the BI launch pad as Administrator.**The BI launch pad *Home* page displays the new alerts (Caution and Danger) that are coming from the Watch.**
 - b) Open the alert to see the details.**The alert details show that a threshold has been reached, so a Rule is true and has sent the alert to your BI launch pad.**

Probes

Another type of monitoring of the BI 4 platform is the use of probes. Unlike monitoring watches that monitor the status of a server, monitoring probes test the functioning of a set of platform servers. Monitoring probes can be viewed on the *Probes* tab of the Monitoring application.

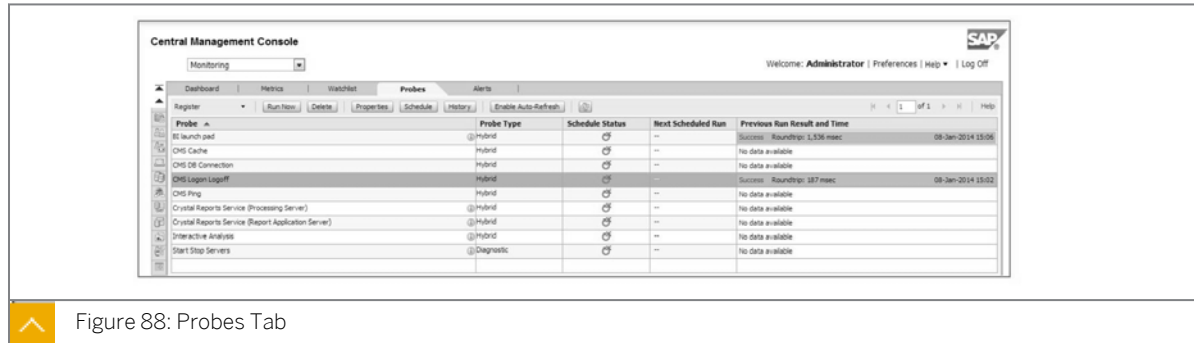


Figure 88: Probes Tab

Platform Probe Types

The platform may feature three types of probes: Health probe, Diagnostic probe, and Hybrid probe. These probes provide health status and functional performance information on the platform. They can be scheduled periodically.



Table 48: Platform Probe Types

Probe	Description
Health probe	This probe generates metrics on the following data types: integer, Boolean, and string. An example of a health probe is the default CMS Logon/Logoff probe. This probe checks that a user can log on and log off of the CMS.
Diagnostic probe	This probe generates reports that contain current system information. An example of a diagnostic probe is the default Stop/Start server probe. This probe checks all of the servers, records the state of each, and restarts servers and collects information about these servers again.
Hybrid probe	This type of probe functions as both a health probe and a diagnostic probe.

Predefined Probes

The Monitoring application provides nine predefined probes:

- BI launch pad probe
- CMS Cache probe

- CMC DB Connection probe
- CMC Logon Logoff probe
- CMS Ping probe
- Crystal Reports Service (Processing server) probe
- Crystal Reports Service (Report Application server) probe
- Interactive Analysis probe
- Start Stop Servers probe

The *Probes* tab has a probe management toolbar that provides the following functionality:

Table 49: Probe Management Toolbar

Toolbar Option	Functionality
<i>Run Now</i> button	This button runs the selected probe.
<i>Delete</i> button	This button permanently deletes the selected probe.
<i>Properties</i> button	This button displays the properties of the selected probe.
<i>Schedule</i> button	This button facilitates scheduling of the selected probe.
<i>History</i> button	This button displays the history of the selected probe.
<i>Enable Auto-Refresh</i> button	This button enables auto-refresh for the selected probe.

Health and Performance Probes

Each probe fills a well defined test set. For example, the CMS DB Connection test probe roles is to test the availability and performance of the CMS database system. Once a probe execution has finished, it returns a functional state of health and the performance of the platform in the form of the following two metrics:

- Result metric: This metric provides the functional status of the probe:
 - A result of Fail indicates that the test of the probe failed.
 - A result of Pass indicates that the test of the probe succeeded.
- Execution Time metric: this metric provides the execution time of the probe, which indicates the state of the platform. The greater the value of this metric, the slower the platform is performing.



Note:
The result and execution time metrics are also available as graphs. At each execution, two new values of metrics are stored in the Monitoring database (history).

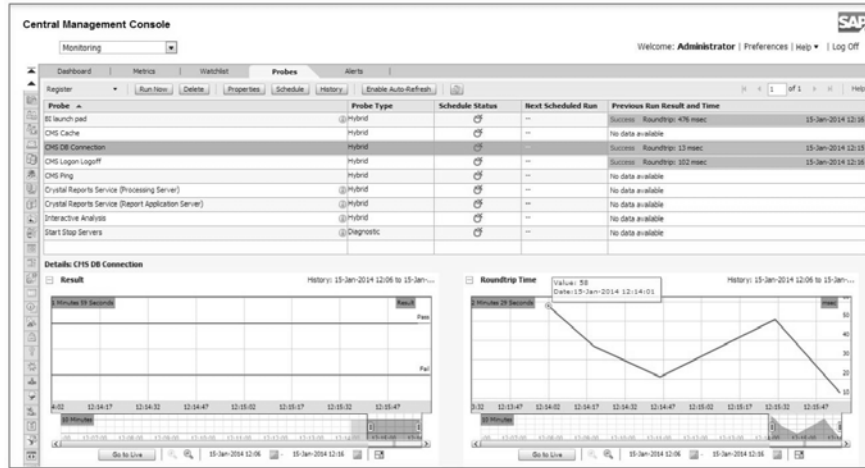


Figure 89: Probe Metrics Graphically Represented

Each probe keeps test instances in its history. Select the probe and then click the *History* button in the *Probes* tab toolbar to view the probe history.

Probe History

Each probe keeps test instances in its history. Select the probe and then click the *History* button in the *Probes* tab toolbar to view the probe history.



Instance Time	Title	Status	Created By	Type	Run Result
15-Jan-2014 12:15	CMS DB Connection	Success	Administrator	Probe	Passed:13msec
15-Jan-2014 12:15	CMS DB Connection	Success	Administrator	Probe	Passed:51msec
15-Jan-2014 12:14	CMS DB Connection	Success	Administrator	Probe	Passed:21msec
15-Jan-2014 12:14	CMS DB Connection	Success	Administrator	Probe	Passed:37msec
15-Jan-2014 12:14	CMS DB Connection	Success	Administrator	Probe	Passed:58msec

Figure 90: Probe History

Probe Properties Configuration

Before scheduling a probe to run, check to make sure that the properties are correctly configured. To view the properties of a probe, select the probe and click the *Properties* button. On the *Properties* window, make sure that the probe Timeout, Document CUID, Refresh, Export to Excel, and Export to PDF settings are correct. Make any necessary adjustments and save the properties.

**Note:**

Probe configuration options are unique to the probe. Not all probes have the properties previously listed. Many probes do not have properties like Export to Exel and Export to PDF.



The screenshot shows the 'Interactive Analysis' probe configuration window. It includes the following fields and values:

- Title: Interactive Analysis
- ID, CUID: 4068, AdAi4NnuAaJKgeXVBE7nKNg
- Description: Interactive Analysis Probe
- Created: 02/10/2013 13:49
- Last Modified: 15/01/2014 12:37
- Last Run On: 15/01/2014 12:37
- Timeout (sec): 100
- Input Parameters:
 - Document CUID: AUWM65ULINDmF_Qj.2
 - Refresh: true
 - Export to xls: false
 - Export to pdf: false

Figure 91: Probe Properties

Probe Execution

Probes may be executed either manually (on demand) or automatically (scheduled). To schedule a probe to run, select the probe and click the *Schedule* button on the *Probes* tab toolbar.

In the case of a periodically scheduled probe, its behavior is like a robot that tests regularly for the health and performance of the vital organs of the platform. Recurrence options for probe scheduling can be found on the *Recurrence* portion of the scheduling screen in the *Run object* dropdown list.



The screenshot shows the 'Recurrence' section of a scheduling screen. A dropdown menu is open, displaying the following options:

- Run object: Now
- Object will r: Now
- Number of re: Once
- Retry interv: Hourly
- Once
- Hourly
- Daily
- Weekly
- Monthly
- Nth Day of Month
- 1st Monday of Month
- Last Day of Month
- X Day of Nth Week of the Month
- Calendar

Figure 92: Probes Running Recurrence Options

Customized Probes

There are two ways to create a customized probe: with JAVA or with scripting. To create a customized probe, begin by clicking the *Register* button on the *Probes* tab of the Monitoring application, and then select either *Java-based Probe* or *Probe*. The *Register Probe* window appears.

The Java-based probe registration window provides the following configuration options:

- Probe Name: Enter a descriptive name for the new probe.
- Description: Enter an accurate description of the probe.
- Timeout: Enter the amount of seconds the Probe will timeout.
- Probe Type: Select the correct type for this probe, either *Health*, *Diagnostic*, or *Hybrid*.
- List of Parameters: Use this option to add, edit, or delete parameters for the probe.



Name	Type	Value
hostname	String	BI40SP4W08
portnum	String	80

Figure 93: Java-based Probe

Scripted Customized Probe Registration

The other custom probe option is to use scripting. The *Probe Registration* window provides the following configuration options:

- Probe Name: Enter a descriptive name for the new probe.
- Probe Input Type: Select either the *Command Line* radio button or the *Script Upload* radio button.
- Script File: Use the *Browse* button here to navigate to and upload a script file for the probe.
- Define Virtual Metrics: Check this checkbox if you wish to define the virtual metrics.



Figure 94: Scripted Customized Probe Registration

Customized Probes - HTTPWatch Example



Probe	Probe Type	Schedule Stat...	Next Schedule...	Previous Run Result and Time
CMS Cache	Hybrid	🔄	--	Success Roundtrip: 177 msec Jul 26, 2012 1:36 PM
CMS DB Connection	Hybrid	🔄	--	No data available
CMS Logon Logoff	Hybrid	🔄	--	No data available
CMS Ping	Hybrid	🔄	--	No data available
Crystal Reports Service (Processing Server)	Hybrid	🔄	--	No data available
Crystal Reports Service (Report Application Server)	Hybrid	🔄	--	No data available
HTTPWatch	Health	🔄	--	Failure Roundtrip: 1,028 msec Mar 21, 2013 1:59 AM

Name	Description	Status	Startup Type	Log On As
Apache2	Apache/2.4.18 (Ubuntu)	Started	Automatic	Local System
Start the service				
Application Experie...	Processes ...	Stopped	Manual	Local System

Figure 95: Java-based Probe - HTTPWatch Example

Unit 13

Exercise 16



Test Servers with Probes

Business Example

As the system administrator, you need to test the performance of your Web Intelligence server on your BI 4 platform. To test this, you need to periodically schedule a Probe with a reference Web Intelligence document.



Before beginning this exercise, confirm that the timeout setting for Start Stop Servers is set to 1200 seconds; otherwise participants might encounter a timeout error when they attempt this exercise.

Configure the Interactive Analysis Probe

Configure the Interactive Analysis probe to test a reference Web Intelligence document.

1. In the Central Management Console (CMC), open the *Monitoring Dashboard* and go to the *Probes* tab.
2. Configure the properties of this probe for refreshing and exporting to PDF the *Charting Samples* Web Intelligence document. Use the following table for configuration details.

Timeout (sec):	100
Document CUID:	Copy the CUID of the Web Intelligence document from the BI launch pad and paste it into this field.
Refresh:	true
Export to xls:	false
Export to pdf:	true

Run Immediate Schedule for the Interactive Analysis Probe

1. Run the Interactive Analysis probe that you just created. What are the results and time of this execution?
2. Run the Interactive Analysis probe again. What are the results and the time of this new execution?
3. Run the Interactive Analysis probe again. What are the results and the Time of this third execution?
4. Check the history of the Interactive Analysis probe. What do you notice?

Unit 13

Solution 16



Test Servers with Probes

Business Example

As the system administrator, you need to test the performance of your Web Intelligence server on your BI 4 platform. To test this, you need to periodically schedule a Probe with a reference Web Intelligence document.



Before beginning this exercise, confirm that the timeout setting for Start Stop Servers is set to 1200 seconds; otherwise participants might encounter a timeout error when they attempt this exercise.

Configure the Interactive Analysis Probe

Configure the Interactive Analysis probe to test a reference Web Intelligence document.

1. In the Central Management Console (CMC), open the *Monitoring Dashboard* and go to the *Probes* tab.
2. Configure the properties of this probe for refreshing and exporting to PDF the *Charting Samples* Web Intelligence document. Use the following table for configuration details.

Timeout (sec):	100
Document CUID:	Copy the CUID of the Web Intelligence document from the BI launch pad and paste it into this field.
Refresh:	true
Export to xls:	false
Export to pdf:	true

- a) Select the *Interactive Analysis* probe, and click the *Properties* option.
- b) In the Properties window, configure the Input Parameters as shown in the preceding table.



Hint:

Copy the CUID of this Web Intelligence document from its properties in the BI launch pad, then paste the CUID into the *Document CUID* field. Do not copy and paste the ID.

- c) Click the *Save and Close* button.

Run Immediate Schedule for the Interactive Analysis Probe

1. Run the Interactive Analysis probe that you just created. What are the results and time of this execution?
 - a) Select the *Interactive Analysis* probe, and then click the *Run Now* button. Wait a couple of seconds to generate the status of this execution.
 - b) Click the *Refresh* button to update the status.

Once the probe has been successfully executed, it shows the Result Metric as a "Success" and the Roundtrip Time Metric with a high value (such as 12 seconds). This high value for the Roundtrip Time is normal. The Web Intelligence document and the Universe have to initialize the cache server before refreshing the Web Intelligence document with the Web Intelligence Processing server.
2. Run the Interactive Analysis probe again. What are the results and the time of this new execution?
 - a) Select the *Interactive Analysis* probe, and then click the *Run Now* button. Wait a couple of seconds to generate the status of this execution.
 - b) Click the *Refresh* button to update the status.

Once the probe has been successfully executed, it shows the Result Metric as "Success" and the Roundtrip Time Metric has a lower value. The Roundtrip Time is shorter because the platform contents are already in the cache, so refreshing and exporting is faster than the previous execution.
3. Run the Interactive Analysis probe again. What are the results and the Time of this third execution?
 - a) Select the *Interactive Analysis* probe, and then click the *Run Now* button. Wait a couple of seconds to generate the status of this execution.
 - b) Click the *Refresh* button to update the status.

Once the probe has been successfully executed, it shows the Result Metric as "Success" and the Roundtrip Time Metric with a lower value. The Roundtrip time is shorter because the platform contents are already in the cache. Therefore, refreshing and exporting is faster than the previous executions.
4. Check the history of the Interactive Analysis probe. What do you notice?
 - a) Go to the *History View* for the Roundtrip Time Metric in the Interactive Analysis probe View.

You will notice that the Result and the Roundtrip Time Parameters are stored in the Monitoring database. You can consult the values at any time in the History View.
 - b) Click the *History* button for the *Interactive Analysis probe View* .

You will see another view of the probe history that includes the probe status and the Run Result Metric.



Restart Servers with Probes

Business Example

As the system administrator, you need to periodically restart some platform server on your platform automatically. Additionally, you want to monitor the history of the status and the performance metrics after restarting the servers.

Configure the Start/Stop Probe to Restart Servers

Configure the Start/Stop probe to periodically restart all platform servers except the Adaptive servers.

1. In the Central Management Console (CMC), open the *Monitoring Dashboard* and go to the *Probes* tab.
2. Configure the properties of the Start Stop Servers probe to periodically stop and restart the servers of the platform.

Run Immediate Schedule for the Start Stop Servers Probe

1. Run the Start Stop Servers probe. What are the results the time of this execution?
2. Check the History of the Start Stop Servers probe. What do you see?



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1. In the Central Management Console (CMC), open the *Monitoring Dashboard* and go to the *Probes* tab.
2. Configure the properties of the Start Stop Servers probe to periodically stop and restart the servers of the platform.
 - a) Select the *Start Stop Servers* probe, and click the *Properties* option.
 - b) In the *Properties* window, keep all of the default values.



Note:

The *whereclause* field contains the list of servers to start or not. All platform servers will restart, except for the Adaptive Processing server and the Adaptive Job server.

- c) Click the *Save and Close* button.

Run Immediate Schedule for the Start Stop Servers Probe

1. Run the Start Stop Servers probe. What are the results the time of this execution?
 - a) Select the *Start Stop Servers* probe.
 - b) Click the *Run Now* button. Wait a couple of minutes before viewing the status of this execution.
 - c) Click the *Refresh* button to update the status.

After waiting for the platform servers to restart on the platform, the Success status appears. The Roundtrip Time shows the length of time it took the servers to restart.
2. Check the History of the Start Stop Servers probe. What do you see?
 - a) In the *Start Stop Servers Probe View*, go to the Roundtrip Time metric *History View*.

You see that the Result and Roundtrip Time parameters are stored in the Monitoring database. You can consult these values in the *History View* window.

- b) In the *Start Stop Servers Probe View* window, click the *History* button. What do you see?
You see another view of the probe history that includes the status and the Run Result metric.



LESSON SUMMARY

You should now be able to:

- Monitor a metric
- Monitor servers with alerts
- Monitor servers with probes



Learning Assessment

1. What part of the platform is the Monitoring application integrated with?

Choose the correct answer.

- A CMS
- B Dashboard Design
- C Explorer
- D CMC

2. Choose the correct pathway to the Monitoring Properties screen.

Choose the correct answer.

- A Go to the CMC → and right click the → Monitoring Application → option. Select the → Properties popup option.
- B Go the CMS → Applications → , and right click the → Monitoring Application → option. Select the → Properties popup option.
- C Go to to the CMS → Servers → Application → Monitoring → Properties.
- D Go to the CMC → Servers → Applications → Monitoring → Properties .

3. Which tab of the Monitoring application shows you the frequency of auditing?

Choose the correct answer.

- A Probes tab
- B Watchlist tab
- C Metrics tab
- D Alerts tab

4. A system metric can be deleted on the *Metric* tab of the Monitoring application.
Determine whether this statement is true or false.

True

False

5. How many predefined and operational watches does the platform offer?
Choose the correct answer.

A 1

B 15

C 7

D 9

6. When do recipients receive an alert?
Choose the correct answer.

A An alert is issued when one of the rules is evaluated to be true by the platform.

B An alert is issued when an administrator sends one out.

C An alert is issued when one of the servers encounters an error.

D An alert is issued when a watch finds an inconsistency.

7. Match the item in the first column to the corresponding item in the second column.

Health Probe
Diagnostic Probe
Hybrid Probe

This probe generates reports that contain current system information. An example of a diagnostic probe is the default Stop/Start server probe. This probe checks all of the servers, records the state of each, and restarts servers and collects information about these servers again.
This type of probe functions as both a health probe and a diagnostic probe.
This probe generates metrics on the following data types: integer, Boolean, and string. An example of a health probe is the default CMS Logon/Logoff probe. This probe checks that a user can log on and log off of the CMS.

8. Probes may be executed on demand or scheduled to run automatically.

Determine whether this statement is true or false.

- True
- False



Learning Assessment - Answers

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