

Query as a WEB Service What's New In Version 3



Applies to:

BusinessObjects Enterprise XI 3.1

Summary

BusinessObjects XI 3.1 is the latest major release of the BI product suite from Business Objects, an SAP company. Building on the BusinessObjects XI platform, BusinessObjects XI 3.1 delivers the industry's most connected, interactive, and open BI solution for any organization. Designed to shed light on your business problems, BusinessObjects XI 3.1 provides substantial functional improvements and innovations across the BusinessObjects suite.

This "What's New" document provides a high-level overview of the capabilities of QaaWS BusinessObjects XI 3.1

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1 Overview

Track, understand, and manage your organization's information on a single enterprise business intelligence (BI) platform. With BusinessObjects™ XI, you get a complete suite of performance management, information management, reporting, and query and analysis tools built on a flexible, scalable, service-oriented architecture. BusinessObjects XI simplifies the way your decision-makers access, use and share insight across the organization.

1.1 What's New in QaaWS Version 3

New functionalities

- ▶ Extended authentication support
- ▶ Manage QaaWS objects in folders
- ▶ Improved WSDL management
- ▶ Designer usability enhancement
- ▶ Troubleshooting (Adding additional tracing)
- ▶ Sizing & scalability

QaaWS objectives for MIRA

- ▶ Enhanced query design administration
 - ▶ Better designer usability
 - ▶ Integration with CMS
 - ▶ Query management & lifecycle
- ▶ Improved security
 - ▶ Fine-grained security
 - ▶ Extended authentication support
 - ▶ Better alignment with BO permission management

1.2 Extended authentication support

- ▶ New authentication modes support
 - ▶ AD and LDAP authentication
 - ▶ AD Single Sign On
 - ▶ SAP authentication & SAP SSO universes
- ▶ Designer authentication mode used as default service authentication

Select your credentials

Business Objects

Enter your name and password to log in

Host... lv-l01-2537

System

User Administrator

Password

Authentication Windows AD

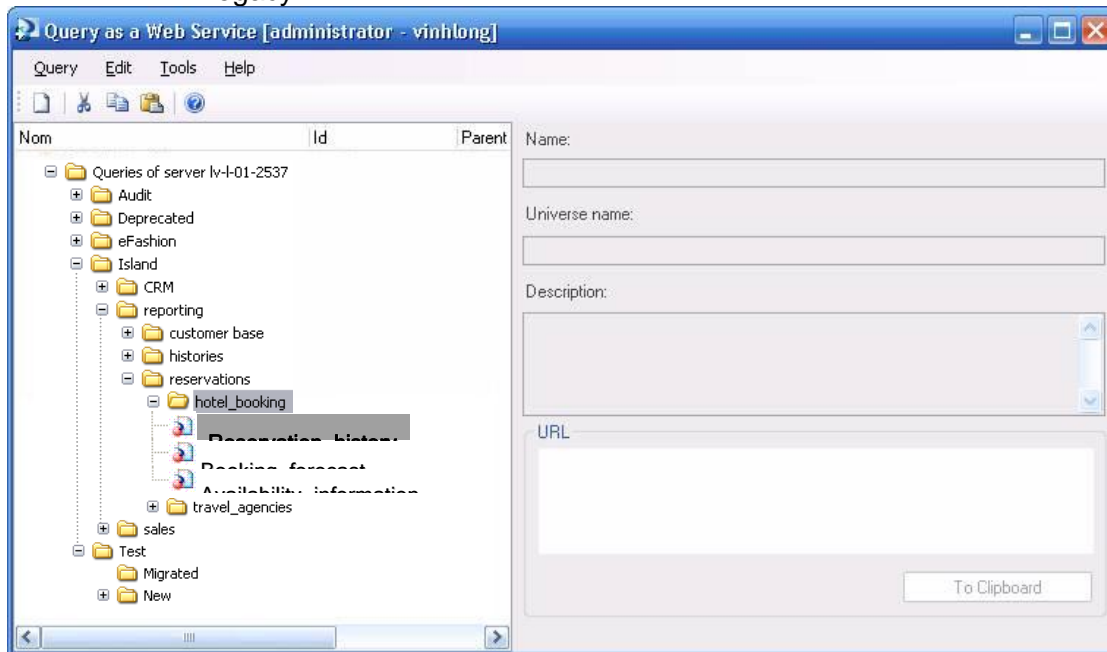
Enable Windows Active Directory Single Sign On

Interface Local English

OK Cancel Options <<

1.3 Manage QaaWS objects in folders

- ▶ New URL format
 - ▶ Queries with same name under different folders
 - ▶ CUID-based, instead of name based
 - ▶ `http://localhost:8080/dswsbobje/qaawsservices/?WSDL&cuid=Aa6igXPIB.FPImvhmWrEik4`
- ▶ Integration with CMS
 - ▶ CMC page
 - ▶ Folder-defined permissions
- ▶ Legacy QaaWS support
 - ▶ Stored under root folder
 - ▶ Legacy

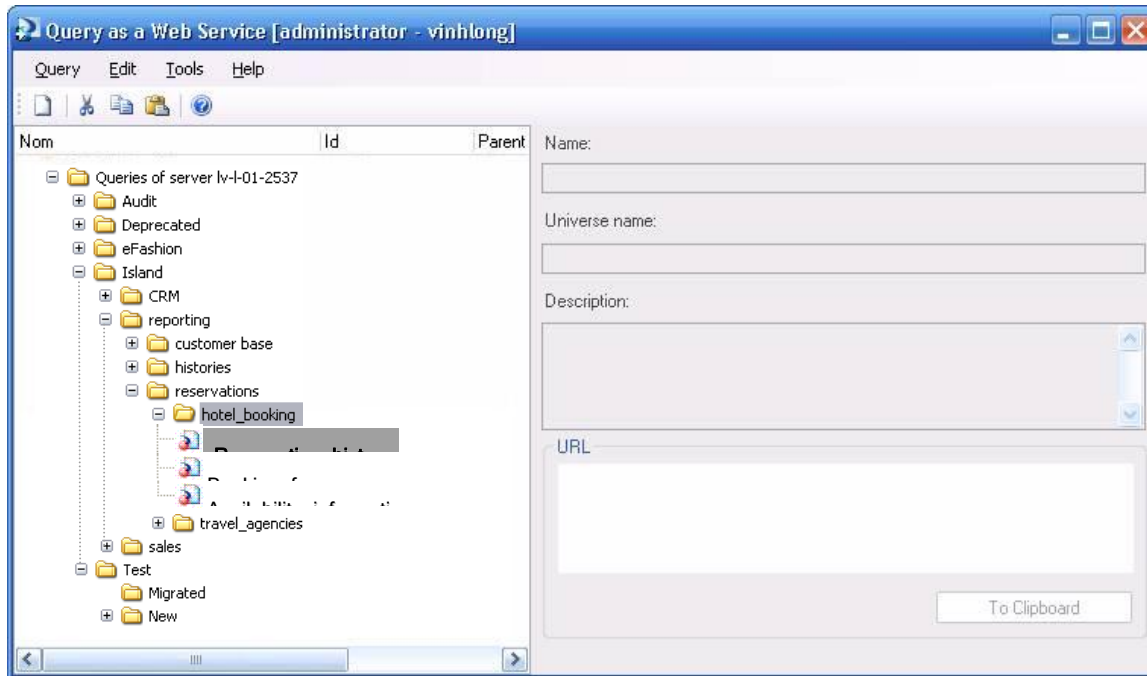


1.4 Improved WSDL management

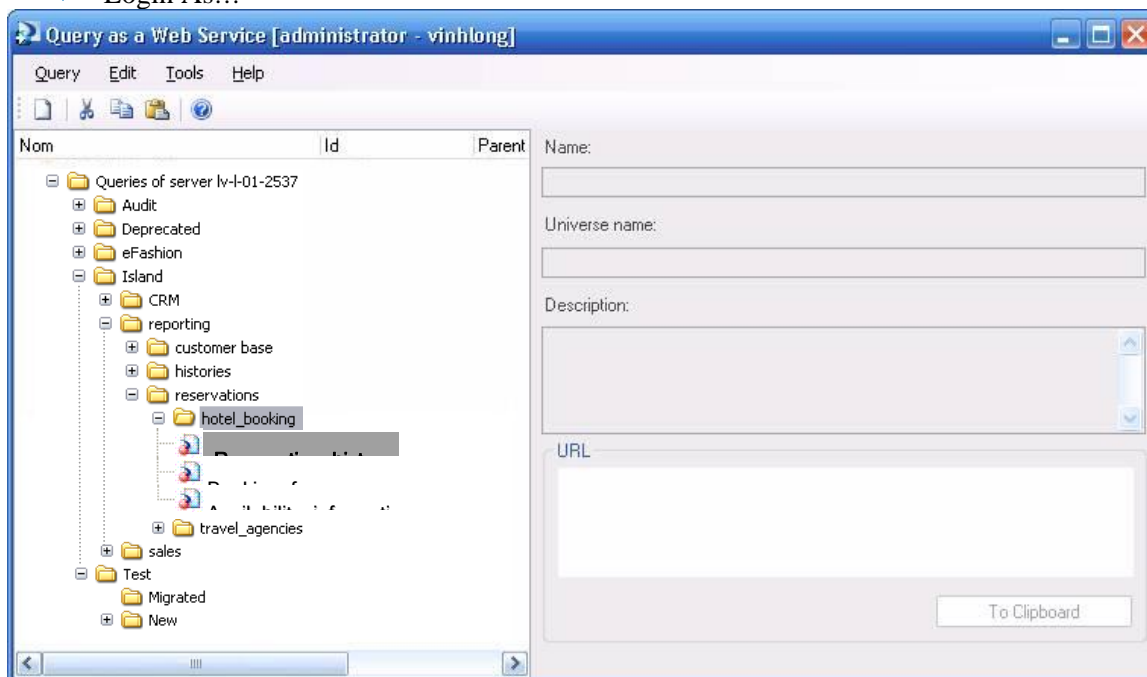
- ▶ QaaWS background user no longer used
 - ▶ QaaWSServletPrincipal removed
 - ▶ Allowed to log on the CMS for QaaWS metadata
- ▶ WSDL & query parameters are stored on a file
 - Parameters : query timeout, locale, authentication mode
 - ▶ Stored on the application server, managed by servlet
 - ▶ Cache is updated on each query publication
 - ▶ Can be refreshed from Designer
 - ▶ WSDL update requires **migrated & promoted queries to be published on new server**
- ▶ No impact on design
- ▶ No impact on consumption

1.5 Designer usability enhancement

- ▶ Command menus in Designer main panel
- ▶ Online documentation
 - ▶ Replace wizard buttons
 - ▶ Bring UI flexibility for future extensions

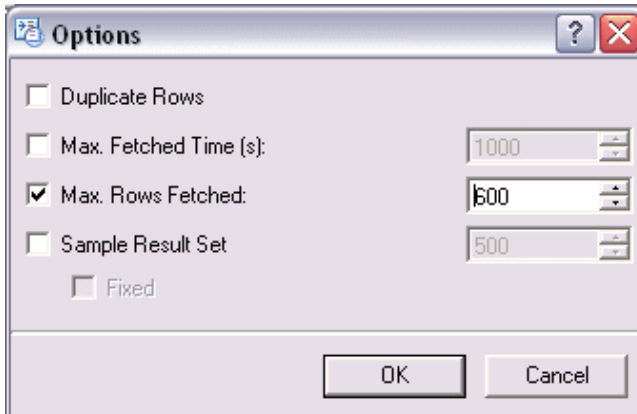


- ▶ Query duplicate (copy), cut, paste
 - ▶ Multi-selection support
 - ▶ Query & folder rename
- ▶ Advanced : update WSDL cache
- ▶ Login As...



1.6 Query as a Web Service Query Panel Option

- ▶ You can set additional options for the Query Panel in the Options dialog box.



To access the dialog box, click the **Options** icon in the Query Panel of the Publish Query as a Web Service Wizard

- ▶ **Duplicate rows**

By default, the query will not return duplicate rows (this is different than in earlier versions). If you want duplicate rows, select this check box.

- ▶ **Max fetched time**

Enter the maximum data fetch time, in seconds. The default value "-1" means that this option is deactivated and the universe connection will be taken into account.

- ▶ **Max rows fetched**

Enter the maximum number of rows to fetch. The default value "-1" means that this option is deactivated and the universe connection will be taken into account.

- ▶ **Sample result set**

Enter the number of rows you want to return for a sample result set before running the query.

1.7 Limitations using Query as a Web Service

- ▶ You may encounter certain limitations when using Query as a Web Service.
- ▶ These can occur when creating a query, or at run-time.
- ▶ **Limitations when creating a query**
 - Multi-cubes cannot be used
 - Combined queries and subqueries cannot be used
 - IndexAware prompts are not implemented
 - ▶ Also, keep in mind that the name of the Web Service and its metadata are encoded to support various programming languages (such as C#, Java, C++, VB, Flash).
 - ▶ **Limitations at query run-time**
 - Object restrictions cannot be used

1.8 Troubleshooting tips to follow in the event that you have installation issues

■ Launching the CMS first

Ensure that the CMS is launched before Tomcat.

During launch of Tomcat, in the initialization of the Servlet, QaaWS cache reads the definition of the QaaWS in the repository to build its cache. Thus, you must ensure that the CMS is launched before Tomcat.

If you launch the CMS automatically using the NT Services, you do not need to do this manually.

■ Setting the CMS name first

By default, the Web Services connects to the local machine name's CMS.

If you want to change to a dedicated CMS, you must change the domain property in the dsws.properties file.

■ System documentation.

1. Stop Tomcat.
2. Open the installation path folder of BusinessObjects Enterprise XI Release
- 3: [InstallationPath]\Tomcat55\webapps\dswsbobje\WEBINF\classes
- 4 Open the file dsws.properties and locate: domain=
5. Enter your CMS name.
6. Close and save the dsws.properties file.
7. Start Tomcat.

1.9 Activating additional tracing

- If there is configuration issue, the Business Objects Administrator may be required to set up traces to allow better troubleshooting.
- Strongly recommends using traces only for troubleshooting purposes in test environments.
- 1. In the Central Configuration Manager (CCM), stop "Apache Tomcat 5.5.20"
- 2. Change the trace level.

By default Query as a Web Service only traces errors. You may be requested to provide additional traces for customer assurance.

- 3. Edit log4j.properties located in [installationpath]\dswsbob je\WEB-INF\classes\
- 4. Type the following in the properties file: log4j.logger.com.businessobjects=DEBUG, BO1
-
- 5. Change the trace location.

By default, it traces in the output console output. If you want to trace a file, comment the ConsoleAppender and uncomment the RollingFileAppender. If Tomcat is set as a service, you will trace in dswsbobje.log found under the file path C:\WINDOWS\system32.:

```
# console appender
# log4j.appender.BO1=org.apache.log4j.ConsoleAppender #
log4j.appender.AXIS1=org.apache.log4j.ConsoleAppender
```

```
# rolling file appender log4j.appender.BO1=org.apache.log4j.RollingFileAppender
log4j.appender.BO1.File=dswsbobje.log log4j.appender.BO1.Append=false
log4j.appender.BO1.MaxBackupIndex=5 log4j.appender.BO1.Max
```

```
FileSize=10
```

- 6. In the CCM, start "Apache Tomcat 5.5.20" service.

2. Performance and Sizing

2.1 Potential Enhancement Proposal

QaaWS v2 did not scale over than 192u whatever the configuration (single server/cluster). With 192u response time starts exploding and goes higher than the linear exponential curve. The response explosion occurs before the server CPU resource is fully used particularly on cluster. Neither DB nor appserver were considered to be the bottleneck, which implies that an enhancement point might be in the product.

- Number of tokens and sessions in cms increase and some of them are not closed in a timely manner (eg. sessions left for more than 1h+). This can cause instability of cms. In each test cms's CPU usage draws a regular increase and decrease curve. During a batch test of 96u and 128u the number of sessions and tokens were both reaching 43000+ which is quite high for such number of users. There may be a qaaws parameter & patch to force closure (ADAPT logged by Karima), which is not applied in this campaign.

- Response time is relatively long for the testing document which is relatively simple and sends maximum 6 http requests par user operation and retrieves less than 25 rows from DB. Chance of optimisation? As every user accesses to the DB we doubted a DB connection overflow however this was not the case. Increasing CMS's DB connection had no impact in response time. DB does not seem to be a bottleneck.

- A few errors of this type "An internal error occurred while calling 'getBlob' API. (Error: ERR_WIS_30270)" was thrown during the test. Despite of this the ServiceRate of all the tests is higher than 99% thus the results are considered valid.

Example of the error log in weblogic :

```
"[[ACTIVE] ExecuteThread: '17' for queue: 'weblogic.kernl.Default (self-tuning)']
ERROR com.businessobjects.qaaws.internal.transport.QaWSServlet () 22595188 -
invoke() com.businessobjects.rebean.wi.ServerException: An internal error occurred
while calling 'getBlob' API. (Error: ERR_WIS_30270) at com.businessob"
```

- Errors in file writes – thrown by appserver :

Example of the error log in weblogic :

```
“ERROR com.businessobjects.qaaws.internal.transport.QaaWSServlet () 1388954 -
invoke()
```

```
com.businessobjects.rebean.internal.xml.XmlException:
```

```
ClientAbortException: java.net.SocketException: Connection reset by peer: socket
```

```
write error at com.businessobjects.rebean.internal.xml.XmlWriter.close(Unknown
Source) at
```

```
com.businessobjects.qaaws.internal.xml.XmlOutputParser.endSoapMessage(Unkno
wn Source) at
```

```
com.businessobjects.qaaws.internal.transport.QaaWSServlet.invoke(Unknown
Source) at
```

```
com.businessobjects.qaaws.internal.transport.QaaWSServlet.doPost(Unknown
Source)
```

2.2 Comparison XIR3 vs XIR2 with 1WIRReportServer on 8CPU

1) Login-LoadData – XIR3 is faster than XIR2. Login-LoadData action is faster with XIR3 than XIR2. Other actions are equal. From 4u and more, the response time is about 0.83% to 0.85% of XIR2.

With 4 WIRReportServer processes QaaWS scales much better than 1. This configuration fully loads the server from more than 64u (average total CPU 80%) and gives faster response time.

Based on the result the optimal load of a single server is between 64u and 96u.

*This particular test was performed on two different servers of the same model and the results from both servers are coherent to analyse as if they are from one identical server.

2.3 One server 8 CPU – XIR3 Weblogic + 8 Webi

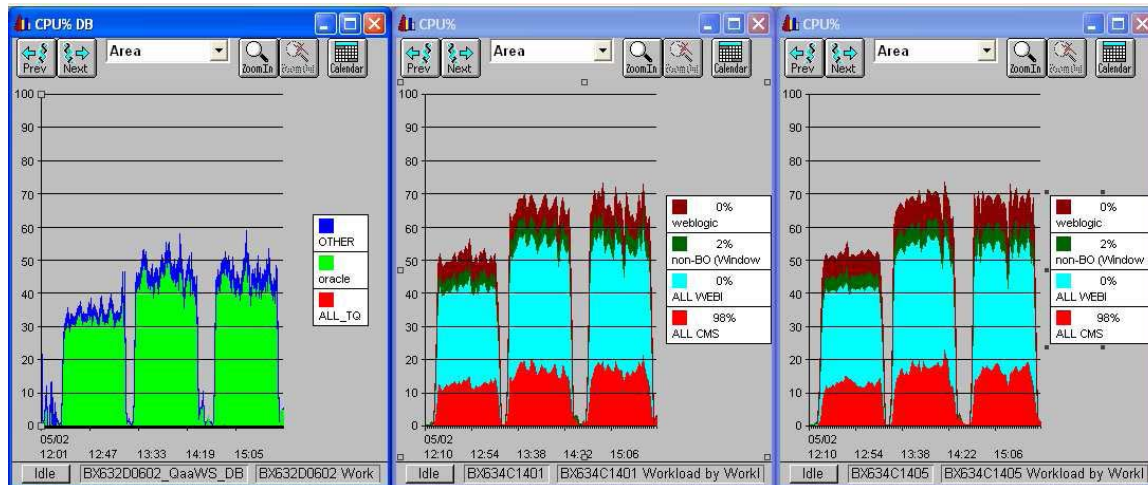
Webi does not improve scalability than 4 Webi : they load same as 4 Webi, 8 Webi give same or slower response time as 4 Webi. For less than 128 to 192 QaaWs users, 4 Webi are the best performers.

In an attempt to improve the response time of Login-LoadData action, a second cms was added. The result, however, shows even slower performance, probably due to an overhead of sharing jobs between the two cms. CPU is less loaded than 1 cms.

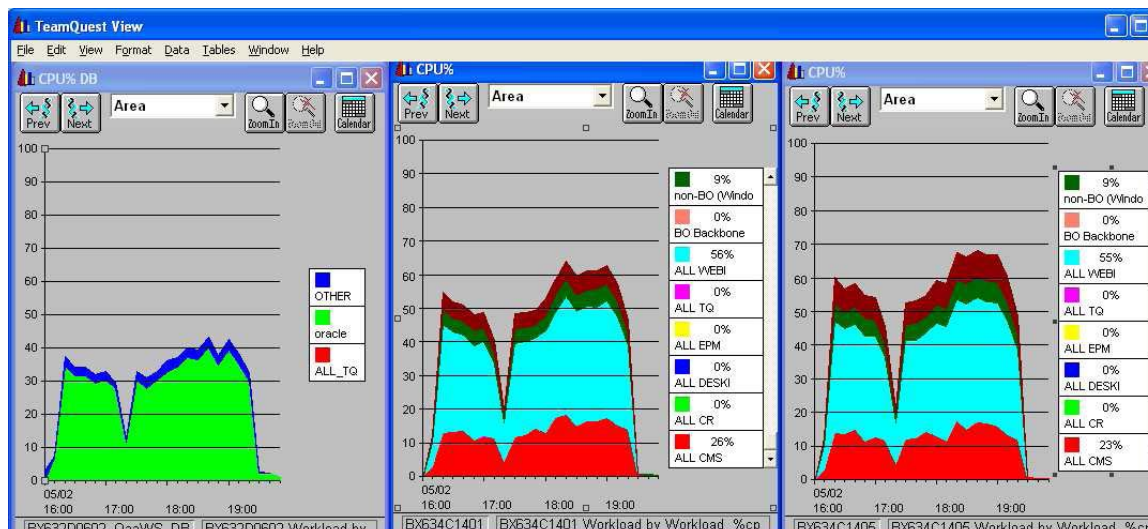
2.4 CPU usage

1st run – batch restarted from 64u to 128u with success. (from left, DB, MT1, MT2)

*ignore % in legend



2nd run – 192u and 256u. (from left, DB, MT1, MT2) *ignore % in legend



2.5 Basics and definition

We choose to collect certain CPU counters (Process: % Privilege Time, % User Time, % Processor Time).

- % Processor Time: this counter is the percentage of elapsed time that all of process threads used the processor to execution instructions. An instruction is the basic unit of execution in a computer, a thread is the object that executes instructions, and a process is the object created when a program is run. Code executed to handle some hardware interrupts and trap conditions are included in this count.

Processor time is the addition of:

- % Privilege Time: percentage of elapsed time that the process threads spent executing code in privileged mode. When a Windows system service is called, the service will often run in privileged mode to gain access to system-private data. Such data is protected from access by threads executing in user mode. Calls to the system can be explicit or implicit, such as page faults or interrupts. Unlike some early operating systems, Windows uses process boundaries for subsystem protection in addition to the traditional protection of user and privileged modes. Some work done by Windows on behalf of the application might appear in other subsystem processes in addition to the privileged time in the process.

- % User Time: percentage of elapsed time that the process threads spent executing code in user mode. Applications, environment subsystems, and integral subsystems execute in user mode. Code executing in user mode cannot damage the integrity of the Windows executive, kernel, and device drivers. Unlike some early operating systems, Windows uses process boundaries for subsystem protection in addition to the traditional protection of user and privileged modes. Some work done by Windows on behalf of the application might appear in other subsystem processes in addition to the privileged time in the process.

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