



AP/OR 100.006.1

AutoPilot® M6 Plug-in for Oracle

Installation and User's Guide

Version 1.0

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Chapter 1: Introduction

Welcome to the *AutoPilot/Oracle Plug-in Guide*. This guide describes installation and uses of the plug-in. Please review this guide carefully before installing the product.

1.1 How This Guide is Organized

[Chapter 1:](#) Identifies the users and history of the document, as well as additional and alternate documents. System requirements are outlined in addition to supplying support and reference information.

[Chapter 2:](#) Contains a brief functional description of AutoPilot/Oracle Plug-in.

[Chapter 3:](#) Provides instructions for new installations of the AutoPilot/Oracle Plug-in.

[Chapter 4:](#) Provides instructions for configuring and deploying the Oracle® expert.

[Chapter 5:](#) Defines the AutoPilot/Oracle metrics.

[Appendix A:](#) Provides a detailed list of all reference information required for the installation of AutoPilot.

[Appendix B:](#) Contains conventions used in this document.

[Glossary:](#) Contains a listing of unique and common acronyms and words and their definition.

1.2 History of This Document

Table 1-1. Document History

Release Date	Document Number	For AutoPilot Versions	Summary
September 2004	AP/OR 100.001	AP/IT 4.0, SU 9 and higher AP/WMQ 4.1 and higher	Version 1.0
October 2009	AP/OR 100.002	AP/IT 4.0, SU 9 and higher AP/WMQ 4.1 and higher	Miscellaneous documentation updates
November 2009	AP/OR 100.003	AP/IT 4.0, SU 9 and higher AP/WMQ 4.1 and higher	Update expert configuration properties tabs
August 2015	AP/OR 100.004	6.0 with SU 21 and higher	General update
April 2017	AP/OR 100.005	6.0 with SU 24 and higher	Mantis 8813 – additional SGA facts (Table 5-5)
August 2017	AP/OR 100.006	6.0 with SU 24 and higher	Update Nastel’s phone numbers and street address.
May 2022	AP/OR 100.006.1		Changed title to <i>AutoPilot® M6 Plug-in for Oracle Installation and User’s Guide</i>

1.2.1 User Feedback

Nastel encourages all users and administrators of AutoPilot to submit comments, suggestions, corrections, and recommendations for improvement for all AutoPilot documentation. Please send your comments via post/mail, or by email. Send messages to: support@nastel.com. You will receive a written response, along with status of any proposed change, update, or correction.

1.3 Related Documents

The complete listing of related and referenced documents is listed in [Appendix A](#) of this guide.

1.4 Release Notes

See README.HTM files on installation media or AutoPilot installation directory.

**CAUTION!**

When upgrading AutoPilot/IT you must upgrade all installations within the domain. AutoPilot 3.0 and 4.0 are not compatible

1.5 Intended Audience

This document is intended for personnel installing and customizing Nastel's AutoPilot products. The installer should be familiar with:

- Java Run Time Environment 1.6.x (JRE 1.6.x) or higher. (JRE 1.6 is included with AP M6 for Windows and selected UNIX platforms.)
- Target operating system environment.
- The installer may need administrative privileges for the target platform.
- Procedures for installing software on the target platform such as Windows, UNIX, OS etc.

1.6 System Requirements

The AutoPilot/OR Plug-in is compatible with Oracle 10, 11, and 12.

The plug-in can be installed on any AutoPilot managed node in the AutoPilot network. AutoPilot managed node must be running on the same machine as the WebSphere server and no other application servers or plug-ins are installed on this node.

The AutoPilot/OR Plug-in must be installed where it can access the target application within the same network.

The AutoPilot/ Oracle Plug-in installation requires less than 1M of disk space.

1.7 Terms and Abbreviations

A list of terms and abbreviation used in this document is located in the Glossary.

1.8 Technical Support

If you need additional technical support, you can contact Nastel by telephone or by email.

To contact Nastel technical support by telephone, call **800-963-9822 ext. 1**, if you are calling from outside the United States dial **001-516-801-2100**.

To contact Nastel technical support by e-mail, send a message to support@nastel.com.

To access the Nastel automated support system (user id and Password required), go to: <http://support.nastel.com/>, or visit the Nastel Resource Center at www.nastel.com/resources. Contact your local AutoPilot Administrator for further information.

1.9 Conventions

Refer to [Appendix B](#) for typographical and naming conventions used in all AutoPilot documentation.

Chapter 2: About AutoPilot/Oracle

This chapter describes Nastel's AutoPilot/Oracle Plug-in and its application with AutoPilot.

2.1 Functional Description

The AutoPilot/Oracle Plug-in can retrieve information about the Oracle® database which provides a common method to create, send, receive, and read an enterprise messaging system's messages.

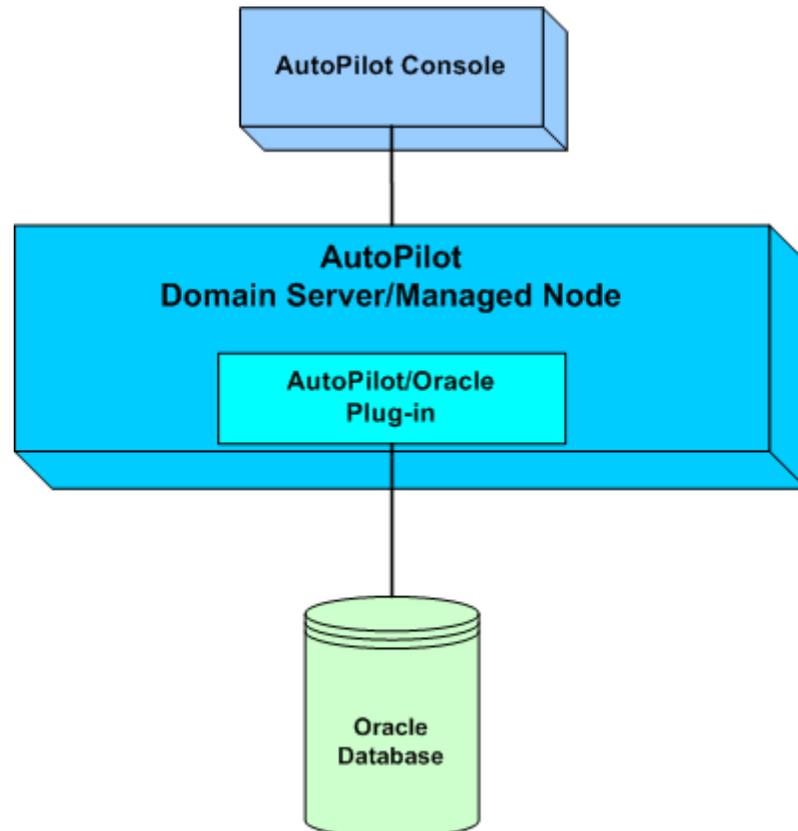


Figure 2-1. The AutoPilot/Oracle Plug-in

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Chapter 3: AutoPilot/Oracle Installation

This chapter provides instructions for the typical installation and setup requirements for the *AutoPilot/Oracle Plug-in*.

3.1 Before Installation

3.1.1 Technical Documents

Prior to installation you should review all text files and installation procedures on the installation CD or printed documentation provided. You should print, as needed, all of the installation related materials to give yourself quick access to any required information during any installation or migration procedures.

Additional sets of printed documents are available from your Nastel representative or Nastel Support.

3.1.2 Installation Requirements

The AP/Oracle plug-in should be installed on the AutoPilot domain server or any managed node within the AutoPilot network.

The user must have “SELECT” permission for the Oracle system views and tables listed below:

```
v$instance
v$parameter
v$license
v$session
v$statname
v$sesstat
v$ses_io
v$sysstat
v$sqlarea
v$open_cursor
v$access
v$librarycache
v$rowcache
v$rollstat
v$rollname
v$lock
v$locked_object
v$latch
v$sgastat
v$process
v$bgprocess
dba_data_files
dba_free_space
dba_tablespace
dba_free_space_coalesced
dba_segments
dba_rollback_segs
dba_objects
Dba_data_files
Dba_extents
Dba_tables
Dba_users
obj$
user$
all_indexes
```

3.1.3 Download the Oracle Plug-in

Download the AP/Oracle Plug-in from Nastel Support, <http://support.nastel.com/ap/>. A user name and password are required or copy from your installation CD.

3.2 Installing the Plug-in

1. Save your work and logoff AutoPilot.



NOTE: There are no specific logoff procedures required to exit AutoPilot Console

2. Stop the Nodes and/or Domain Server that will be updated with the AP/Oracle plug-in.
3. Copy `AP_ORADB-version.pkg` into the `[AUTOPILOT_HOME]\updates` directory.
4. At the command prompt run:
`[AUTOPILOT_HOME]/bin/pkgman ..\updates\AP_ORADB-version.pkg.`



NOTE: Make sure there are no errors posted at the bottom of the screen.

5. Verify plug-in installation by running `:[AUTOPILOT_HOME]\bin\pkgman -libinfo`. The details of the library are listed. Verify that the `oracle_expert.jar` file have been copied into the lib directory.

```

C:\WINDOWS\system32\cmd.exe
C:\naste1\AutoPilotM6\bin>pkgman -info
Loading properties from "C:\naste1\AutoPilotM6\global.properties"
Loading properties from ".\apwmq.properties"
Loading Log4J log4j.config=C:\naste1\AutoPilotM6\log4j.properties, exists=true
AutoPilot M6 Package Manager Version 6.0
Copyright (C) 1998-2008 Nastel All rights reserved.

Loaded 17 packages from "packages.xml"
-----
Package                                Version      Size      Time
-----
AutoPilot M6<NA>                        6.0          NA        2009-10-09 16:10:58
JRE<NA>                                  1.5_0_12     NA        2008-06-30 17:01:38
JRE<NA>                                  1.5_0        NA        2008-10-20 10:49:29
AIM-Plugin<AP_AIM-6.0.7.pkg>            6.0.7        151       2008-09-04 14:00:17
ServiceUpdate<AP60_SU10.pkg>           6.0.10       5726      2009-09-15 12:23:05
APTM-TA<AP_TMTA-6.0.9.pkg>              6.0.9        241       2008-11-17 16:49:38
JBoss4-JMX-Plugin<AP_JMX_JBOSS-1       1.0.1        39        2008-09-04 15:30:10
SNMP-Plugin<AP_SNMP-6.0.2.pkg>          6.0.2        1491      2009-06-26 17:14:20
WMQI-Plugin<AP_WMQI-6.0.0.pkg>          6.0.0        325       2008-12-24 09:53:21
WAS-PMI-Plugin<AP_PMI_WAS-6.0.2.       6.0.2        30        2008-12-31 12:05:05
JMX-Plugin<AP_JMX-6.0.1.pkg>            6.0.1        501       2009-01-09 09:47:01
WLS-JMX-Plugin<AP_JMX_WLS-1.0.pk       1.0          521       2009-01-09 15:01:39
WAS-JMX-Plugin<AP_JMX_WAS-6.0.2.       6.0.2        13        2009-01-12 16:44:17
Oracle-Plugin<AP_ORADB-1.1.6.1.p       1.1.6        23        2009-02-25 15:08:49
TWORKS-TA<AP_TWORKS_TA-6.0.8.2.p       6.0.8.2     1401      2009-08-26 11:57:02
WMQ-Plugin<AP_WMQ-6.0.12.pkg>          6.0.12       158       2009-09-14 15:43:56
WMQ-Resource-Pack<AP_WMQRP-6.0.5      6.0.5        177       2009-09-14 15:45:04

C:\naste1\AutoPilotM6\bin>pkgman _

```

Figure 3-1. Detail of Installed Packages List

6. Restart AutoPilot services stopped in step 2.

Chapter 4: Using AutoPilot/Oracle

4.1 Deploying Oracle Expert

1. Open your AutoPilot Console
2. Right-click on the managed node that has AutoPilot/Oracle expert is installed.
3. Click **Deploy Expert > DBMS Experts > Oracle Expert**. The expert displayed in the figure (menu) below is described in detail in [Chapter 5](#).

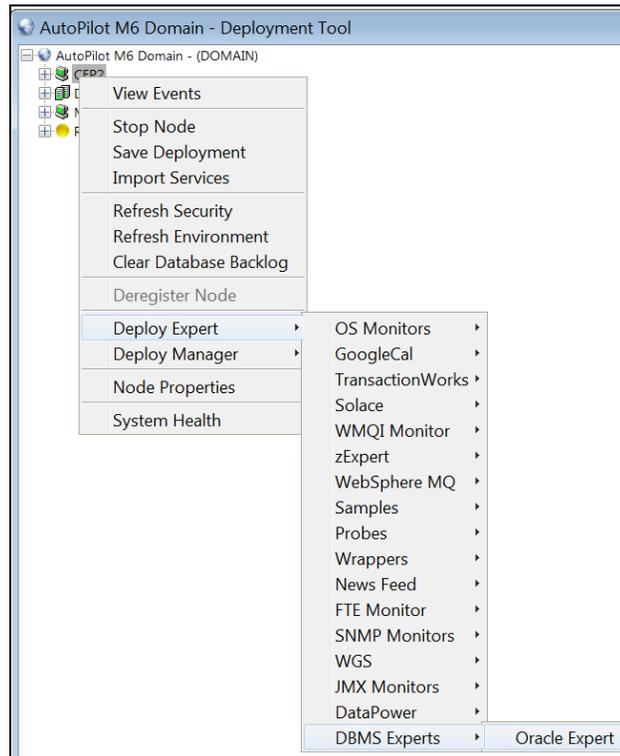


Figure 4-1. Deploy Oracle Expert

- It is recommended that you update the description, context and name to define your expert. At a minimum apply a definitive name to your agent.

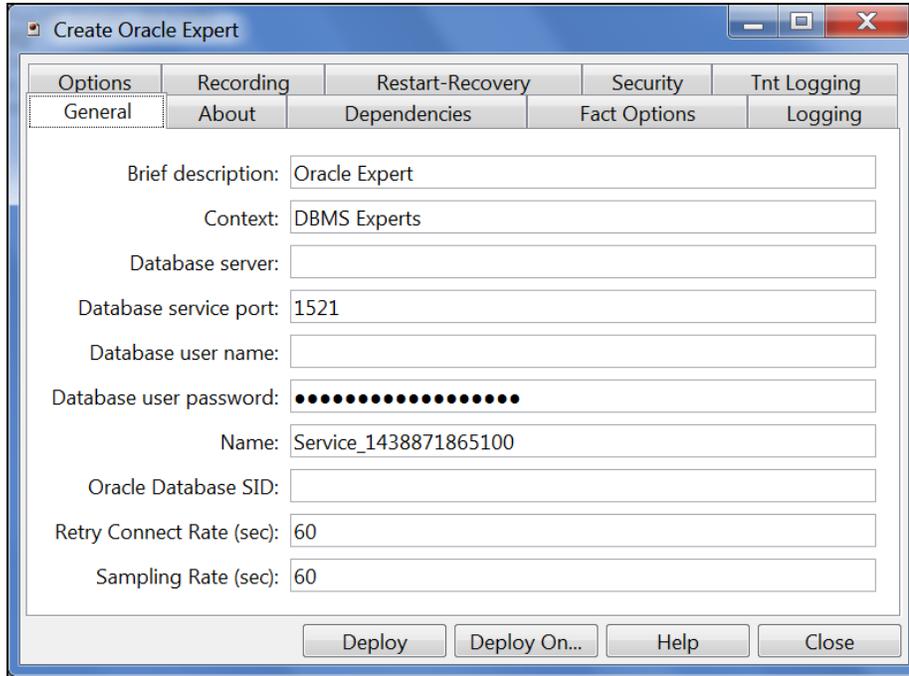


Figure 4-2. Oracle Expert: General

Table 4-1. Oracle Expert: General

Property	Description
Brief description	A short, user defined description of the service. The default is the subject expert name.
Context	A user define category that will be registered with the domain server. The default is: DBMS Expert.
Database server	Address of Oracle Database server to be monitored
Database service port	Oracle Database Service Port
Database user name	Oracle Database User Name. See section 3.1.2 , Installation Requirements.
Database user password	User password
Name	Name that uniquely identifies the service in the domain. The default name system assigned with the word service and twelve random digits (example: Service_123456789012). You can change the name to anything that suites your needs.
Oracle Database SID	Instance name
Retry Connect Rate(sec)	Connection retry rate in seconds
Sampling Rate (sec)	Time interval in seconds for sampling transactions message data and reporting to facts board. Default value is 60 seconds (1 minute).

- Click the *About* tab. Identify and enable requirements as defined in the table. These parameters are common to all experts.

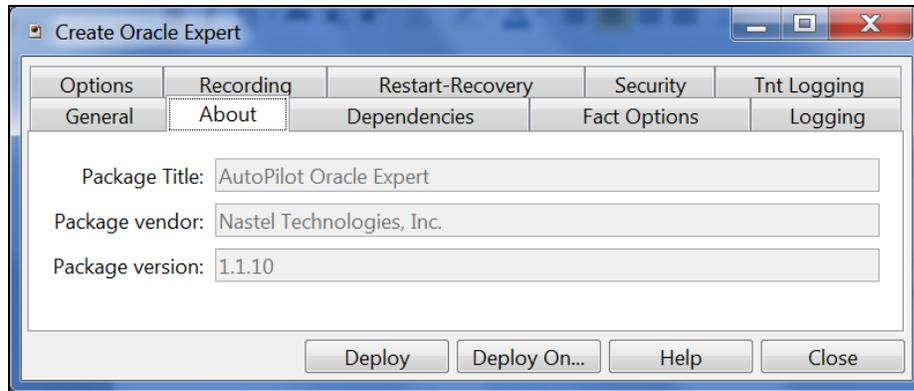


Figure 4-3. Oracle Expert: About

Table 4-2. Common Properties: About	
Property	Description
Package Title	Implementation title of the source package.
Package vendor	Name of implementation vendor.
Package version	Version number of source package.

- Click the *Dependencies* tab, if required. Identify and format dependencies as defined in the table. These parameters are common to all experts.

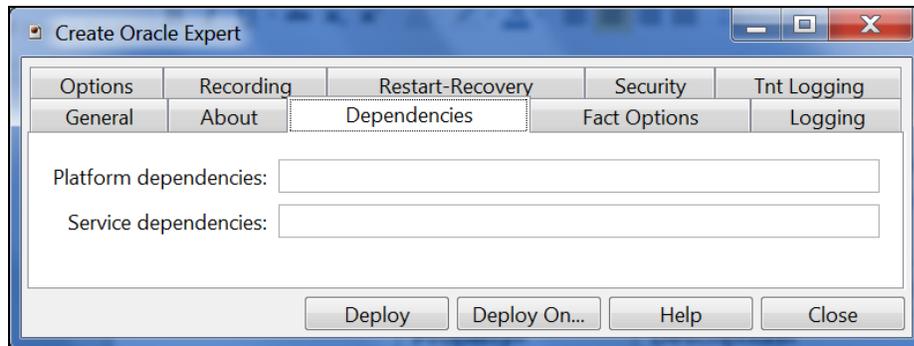


Figure 4-4. Oracle Expert: Dependencies

Table 4-3. Common Properties: Dependencies	
Property	Description
Platform dependencies	Dependencies on OS platforms, comma separated list.
Service dependencies	Dependencies on other services, comma separated list.

- Click the *Fact Options* tab. Identify and enable requirements as defined in the table. These parameters are common to all experts.

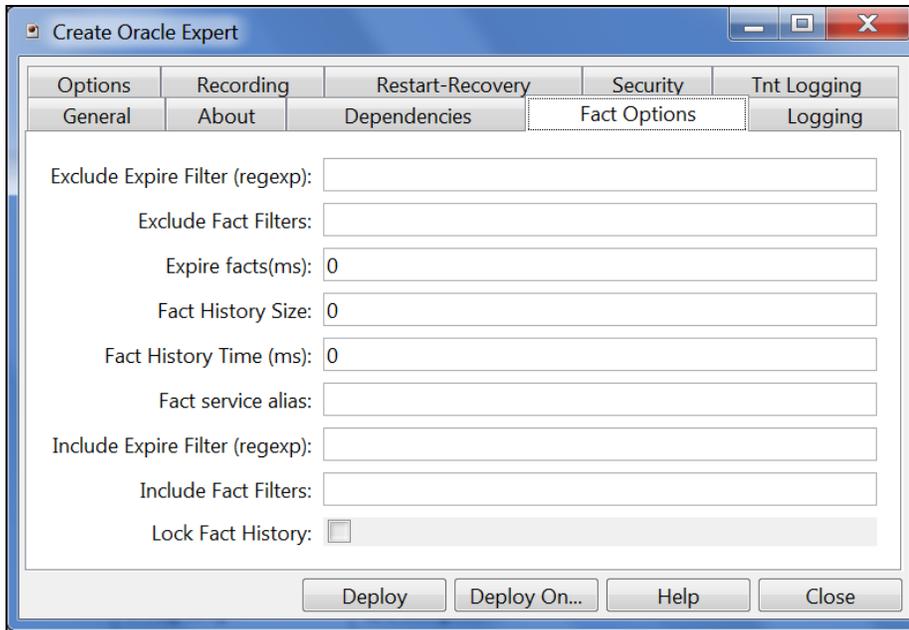


Figure 4-5. Oracle Expert: Fact Options

Table 4-4. Common Properties: Fact Options	
Property	Description
Exclude Expire Filter	Do not expire facts that match specified regular expression.
Exclude Fact Filters	Comma separated list of fact paths to exclude during publishing.
Expire facts(ms)	Automatically expires facts that have not been updated in the specified time (ms).
Fact History Size	Automatically maintains the specified number of samples for each published fact in memory.
Fact History Time(ms)	Automatically maintains fact history not exceeding specified time in (ms).
Fact service alias	Override fact service prefix for all published facts. Facts will appear under specified service name.
Include Expire Filter	Expire facts that match the specified regular expression
Include Fact Filters	Comma separated list of fact paths to include during publishing.
Lock Fact History	Automatically locks fact history values when history cache is full.

8. Click the *Logging* tab, if required. Identify, and format logging requirements as defined in the table. These parameters are common to all experts.

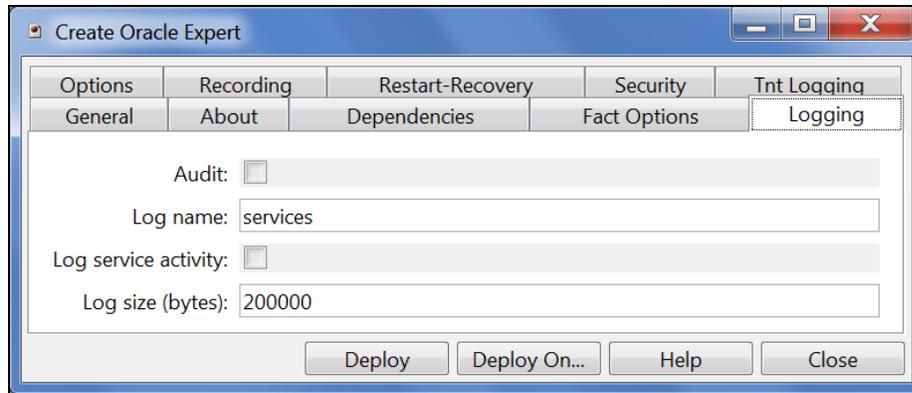


Figure 4-6. Oracle Expert: Logging

Table 4-5. Common Properties: Logging	
Property	Description
Audit	Enable/disable service audit trace.
Log Name	Log name associated with the service.
Log Service Activity	Enable/disable service activity trace.
Log Size (bytes)	Enter log file size if the activity is enabled. Default value: 200000.

9. Click the *Options* tab. Identify and enable requirements as defined in the table. These parameters are common to all experts.

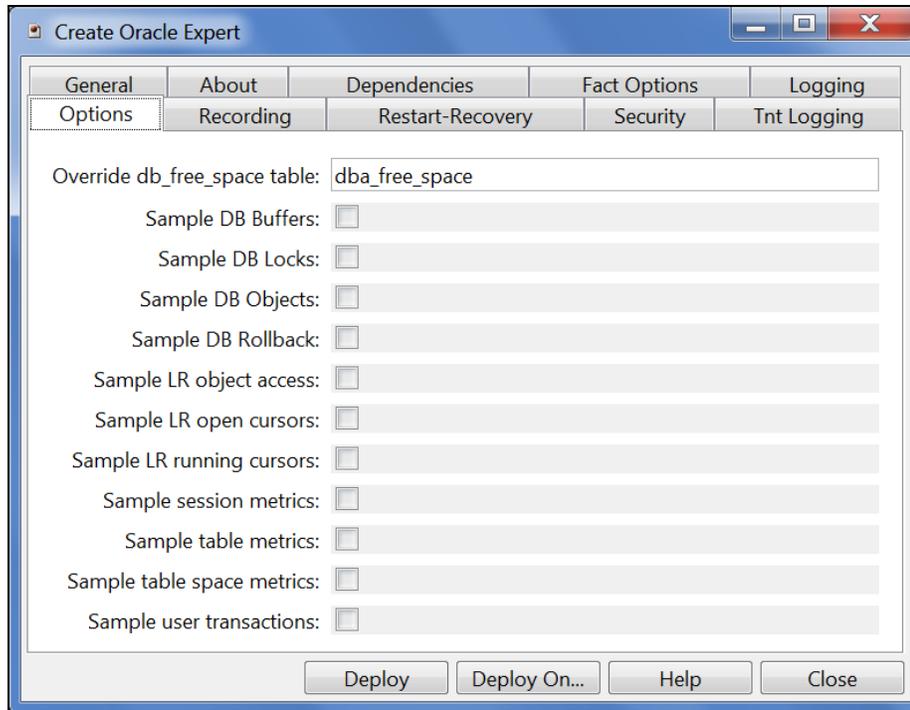


Figure 4-7. Oracle Expert: Options

Table 4-6. Common Properties: Options	
Property	Description
Override db_free_space table	Override default db_free_space table
Sample DB Buffers	Collect DB buffer related metrics
Sample DB Locks	Collect DB lock related metrics
Sample DB Objects	Collect DB object related metrics
Sample DB Rollback	Collect DB rollback related metrics
Sample LR object access	Collect linear regression (LR) object related metrics.
Sample LR open cursors	Collect linear regression (LR) open cursor related metrics.
Sample LR running cursors	Collect linear regression (LR) running cursor related metrics.
Sample session metrics	Collect session related metrics.
Sample table metrics	Collect table related metrics.
Sample table space metrics	Collect table space related metrics.
Sample user transactions	Collect user transaction related metrics.

10. Click the *Recording* tab. Identify and enable requirements as defined in the table. These parameters are common to all experts.

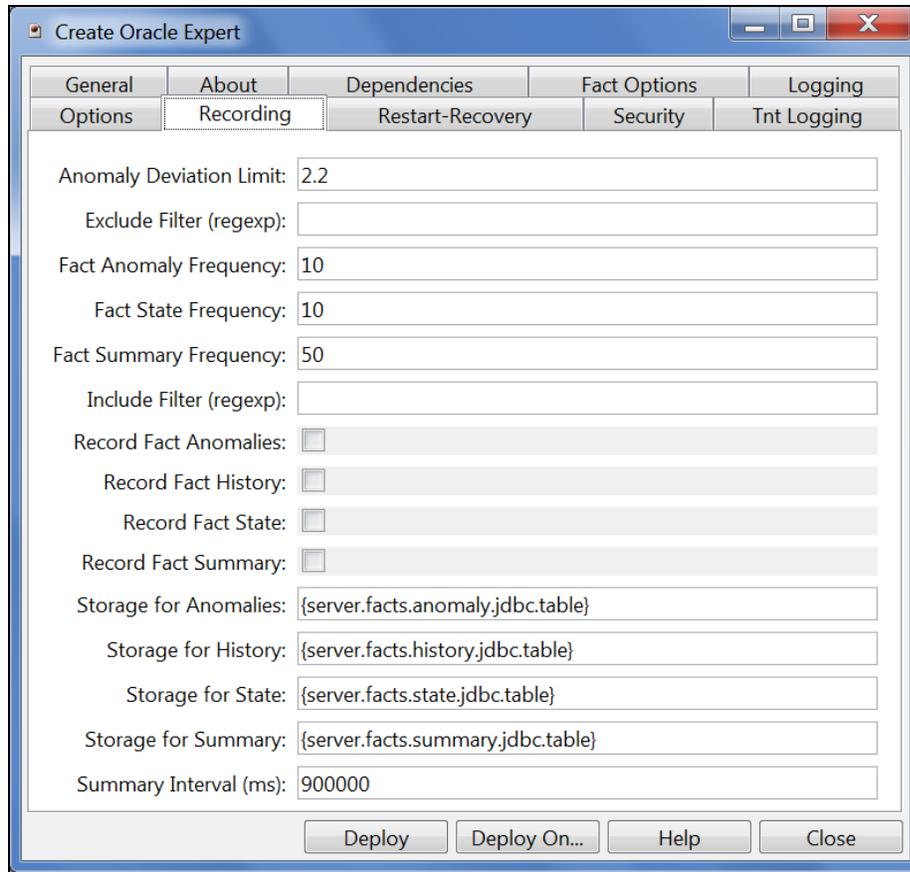


Figure 4-8. Oracle Expert: Recording

Table 4-7. Common Properties: Recording	
Property	Description
Anomaly Deviation Limit	Number of standard deviations above or below the mean.
Exclude Filter (regexp)	Ignore facts that match the specified regular expression.
Fact Anomaly Frequency	Frequency at which fact anomalies are checked and recorded.
Fact State Frequency	If Record Fact State is enabled, the value entered here specifies how often the Fact State is updated.
Fact Summary Frequency	Frequency at which fact summary is recorded.
Include Filter (regexp)	A regular expression filter to include certain facts being written to the database. Same format as described for the exclude filter.
Record Fact Anomalies	Enables/disables fact anomaly recording for this service.
Record Fact History	If enabled, records every fact change into the History database. The exclude/include filters are respected.
Record Fact State	If enabled, records the last value published (current state) into the state database and restores that value when the CEP Server is stopped and restarted. The exclude/include filters are respected.
Record Fact Summary	If enabled, records summary record at the interval designated in the Summary Interval (ms) field into the Summary database. The exclude/include filters are respected.

Property	Description
Storage for Anomalies	Database table where all anomalies are recorded.
Storage for History	Database table where the Fact History data is stored.
Storage for State	Database table where the Fact State data is stored.
Storage for Summary	Database table where the Fact Summary data is stored.
Summary Interval (ms)	If Record Fact Summary is enabled, designates in milliseconds, how often the Fact Summary data is written.

11. Click the *Restart-Recovery* tab, if required. Identify and enable requirements as defined in the table. These parameters are common to all experts.

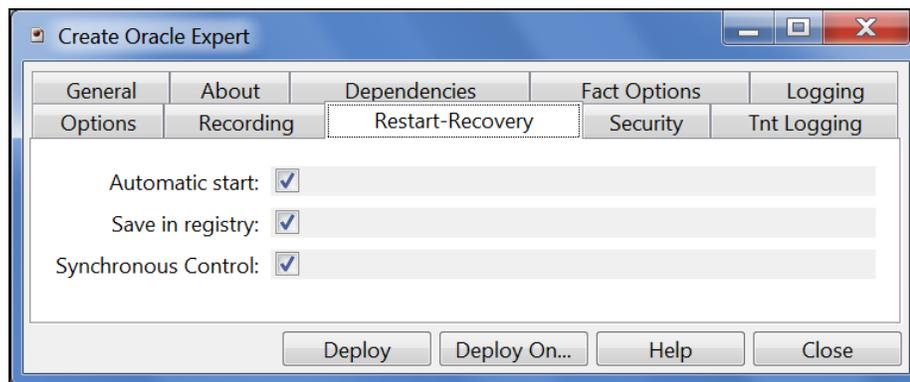


Figure 4-9. Oracle Expert: Restart-Recovery

Property	Description
Automatic Start	Enable/disable automatic start.
Save in registry	Enable/disable saving persistent services in registry.
Synchronous Control	Enable/disable synchronous service initiation.

12. Click the *Security* tab. Enter or enable requirements as defined in the table below. These parameters are common to all experts.

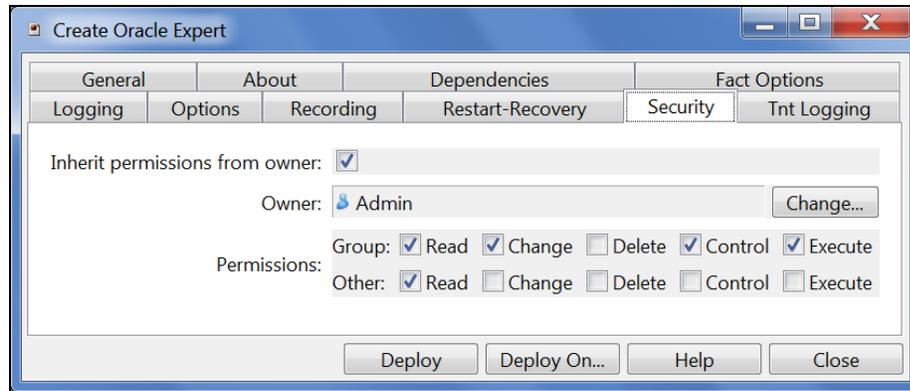


Figure 4-10. Oracle Expert: Security

Table 4-9. Common Properties: Security		
Property	Description	
Inherit Permission from Owner	Enable/disable inheriting of permission from owners permission masks.	
Owner	User that owns the object.	
Permissions	Permissions for users of the same group and others. Enable/disable as required.	
	Group	Other
Read	Group members may read/view attributes of an object.	Others may read/view attributes of an object.
Change	Group members may change the attributes of an object.	Others may change the attributes of an object.
Delete	Group members may delete the object.	Others may delete the object.
Control	Group members may execute control actions such as start, stop, and disable.	Others may execute control actions such as start, stop, and disable.
Execute	Group members may execute operational commands on the object.	Others may execute operational commands on the object.

13. Click the *Streaming Options* tab. Enter or enable requirements as defined in the table below. These parameters are common to all experts.

Figure 4-11. Oracle Expert: Streaming Options

Table 4-10. Common Properties: Streaming Options	
Property	Description
Application name	Sets the application name
Data center name	Sets the data center name
Derived metrics filter	Fact derived filter name
Exclude filter (regexp)	Ignore facts that match the specified regular expression
Include filter (regexp)	Log facts that match the specified regular expression
Interval of derived metrics	Time interval in ms for sending fact derived metrics
Location	Sets the server location
Stream derived metrics	Select to send derived metrics
Stream Facts	Select to enable fact streaming (requires TNT4j streaming framework)
Streaming configuration	Streaming configuration block name

14. Click the **Deploy** button. A confirmation is displayed. Click **Yes** to deploy or **No** to cancel. If Yes is selected, the expert will be deployed. The verification screen will confirm the expert name and node where your expert was deployed.



Figure 4-12. Oracle Expert Deployed

- or Click **Deploy On** to deploy on multiple nodes within the AutoPilot domain. Select the name to be used, and select the node to receive the expert. Note, if you applied a name to your expert in step 4, a unique name is needed for each deployment location when deploying across multiple experts. The default is “name@node name”. The figure below depicts multiple deployments with an exception. The deployed experts show a green check, the exception shows a red X and an explanation in the dialog window.

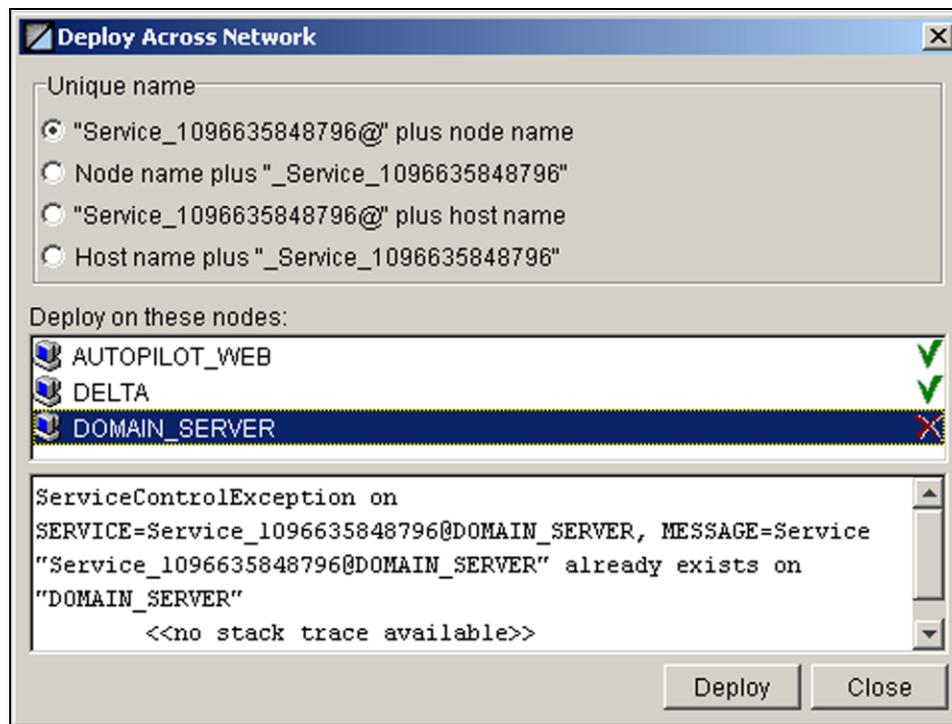


Figure 4-13. Multiple Expert Deployments

15. The deployed expert (s) will be displayed under the node they were deployed, as in the sample below. The facts produced by each expert are defined in: [Chapter 5: AutoPilot/Oracle Metrics](#).

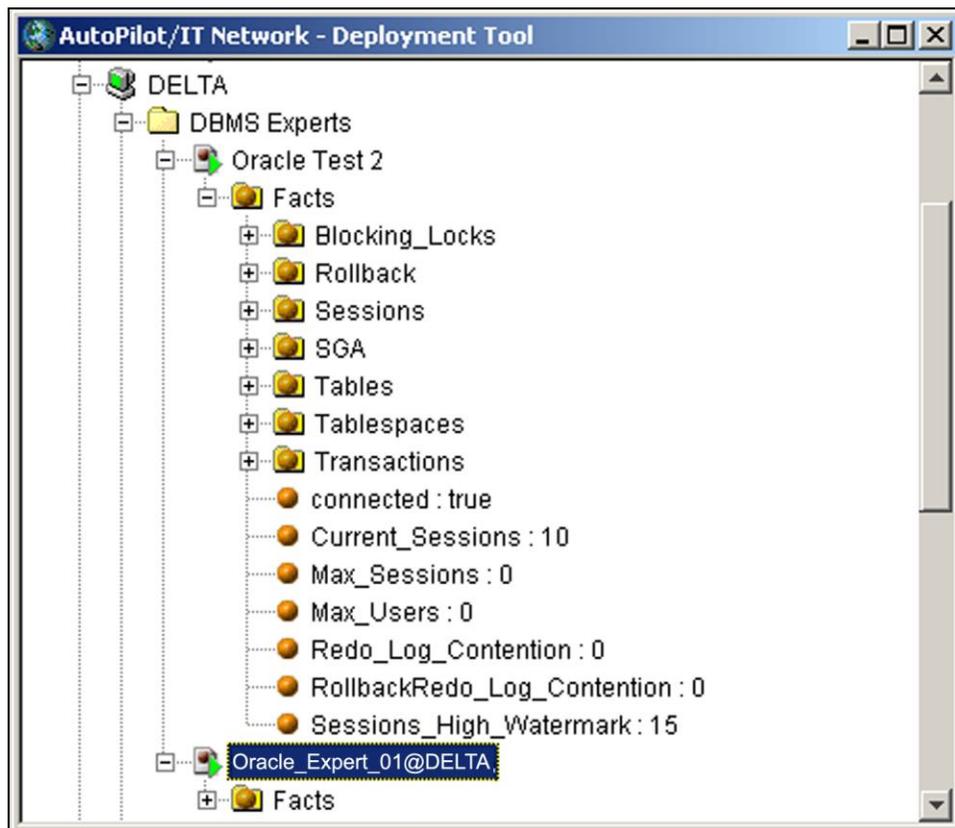


Figure 4-14. Deployed Oracle Experts

Chapter 5: AutoPilot/Oracle Metrics

5.1 Oracle Expert

The Oracle facts are published in a hierarchical organized format as:

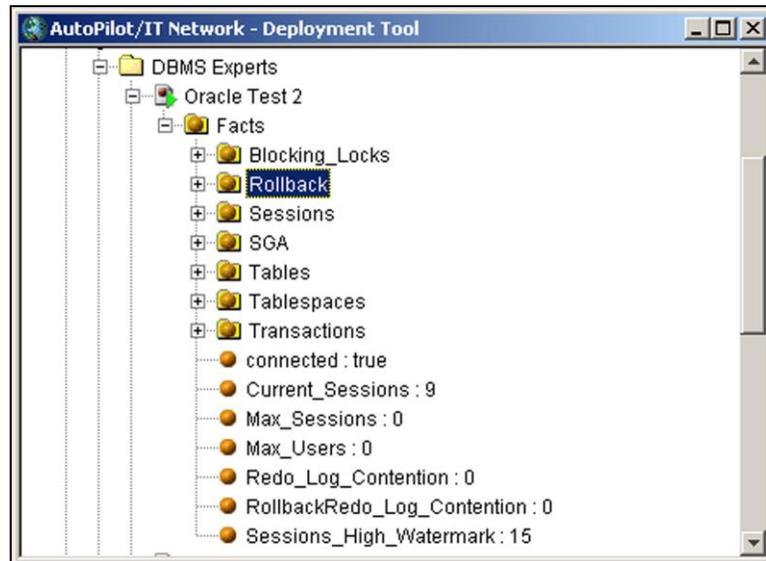


Figure 5-1. Oracle Expert

Table 5-1. Oracle Expert Fact Metrics

Name	Description	Possible Values
connected	Shows whether AutoPilot Oracle Expert is connected to database server	true false
Current_Sessions	Number of currently active concurrent user sessions	0 or positive integer number
Max_Sessions	Maximum number of concurrent user sessions allowed simultaneously	0 or positive integer number
Sessions_High_Watermark	Highest number of concurrent users sessions since the instance started.	Positive integer number
Total_Users	Number of active sessions owned by Oracle users (the same as Current_Sessions)	Positive integer number
Invalid_Objects	Database objects with status invalid	FUNCTIONS, PACKAGES, PACKAGE BODY, PROCEDURE, TRIGGER, VIEW
Instance_Name	Running DB instance name	String value
Instance_Version	Running DB instance version	String value
Startup_Time	Instance startup time	Date – Time
Shutdown_Pending	Parameter showing when database shutdown is pending.	“NO” “YES”
Redo_Log_Contention	See Table 5-2	
Rollback	See Table 5-3	
Sessions	See Table 5-4	

Table 5-1. Oracle Expert Fact Metrics

Name	Description	Possible Values
SGA	See Table 5-5	
Tables	See Table 5-6	
Tablespaces	See Table 5-7	
Blocking Locks	See Table 5-8	
Objects_that_cannot_Expand	See Table 5-9	
Transactions	See Table 5-10	

Table 5-2. Oracle Expert Facts Metrics: Redo_Log_Contention

Name	Description	Possible Values
Redo_Log_Contention	Redo log contention notes	Redo_Allocation, Redo_Copy
Gets	Number of times gotten wait	0 or positive integer number
Misses	Number of times gotten wait but failed first try	0 or positive integer number
Sleeps	Number of times slept when wanted wait	0 or positive integer number
Immediate_Gets	Number of times gotten without wait	0 or positive integer number
Immediate_Misses	Number of times failed to get without wait	0 or positive integer number

Table 5-3. Oracle Expert Facts: Rollback

Name	Description	Possible Values
Rollback	Sub-elements of the item displays information about rollback segments	
Name	Rollback segment name	String values
Rollback_Segment_Status	This data item represents the status of the rollback segment. A rollback segment is always in one of several statuses. The state of the rollback segment determines whether it can be used in a transaction as well as which administrative procedures a DBA can perform on it.	OFFLINE, ONLINE, NEEDS RECOVERY, PARTLY AVAILABLE, INVALID
Waits	Number of header waits.	0 or positive integer number

Table 5-4. Oracle Expert Facts Metrics: Sessions		
Name	Description	Possible Values
Sessions	Sub-elements of the item displays information about Oracle user sessions	
SID	This data item represents the user session identifier.	Integer values
OS_User	This data item represents the name of the operating system client user. That is the username reported at the time of the database connection time from the operating system.	String values or "null" if value of the data item is NULL
Used_Memory	This data item represents the current UGA size in KB for this session. The UGA, or user global area, is allocated in the PGA (program global area) for each session connected to Oracle in a dedicated server environment. The PGA is memory allocated on the client to hold a stack which contains all of the session's variables, etc. In a Shared Server environment Oracle allocates this memory in the shared pool (SGA) for all sessions. This reduces the PGA (client) memory footprint of Oracle but will increase the (SGA) shared pool size requirements.	Positive integer values
User	This data item represents the Oracle username of the current session	String values

Table 5-5. Oracle Expert Facts Metrics: SGA

Name	Description	Possible Values
SGA	This item is intended to show different SGA statistics. Sub-items of the item displays information about sizes of free memory in components of the SGA reported in megabytes.	
Name	SGA component name	String value
Database_Buffers	This data item represents size of the portion of the SGA that holds copies of data blocks read from data files.	0 or positive real number
Fixed_Size	This data item represents size of the area which Oracle uses to store information regarding DB name, timestamp, etc. and which cannot be configured.	0 or positive real number
Redo_Buffers	This data item represents size of the circular buffer in the SGA that holds information about changes made to the database.	0 or positive real number
Variable_Size	This data item represents size of the area used to set up share pool, buffer cache, java mem, large pool etc. The size can be changed.	0 or positive real number
Free_%	This data item represents size in percent of available free memory in the SGA component.	0 – 100 %
Free_MB	This data item represents size in megabytes of available free memory in the SGA component.	0 or positive real number
Allocated_MB	SGA size in megabytes	0 or positive real number
Cache_Hit_Ratio_%	This data item represents the data block buffer cache efficiency, as measured by the percentage of times the data block requested by the query is in memory.	
Dictionary_Cache_Hit_Ratio_%	This data item represents dictionary cache efficiency as measured by the percentage of requests against the dictionary data that were already in memory.	0 – 100 %
Library_Cache_Hit_Ratio_%	This data item represents the library cache efficiency, as measured by the percentage of times the fully parsed or compiled representation of PL/SQL blocks and SQL statements are already in memory.	0 – 100 %
Memory_Sort_Ratio_%	This data item represents the sort efficiency as measured by the percentage of times sorts were performed in memory as opposed to going to disk.	0 – 100 %

Table 5-6. Oracle Expert Facts Metrics: Tables

Name	Description	Possible Values
Tables	Subelements of the item shows information about tables extents and chained rows. Items representing tables are grouped by tablespace names.	
Chained_Rows	Number of chained rows	0 or positive integer number. The fact can be missing if there is no data
Extents	Number of extents	Positive integer number

Table 5-7. Oracle Expert Facts Metrics: Tablespaces

Name	Description	Possible Values
Tablespaces	Subelements of the item shows information about database tablespaces and status of their data files	
Tablespace_Status	This data item indicates this tablespace's status; for example, if the tablespace is online, offline or read-only.	online, offline, read-only.
Free_Space_MB	This item shows the total amount of free space, in megabytes, for tablespace.	0 or positive real number
Total_Space_MB	This item shows the total amount of space, in megabytes, for tablespace.	0 or positive real number
Used_Space_MB	This item shows the total amount of used space, in megabytes, for tablespace.	0 or positive real number
Fragments	This item shows the total fragments of tablespace.	>= 1 Integer number
Smallest_Fragment_B	This item shows the smallest fragment, in bytes, for tablespace.	0 or positive integer number
Biggest_Fragment_B	This item shows the biggest fragment, in bytes, for tablespace.	0 or positive integer number
Fragmentation_Status	This item shows fragmentation status for tablespace.	“No Frag” “Bubble Frag” “Possible Honey comb Frag”
Coalescable_Extents	This item shows the number of extents to coalesce.	0 or positive integer number
Coalescable_Bytes	This item shows the total amount of bytes in Coalescable_Extents.	0 or positive integer number

Table 5-8. Oracle Expert Facts Metrics: Blocking Locks

Name	Description	Possible Values
Blocking_Locks	The item shows information about blocking locks and deadlocks	
Deadlock info	The item shows deadlock type and number of deadlocks of the type	0 or positive integer number
Blocking locks list	Each of the items shows information about blocking lock. Name of the element contains ID of waiting session.	
Waiting_Session	Waiting session ID	0 or positive integer number
Waiting_User	Waiting user name	String value
Waiting_OSUser	Waiting operating system client user name	String value
Waiting_Terminal	Terminal name for the locking session	String value
Holding_Session	Holding session ID	0 or positive integer number
Holding_User	Holding user name	String value
Holding_OSUser	Holding operating system client user name	String value
Holding_Terminal	Terminal name for the holding session	String value
Lock_Type	Enqueues are shared memory structures (locks) that serialize access to database resources. They can be associated with a session or transaction. Enqueue names are displayed as value of the fact.	Media Recovery, Redo Thread, User Name, Transaction, DML, PL/SQL User Lock, Distributed Xaction, Control File, Instance State, File Set, Instance Recovery, Disk Space Transaction, Temp Segment, Library Cache Invalidation, Log Start or Switch, Row Wait, Sequence Number, Extend Table, Temp Table
Mode_Held	This data item represents the value for the mode in which the lock is currently held by the session.	None, Null, Row-S (SS), Row-X (SX), Share, S/Row-X (SSX), Exclusive, Invalid
Mode_Requested	This value represents the type of lock mode that is being requested.	None, Null, Row-S (SS), Row-X (SX), Share, S/Row-X (SSX), Exclusive
Lock_ID1	This data item represents the lock identifier #1 (ID1) which contains the information that links the locked user to the locking user.	0 or positive integer number
Lock_ID2	This data item represents the lock identifier #2 (ID2) which, for certain types of locks, can be the Object ID or rollback segment number.	0 or positive integer number
Object_Owner	This data item represents the owner of the object that has been locked by the session. The session user may be different than the owner of the object being locked.	String value
Object_Name	This data item represents the name of the object, such as table or view, that is being locked. If the lock type is TM, the object is a table or view. If the lock type is TX, the object is a rollback segment.	String value

Table 5-8. Oracle Expert Facts Metrics: Blocking Locks

Name	Description	Possible Values
Object_Type	This data item represents the type object that is being locked by the session. If the lock type is TM (DML lock), the object is a table or view. If the lock type is TX (transaction lock), the object is a rollback segment. Some examples of object types include: index, table, cluster, view, synonym, sequence, procedure, function, and package.	String value

Table 5-9. Oracle Expert Facts Metrics: Objects that cannot Expand

Name	Description	Possible Values
Objects_that_cannot_Expand	Database objects that cannot expand	
Size_MB	This data item represents Object size in MB.	Positive integer values
Next_Extent_MB	The size in MB needed to allocate next extent.	Positive integer values

Table 5-10. Oracle Expert Facts Metrics: Transactions

Name	Description	Possible Values
Transactions	Sub-elements of the item presents information about database transactions	
Transaction_Statistics		
Concurrent	This data item represents the number of active sessions. Active sessions do not exclusively represent concurrent transactions. Active session may be performing DDL, DML, etc. Concurrent transactions will be included in this number however.	0 or positive integer number
Deletes	This data item represents the number of DELETE statements being performed at time of sampling.	0 or positive integer number
Inserts	This data item represents the number of INSERT statements being performed at time of sampling.	0 or positive integer number
Selects	This data item represents the number of SELECT statements being performed at time of sampling.	0 or positive integer number
Updates	This data item represents the number of UPDATE statements being performed at time of sampling.	0 or positive integer number
User_Transactions	Subelements of the item shows information about user transactions	
Commits	Commit count during session.	0 or positive integer number
Rollbacks	Rollback count during session.	0 or positive integer number
Disk_Intensive_SQL	SQL with most disk read notes.	
Disk_Reads	Total number of disk reads for this statement.	0 or positive integer number
Executions	Total number of times this statement has been executed.	>= 1 Integer number
Reads_Execs	Number of reads per execution (Reads / Execs).	0 or positive integer number
SQL	Text of the SQL statement requiring the cursor, or the PL/SQL anonymous code. The statement is limited to 255 symbols.	Any SQL statement
Hash (Hash value)	The value to the parent statement in the library cache.	Positive Integer value.
Buffer_Intensive_SQL	SQL with most buffer scan notes.	
Buffer_Gets	Total number of buffer gets for this statement.	0 or positive integer number
Executions	Total number of times this statment has been executed.	>= 1 Integer number
Gets_Execs	Number of buffer gets per execution (Gets / Execs).	0 or positive integer number

Table 5-10. Oracle Expert Facts Metrics: Transactions

Name	Description	Possible Values
SQL	Text of the SQL statement requiring the cursor, or the PL/SQL anonymous code. The statement is limited to 255 symbols.	Any SQL statement
Hash (Hash value)	The value to the parent statement	Positive Integer
Buffer_Most_Loads_SQL	SQL with most load notes	
First_Load_Time	Time at which the cursor was first loaded into the SGA.	Date – Time
Loads	Number of times the cursor has been loaded after the body of the cursor has been aged out of the cache while the text of the SQL statement remained in it, or after the cursor is invalidated.	Positive Integer
Sorts	Number of sorts performed by the SQL statement.	0 or positive integer number
SQL	Text of the SQL statement requiring the cursor, or the PL/SQL anonymous code. The statement is limited to 255 symbols.	Any SQL statement
Hash (Hash value)	The value to the parent statement	Positive Integer
LR_Open_Cursors	Open cursors with low hit ratio notes	
User	Oracle user name	String value
SID	User's session identifier.	Positive Integer
OSUser	The name of the operating system client user.	String values or "null" if value of the data item is NULL
SQL	Text of the SQL statement requiring the cursor, or the PL/SQL anonymous code. The statement is limited to 255 symbols.	Any SQL statement
Hash (Hash value)	The value to the parent statement	Positive Integer
LR_Running_Cursors	Running cursors with low hit ratio notes.	
User	Oracle user name	String value
SID	User's session identifier.	Positive Integer
OSUser	The name of the operating system client user.	String values or "null" if value of the data item is NULL
SQL	Text of the SQL statement requiring the cursor, or the PL/SQL anonymous code. The statement is limited to 255 symbols.	Any SQL statement
Hash (Hash value)	The value to the parent statement	Positive Integer
LR_Object_Access	Objects being used by users with low hit ratio notes	
User	Oracle user name	String value
SID	Oracle user's session identifier.	Positive Integer
OSUser	The name of the operating system client user.	String values or "null" if value of the data item is NULL

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Appendix A: References

A.1 Nastel Documentation

Table A-1. Nastel Documentation	
Document Number (or higher)	Title
M6-INS 600.009	AutoPilot M6 Installation Guide
M6/USR 600.022	AutoPilot M6 User's Guide
M6/WMQ 600.002	AutoPilot M6 Plug-in for WebSphere MQ
M6WMQ-INS 653.004	AutoPilot M6 for WebSphere MQ Installation Guide
M6/OSM 600.002	AutoPilot M6 Operating System Monitors Installation and User's Guide
M6/WS/PMI 600.003	M6 for WebSphere Application Server PMI Installation and User's Guide
M6-JMX 600.001	AutoPilot M6 for JMX Installation and User's Guide

A.2 Other Documentation

Oracle Database documentation is available at the Oracle website:

<https://docs.oracle.com/en/database/>

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Appendix B: Conventions

B.1 Typographical Conventions

Convention	Description
Blue/Underlined	Used to identify links to referenced material or websites. Example: support@nastel.com
Bold Print	Used to identify topical headings, glossary entries, and to identify toggle or buttons used in procedural steps. Example: Click EXIT .
<i>Italic Print</i>	Used to identify a title, menu, screen name, user inputs, or other categories.
monospaced bold	Used identify keystrokes/data entries, file names, directory name etc.
<i>Monospaced italic</i>	Used to identify variables in an address location. Example: [C:\AutoPilot_Home]\documents, where the portion of the address within the brackets[] are variable.
monospaced text	Used to identify addresses, commands, script etc.
Normal Text	Typically used for general text throughout the document.
Table Text	Table text is generally a smaller size to conserve space. 10, 9, and 8 point type is used in tables through the AutoPilot product family documents

B.2 Naming Conventions

Naming conventions have been adjusted to accommodate IBM's re-naming of MQSeries products to WebSphere MQ.

Nastel has adapted AutoPilot products to reflect IBM's product naming changes. In the redesign of AutoPilot, we have also better defined many elements within the AutoPilot product line.

Table B-2. AutoPilot Related Naming Conventions	
Old Name	New Name
AutoPilot/MQSI	AutoPilot/WBI
MQSeries Plug-in for AutoPilot	WebSphere MQ Plug-in for AutoPilot
MQControl	AutoPilot for WebSphere MQ (AP/WMQ or AutoPilot/WMQ)
MQSeries	WebSphere MQ (IBM)

Glossary

AutoPilot M6: Nastel Technologies' Enterprise Application Management Platform. AutoPilot monitors and automates the management of eBusiness integration components such as middleware application, application servers and user applications.

AutoPilot/MQ: Nastel Technologies' WebSphere MQ management solution. Re-designated as AutoPilot/MQ with release 4.0, prior releases retain the MQControl trademark

AutoPilot/Web: AutoPilot/Web is a browser-based interface that provides monitoring and operational control over managed resources and applications.

AutoPilot/WebSphere (AP/WS): AutoPilot/WebSphere plug-in enables AutoPilot/IT to monitor and manage eBusiness applications for continuous operations in addition to its standard features.

AutoPilot/WebSphere Message Queue Integrator (AP/WMQI): Formerly AP/WMQI

BSV: *see* Business Views

Business View (BSV): A collection of rules that define a desired state of an eBusiness environment. Business Views can be tailored to present information in the form most suited to a given user, as defined by the user.

Client: Any programming component that uses the AutoPilot infrastructure; for example, the AutoPilot Console.

Common Object Request Broker Architecture (CORBA): A Common Object Request Broker Architecture (CORBA) object can be invoked from a Web browser using CGI scripts or applets.

Console: The console acts as the graphical interface for AutoPilot.

Contacts: A subordinate to a given Manager or Expert.

CORBA: *see* Common Object Request Broker Architecture.

Data Source Name: A Data Source Name (DSN) is the logical name that is used by Open Database Connectivity (ODBC) to refer to the drive and other information that is required to access data. The name is used by Internet Information Services (IIS) for a connection to an ODBC data source, (Example: Microsoft SQL Server database). The ODBC tool in Control Panel is used to set the DSN. When ODBC DSN entries are used to store the connection string values externally, you simplify the information that is needed in the connection string. This makes changes to the data source completely transparent to the code itself.

Decision Support System (DSS): An AutoPilot-based service designed to monitor, store, and display any event information generated by AutoPilot enabled middleware and applications.

Deploy: To put to use, to position for use or action.

Domain Server: The domain server is a specialized managed node that maintains the directory of managed nodes, experts etc. The domain server is also capable of hosting experts, managers etc

DSN: *see* Data Source Name

DSS: *see* Decision Support System

EVT: Event Log file extension (e.g.: `sample.evt`),

Event: An *Event* is something that happens to an object. Events are logged by AutoPilot and are available for use by AutoPilot Policies or the user.

Expert: Services that monitor specific applications such as an applications server, web-server or specific components within the applications (Example channels in MQSeries. Experts generate facts

Fact: Facts are single pieces of data that has a unique name and value. One or more facts are used to determine the health of the object, application or server

Graphic User Interface (GUI): A type of environment that represents programs, files, and options by means of icons, menus, and dialog boxes on the screen. The user can select and activate these options by pointing and clicking with a mouse or, often, with the keyboard. Because the graphical user interface provides standard software routines to handle these elements and report the user's actions (such as a mouse click on a particular icon or at a particular location in text, or a key press); applications call these routines with specific parameters rather than attempting to reproduce them from scratch.

GUI: *see* Graphic User Interface.

HAQS: *see* High Availability Queuing Service

High Availability Queuing Service (HAQS): HAQS is a component of AutoPilot consisting of two policies that provide automatic queue fail-over for WebSphere MQ applications, provide high availability of WebSphere MQ resources such as queues and channels, and ensure automatic recovery of WebSphere MQ channels

IIS: *See* Internet Information Services

Internet Information Services: Microsoft's brand of Web server software, utilizing HTTP to deliver World Wide Web documents. It incorporates various functions for security, allows CGI programs, and also provides for Gopher and FTP services

Java: A platform-independent, object-oriented programming language developed and made available by Sun Microsystems

Java Developer's Kit (JDK): A set of software tools developed by Sun Microsystems, Inc., for writing Java applets or applications. The kit, which is distributed free, includes a Java compiler, interpreter, debugger, viewer for applets, and documentation.

JDBC: *See* Java Database Connectivity.

Java Database Connectivity (JDBC): The JDBC API provides universal data access from the Java programming language. Using the JDBC 2.0 API, you can access virtually any data source, from relational databases to spreadsheets and flat files. JDBC technology also provides a common base on which tools and alternate interfaces can be built. The *JDBC Test Tool* that was developed by Merant and Sun Microsystems may be used to test drivers, to demonstrate executing queries and getting results, and to teach programmers about the JDBC API.

Java Management Extensions (JMX): The Java Management Extensions (JMX) technology is an open technology for management and monitoring that can be deployed wherever management and monitoring are needed. By design, this standard is suitable for adapting legacy systems, implementing new management and monitoring solutions and plugging into those of the future.

Java Server Pages (JSP): JSP technology enables rapid development of web-based applications that are platform independent. Java Server Pages technology separates the user interface from content generation enabling designers to change the overall page layout without altering the underlying dynamic content. Java Server Pages technology is an extension of the [Java Servlet technology](#).

Java Virtual Machine (JVM): The "virtual" operating system that JAVA-written programs run. The JVM is a hardware- and operating system-independent abstract computing machine and execution environment. Java programs execute in the JVM where they are protected from malicious programs and have a small compiled footprint.

JDK: *See* Java Developer's Kit.

JMX: *See* Java Management Extensions

JRE: JAVA Run-time Environment. The minimum core JAVA required to run JAVA Programs

JSP: *See* Java Server Pages

JVM: *see* JAVA Virtual Machine.

Manager: Managers are the home or container for policies. All business views must reside on managers, and manager must be deployed prior to deploying a business view or policy.

Message Queue Interface: The Message Queue Interface (MQI) is part of IBM's Networking Blueprint. It is a method of program-to-program communication suitable for connecting independent and potentially non-concurrent distributed applications.

MOM: *see* Message-Oriented Middleware.

MQControl: Nastel Technologies' MQSeries management product. Re-designated as AutoPilot/MQ with release 4.0, prior releases retain the MQControl trademark.

MQI: *see* Message Queue Interface

MQSeries: IBM's message queuing product. Renamed by IBM as WebSphere MQ

Naming Service: A common server records "names" of objects and associates them with references, locations and properties

Managed Node: Managed nodes are containers that are capable of hosting any number of AutoPilot services, such as experts, managers, policies etc.

ORB: Object Request Broker.

Orbix: CORBA product distributed by IONA Technologies.

Package Manager: The command line utility that allows users to list, install, uninstall, verify, and update AutoPilot installation on any Managed Node

PKGMAN: *see* Package Manager Utility included in AutoPilot products.

Policy/Business Views: Business views are a collection of one or more sensors. Business views are used to visually present the health and status of the different systems as well as automatically issue remedial actions.

Sensor: A rule that is used to determine the health of an object or application based on one or more facts. Actions can then be issued, based on the health.

Simple Mail Transfer Protocol (SMTP): A TCP/IP protocol for sending messages from one computer to another on a network. This protocol is used on the Internet to route e-mail. *See also* communications protocol, TCP/IP. *Compare* CCITT X series, Post Office Protocol.

SMTP: *see* Simple Mail Transfer Protocol

TCP/IP: *see* Transmission Control Protocol/Internet Protocol.

Transmission Control Protocol/Internet Protocol (TCP/IP): A protocol developed by the Department of Defense for communications between computers. It is built into the UNIX system and has become the de facto standard for data transmission over networks, including the Internet.

Virtual Machine: Software that mimics the performance of a hardware device, such as a program that allows applications written for an Intel processor to be run on a Motorola chip. *Also See* Java Virtual Machine

WebSphere MQ: IBM's message queuing product. Formerly known as IBM MQSeries

Websphere_MQ_Manager: A specialized AutoPilot manager capable of hosting one or more MQSeries specific policies, apart from the regular policies.

Wireless Application Protocol (WAP): An open global specification that is used by most mobile telephone manufacturers. WAP determines how wireless devices utilize Internet content and other services. WAP enables devices to link diverse systems contents and controls.

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