

*Extending Oracle 10g Grid
Control Using
Management Plug-Ins*



NoCOUG

08.17.06

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ORACLE PARTNER

- **OEM 10g Overview**
- **OEM 10g Grid Control Data Collection**
- **Options for Extending Grid Control**
- **Defining Management Plug-Ins**
- **Deploying Management Plug-Ins**

OEM Administration



ORACLE Enterprise Manager 10g
Grid Control

Home **Targets** Deployments Alerts Policies Jobs Reports
Setup Preferences Help Logout

Hosts | Databases | Application Servers | Web Applications | Services | Systems | Groups | **All Targets**

Logged in As JFRESHMAN

Database Instance: orcljon

Home Performance **Administration** Maintenance

The Administration tab displays links that allow you to administer database objects and initiate database operations inside an Oracle database. The Maintenance tab displays links that provide functions that control the flow of data between or outside Oracle databases.

Database Administration

Storage

[Control Files](#)
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BI & OLAP

[Dimensions](#)
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[OLAP Dimensions](#)
[Measure Folders](#)

✓ OEM 10g Database Control

✓ OEM 10g Grid Control

OEM 10g Database Control

- Database Instance monitoring only (8i, 9i and 10g)
- No central collection repository
- Similar to Oracle 9i OEM
- No support for extensions or Plug-In capability

The screenshot displays the Oracle Enterprise Manager 10g console. The main dashboard includes an 'Overview' section with a pie chart showing 'All Targets Status' (89% Up, 11% Unknown). Below this are sections for 'All Targets Alerts' (0 Critical, 6 Warning, 2 Errors), 'All Targets Policy Violations' (57 Critical, 30 Warning, 6 Informational), and 'All Targets Jobs' (7 Problem Executions, 0 Suspended Executions). A 'Security Policy Violations' section shows 54 Critical, 30 Warning, and 2 Informational violations. A 'Critical Patch Advisories for Oracle Homes' section shows 1 advisory affecting 3 Oracle Homes. A 'Deployments Summary' table lists database installations and their target counts.

Database Installations	Targets
Oracle Database 10g 10.1.0.4.0	1
Oracle Database 10g 10.2.0.1.0	1

OEM 10g Grid Control

- Provides central management for heterogeneous environments
- Allows partners/third parties to extend Grid Control capabilities via an open framework

The screenshot displays the Oracle Enterprise Manager 10g Grid Control interface. The browser address bar shows <http://oemrh.ad.bez.com:4889>. The page title is "ORACLE Enterprise Manager 10g Grid Control". The navigation menu includes "Home", "Targets", and "Deploy". The main content area is titled "Database Instance: emrep.ad.bez.com" and has tabs for "Home", "Performance", "Administration", and "Maintenance".

Latest Data Collected From Target Jul 17, 2006 9:57:08 AM EDT

General (Status: Up, Up Since: May 19, 2006 10:47:06 AM EDT, Instance Name: emrep, Version: 10.1.0.4.0, Host: oemrh.ad.bez.com, Listener: LISTENER_oemrh.ad.bez.com)

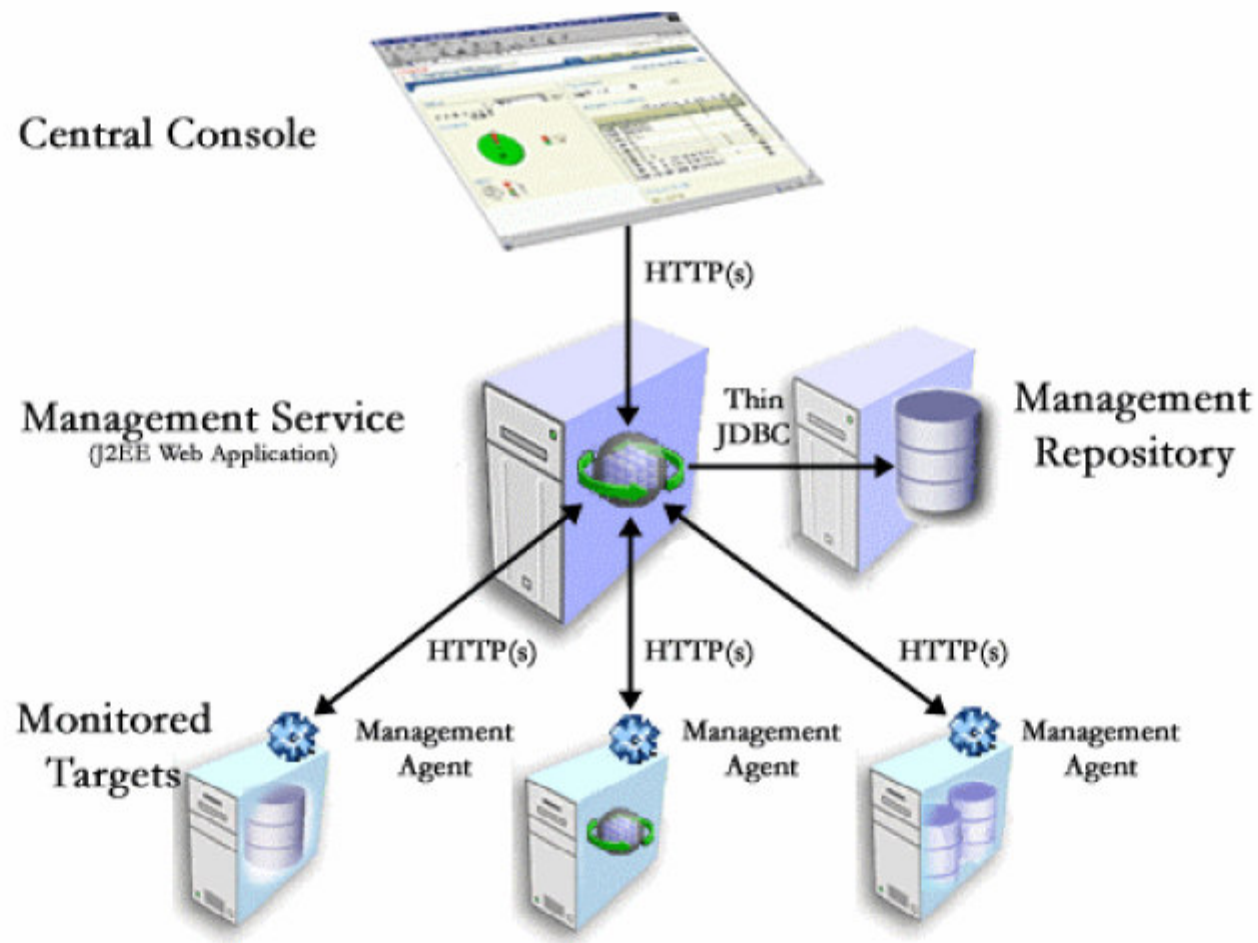
Host CPU (Load: 0.00, Paging: 0.00, Maximum CPU: 2)

Active Sessions (Wait, User I/O, CPU)

Diagnostic Summary (ADDM Findings: No ADDM run available, Alert Log: May 30, 2006 5:06:19 PM)

Space Summary (Database Size (GB): 2,145, Problem Tablespaces: 0, Segment Findings: Not Configured, Space Violations: 0, Dump Area Used (%): 5)

OEM Grid Control Architecture



Native Monitoring/Administration of:

- Databases - Oracle 8i, 9i, 10g; MS SQL Server, IBM DB2
- Web Servers
- Application Servers - Oracle, WebSphere, WebLogic
- Storage

- Introduced in 10g
- Superset of OEM 10g Database Control product
- Currently two releases available:
10g Rev 1 | 10g Rev 2
- Free (downloadable from Oracle)
- Licensing required for some “premium” functionality

OEM 10g GC - O/S Certification

O/S	Platform	Version
Linux	x86 32-bit x86 64-bit	RH Enterprise AS/ES 3.0 RH Enterprise AS/ES 4.0
Solaris	SPARC 64-bit	Solaris 8 Update 7+ Solaris 9 Update 6+ Solaris 10
MS Windows (32-bit)	NT 2000 XP	NT 2002 XP SP-2
HP-UX PA-RISC (64-bit)	PA-RISC 64-bit	HP-UX 11i V1 (11.1) HP-UX 11i V2 (11.23)
AIX	AIX 5L	V5.2 V5.3

OEM 10g GC - Target Certification

Supported Targets	Release
Oracle Application Server	9.0.4.2 and later patchsets 10.1.2.0.0 (Phase 1) 10.1.0.2.0.1 (SEONE) 10.1.2.0.2 (Phase 2) 10.2.0.2.1 Patchset 10.1.3 (standalone OC4J)
Oracle Database ⁽¹⁾ , Listener	8.1.7.4 9.0.1.5 9.2.0.7 and later patchsets 10.1.0.4 and later patchsets 10.2
Oracle RAC Database	9.2.0.6 10.1.0.4 10.1.0.5 10.2
Oracle Collaboration Suite	9.0.4.2 and later 10.1.1
Management Service & Repository	10.2
Management Agent	10.1.0.2 10.2
Enterprise Manager Web Site	10.2

⁽¹⁾ Enterprise, Standard or Personal Editions



OEM 10g Grid Control: Agents

- Typically, one agent per monitored server
- Lightweight and generic
- Agents can be installed locally or remotely using the OEM console
- Agents store data as XML and upload to OMS via HTTP or HTTPS



OEM 10g Grid Control: Target Types

- A target type is a logical or physical entity (either hardware or software)
- Target types define the *type* of data to collect as well as the *frequency* of collection
- Each agent is configured through the Management Console to collect metrics for one or more target types
- There are a series of target types monitored, by default, out of the box.

OEM 10g Grid Control: Target Types



ORACLE Enterprise Manager 10g
Grid Control

Home Targets Deployments Alerts Policies Jobs Reports
Setup Preferences Help Logout

Hosts | Databases | Application Servers | Web Applications | Services | Systems | Groups | All Targets

All Targets

Page Refreshed Jul 17, 2006 10:04:24 AM EDT

Search All Go [Advanced Search](#)

Remove Configure | Add Database Instance Go

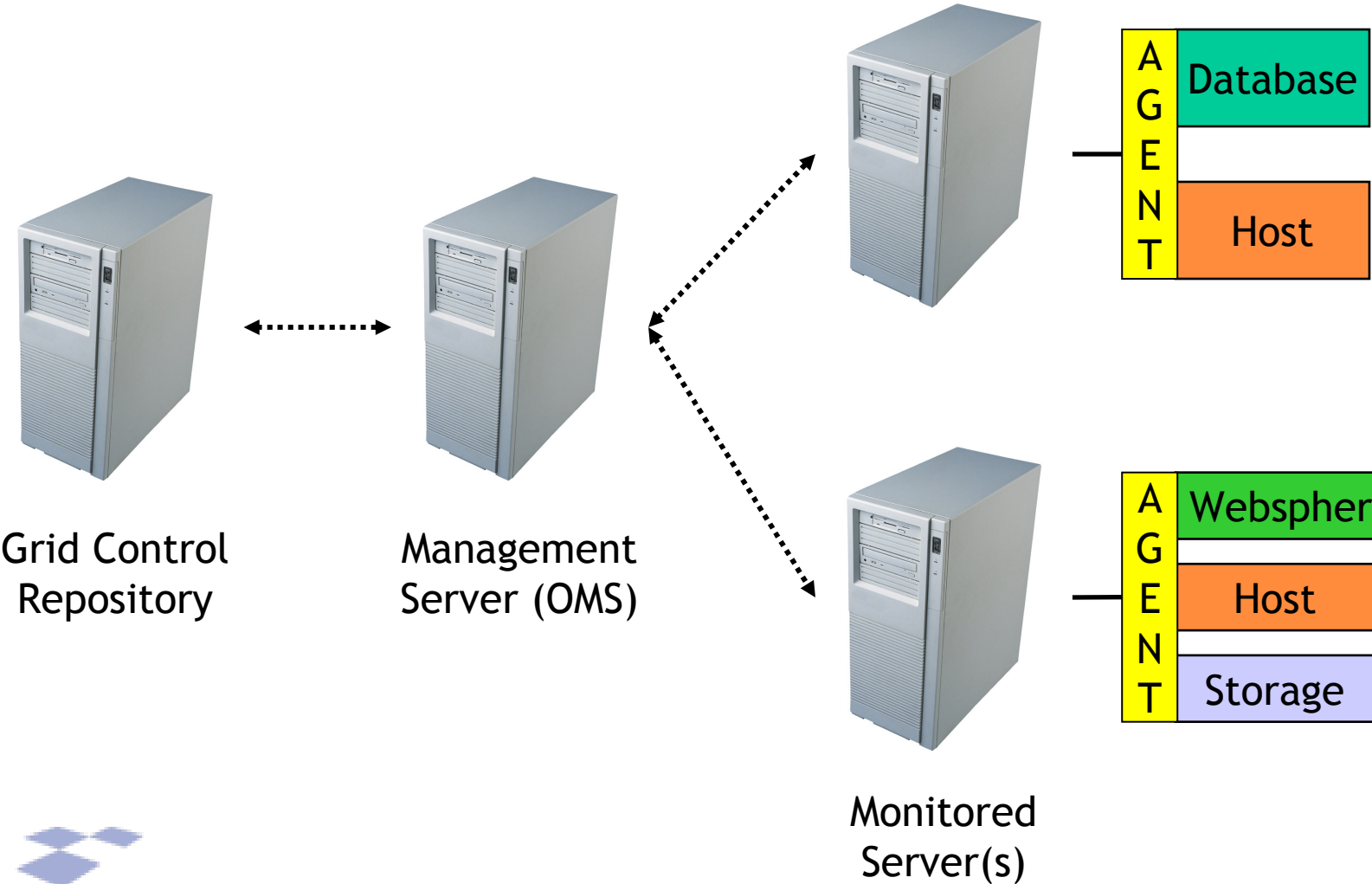
Select	Name	Status	Type
<input checked="" type="radio"/>	EM Website	⬆	Web Application
<input type="radio"/>	EM Website System	n/a	System
<input type="radio"/>	EnterpriseManager0.oemrh.ad.bez.com	⬆	Oracle Application Server
<input type="radio"/>	EnterpriseManager0.oemrh.ad.bez.com_HTTP Server	⬆	Oracle HTTP Server
<input type="radio"/>	EnterpriseManager0.oemrh.ad.bez.com_OC4J_EM	⬆	OC4J
<input type="radio"/>	EnterpriseManager0.oemrh.ad.bez.com_OC4J_EMPROV	⬆	OC4J
<input type="radio"/>	EnterpriseManager0.oemrh.ad.bez.com_Web Cache	⬆	Web Cache
<input type="radio"/>	EnterpriseManager0.oemrh.ad.bez.com_home	⬆	OC4J
<input type="radio"/>	LISTENER_jfreshman	⬆	Listener
<input type="radio"/>	LISTENER_oemrh.ad.bez.com	⬆	Listener
<input type="radio"/>	Management Services and Repository	⬆	OMS and Repository
<input type="radio"/>	emrep.ad.bez.com	⬆	Database Instance
<input type="radio"/>	jfreshman	⬆	Host
<input type="radio"/>	jfreshman:3872	⬆	Agent
<input type="radio"/>	oemrh.ad.bez.com	⬆	Host
<input type="radio"/>	oemrh.ad.bez.com:3872	⬆	Agent
<input type="radio"/>	oemrh.ad.bez.com_beacon	⬆	Beacon
<input type="radio"/>	oemrh.ad.bez.com_oms_csa_collector	n/a	CSA Collector
<input type="radio"/>	orcljon	⬆	Database Instance
<input type="radio"/>	orcljon	⬆	Database Performance Profile

Default target type collections

TIP For an explanation of the icons and symbols used in this page, see the [Icon Key](#).

Related Links

OEM 10g Grid Control Collection



Grid Control Collection: App Server



ORACLE Enterprise Manager 10g
Grid Control

Home **Targets** Deployments Alerts Policies Jobs Reports
Setup Preferences Help Logout

Hosts | Databases | **Application Servers** | Web Applications | Services | Systems | Groups | All Targets

Oracle Application Server: EnterpriseManager0.oemrh.ad.bez.com

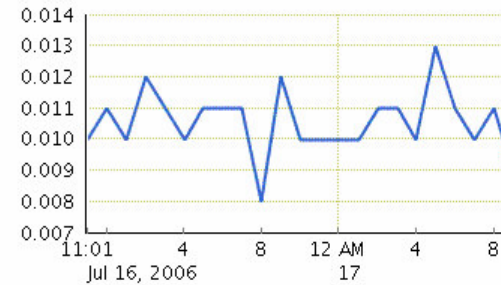
Page Refreshed Jul 17, 2006 10:11:50 AM EDT Refresh

Home Top J2EE Applications Web Applications Performance Administration Topology

General

 Status **Up** [Black Out](#)
Availability (%) **100**
(Last 24 Hours)
Application URL <http://oemrh.ad.bez.com:7778>
Version **10.1.2.0.2**
Installation Type **J2EE and Web Cache**
Oracle Home [/u01/app/oracle/product/10.2.0/oms10g](#) 
Host [oemrh.ad.bez.com](#)

Application URL Response (seconds)



Components

[Start](#) [Stop](#) [Restart](#)

[Select All](#) | [Select None](#)

Select	Name	Type	Current Status
<input type="checkbox"/>	home	OC4J	↑
<input type="checkbox"/>	HTTP_Server	Oracle HTTP Server	↑
<input type="checkbox"/>	OC4J_EM	OC4J	↑
<input type="checkbox"/>	OC4J_EMPROV	OC4J	↑
<input type="checkbox"/>	Web Cache	Web Cache	↑

Alerts

Metric	Severity	Alert Triggered	Last Value	Last Checked
No Alerts found.				

Host Alerts

Metric	Severity	Alert Triggered	Last Value	Last Checked
No Alerts found.				

Grid Control Collection: Host



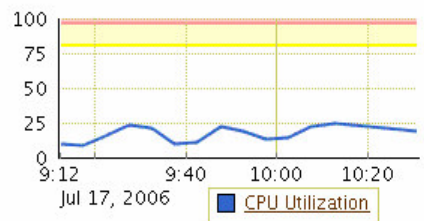
ORACLE Enterprise Manager 10g
 Grid Control
 Home Targets Deployments Alerts Policies Jobs Reports
 Hosts Databases Application Servers Web Applications Services Systems Groups All Targets

Host: ifreshman

Latest Data Collected From Target Jul 17, 2006 10:30:43 AM EDT

Home Performance Targets Configuration
 View Performance Summary View Data Real Time: Manual Refresh

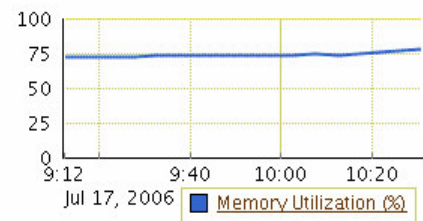
CPU Utilization



Current CPU Load **2**

Additional Metrics [CPU Usage](#)

Memory Utilization



Swap Utilization (%) **3.2**

Additional Metrics [Paging Activity](#)

Disk I/O Utilization



Longest Service Time (ms) **3.7**

Additional Metrics [Disk Activity](#)

Processes

Processes **74**

Top 10 Processes

View By CPU Utilization (%)

Process ID	Command	CPU Utilization (%)	Resident Size (KB)	Virtual Size (KB)	Owner
3368	TOAD	7.92	69,280	62,124	N/A
1900	IEXPLORE	1.98	14,624	16,632	N/A
932	java	0.99	24,668	23,824	N/A
1348	oracle	0.99	469,680	505,016	N/A
4	System	0	228	28	N/A
1688	smss	0	368	164	N/A
4088	GoogleDesktop	0	1,152	724	N/A
168	nmesvc	0	1,204	292	N/A
1556	nmesvc	0	1,212	288	N/A

Database Instance Data Collection

- Primarily instance-level data collected and persisted in the Grid Control repository
- Performance data (ASH & AWR), Diagnostics (ADDM) and 'Top X' reporting is achieved by querying the monitored instance directly
- Alert events and threshold settings are collected and persisted by the default agent
- Extensions (to be discussed later) are available to enhance the type and scope of data persisted within the EMGC repository

Database Instance Data Collection

Database Instance: emrep.ad.bez.com

Home Performance Administration Maintenance

Latest Data Collected From Target Jul 17, 2006 9:57:08 AM EDT Refresh View Data Automatically (60 sec)

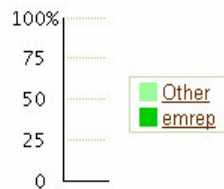
General

↑ Shut Down Black Out

Status [Up](#)
 Up Since **May 19, 2006 10:47:06 AM EDT**
 Instance Name **emrep**
 Version **10.1.0.4.0**
 Host [oemrh.ad.bez.com](#)
 Listener [LISTENER_oemrh.ad.bez.com](#)

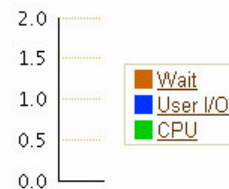
[View All Properties](#)

Host CPU



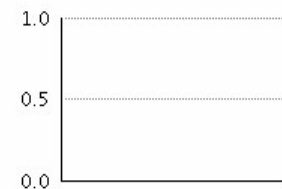
Load [0.00](#) Paging [0.00](#)

Active Sessions



Maximum CPU **2**

SQL Response Time



SQL Response Time (%) [Unavailable](#)

[Edit Reference Collection](#)

Diagnostic Summary

ADDM Findings [No ADDM run available](#)
 Alert Log [May 30, 2006 5:06:19 PM](#)

Space Summary

Database Size (GB) [2,145](#)
 Problem Tablespaces **0**
 Segment Findings [Not Configured](#)
 Space Violations [0](#)
 Dump Area Used (%) [5](#)

High Availability

Instance Recovery Time (sec) [Z](#)
 Last Backup [n/a](#)
 Flashback Logging [Disabled](#)

Alerts

Category [All](#) Go Critical **0** Warning **1**

Severity	Category	Name	Message	Alert Triggered
	Database Limits	Current Open Cursors Count	Metrics "Current Open Cursors Count" is at 2462	May 19, 2006 10:54:22 AM

Related Alerts

Policy Violations

Current [10](#) [10](#) [3](#) Distinct Rules Violated [7](#) [5](#) [3](#) Compliance Score (%) **93** [Policy Trend Overview](#)

Database Instance Data Collection



ORACLE Enterprise Manager 10g
Grid Control

[Setup](#) [Preferences](#) [Help](#) [Logout](#)

[Home](#) [Targets](#) [Deployments](#) [Alerts](#) [Policies](#) [Jobs](#) [Reports](#)

Database Login

* Username

* Password

Database **emrep.ad.bez.com**

* Connect As

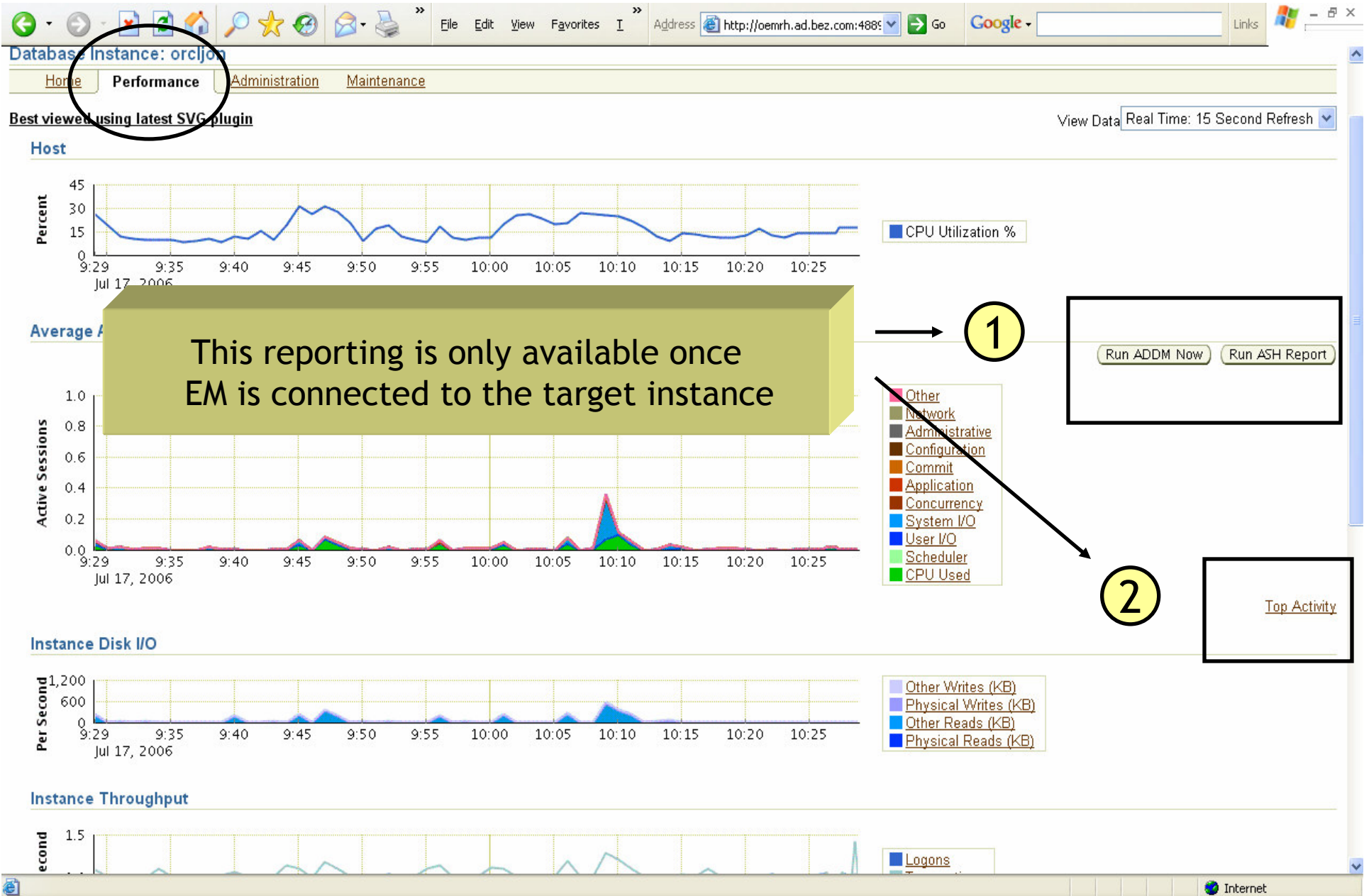
Save as Preferred Credential

[Home](#) | [Targets](#) | [Deployments](#) | [Alerts](#) | [Policies](#) | [Jobs](#) | [Reports](#) | [Setup](#) | [Preferences](#) | [Help](#) | [Logout](#)

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Login credentials for the
target instance are required

Database Instance Data Collection



Database Instance Data Collection



ORACLE Enterprise Manager 10g
Grid Control

Home Targets Deployments Alerts Policies Jobs Reports
Setup Preferences Help Logout

Preferences

Preferred Credentials >

Database Preferred Credentials

Revert Apply

To set preferred credentials for Database targets, update the appropriate fields in one of the tables below. To delete credentials, clear the appropriate fields. Press Apply after making any changes.

TIP Normal database credentials are used by Enterprise Manager functions that do not require database administrator privileges. SYSDBA database credentials are used by privileged functions that access non-open databases or perform database startup/shutdown operations. Host credentials are used by remote operations and jobs to run applications that access a database (e.g., SQLPLUS).

Default Credentials

Default credentials are used for Database targets that do not have credentials set in the Target Credentials table below.

UserName	Password	SYSDBA UserName	SYSDBA Password	Host UserName	Host Password
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Target Credentials

Target credentials can be specified for each Database target. If set, target credentials override the default credentials for that target.

Search Go

Name	Host	UserName	Password	SYSDBA UserName	SYSDBA Password	Host UserName	Host Password	Test
emrep.ad.bez.com	oemrh.ad.bez.com	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Test
orcljon	jfreshman	jfreshman	*****	sys	*****	jfreshman	*****	Test

Revert Apply

Home | Targets | Deployments | Alerts | Policies | Jobs | Reports | Setup | Preferences | Help | Logout

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Login credentials can be stored in
Preference settings to avoid the login step

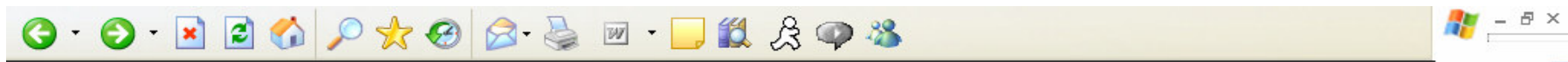


Extending EM: *Management Plug-Ins*

Grid Control features an open architecture designed to allow third parties to develop new target types, called *Management Plug-Ins*

- **Imported and exported from the Grid Control console**
- **Deployed/Undeployed to any number of existing agents at once via Groups**

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- Getting Started
- Tutorials
- Blogs

Oracle Enterprise Manager Downloads

Enterprise Manager 10g Grid Control Release 2 (v10.2.x)

Full Installers (Agent, Repository, OMS, and Management Packs)

- [Oracle Enterprise Manager 10g Grid Control Release 2 \(10.2.0.2\) for Microsoft Windows \(32-bit\)](#)
- [Oracle Enterprise Manager 10g Grid Control Release 2 \(10.2.0.1\) for Linux x86](#)
- [Oracle Enterprise Manager 10g Grid Control Release 2 \(10.2.0.1\) for Solaris Operating System \(SPARC\)](#)
- [Oracle Enterprise Manager 10g Grid Control Release 2 \(10.2.0.1\) for HP-UX](#)
- [Oracle Enterprise Manager 10g Grid Control Release 2 \(10.2.0.1\) for AIX5L Based Systems](#)

Mass Agent Deployment

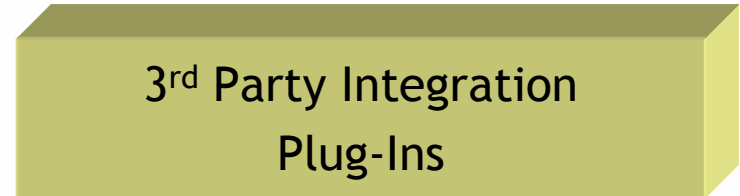
- [Oracle Enterprise Manager 10g Grid Control Management Agents \(10.2.0.2\) for Linux x86, Windows, Linux x86-64, Power Linux, Linux Itanium, Solaris \(SPARC\), HP-UX, HP-UX Itanium, and AIX5L based systems](#)

Bare Metal Provisioning

- [Bare Metal Provisioning Starter Kit](#)

Management Plug-Ins

- [Check Point Firewall](#)
- [EMC Celerra Server](#)
- [F5 BIG-IP Local Traffic Manager](#)
- [IBM DB2 Database](#)
- [Juniper Netscreen Firewall](#)
- [Microsoft .NET Framework](#)
- [Microsoft Active Directory](#)
- [Microsoft BizTalk Server 2004](#)
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- [Microsoft ISA Server 2004](#)
- [Microsoft SQL Server](#)



<http://www.oracle.com/technology/software/products/oem/index.html>

Enterprise Manager 10g Grid Control Release 1 (v10.1.0.3)

- [Oracle Enterprise Manager 10g Grid Control Release 1 \(10.1.0.3\) for Linux x86](#)

Options for custom extensions to OEM

- **Modify existing database instance collection**
- **Create a collection of User Defined Metrics**
- **Create a Management Plug-In (also known as a target type)**

- Add a custom metric for an existing target type (only at the *same level* of collection aggregation)
- Supports the return of results in a Key - Value pair set
- Can support multi-column Key values
- *Concatenating multiple columns in a result set renders the data difficult to visualize/analyze within OEM*

User Defined Metrics

Create User-Defined Metric

Cancel OK

Definition

Define a metric by specifying the script that will calculate the metric value, type of metric (number or string), and the OS credentials to be used to run the script.

* Metric Name

Metric Type Number String

* Command Line

Provide the executable command. You can use values from the Available Properties box. For example: %perBin%/perl %scriptsDir%/myScript.pl

Environment

See Available Properties box for values you can assign to environment variables. Enter as space-separated list: var1=prop1 var2=prop2

Available Properties

Name	Description
%perBin%	location of perl binary
%scriptsDir%	directory where scripts are stored
%NAME%	name of target instance
%TYPE%	target type
%DISPLAY_NAME%	display name of target instance
%TYPE_DISPLAY_NAME%	display name of target type

Operating System Credentials

These credentials will be used to run the monitoring script as well as any Response Action script specified below.

* User Name

* Password

Thresholds

You can have the metric be compared against thresholds you specify. If the thresholds are crossed, an alert will be generated and an optional Response Action could be performed. Only administrators with Super User privileges can edit Response Actions.

Comparison Operator Warning Critical

Consecutive Occurrences Preceding Notification

Response Action

Provide the executable command. You can use values from the Available Properties box. For example: %perBin%/perl %scriptsDir%/myScript.pl

Schedule

Collection Schedule Enabled Disabled

Specify the frequency by which the metric will be evaluated.

Start

Immediately after creation

Date

(example: Dec 15, 2003)

Time AM PM EDT

Frequency

Repeat every

Weekly on Monday Tuesday Wednesday Thursday Friday Saturday Sunday

Monthly on

Enter days separated by commas. Use LAST for last day of month. Example: 1,4, LAST

Pros

- Can be used to instruct existing target type how to collect additional information

Cons

- Not designed for complex queries (multi-column queries)
- Unable to push User Defined Metrics to multiple agents

Pros

- Supports complex queries
- Tight integration with OEM UI
- Can deploy Plug-In to multiple agents through the OEM console
- Total flexibility

Cons

- Total flexibility (can swamp agent)
- Can severely impact the Agent operation without careful consideration.

Management Plug-In Development Cycle

Design

Metrics to monitor
Collection schedule
Thresholds



Develop

Methods to retrieve metrics
In XML Format:

- Declare Metrics, Associate Scripts
- Specify collections, thresholds



Validate

Run ILINT
Validate XML files
Verify metric data



Package

Create Management Plug-In Archive via EM CLI
XML files
Monitoring Scripts



End result is the creation of
an MPA (Management Plug-In
Archive) file which can be deployed
to the Agents

Creating a Management Plug-In

The screenshot shows the Oracle Enterprise Manager 10g Grid Control interface. The browser address bar shows the URL <http://oemrh.ad.bez.com:4889>. The page title is "ORACLE Enterprise Manager 10g Grid Control". The navigation menu includes "Home", "Targets", "Deployments", "Alerts", "Policies", "Jobs", and "Reports". The "All Targets" page is displayed, showing a search bar and a table of targets. A callout box points to the "Database Performance Profile" target.

Select	Name	Status	Type
<input checked="" type="radio"/>	EM Website	⬆	Web Application
<input type="radio"/>	EM Website System	n/a	System
<input type="radio"/>	EnterpriseManager0.oemrh.ad.bez.com	⬆	Oracle Application Server
<input type="radio"/>	EnterpriseManager0.oemrh.ad.bez.com_HTTP Server	⬆	Oracle HTTP Server
<input type="radio"/>	EnterpriseManager0.oemrh.ad.bez.com_OC4J_EM	⬆	OC4J
<input type="radio"/>	EnterpriseManager0.oemrh.ad.bez.com_OC4J_EMPROV	⬆	OC4J
<input type="radio"/>	EnterpriseManager0.oemrh.ad.bez.com_Web Cache	⬆	Web Cache
<input type="radio"/>	EnterpriseManager0.oemrh.ad.bez.com_home	⬆	OC4J
<input type="radio"/>	LISTENER_jfreshman	⬆	Listener
<input type="radio"/>	LISTENER_oemrh.ad.bez.com	⬆	Listener
<input type="radio"/>	Management Services and Repository	⬆	OMS and Repository
<input type="radio"/>	emrep.ad.bez.com	⬆	Database Instance
<input type="radio"/>	jfreshman	⬆	Host
<input type="radio"/>	jfreshman:3872	⬆	Agent
<input type="radio"/>	oemrh.ad.bez.com	⬆	Host
<input type="radio"/>	oemrh.ad.bez.com:3872	⬆	Agent
<input type="radio"/>	oemrh.ad.bez.com_beacon	⬆	Beacon
<input type="radio"/>	oemrh.ad.bez.com_oms_csa_collector	n/a	CSA Collector
<input type="radio"/>	orcljion	⬆	Database Instance
<input type="radio"/>	orcljion	⬆	Database Performance Profile

Database Performance Profile is a Management Plug-In

TIP For an explanation of the icons and symbols used in this page, see the [Icon Key](#).

Related Links

... consisting of Metrics



ORACLE Enterprise Manager 10g
Grid Control

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[Database Performance Profile: orcljon](#) >

All Metrics

Collected From Target **Jul 17, 2006 10:13:15 AM EDT**

[Expand All](#) | [Collapse All](#)

Metrics

	Thresholds	Collection Schedule	Upload Interval	Last Upload
orcljon				
▶ DB Cache Advice	None	Every 60 Minutes	Every Collection	Jul 17, 2006 9:19:01 AM
▶ Instance Efficiency	None	Every 60 Minutes	Every Collection	Jul 17, 2006 9:19:02 AM
▶ PGA Cache Advice	None	Real-time Only	n/a	n/a
▶ Request Statistics History	None	Every 20 Minutes	Every Collection	Jul 17, 2006 9:56:31 AM
▶ Response	All	Every 5 Minutes	Every Collection	Jul 17, 2006 10:12:21 AM
▶ Session Request History	None	Every 20 Minutes	Every Collection	Jul 17, 2006 9:56:45 AM
▶ Session Statistics	None	Every 5 Minutes	Every Collection	Collection Error Jul 13, 2006 8:06:27 AM
▶ Shared Pool Advice	None	Every 60 Minutes	Every Collection	Jul 17, 2006 9:19:02 AM

Related Links

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... and Data Elements



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Database Performance Profile: orclion >

All Metrics

Collected From Target Jul 17, 2006 10:13:15 AM EDT

Expand All | Collapse All

Metrics	Thresholds	Collection Schedule	Upload Interval	Last Upload
orclion				
DB Cache Advice	None	Every 60 Minutes	Every Collection	Jul 17, 2006 10:19:01 AM
Buffers For Estimate	Not Set			
Estimated Physical Read Factor	Not Set			
Estimated Physical Reads	Not Set			
Size Factor	Not Set			
Instance Efficiency	None	Every 60 Minutes	Every Collection	Jul 17, 2006 10:19:02 AM
PGA Cache Advice	None	Real-time Only	n/a	n/a
Request Statistics History	None	Every 20 Minutes	Every Collection	Jul 17, 2006 10:11:32 AM
Response	All	Every 5 Minutes	Every Collection	Jul 17, 2006 10:27:21 AM
Session Request History	None	Every 20 Minutes	Every Collection	Jul 17, 2006 10:15:17 AM
Session Statistics	None	Every 5 Minutes	Every Collection	Collection Error Jul 13, 2006 8:06:27 AM
Shared Pool Advice	None	Every 60 Minutes	Every Collection	Jul 17, 2006 10:19:01 AM

Related Links

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Raw Collection Data

File Edit View Favorites I Address <http://oemrh.ad.bez.com:4885> Go Google Links

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[Database Performance Profile: orclion](#) > [All Metrics](#) >

DB Cache Advice

Page Refreshed Jul 17, 2006 10:32:53 AM EDT

Buffer Pool Identifier	Buffer Pool Name	Block Size (bytes)	Size For Estimate (MB)	Size Factor	Buffers For Estimate	Estimated Physical Read Factor	Estimated Physical Reads
3.000000	DEFAULT	8192.000000	32.000000	0.098800	3992.000000	4.635400	132608.000000
3.000000	DEFAULT	8192.000000	64.000000	0.197500	7984.000000	2.636500	75424.000000
3.000000	DEFAULT	8192.000000	96.000000	0.296300	11976.000000	2.003700	57321.000000
3.000000	DEFAULT	8192.000000	128.000000	0.395100	15968.000000	1.629800	46626.000000
3.000000	DEFAULT	8192.000000	160.000000	0.493800	19960.000000	1.363500	39008.000000
3.000000	DEFAULT	8192.000000	192.000000	0.592600	23952.000000	1.232800	35267.000000
3.000000	DEFAULT	8192.000000	224.000000	0.691400	27944.000000	1.128900	32296.000000
3.000000	DEFAULT	8192.000000	256.000000	0.790100	31936.000000	1.014700	29029.000000
3.000000	DEFAULT	8192.000000	288.000000	0.888900	35928.000000	1.000400	28619.000000
3.000000	DEFAULT	8192.000000	320.000000	0.987700	39920.000000	1.000000	28608.000000
3.000000	DEFAULT	8192.000000	352.000000	1.000000	40419.000000	1.000000	28608.000000
3.000000	DEFAULT	8192.000000	384.000000	1.086400	43912.000000	1.000000	28608.000000
3.000000	DEFAULT	8192.000000	416.000000	1.185200	47904.000000	1.000000	28608.000000
3.000000	DEFAULT	8192.000000	448.000000	1.284000	51896.000000	1.000000	28608.000000
3.000000	DEFAULT	8192.000000	480.000000	1.382700	55888.000000	1.000000	28608.000000
3.000000	DEFAULT	8192.000000	512.000000	1.481500	59880.000000	1.000000	28608.000000
3.000000	DEFAULT	8192.000000	544.000000	1.580200	63872.000000	1.000000	28608.000000
3.000000	DEFAULT	8192.000000	576.000000	1.679000	67864.000000	1.000000	28608.000000
3.000000	DEFAULT	8192.000000	608.000000	1.777800	71856.000000	1.000000	28608.000000
3.000000	DEFAULT	8192.000000	640.000000	1.876500	75848.000000	1.000000	28608.000000
3.000000	DEFAULT	8192.000000	640.000000	1.975300	79840.000000	0.966500	27649.000000

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Fits directly into the OEM Framework



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Database Performance Profile: [orcljon](#) > [All Metrics](#) > [Size Factor](#) >

Size Factor: Buffer Pool Identifier/Buffer Pool Name/Block Size (bytes)/Size For Estimate (MB) Metric Index: Last 24 hours

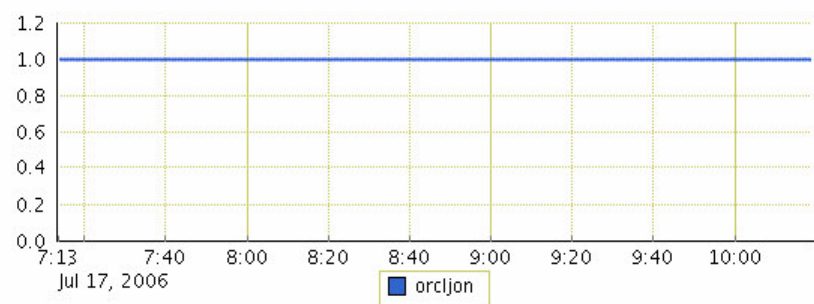
Last Updated Jul 17, 2006 10:19:01 AM EDT
View Data:

Buffer Pool Identifier **3.000000**
Buffer Pool Name **DEFAULT**
Block Size (bytes) **8192.000000**
Size For Estimate (MB) **324.000000**

Statistics

Last Known Value **1**
Average Value **1**
High Value **1**
Low Value **1**
Warning Threshold **Not Defined**
Critical Threshold **Not Defined**
Occurrences Before Alert **2**
Corrective Action **None**

Metric Value



Reporting

Alerting

Thresholds

Alert History

Severity	Timestamp	Message	Last Comment Details
(No alerts)			

Related Links

[Compare Objects Buffer Pool Identifier/Buffer Pool Name/Block Size \(bytes\)/Size For Estimate \(MB\)](#) | [Compare Targets](#) | [Metric and Policy Settings](#)

[Home](#) | [Targets](#) | [Deployments](#) | [Alerts](#) | [Policies](#) | [Jobs](#) | [Reports](#) | [Setup](#) | [Preferences](#) | [Help](#) | [Logout](#)

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There are two components to a Plug-In:

1. Target Type Definition file

- Defining the metrics
- Agent instructions for data collection

2. Default Collections file

- Scheduling
- Thresholds
- Alerting

*** both files are created in XML format*

Target Type Definition - Metrics

oracle_perf_profile.xml X oracle_perf_profile.xml

```
<!DOCTYPE TargetMetadata SYSTEM "../dtds/TargetMetadata.dtd" [  
<!ENTITY dynamic_properties SYSTEM "../dyn_props.xmlp">  
>  
  
<TargetMetadata META_VER="0.12" TYPE="oracle_perf_profile" REQUIRED_AGENT_VERSION="10.2.0.0.0" CATEGORY_PROPERTIES=  
  <Display>  
    <Label NLSID="name">Database Performance Profile</Label>  
  </Display>  
  
  <AltSkipCondition METRIC="Response" COLUMN="State"/>  
  
  <Metric NAME="Response" TYPE="TABLE">  
    <Display>  
      <Label NLSID="resp">Response</Label>  
    </Display>  
    <TableDescriptor>  
      <ColumnDescriptor NAME="userLogon" TYPE="NUMBER" IS_KEY="FALSE">  
        <Display FOR_SUMMARY_UI="TRUE">  
          <Label NLSID="resp_userLogon">User Logon Time (msec)</Label>  
          <ShortName NLSID="resp_userLogon_short">Logon Time (ms)</ShortName>  
        </Display>  
      </ColumnDescriptor>  
      <ColumnDescriptor NAME="Status" TYPE="NUMBER" IS_KEY="FALSE">  
        <Display>  
          <Label NLSID="resp_status">Status</Label>  
  
        </Display>  
      </ColumnDescriptor>  
    </TableDescriptor>  
  </Metric>  
>
```

Target Type Definition - How To

oracle_perf_profile.xml x oracle_perf_profile.xml

```
        </Display>
    </ColumnDescriptor>
    <ColumnDescriptor NAME="SQL_ID" TYPE="STRING" IS_KEY="FALSE" TRANSIENT="FALSE" IS_LONG_TEXT="F.
        <Display>
            <Label NLSID="active_session_history_sql_id">SQL ID</Label>
        </Display>
    </ColumnDescriptor>
    <ColumnDescriptor NAME="QC_SESSION_ID" TYPE="STRING" IS_KEY="FALSE" TRANSIENT="FALSE" IS_LONG_
        <Display>
            <Label NLSID="active_session_history_qc_session_id">QC Session ID</Label>
        </Display>
    </ColumnDescriptor>
    <ColumnDescriptor NAME="QC_INSTANCE_ID" TYPE="STRING" IS_KEY="FALSE" TRANSIENT="FALSE" IS_LONG
        <Display>
            <Label NLSID="active_session_history_qc_instance_id">QC Instance ID</Label>
        </Display>
    </ColumnDescriptor>
</TableDescriptor>
```

```
<QueryDescriptor FETCHLET_ID="SQL" NEED_CHARSET_CONVERT="TRUE">
    <Property NAME="STATEMENT" SCOPE="GLOBAL" OPTIONAL="FALSE">
        <![CDATA[
            select  sample_id, session_id, session_serial#,
                   TO_CHAR(sample_time AT TIME ZONE 'GMT', 'YYYY-MM-DD HH24:MI:SS TZD') sa
                   username, program, module, sql_id,
                   qc_session_id, qc_instance_id
            from    v$active_session_history ash,
                   dba_users
            where   ash.USER_ID=dba_users.USER_ID and
                   session_type='BACKGROUND' and sample_time > sysdate-((1/24) * (10/60))
        ]]>
    </Property>
    <Property NAME="MachineName" SCOPE="INSTANCE" OPTIONAL="FALSE">MachineName</Property>
    <Property NAME="Port" SCOPE="INSTANCE" OPTIONAL="FALSE">Port</Property>
```

Default Collections - When

oracle_perf_profile.xml

oracle_perf_profile.xml

```
== Response  
== Fetchlet: Perl (Warning - This category must remain first.)  
=====
```

```
-->
```

```
<CollectionItem NAME="Response">  
  <Schedule>  
    <IntervalSchedule INTERVAL="5" TIME_UNIT="Min"/>  
  </Schedule>  
  <MetricColl NAME="Response">  
  
    <Condition COLUMN_NAME="Status"  
      CRITICAL="0" OPERATOR="EQ"  
      CLEAR_MESSAGE="Able to connect to database instance"  
      CLEAR_MESSAGE_NLSID="Response_Status_clearalertmessage"  
      MESSAGE="Failed to connect to database instance."  
      MESSAGE_NLSID="Response_Status_alertmessage" />  
  
    <Condition COLUMN_NAME="userLogon"  
      WARNING="1000" OPERATOR="GT"  
      OCCURRENCES="6"  
      MESSAGE="User logon time is %value% msecs."  
      MESSAGE_NLSID="Response_userLogon_alertmessage" />  
  
    <Condition COLUMN_NAME="State"  
      WARNING="MOUNTED" OPERATOR="CONTAINS"  
      MESSAGE="The database status is %value%."  
      MESSAGE_NLSID="Response_state_alertmessage" />  
  
  </MetricColl>  
</CollectionItem>
```

Validation Utility

1. Validates XML structures
2. Verifies collection schedules are appropriate
 - Warning generated if collection is < 5 minutes
3. Performs dynamic XML validation by executing all defined metrics

Compiled Object



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Administrators

Notification Methods

Patching Setup

Blackouts

Registration

Passwords

Management Pack

Access

Monitoring

Templates

Corrective Action

Library

Management
Plug-ins

Client System

Analyzer in Grid

Control

Management Plug-ins

A Management Plug-in is a target type provided by the user or a third party to extend Enterprise Manager's set of predefined target types. This page is used to define new Management Plug-ins, import Management Plug-ins from, or export Management Plug-ins to a Management Plug-in Archive, or to deploy a Management Plug-in into your system.

Page Refreshed Jul 17, 2006 10:15:20 AM

Search Management Plug-ins

Name Version

Go

Delete Export Import

Select All | Select None

Select	Name	Version	Deployed Agents	Description	Deployment Requirements	Deploy	Undeploy
<input type="checkbox"/>	oracle_db_extension	1.2		Prophet database performance profile management plug-in	Requires Oracle Enterprise Manager 10g R2		

Related Links

[Deployment Status](#)

Version Control

Dependency Control

EM CLI generates the management Plug-In jar file which can be deployed to the agents

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Done

Internet

Deploying the Plug-In to the Agents



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Enterprise Manager Configuration | Management Services and Repository | Agents

Deploy Management P

Management Plug-ins are co
step, agents (or groups conta

Add Agents

Deployment Agents

TIP The Deployment Verif

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About Oracle Enterprise Mar

Search and Select: Agents

Cancel Select

Search

Target Type All

Target Name

On Host

Go

Select All | Select None

Select	Name	Type	Host	Status
<input type="checkbox"/>	jfreshman:3872	Agent	jfreshman	↑
<input type="checkbox"/>	oemrh.ad.bez.com:3872	Agent	oemrh.ad.bez.com	↑

Cancel Select

http://oemrh.ad.bez.com:4889/em/console/target/sel/targetSelection#

One or more existing Agents can be selected for deployment. User has full control over this.

Major Improvement In Rel 2.0



In Summary: Key Advantages

- **User-Driven Customizations**
- **Collect Data From Virtually Any Source**
- **Seamless Integration With EM Functionality**
- **No Connection Credentials Required - Agent Controls This Activity**
- **Version Control**
- **Easy to Develop and Deploy**



In Summary: Key Considerations

- **Impact of New Collection Plug-In on the Existing Agent**
- **Volume of Data To Be Returned and Persisted in the EMGC Repository**
- **Scheduling Frequency of the Data Collection**
- **Into Which Agents Should the Plug-In Be Deployed?**
- **Avoid Duplication of Effort - Check To See If An Existing Target Type or 3rd Party Plug-In Already Exists**

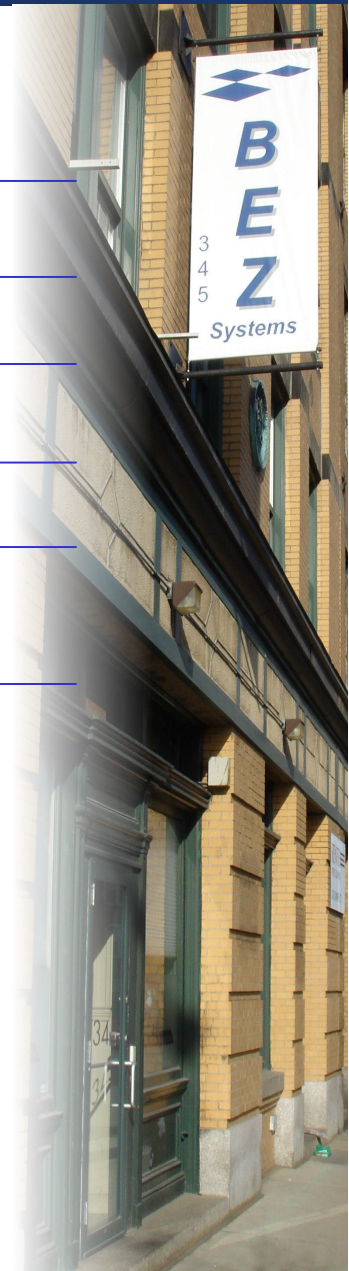
Thank You!



BEZ Systems & Oracle
.... solutions that fit

BEZ Systems - Background

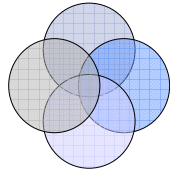
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Offices	Boston, Chicago, Minneapolis
Web Site	www.bez.com
CEO	F. Daniel Haley
Chairman & CTO	Dr. Boris Zibitsker
Our Business	Predictive Performance Management



Unique Technology

Optimization
& Control
Theory

DBMS
Technology



Analytical
Modeling

Parallel
Processing



Some Customers ...

