


Oracle Exadata Database Machine with SAP NetWeaver: OEDA Update and new X8M Model

Addendum

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Oracle Exadata
Database Machine with
SAP NetWeaver -
OEDA Update and new
X8M Model



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Preface

The Oracle Exadata Database Machine provides the following capabilities in an SAP environment:

- Extreme performance highly available active-active clustered database server for SAP Applications
- Highly available file server for SAP required shared file systems such as /sapmnt
- Complete clustering solution for SAP Central Services ASCS/SCS/ERS for both ABAP and JAVA stack

This addendum document describes required settings with current OEDA versions for an SAP NetWeaver installation and the introduction of a new virtualization technology used with Exadata X8M models. This should help customers to deploy the SAP NetWeaver databases on current Exadata hardware generations including the new RoCE based Exadata X8M.

Overall this documentation complements the existing product documentation of the Oracle Exadata Database Machine, the existing Whitepaper SAP NetWeaver with Oracle Database 12c on Oracle Exadata (July 2018) and therefore it is assumed that the reader is familiar with the standard Oracle Exadata documentation.

Oracle Exadata SAP Note Changes

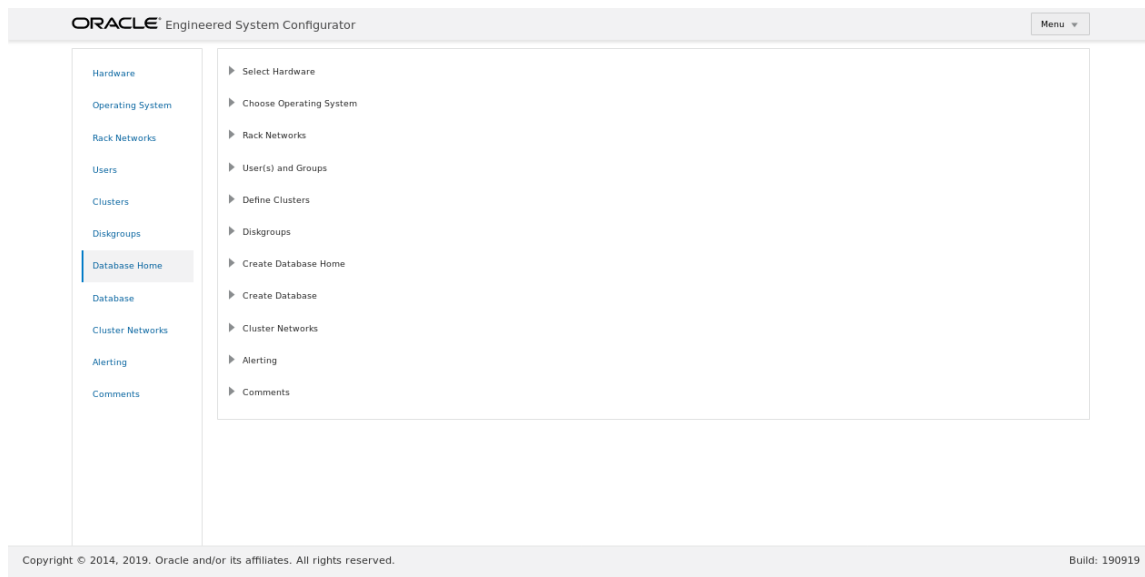
For a quick overview and an improved readability of the recommendations and restrictions for Oracle Exadata Database Machine running with SAP NetWeaver based products for the current supported hardware models and Exadata Software versions a copy of the existing SAP note 1590515 has been created with SAP note 2847437 - Older Versions: SAP Software and Oracle Exadata. In SAP note 2847437 you can find all older information. SAP note 1590515 will stay the main note and will be updated on a regular basis with current release and change information.

Oracle Exadata Deployment Assistant Changes

To prepare a new Oracle Exadata Database Machine for SAP the minimum Oracle Exadata Deployment Assistant (OEDA) release September 2019 (version 190919, Patch 30288604) must to be used (MOS 888828.1). This release of OEDA enables support for Exadata Database Machine X8M and the support for KVM on X8M. With the new browser-based application based for OEDA released in October 2018, some of the configuration interfaces changed compared to the older Java-based OEDA application. For information about the configuration pages in the OEDA Web-based interface, refer to the topic [Using the Browser-based Version of Oracle Exadata Deployment Assistant](#) in Oracle Exadata Database Machine Installation and Configuration Guide.

Configuration OEDA for SAP

Note: This chapter shows only those OEDA screens which are critical for a successful deployment of the Oracle Exadata Database Machine in an SAP NetWeaver landscape.



Choose your Oracle Exadata hardware model in the step “Select Hardware” for example here the X8M-2:

For SAP NetWeaver only the custom user concept is supported with OS user oracle for both Grid and Database owner. You have to select the check box “Custom” in the step “User(s) and Group” for the required OS user and group settings when using Oracle Databases for SAP on Oracle Exadata Database Machine.

User Name *	User Id *	Home Dir *	User Type
oracle	1000	/home/oracle	Grid and ...
Group Name *	Group Id *	Group Type	
oinstall	1000	OINSTALL	+ -
Group Name *	Group Id *	Group Type	
dba	1001	DBA GROUP	+ -
Group Name *	Group Id *	Group Type	
oper	1002	OPER GROUP	+ -
Group Name *	Group Id *	Group Type	
asmdba	1003	OSDBA	+ -
Group Name *	Group Id *	Group Type	
asmadmin	1004	OSASM	+ -
Group Name *	Group Id *	Group Type	
asmoper	1005	OSOPER	+ -

It is mandatory to specify the OS user oracle for both the Oracle GRID and the Oracle RDBMS homes with different Oracle BASE directories /u01/app/grid and /01/app/oracle.

For Oracle GRID and Oracle Database you have to select versions supported for the Exadata Software 19.3.0.0.0. Future versions of the OEDA will display newer DBBPs. Please check SAP Note 2145628 for regular updates. You have to select the right versions, arrange the prepared user collection and Oracle BASE directories in the step “Define Clusters” and “Create Database Home”.

▲ Create Database Home

DbHome_1 x DbHome_2 x DbHome_3 x DbHome_4 x DbHome_5 x DbHome_6 x DbHome_7 x DbHome_8 x +

DB Home Type RAC Home Single Instance Home

Select Cluster: VM02

Database Home Version: 18.7.0.0 RU190716

Base Directory *: /u01/app/oracle

Database Home Name *: DbHome_2

Database Home Location *: /u01/app/oracle/product/18.0.0.0/dbhom

Database Home Owner: UserCollection-2_id

You can also adjust in step “Diskgroups” the redundancy level for the Oracle ASM Disk Groups. ASM Disk Group for DATA is set to HIGH and ASM Disk Group for RECO is set to normal. These redundancy levels are recommended for an SAP production database.

▲ Diskgroups

Rack capacity (raw): **459828 GB**
 Rack used space (raw): **120832 GB**
 Rack available space (raw): **338996 GB**

VM01 VM02 VM03 VM04 VM05 VM06 VM07 VM08

Advanced

Diskgroup layout: Custom

Diskgroup Name	Type	Redundancy	Size	Size Type	Usable Space	Raw Size	
DATA2	DATA	HIGH	3072G	usab...	3072G	9216GB	+ -
RECO2	RECO	NORMAL	2TB	usab...	2048G	6144GB	+ -

Callout: Diskgroup redundancy

Prerequisites to use X8M-2/-8

To use Oracle Databases on Oracle Exadata Database Machine X8M-2/-8 for SAP NetWeaver based products and solutions follow the details documented in SAP Note 2848997.

- Oracle Exadata software 19.3 (19.3.0.0.0 and higher) for **all** Deployments (bare metal or virtualized)
- Oracle Exadata software 19.3 (19.3.0.0.0 and higher) for **virtualized** Deployments (refer to chapter “SAP Monitoring for Oracle KVM guests” for additional installation and configuration steps required)
 - KVM host (management domain) minimum Oracle Exadata software version 19.3.0.0.0
 - KVM guest (user domain) minimum Oracle Exadata software version 19.3.0.0.0
 - SAP Host Agent 7.21 Patch Level 43 and higher
 - It is not recommended to use more than 16 VMs per Exadata host.

Please check SAP Notes 1590515 and 2848997 for more details, this note will be updated on a regular basis. Before deploying an Oracle Exadata system for SAP consult both SAP Notes for latest changes.

Oracle Exadata Virtualization Changes

With Oracle Exadata X8M-2 or X8M-8 based on RoCE interconnects a new virtualization technology Kernel Virtual Machine (KVM) is introduced.

There are different terms to describe the virtualization concepts with the same meaning of the Oracle Exadata Database Machine. The management domain is the KVM host and is the first virtual machine to manage the hypervisor to manage the user domains (KVM guests) that will function as the virtual machines used to virtualize your applications. Using KVM supports up to 16 KVM guests on the same KVM host.

For SAP NetWeaver only Oracle databases and SAP central services ASCS, SCS and ERS with SAP Unicode Kernels are supported in the KVM guests. You can use `sapctl` to make SAP central services highly available. For further details and recommendations related to Managing Oracle VM Domains using KVM look in to the Oracle Exadata Database Machine [Maintenance Guide](#).

SAP Monitoring for Oracle KVM guests

For virtual deployments i.e. the use of KVM on the Oracle Exadata Database Machine, SAP requires an active monitoring of configuration and performance metrics of the Exadata management node (KVM host). More details and updates are documented in SAP note 2846518.

The utility `vm_maker` is the recommended command to manage KVM guests from the KVM host. See further details about `vm_maker` in the Oracle Exadata Database Machine [Maintenance Guide](#).

It is mandatory to enable SAP monitoring via `vhostmd` when using Oracle Databases for SAP NetWeaver products virtualized with KVM. No further installation of additional software is needed for the SAP monitoring in the KVM host and the KVM guest. The monitoring can be activated by using command `vm_maker --vhostmd` of the guests including SAP database instances and SAP Central Services can be activated, disabled or getting the status of the monitoring.


Examples on commands for enabling, disabling and getting status information for `vhostmd`:

```
[root@scaqai14adm06 ~]# vm_maker --vhostmd status
[INFO] Vhostmd is enabled.
[root@scaqai14adm06 ~]# vm_maker --vhostmd disable
[INFO] Running 'virsh detach-device scaqai14client06vm01.us.oracle.com /EXAVMIMAGES/Guestimages/scaqai14client06vm01.us.oracle.com/vdb.xml --config --live'...
[INFO] Running 'systemctl stop vhostmd.service'...
[INFO] Running 'systemctl disable vhostmd.service'...
[root@scaqai14adm06 ~]# vm_maker --vhostmd status
[INFO] Vhostmd is not enabled.
[root@scaqai14adm06 ~]# vm_maker --vhostmd enable
[INFO] Running 'systemctl enable vhostmd.service'...
[INFO] Running 'systemctl start vhostmd.service'...
[INFO] Running 'virsh attach-device scaqai14client06vm01.us.oracle.com /EXAVMIMAGES/Guestimages/scaqai14client06vm01.us.oracle.com/vdb.xml --config --live'...
[root@scaqai14adm06 ~]# vm_maker --vhostmd status
[INFO] Vhostmd is enabled.
[root@scaqai14adm06 ~]#
```

The `vhostmd` service runs on KVM host of each Exadata management node (KVM host) to collect the required statistics. This allows the KVM guests to access the statistics via `vm-dump-metrics` which SAP Host Agent can consume further.

Examples of an output from an KVM guest with `vm-dump-metrics`:

```
[root@scaqai14client06vm01 ~]# vm-dump-metrics | head -55
<metrics>
<metric type='real64' context='host'>
<name>TotalCPUTime</name>
<value>3812750.170000
</value>
</metric>
<metric type='uint64' context='host'>
<name>PagedOutMemory</name>
<value>0
</value>
</metric>
<metric type='uint64' context='host'>
<name>PagedInMemory</name>
<value>0
</value>
</metric>
<metric type='uint64' context='host'>
<name>UsedVirtualMemory</name>
<value>241820
</value>
</metric>
<metric type='uint64' context='host'>
<name>FreeVirtualMemory</name>
<value>163689
</value>
</metric>
<metric type='uint64' context='host'>
<name>FreePhysicalMemory</name>
```



```
</value>139112
</value>
</metric>
<metric type='uint64' context='host'>
  <name>MemoryAllocatedToVirtualServers</name>
  <value>241821
</value>
</metric>
<metric type='uint32' context='host'>
  <name>NumberOfPhysicalCPUs</name>
  <value>96
</value>
</metric>
<metric type='string' context='host'>
  <name>HostSystemInfo</name>
  <value>scaqa14adm06
</value>
</metric>
<metric type='string' context='host'>
  <name>VirtProductInfo</name>
  <value>Oracle Linux 7
</value>
</metric>
<metric type='string' context='host'>
  <name>VirtualizationVendor</name>
  <value>Oracle America
</value>
</metric>
[root@scaqa14client06vm01 ~]#
```

Furthermore it is required to install SAP Host Agent version 7.21 Patch Level 43 or higher in each KVM guest. The SAP Host Agent is installed through the SAP Software Provisioning Manager (SWPM) step RAC/ASM/Exadata Database Instance Preparation. To update the SAP Host Agent to the latest version please check SAP Note 2598404.

Appendix 1:

Related White Papers

Related White Papers	SAP SCN http://scn.sap.com/community/oracle
	SAP NetWeaver with Oracle Database 12c on Oracle Exadata (July 2018)
	Upgrade of SAP NetWeaver Installation to Oracle Grid Infrastructure 12.1.0.2 with Oracle Real Application Clusters 12c Release 1
	Providing High Availability for SAP Resources with Oracle Clusterware 11g Release 2 and Oracle Clusterware 12c Release 1
	Oracle Net Configuration for SAP on Oracle Real Application Clusters version 11.2 and 12.1

SAP Notes

SAP Notes	SAP Related Notes
1590515	SAP Software and Oracle Exadata
2848997	Oracle Exadata: Additional Patches Required for Using Exadata Software 19.3.0
2846518	Oracle Exadata Database Machine X8M-2/-8 - Virtualization Databases for SAP NetWeaver Products with KVM
2847437	Older Versions: SAP Software and Oracle Exadata
2660020	Central Technical Note for Oracle Database 18c
1914631	Central Technical Note for Oracle Database Release 12c Release 1 (12.1)
2470660	Central Technical Note for Oracle Database Release 12c Release 2 (12.2)
2660052	Patches for 18c: Exadata/SuperCluster
2145628	Exadata/SuperCluster: Patches for 12.1.0.2
2573150	Exadata/SuperCluster: Patches for 12.2.0.1
12741	Current versions of BR*Tools
1496927	Protection of SAP instances through Oracle Clusterware
2598404	How to update SAP Host Agent



MOS Notes





MOS Notes	Related My Oracle Support (MOS) Notes
888828.1	Exadata Database Machine and Exadata Storage Server Supported Versions
2505892.1	Latest Releases and Patching News New Exadata 19.3.0.0.0



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