



Enterprise Manager Cloud Control 12c Release 4 (12.1.0.4)

Covers:

- a) Install
- b) Upgrade
- c) Agent Deployment
- d) Plug-in Deployment
- e) OMS Patching

- Akanksha Sheoran Kaler

**HARDWARE
AND SOFTWARE
ENGINEERED
TO WORK
TOGETHER**

Safe Harbor Statement

The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.

Program Agenda

- 1 EM 12.1.0.4 Overview
- 2 EM Deployment – What's New
- 3 EM Upgrade –What's New
- 4 Agent Deployment –What's New
- 5 Plug-in Deployment – What's New
- 6 EM OMS Patching

EM 12.1.0.4

Overview

- EM 12.1.0.4 will allow you:
 - Perform fresh Install of EM 12.1.0.4
 - Upgrade to EM 12.1.0.4 from (10.2.0.5, 11.1,12.1.0.2, 12.1.0.3)
 - Upgrade Not supported from 12.1.0.1 (with BP1) for OMS and Agent
- Versions supported: WLS -10.3.6 , JDK - 1.6.0.43.0/1.7,JRF - 11.1.1.7.0 , Webtier - 11.1.1.7.0
- OMS to Agent versions compatibility

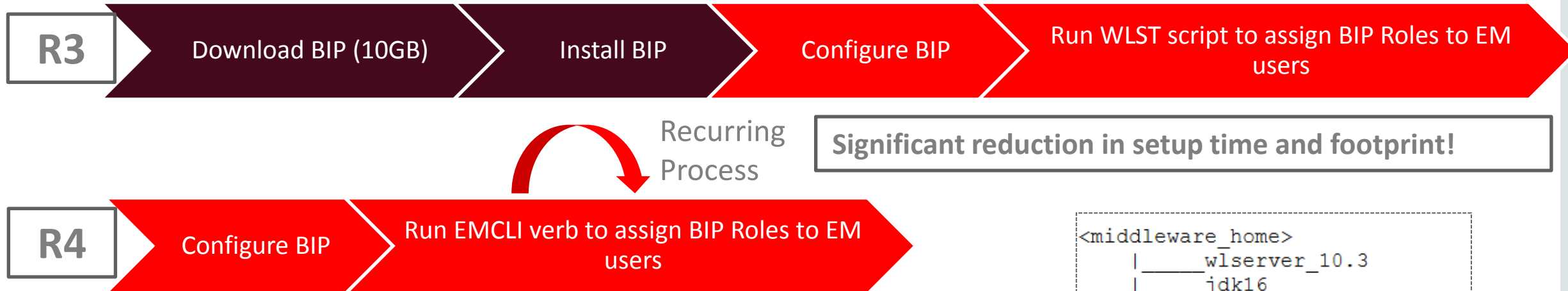
Agent→ OMS↓	12.1.0.1	12.1.0.2	12.1.0.3	12.1.0.4
12.1.0.1				
12.1.0.2				
12.1.0.3				
12.1.0.4				

Program Agenda with Highlight

- 1 EM 12.1.0.4 Overview
- 2 EM Deployment – What's New**
- 3 EM Upgrade –What's New
- 4 Agent Deployment –What's New
- 5 Plug-in Deployment – What's New
- 6 EM OMS Patching

EM Deployment

What's New



- BI Publisher bits 11.1.0.7 integrated with EM Installer with reduced footprint: 250mb Vs 10GB
- EMCTL option to start/stop BIP along with OMS
- High Availability - Add OMS procedure includes BIP configuration (Extend BIP cluster, configure ports, configure BIGIP, etc)

```
<middleware_home>
|_____wls_server_10.3
|_____jdk16
|_____oms
|_____plugins
|_____Oracle BI1
|_____oracle_common
|_____Oracle_WT
|_____utils
|_____logs
|_____modules
|_____user_projects
|_____ocm.rsp
|_____registry.dat
|_____domain-registry.xml
|_____patch_wls1036
|_____registry.xml
```

EM Deployment

What's New

- EM 12.1.0.4 installer applies patch 14482558, patch 13349651, patch 16080294, patch 16888501 on the Oracle WebLogic Server 10.3.6 that gets installed with EM 12.1.0.4 installer **Recommended !**
 - If you are using an existing WLS 10.3.6 then user has to make sure that you apply these patches manually (using wls smart utility) before starting the EM install.

Things to watch out for

Fresh Install of EM 12.1.0.4

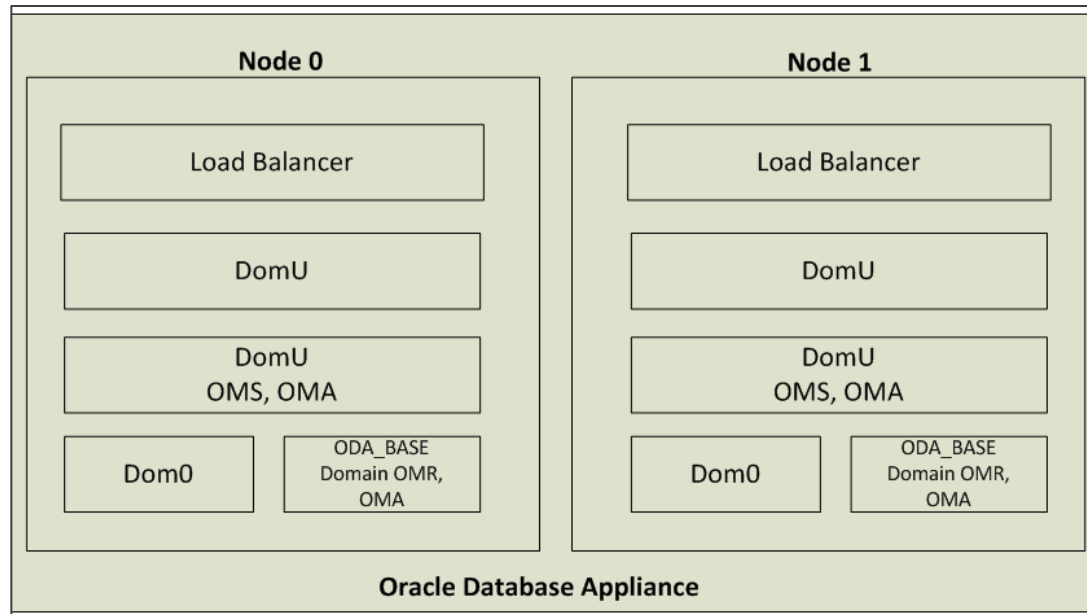
(CRITICAL MANDATORY STEP) Make sure you apply the following patches on the database. If you do not apply these patches, you will run into install failures.

- If you use Oracle Database 11g Release 2 (11.2.0.1):
 - For Unix platforms, apply patch 12419378 (Patch Set Update 6). Then apply patch 9260085.
- If you use Oracle Database 11g Release 1 (11.1.0.7) :
 - For Unix platforms, apply patch 17082366 (Patch Set Update 17). Then apply patch 18074855.
 - For Microsoft Windows platforms, apply patch 17363760 (Patch 54). Then apply patch 9012146.

EM Deployment

What's New

EM software only VM Templates to deploy EM on Oracle Database Appliance (ODA)



- Uses ODA database to house the EM repository
- Out of box multi OMS setup
- How to setup Oracle Enterprise Manager Solution-in-a-Box on Oracle Database Appliance (Doc ID 1673246.1)
- Use Oracle provided Oracle EM Software Only Template named as : Oracle VM Template for Deploying Oracle Enterprise Manager Cloud Control 12c Release 3 (12.1.0.3) plug-in update 1 on ODA to create a virtual machine to host OMS and do not use any other Oracle Enterprise Manager Cloud Control VM templates.

Program Agenda with Highlight

- 1 EM 12.1.0.4 Overview
- 2 EM Deployment – What's New
- 3 EM Upgrade –What's New**
- 4 Agent Deployment –What's New
- 5 Plug-in Deployment – What's New
- 6 EM OMS Patching

EM Upgrade

Upgrade paths to EM 12.1.0.4

- Following are the upgrade paths supported:
 - a) 10.2.0.5 / 11.1.0.1 → 12.1.0.4
 - b) 12.1.0.2 /12.1.0.3 →12.1.0.4
 - c) 12.1.0.1 (with bp1 patches) → 12.1.0.2 /12.1.0.3 →12.1.0.4
- Use case: While doing OMS upgrade, If you have any agents on 12.1.0.1 BP1 then installer throw an error

The following Management Agents, which communicate with the OMS instances you are trying to upgrade, are not compatible for upgrade. Upgrade them to the OMS version first, and then try again

EM Upgrade

12.1.0.2 /12.1.0.3 → 12.1.0.4

- Upgrading from 12.1.0.2 / 12.1.0.3 to 12.1.0.4 is an EM upgrade with downtime
- Upgrade options supported : 1-System only
- High level steps:
 - Step 1:** Bring down your 12.1.0.2 /12.1.0.3 OMS and invoke EM 12.1.0.4 runInstaller
 - Step 2:** Upgrade your OMS and repository (Use 1-system option in Installer)
 - Step 3:** You will get Agent upgrade console (AUC) in the EM 12.1.0.4 console
 - Step 4:** Use AUC to upgrade your 12.1.0.2,12.1.0.3 agents to 12.1.0.4

How to reduce the downtime ?

12.1.0.2 /12.1.0.3 → 12.1.0.4

EM Upgrade - runInstaller (OUI)

Step 1: Bring down your 12.1.0.2 /12.1.0.3 OMS and invoke EM 12.1.0.4 runInstaller

Step 2: Upgrade your OMS and repository (Use1-system option in Installer)

- Copying the bits and creating new homes
- Start the configuration assistants

Step 3: You will get Agent upgrade console (AUC) in the EM 12.1.0.4 console

Step 4: Use AUC to upgrade your 12.1.0.2 /12.1.0.3 agents to 12.1.0.4

Downtime



EM Upgrade - Software only Install

Step 1: Invoke EM 12.1.0.4 runInstaller and choose option: Install software only

- Copying the bits and creating new homes

Step 2: Bring down your 12.1.0.2 /12.1.0.3 OMS. Start the configuration and Upgrade your OMS and repository (Use1-system option in Installer)

Run `$<MIDDLEWARE_HOME>/oms/sysman/install/ConfigureGC.sh`

Step 3: You will get Agent upgrade console (AUC) in the EM 12.1.0.4 console

Step 4: Use AUC to upgrade your 12.1.0.2 /12.1.0.3 agents to 12.1.0.4

Downtime reduced

Things to watch out for

12.1.0.2 /12.1.0.3 →12.1.0.4

(CRITICAL MANDATORY STEP) If you do not apply these patches, you will run into upgrade failures.

- For Oracle Database 11 Release 1 (11.1.0.7)
 - On Unix platforms, apply patch 17082366 (Patch Set Update 17). Then apply patch 9577583 and patch 8405205.
 - On Microsoft Windows (32 bit and 64 bit) platforms, apply patch 17363760 (Patch 54).
- For Oracle Database 11g Release 2 (11.2.0.1)
 - On Unix platforms, apply patch 12419378 (Patch Set Update 6).
 - On Microsoft Windows (32 bit and 64 bit) platforms, apply patch 13423278 (Patch 16).
- For Oracle Database 11g Release 2 (11.2.0.2)
 - On Unix platforms, apply patch 11061801 and patch 9748749.
 - On Microsoft Windows (32 bit) platforms, apply patch 11061801 and patch 12429530. On Microsoft Windows (64-bit) platforms, apply patch 11061801 and patch 12429531.
- For Oracle Database 11g Release 2 (11.2.0.3), 10g Release 2 (10.2.0.5) - On Unix as well as Microsoft Windows platforms, apply the patch 11061801.

Refer Upgrade Guide: http://docs.oracle.com/cd/E24628_01/index.htm

Upgrade Recommendations

12.1.0.2 /12.1.0.3 →12.1.0.4

1. You perform Software only Upgrade of EM to reduce the downtime. Follow instructions from upgrade guide- http://docs.oracle.com/html/E22625_25/upgrading_12101_PS1_oms.htm#CJAFCHGG
2. Go through the Upgrade checklist: MOS:1682332.1- EM 12c R4: Checklist for Upgrading Enterprise Manager Cloud Control from 12.1.0.2 / 12.1.0.3 to 12.1.0.4
3. Make use of Auto update feature in EM installer. This feature will download few patches and will save you from running into know issues. To know more about this: http://docs.oracle.com/html/E24089_27/getstrtd_things_to_know.htm#BACBGCD
4. Apply the OMS 12.1.0.4 Bundle patch once you are done with your upgrade. Refer to MOS note for the latest patches doc ID 1900943.1 Output of below command will show plug-ins version/revisions deployed on OMSes, based on the output you can decide what OMS plug-in patches you need to apply : `<OMS_HOME>/bin>emcli list_plugins_on_server`

Follow the whitepaper to reduce the OMS patching downtime - <http://www.oracle.com/technetwork/oem/install-upgrade/index.html>

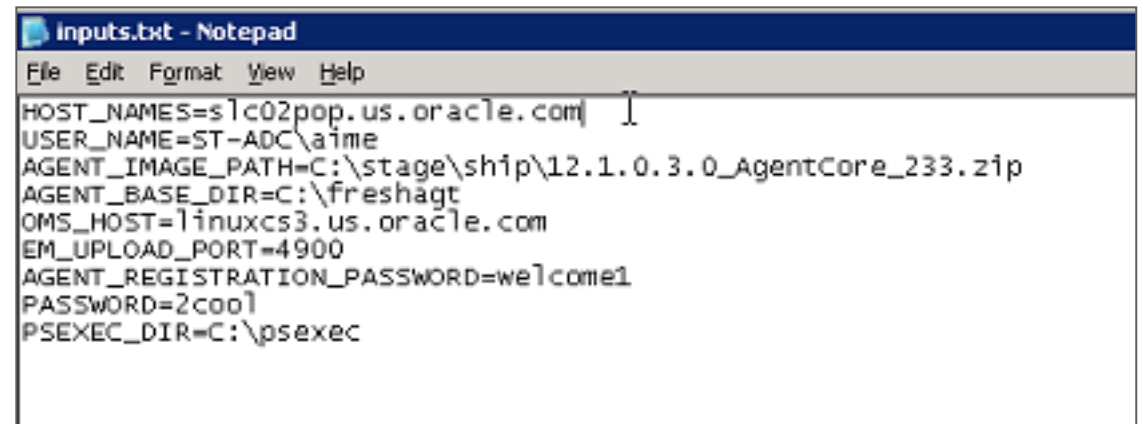
5. Apply Agent Bundle patches along with agent upgrades to reduce the downtime and ease the agent lifecycle operations. Refer MOS note for latest agent bundle patches : Doc ID 1901185.1. You can place the agent patches in the OMS 12.1.0.4 home and then after that point, any agent install or upgrades will pick the patches from that location and you will get patches 12.1.0.4 agents. Placing the patches under the 12.1.0.4 OMS is one time activity and you can place both generic or platform specific patches. Follow the instructions: http://docs.oracle.com/cd/E24628_01/install.121/e24089/appdx_agent_patching.htm#BCGFBFHA
6. Post Upgrade - EM 12c R4: Custom Roles missing after Upgrade (Doc ID 1905392.1)

Program Agenda with Highlight

- 1 EM 12.1.0.4 Overview
- 2 EM Deployment – What's New
- 3 EM Upgrade –What's New
- 4 Agent Deployment –What's New**
- 5 Plug-in Deployment – What's New
- 6 EM OMS Patching

Agent Deployment – What's New

- Alternate for cygwin requirement : PSEXec software
- Time taken to deploy PSEXec software <2 min
- Requirement : Need a staging Windows server
- Tested with 12.1.0.3 /12.1.0.4 OMS
- Script to deploy agents using PSEXec (agentDeployPsExec.bat) available:
MOS 1636851.1
- Instructions outlined in Install guide
- Support response file

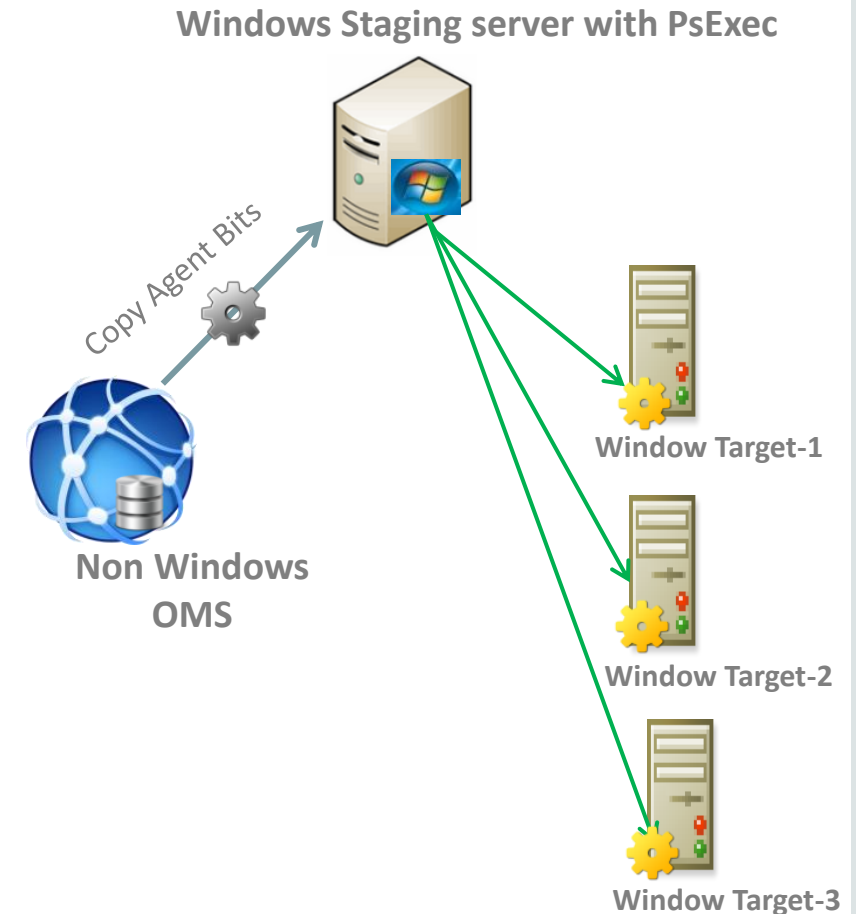


```
inputs.txt - Notepad
File Edit Format View Help
HOST_NAMES=s1c02pop.us.oracle.com
USER_NAME=ST-ADC\aime
AGENT_IMAGE_PATH=C:\stage\ship\12.1.0.3.0_AgentCore_233.zip
AGENT_BASE_DIR=C:\freshagt
OMS_HOST=linuxcs3.us.oracle.com
EM_UPLOAD_PORT=4900
AGENT_REGISTRATION_PASSWORD=welcome1
PASSWORD=2coo1
PSEXEC_DIR=C:\psexec
```

Agent Deployment – What's New

Alternate to Cygwin software - PsExec for windows agent deployment

- Need windows staging server for non-windows OMS to deploy PsExec (*One time activity*)
- PsExec not required on target windows host
- Get agent bits on windows staging server through emcli (`emcli get_agentimage`) *One time activity*
 - EMCLI is configured by default on OMS host
- To deploy agents execute agentDeployPsExec.bat with rsp file from staging server
- Allows agent deployment on multiple hosts
- Time taken to deploy PsExec + agent deployment < Cygwin setup + agent deployment



Agent Deployment – What's New

Alternate to Cygwin software - PsExec for windows agent deployment

- Usecase A : Non Windows OMS to deploy agents on windows target
 - Windows staging server can be a test host OR any target windows host
 - Psexec is required only on staging server
- Usecase B : Windows OMS to deploy agents on windows target
 - Windows staging server can be OMS host OR any target windows host
 - Psexec is required only on staging server

Agent Deployment – What's New

Deploy the agent on windows target host by running the command from the OMS host machine:

C:/< location of the script>/agentDeployPsExec.bat PROPERTIES_FILE=<absolute location of the rsp file>

Example: C:/stage> agentDeployPsExec.bat PROPERTIES_FILE=C:\stage\input.txt

```
C:\stage>agentDeployPsExec.bat
C:\stage>echo off
"Error : Mandatory argument HOST_NAMES is missing from the command line or properties file"
"Error : Mandatory argument USER_NAME is missing from the command line or properties file"
"Error : Mandatory argument PASSWORD is missing from the command line or properties file"
"Error : Mandatory argument AGENT_BASE_DIR is missing from the command line or properties file"
"Error : Mandatory argument OMS_HOST is missing from the command line or properties file"
"Error : Mandatory argument EM_UPLOAD_PORT is missing from the command line or properties file"
"Error : Mandatory argument AGENT_REGISTRATION_PASSWORD is missing from the command line or properties file"
"Error : Mandatory argument AGENT_IMAGE_PATH is missing from the command line or properties file"
"Error : PsExec binary C:\Windows\system32\psexec.exe does not exist"

C:\stage>agentDeployPsExec.bat PROPERTIES_FILE=C:\stage\inputs.txt

C:\stage>echo off
=====
Agent deployment started on host : slc00elz.us.oracle.com

Creating installation base directory ...
Copying unzip to the target host ...
Copying agent software to the target host ...
Extracting agent software ...
Installing agent ....
```

Agent Deployment – What's New

- Ability to customize /tmp directory location while deploying agent
- Platform mismatch validation when user selects a wrong platform

The screenshot shows the Oracle Enterprise Manager Cloud Control 12c interface. The main window is titled "Add Target" and has three tabs: "Host and Platform", "Installation Details", and "Review". The "Host and Platform" tab is active. Below the tabs, there is a progress bar and a sub-header "Add Host Targets: Host and Platform". A descriptive text states: "This wizard enables you to install Management Agents on unmanaged hosts, thereby converting them to managed hosts. Enter a session name, and validate (or add) the hosts and their platforms on which you want to install the Management Agent." Below this text, there is a text input field for "Session Name" containing "ADD_HOST_SBAMBORE1_Apr_15_2014_7:08:56_PM_UTC". There are "Add" and "Remove" buttons. A table lists the host and platform information:


Host	Platform
slc01zgg.	Linux x86-64

An error dialog box is overlaid on the table, with the title "Error" and the message: "Unable to proceed as a host target already exists for the provided host name. Remove the host names that are already being monitored by Enterprise Manager." The dialog has an "OK" button.

Agent Deployment – What's New

- Up front error for missing plug-ins or software library issues

Add Host

 Retrieval of the archive from the software library for the plugin "oracle.sysman.xa:12.1.0.6.0:0" failed. Check the log file /ade/pjaganat_adwire/oracle/work/em/EMGC_OMS1/sysman/agentpush/logs/EMAgentPushLogger<timestamp>.log for more details.

Agent Deployment Summary : ADD_HOST_SYSMAN_Apr_15_2014_12:12:17_PM_PDT

Platform	Host
Linux x86-64	slc00dbm.us.oracle.com

Agent Deployment Details : slc00dbm.us.oracle.com

Initialization Details

OMS Log Location `slc00dbm.us.oracle.com:/ade/pjaganat_adwire/oracle/work/em/EMGC_OMS1/sysman/agentpush//2014-04-15_12-12-17-PM/applogs/slc00dbm.us.oracle.com_`

Show only warnings and failures

Initialization Phase Name	Status	Error	Cause	Recommendation
Initialization started on this host.				

▶ Remote Prerequisite Check Details

▶ Agent Deployment Details

Program Agenda with Highlight

- 1 EM 12.1.0.4 Overview
- 2 EM Deployment – What's New
- 3 EM Upgrade –What's New
- 4 Agent Deployment –What's New
- 5 Plug-in Deployment – What's New**
- 6 EM OMS Patching

EM 12.1.0.4 Plug-in Deployment – What's new

ORACLE Enterprise Manager Cloud Control 12c

Plug-ins Prerequisite Checks Repository Review Confirmation

Deploy Plug-ins on Management Servers: Plug-ins

Back Step 1 of 5 Next Cancel

+ Add... - Remove

Name	Latest Available	Version		Downtime Required	Use Last Successful Prerequisite
		Currently Deployed	To Deploy		
IBM DB2 Database	12.1.0.2.0	None	12.1.0.2.0		<input type="checkbox"/>
Microsoft IIS	12.1.0.2.0	None	12.1.0.2.0		<input type="checkbox"/>
Oracle Utilities	12.1.0.3.0	None	12.1.0.3.0		<input type="checkbox"/>
Oracle VDI	12.1.0.2.0	None	12.1.0.2.0	✓	<input type="checkbox"/>
Oracle ZFS Storage Appliances	12.1.0.4.0	None	12.1.0.4.0		<input type="checkbox"/>

IBM DB2 Database

Target Types

Name	Supported Target Versions	
	Plug-in Version - 12.1.0.2.0	Plug-in Version on Management Server - None
ibm_db2_database	8.2.0.0.0	

What's New in 12.1.0.2.0

IBM DB2 Database Plugin for monitoring DB2 databases from Enterpr

Readme

The Oracle Management Plug-in for IBM DB2 Database extends Orac
managing IBM DB2 Database instances including: monitoring of DB

- Multiple Plug-in deployment on OMS from Plug-in Manager UI to reduce number of OMS bounces
- Identifies Plug-ins that require an OMS restart
- Integrated with named credentials
- Detailed job output

Program Agenda with Highlight

- 1 EM 12.1.0.4 Overview
- 2 EM Deployment – What's New
- 3 EM Upgrade –What's New
- 4 Agent Deployment –What's New
- 5 Plug-in Deployment – What's New
- 6 EM OMS Patching**

EM OMS Patching – What's New

```
OPatchauto version : 11.1.0.10.4
OUI version      : 11.1.0.12.0
Running from     : /scratch/hkumars/oms_install_dir/middleware/oms
Log file location :
/scratch/hkumars/oms_install_dir/middleware/oms/cfgtoollogs/opatch/opatch2014-05-02_11-04-48AM_1.log
```

```
OPatchauto log file:
/scratch/hkumars/oms_install_dir/middleware/oms/cfgtoollogs/opatchauto/1111118/opatch_oms_2014-05-02_11-04-51AM_deploy.log
Configuration Validation: Success
```

WARNING: OPatchauto cannot run patching steps in multi-OMS environment. Please perform the following steps to complete patching operations.

```
-----
1. Please copy the script
"/scratch/hkumars/oms_install_dir/middleware/oms/.opatchauto_patch_storage/oms_session/scripts_2014-05-02_11-05-17/run_script#1_on_host_slc07jif_us_oracle_com_as_user_hkumars.sh" to
"slc07jif.us.oracle.com" and execute the script.
2. Please execute the script
"/scratch/hkumars/oms_install_dir/middleware/oms/.opatchauto_patch_storage/oms_session/scripts_2014-05-02_11-05-17/run_script#2_on_host_slc06xlv_us_oracle_com_as_user_hkumars.sh" on local host.
```

```
-----
The following warnings have occurred during OPatchauto execution:
1) OPatchauto cannot run patching steps in multi-OMS environment.
```

- Reduction in multi-OMS patching steps
- Dynamically generate bash scripts (one per OMS)
 - Number of steps : 1 (opatchauto) + n scripts (n is the no of OMSes)
- Resume on failure : rectify the cause of failure and run the script to resume from the failure point
- Bundled System patch: Single patch for multiple sub-patch for OMS and Plug-in

Example: Apply patch 111115 on 2node OMSEs (dummy patch)

Note: This patch has no repository update

12.1.0.3

- Shutdown your OMSEs
- Run command:
\$ORACLE_HOME/Opatch/optachauto apply
- Run a series of 8 sequence steps on 2 OMSEs
 - Based on the patch, you are required to run sqls on repository DB with sysman password

Total Steps: Opatchauto apply + 8

12.1.0.4

- Run command:
\$ORACLE_HOME/Opatch/optachauto apply
 - OMSEs are up and running
 - Generates a script per OMS that includes all the sub steps (host name, username embedded in name of the script)
 - Script will have repository (MRS , SQL) update steps
 - Just one script will do binary + deployment ,will require sysman password
- Stop the Primary OMS, run the script. Stop the Second OMS and run the script
 - You can also run this script in parallel to save time

Total Steps: Opatchauto apply + 2(script execution)

EM OMS Patching – What's New

```
/scratch/hkumars/oms_install_dir/middleware/oms/.opatchauto_patch_storage/oms_session/scripts_2014-05-02_11-05-17/run_script#2_on_host_slc06xlv_us_oracle_com_as_user_hkumars.sh  
Please provide credential for OMS repository SYSMAN user:
```

SKIP command for step 2...

SKIP command for step 4...

Command to execute (Step 6):

```
/scratch/hkumars/oms_install_dir/middleware/oms/bin/emctl register oms metadata  
-service TargetPatchingImplRegistration -debug -file  
/scratch/hkumars/oms_install_dir/middleware/oms/sysman/metadata/targetpatching  
register/RegisterAgentTarget.xml -core -sysman_pwd %EM_REPOS_PASSWORD%
```

Command to execute (Step 7):

```
/scratch/hkumars/oms_install_dir/middleware/oms/OPatch/opatchauto commit -id  
1111118 -oh /scratch/hkumars/oms_install_dir/middleware/oms -invPtrLoc  
/scratch/hkumars/oms_install_dir/middleware/oms/oraInst.loc
```

OPatch Automation Tool

Copyright (c) 2014, Oracle Corporation. All rights reserved.

In this example failure has happened because of incorrect password, So when User re-runs the script by providing right passwords , script is executed successfully by skipping all the earlier executed steps and continuing from the failure point.

EM OMS Patching – What's New

- New master log file creation

```
[hkumars@slc06xlv oms]$ /scratch/hkumars/oms_install_dir/middleware/oms/.opatchauto_patch_storage/oms_session/scripts_2014-05-02_11-05-17/run script#2 on host slc06xlv us oracle com as user hkumars.sh
Creating master log file /scratch/hkumars/oms_install_dir/middleware/oms/.opatchauto_patch_storage/oms_session/oms_session_log_2014-05-02_11-04-48AM...
Creating session file /scratch/hkumars/oms_install_dir/middleware/oms/.opatchauto_patch_storage/oms_session/oms_session_2014-05-02_11-04-48AM...

Please provide credential for OMS repository SYSMAN user:
Command to execute (Step 2): /scratch/hkumars/oms_install_dir/middleware/oms/OPatch/opatchauto checkApplicable -ph
/net/adc2100679/scratch/opack_system_patch/ps2Convertedps3/targetPatchingImplRegistration/1111118 -oh
/scratch/hkumars/oms_install_dir/middleware/oms -invPtrLoc /scratch/hkumars/oms_install_dir/middleware/oms/oraInst.loc
OPatch Automation Tool
Copyright (c) 2014, Oracle Corporation. All rights reserved.
```

EM OMS Patching – What's New

Whitepaper : Reducing Downtime While Patching Multi-OMS Environments

Available on OTN: <http://www.oracle.com/technetwork/oem/install-upgrade/index.html>

Documentation



- Install and Upgrade guide are single source of truth
- EM 12.1.0.4 Install and Upgrade guide
http://docs.oracle.com/cd/E24628_01/index.htm
- EM 12.1.0.4 Install and Upgrade collateral page(PPT, Recorded demo, Whitepapers) on OTN:
<http://www.oracle.com/technetwork/oem/install-upgrade/index.html>
- MOS:1682332.1- EM 12c R4: Checklist for Upgrading Enterprise Manager Cloud Control from 12.1.0.2 / 12.1.0.3 to 12.1.0.4

ORACLE®