

ORACLE PROVISIONING AND PATCH AUTOMATION PACK FOR ORACLE DATABASE



FEATURES

- Automated patching for Oracle products and the operating system
- Critical Patch Facility
- Software Image Library
- Bare metal OS provisioning
- Flexible, extensible Deployment Procedure based patching and provisioning
- Facilitating Real Application Testing Setup (RATS)
- Database, RAC, Clusterware and Automated Storage Management
- Single click cluster scale up and scale down
- Single instance-to-RAC conversion
- CLI driven runtime
- Enterprise Security Advisor
- Provisioning and deployment reports

BENEFITS

- Standardized software deployment processes reduce operational risks
- Out-of-box best practices lower cost of deployment
- Mass scale operations increase operational efficiency

The Provisioning and Patch Automation Pack for Oracle Database automates the deployment of software, applications, and patches. It makes critical data center operations easy, efficient and scalable resulting in lower operational risk and cost of ownership. The ability to provision the entire software stack that includes the operating system, the middleware and the database, supplemented by comprehensive reporting tools make Provisioning and Patch Automation Pack an extremely significant entity in overall System Management space.

The salient features of the pack are described in brief below.

End-to-end patching of Oracle products

Enterprise Manager 10gR5 includes an end-to-end patching solution that works seamlessly across a wide range of product patches and customer environments. The patching application automates the deployment of Oracle patches for the database (including Clusterware, Real Application Cluster and Automatic Storage Management), Management Agents and the Application Server. The application takes care of appropriate shutdown and startup of services, metadata driven application of database level changes, if required, for database patching and also allows execution of pre and post patching scripts to serve different use cases. Such flexibility makes mass deployment of interim patches and patchsets feasible even in complex multi-tier environments.

The Deployment Procedure based infrastructure has been leveraged to increase the power and flexibility of Oracle patching for more complex multi-tier environments. The out-of-box Deployment Procedures are Oracle provided best practices that can also be customized for specific needs. Users can enable and disable steps or add custom steps for specific actions. Deployment Procedures also support secure host authentication using sudo or PAM. The entire patching application can be run in command line (CLI) mode thereby making it possible to integrate with existing scripts.

Enterprise Manager's Critical Patch Facility proactively and regularly queries Oracle *Metalink* for critical patches that have been released and notifies the administrators of only those patches applicable to them. It can also invoke the Patch application, in context, and remediate the vulnerable installations. The Critical Patch Facility also supports an *offline* mode to serve the case of data centers that are not connected to the internet.

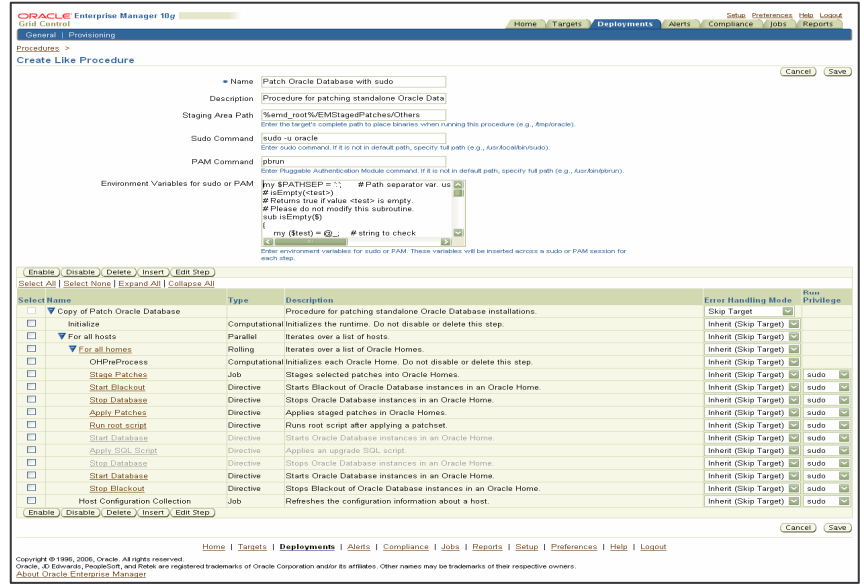


Figure 1: Deployment Procedure based patching

Patching of operating systems

Enterprise Manager provides a comprehensive patching solution for popular operating systems like Linux, Windows and Solaris. Enterprise Manager integrates with Unbreakable Linux Network (ULN) to provide periodic automatic updates for Linux hosts. Users can visualize compliance information and ensure that any critical patches released by Oracle are automatically applied. EM follows a manage "many-as-one" philosophy which allows several Linux hosts to be grouped together and patched at once. With the latest release, users can also define custom channels and configuration file channels to update custom rpms and configuration files on hosts. Errata or advisory information for packages is also available. In addition to the proactive patching Enterprise Manager also supports ad-hoc patching of Linux, Windows and Solaris operating systems using native patching methods.

All the above features are backed by a powerful centralized reporting facility that produces detailed as well as summarized information on the patch deployments and non-compliant installations. Besides having out-of-box reports, Enterprise Manager 10gR5 also supports ad hoc reports with support for scheduling and secure publishing to satisfy different customer needs and help in taking decisions.

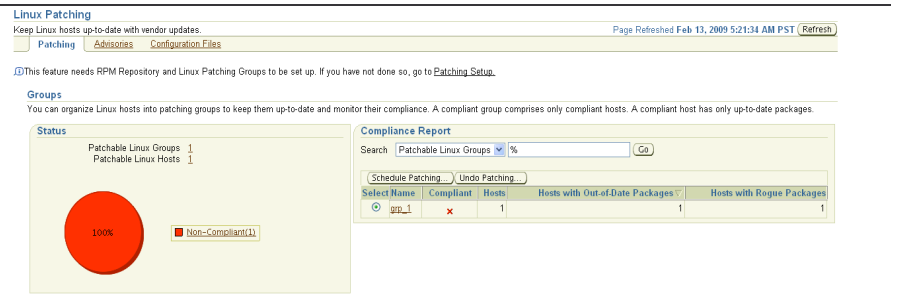


Figure 2: Linux operating system patching

Server and Software provisioning

The philosophy of grid computing centers on the ability to deploy and reassign hardware and software resources quickly and efficiently and make them operational.

Enterprise Manager 10gR5 includes the functionality of bare metal provisioning of Linux operating system through a standardized PXE (Preboot Execution Environment) booting process. It also facilitates delivery of additional software on top of the operating system. As a part of this process, administrators can associate images with specific hardware and storage templates to cover the variety of hardware population. The provisioning process also registers the server as a target in Enterprise Manager, so that it can be managed henceforth.

Enterprise Manager comes with out-of-box Deployment Procedures to install the Oracle RAC Database, Oracle Clusterware and Oracle Automatic Storage Management following the best practices for maximum availability. These procedures automate the installation of the products and configure storage, networking and load balancers in the process. These operations could otherwise be time-consuming and error prone.

Enterprise Manager 10gR5 also supports the Release Management process through the provisioning of “gold images” from a reference host or a software library of images. The “gold images” are tested and approved software images and can be patched to any level before deployment.

Additionally Provisioning and Patch Automation pack also facilitates the setting up of Disaster Recovery (DR) systems. Using a simple wizard driven approach one can setup Physical or Logical Standby environments.

Complete Lifecycle Management

The Provisioning and Patch Automation Pack enables complete automation of Software Lifecycle such as promotion from test to production environments. This can be utilized to establish test environments for *Real Application Testing Setup (RATS)*, key feature of database 11g that facilitates application testing. Setup of such test environments can potentially take a lot of time and manual labor that is considerably reduced by automation with the Provisioning and Patch Automation pack.

Enterprise Manager Provisioning and Patch Automation Pack supports the end-to-end Software Lifecycle Automation of E-Business Suite Application that includes promotion of entire stack (application, middleware and database) from test to stage to production. This simplifies labor-intensive tasks that can potentially take days and also reduces the deployment risks for E-Business Suite applications.

Cluster scale up and scale down

To address the growing business demands, modern data centers require the ability to augment and relocate resources quickly and efficiently and make them operational. The core foundation of Oracle’s Grid architecture lies in scaling out the cluster in a fleet-footed manner. In Enterprise Manager 10gR5 one can add a node to a RAC cluster with a single click of the mouse. All the complexities of provisioning and configuring the agent, Clusterware, storage, network and the database software are automated and hidden from

the end user. One can retire the node entirely or relocate the node with a similar single click effort.

Provisioning and Patch Automation pack also has the ability to convert a single instance non-RAC database to a multi-node RAC database. Using a wizard driven interface the administrator is guided through the process. An easy workflow makes this job easy and convenient for administrators.

Similarly, for Oracle Application Server environments, the administrator can use the cloning technology to install a tested and approved image from the software image library or extend an existing installation to newly provisioned nodes of a J2EE cluster. Enterprise Manager supports cloning of multiple Oracle Application Server installation types including J2EE and Web cache, Portal and Wireless, Business Intelligence, Forms and Report Services and Business Intelligence and Forms. Cloning makes automatic context specific adjustments like IP address, hostname etc. Cloning Wizard also allows instance specific configuration like instance name, instance administrative password and the name of Oracle AS Cluster that the cloned instance should join.

Extend Real Application Clusters

Select Real Application Clusters (RAC)

Select the Oracle Real Application Clusters (RAC) you wish to extend. The Clusterware and Automatic Storage Management (ASM) will also be extended if these do not already exist.

Search

Select Name	Member Nodes	Oracle Home	Platform	Product
Available Cluster Databases				
<input checked="" type="radio"/> orcl (1)	stawh15.us.oracle.com	/u01/app/oracle/OraDB10g_home2	Red Hat Enterprise Linux AS release 4 (Nahant Update 3)	Oracle Database 10.2.0.3.0
<input type="radio"/> raccac (2)	stawh19.us.oracle.com, stawh18.us.oracle.com	/u01/app/oracle/rac_10202/db_1	Red Hat Enterprise Linux AS release 4 (Nahant Update 3)	Oracle Database 10.2.0.2.0
<input type="radio"/> racgdd (2)	stawh18.us.oracle.com, stawh19.us.oracle.com	/u01/app/oracle/rac/db_1	Red Hat Enterprise Linux AS release 4 (Nahant Update 3)	Oracle Database 10.2.0.3.0

[Reference host options - \(stawh15.us.oracle.com\)](#)

Select New Nodes

Select the destination hosts and enter the respective Virtual Node Names.

Host	Virtual Node Name	Remove
To select new nodes, use either the 'Add...' option or the 'Import From File...' option.		

TIP Select hosts that are managed by agents of version 10.2.0.3.0

User Credentials (Override Preferred Credentials)

Preferred Credentials will be enabled only when the credentials for all the targets are available. You may set the Preferred Credentials by selecting 'Preferences' link in Enterprise Manager

Figure 3: Extending RAC cluster with single click

Enterprise Security Advisor

The Enterprise Security Advisor is a facility that enables administrators to have an overview of the enterprise security health and take proactive measures to harden their environment. It includes out-of-box best practices as rules that produce violations in case of deviations. These rules have been enriched and expanded in 10gR4 so that environments can now be more hardened from possible intrusions. The deviations can be in the form of configuration settings, in which case the administrator can modify those, or in the form of a missing security patch, in which case the administrator can invoke the Critical Patch Facility in context, to fix the vulnerability.

RELATED INFORMATION

RELATED SERVICES:

The following services are available from Oracle Support Services:

- Update Subscription Services
- Product Support Services
- OnlineDBA
- OnlineDBA for Applications

Conclusion

The essence of the Provisioning and Patch Automation pack lies in reducing manual labor, especially tedious and error prone tasks, while creating standard software environments that can be managed in a scalable manner. With the rich set of features, it has become an important element in automating operations within the data center. The following table illustrates how Provisioning and Patch Automation pack can save time and labor in a data center.

Provisioning Tasks with and without Oracle Provisioning and Patch Automation Pack						
Task	Operations/Year	# of Systems	Hrs/Yr w/o Oracle Enterprise Manager	Hrs/Yr w/Oracle Enterprise Manager	Hours Saved	Savings Factor
Patch application	25	100	1250	21	1229	60
Oracle software cloning	15	100	1188	250	938	4
RAC Provisioning	10	10	188	75	113	2
Extension of RAC/J2EE cluster	15	10	377	112	265	3
Scaling down RAC/J2EE cluster	15	10	94	37	57	2
Bare metal Linux provisioning	10	100	1188	166	1022	7

Table 1. Based on internal benchmarks, Oracle Provisioning and Patch Automation dramatically reduces the time required to perform provisioning and patching tasks

Contact Us

For more information about Enterprise Manager Provisioning and Patch Automation pack, please visit oracle.com or call +1.800.ORACLE1 to speak to an Oracle representative.



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