



Symantec High Availability Solution for Oracle e-Business Suite

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Introduction

Oracle e-Business Suite (EB-Suite or EBS or OEBS) is the most comprehensive suite of integrated, global business applications that provides integrated business intelligence portfolio, global business platform, and customer-focused applications strategy.

Currently, many organizations rely on OEBS for their business infrastructure to run without any disruptions. A disruption in the infrastructure translates directly into bottom-line business losses. As an organization's information systems become increasingly integrated and interdependent, the potential impact of failures and outages grows to enormous proportions. The challenge for IT organizations is to maintain continuous OEBS availability in a complex, interconnected, and heterogeneous application environment. Additionally, there are significant difficulties in maintenance such as:

- Potential points of failure or disruption
- Interdependencies between components which complicate administration
- Constant changes in the infrastructure

Symantec offers an integrated solution to make OEBS highly available. This paper describes Symantec's high availability (HA) solution for OEBS.

About Oracle e-Business Suite

OEBS is a collection of computer applications such as Enterprise Resource Planning (ERP), Customer Relationship Management (CRM), and Supply-Chain Management (SCM) developed by Oracle. The software utilizes Oracle's core Relational Database Management System (RDBMS) technology. The e-Business Suite contains several product lines. Each product line comprises of several modules. The product lines are as follows:

- Oracle Customer Relationship Management
- Oracle Financials
- Oracle Human Resource Management System
- Oracle Logistics
- Oracle Mobile Supply Chain Applications
- Oracle Order Management
- Oracle Project Portfolio Management
- Oracle Quotes
- Oracle Transportation Management
- Oracle Warehouse Management Systems
- Oracle Inventory
- Oracle Order Management
- Oracle Receivables
- Oracle General Ledger
- Oracle Cost Management

These product lines incorporate significant technologies which include Oracle database technologies (engines for RDBMS, PL/SQL, Java, HTML, and XML) and technology stacks (Oracle Forms Server, Oracle Reports Server, Apache Web Server, Oracle Discoverer, Jinitiator, and Sun's Java).

Symantec's solution for ensuring OEBS availability

Symantec offers an end-to-end fully integrated solution for ensuring high availability of OEBS. The solution simplifies the administration of the complex environment with a single interface and reduces planned and unplanned downtime. Symantec's high availability solution for OEBS combines Symantec's industry-leading hardware independent software for storage management and availability with a deep understanding of the OEBS and its essential components. The result is an out-of-the-box solution which you can quickly deploy to immediately protect critical OEBS from either planned or unplanned downtime.

The Symantec high availability solution for OEBS comprises of the following products:

- **Veritas Storage Foundation** combines Symantec's industry-leading file system solution and volume management solution to create a highly available robust foundation for Oracle data. The journal file system restarts in seconds for fast failovers. Logical volumes support highly available high performance storage configurations. Database specific components such as direct I/O accelerate database read and write performance while simplifying the manageability of database data. Storage Foundation provides database-specific optimizations for Oracle, DB/2, Sybase, Microsoft SQL Server, and Oracle RAC databases.
- **Veritas Storage Foundation Cluster File System** builds upon Symantec's industry leading file system to provide a solution that allows parallel access to data across all members of a cluster. The time required to mount a file system in an event of failover is eliminated as the file system can be mounted on all the nodes in a cluster. It improves failover time. Cluster File System provides cache coherency and POSIX compliance across nodes, ensuring data changes are simultaneously and atomically seen by all cluster nodes.
- **Veritas Cluster Server** clusters critical applications and resources, eliminating planned and unplanned downtime. Special agents for OEBS Components, Concurrent Manager, Oracle Application Server, and Oracle database ensure maximum application availability by monitoring and centrally managing all the critical components of your business.
- **Veritas Cluster Server agent for Oracle e-Business Components** starts the Oracle e-Business Components while taking them online, stops them while taking them offline, monitors them for critical processes, and cleans the environment in case of any issues. This agent is packaged with the VCS license.
For more information, refer to [About the VCS Agent for Oracle e-Business Components](#).
- **Veritas Cluster Server agent for Oracle e-Business Concurrent Manager** starts the Oracle e-Business Concurrent Manager while taking it online, stops it while taking it offline, monitors it for critical processes, and cleans the environment in case of any issues. This agent is packaged with the VCS license.
For more information, refer to [About the VCS Agent for Oracle e-Business Concurrent Manager](#).
- **Veritas Cluster Server agent for Oracle Database and Net Listener** starts the Oracle Database and Database Net Listener while taking them online, stops them while taking them offline, monitors them for critical processes, and cleans the environment in case of any issues. This agent is packaged with the VCS license.
- **Veritas Cluster Server agent for Oracle Application Server** starts the Oracle Application Server Components while taking them online, stops them while taking them offline, monitors them for critical processes, and cleans the environment in case of any issues. This agent is packaged with the VCS license.

Additional information about the Veritas agents is available in the following documents:

- *Veritas™ High Availability Agent for Oracle e-Business Components Installation and Configuration Guide*
- *Veritas™ High Availability Agent for Oracle Application Server Installation and Configuration Guide*
- *Veritas™ High Availability Agent for Oracle e-Business Concurrent Manager Installation and Configuration Guide*

About the OEBS architecture

Oracle applications architecture is a multi-tiered and distributed computing framework. It supports Oracle applications products. In this model, various servers are distributed among multiple levels or tiers. Oracle applications have a three tier architecture that consists of the desktop tier, the application tier, and the database tier.

- **The desktop tier** – The client interface is provided through HTML for the newer HTML-based applications and through a Java applet in Web browser for traditional forms-based interface.
- **The application tier** – It performs a dual role. It hosts various servers that process the business logic and manages the communication between the desktop tier and the database tier. This tier is also referred as the middle tier.
- **The database tier** – It contains the Oracle data server files and Oracle Applications database executables that physically store the tables, indexes, and other database objects for your system. The database server does not directly communicate with the desktop clients. It communicates with the servers on the application tier, which mediate the communication between the database servers and the clients.

Oracle application's architecture is majorly changed at application tier level in the 11i and R12 releases. The following sections explain the 11i architecture and R12 architecture.

About the Oracle e-Biz 11i architecture

The Oracle Applications 11i architecture contains Oracle9i Application Server (9iAS), which provides the technology used on the application tier. The application tier for Oracle applications comprises of the following six servers.

- **The web server** – The Oracle HTTP server (powered by Apache) acts as the web server. It processes the requests received over the network from the desktop clients.
- **The forms server** – It hosts the Oracle Applications forms and associated runtime engine that support the professional interface. It is an Oracle Developer 6i component that mediates the communication between the desktop client and the Oracle database server, displaying client screens and initiating changes in the database according to user actions.
- **The reports server** – It generates reports and resides on the node where the concurrent processing server is installed. It is administered separately from the concurrent processing server.
- **The discoverer server (optional)** – It is an ad hoc query, reporting, analysis, and publishing tool which allows business users at all levels of an organization to gain immediate access to information from data marts, data warehouses, and online transaction processing (OLTP) systems.
- **The concurrent processing server** – It is responsible for processing concurrent requests. The processes that run on the concurrent processing server are called concurrent requests. When you submit such a request either through HTML-based applications or forms-based applications, a row is inserted into a database table. The row specifies the program that needs to be run. A Concurrent Manager then reads the applicable requests in the table and starts the associated concurrent program.
- **The admin server (administration server)** – It is responsible for upgrading Oracle applications, applying database patches, or maintaining Oracle Application's data. It resides on the node where you maintain the data model and data in the Oracle applications database.

Figure 1 shows the OEBS 11i 3-tier architecture.

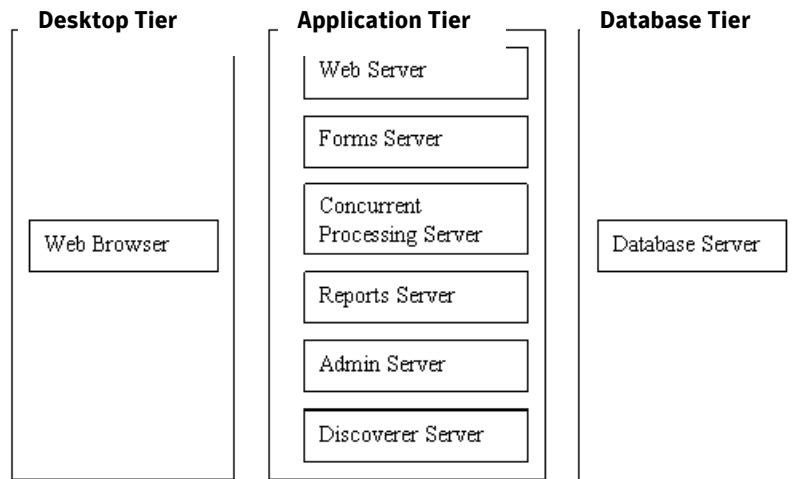


Figure 1: OEBS 11i 3-tier architecture

Figure 2 explains the different Oracle homes in the database tier and the application tier.

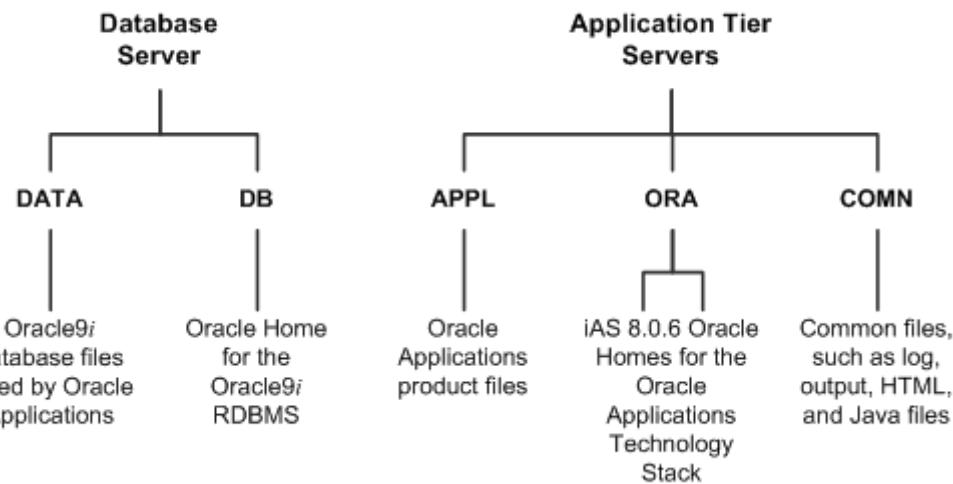


Figure 2: Oracle e-Business Suite 11i database tier and application tier

About the Oracle e-Biz R12 architecture

The R12 file system has developed a new model. Code, data, and configurations are segregated for easy maintenance and to avert NFS mount issues on shared application tier configuration systems. In R12, auto-config does not write in APPL_TOP and COMMON_TOP area. All instance specific configurations and log files are written in INST_TOP area. Instance home provides the ability to share applications and technology stack code among multiple instances.

In R12, the application tier contains Oracle application server 10g (OAS10g). Three servers or service groups comprise the basic application tier for Oracle applications. They are as follows:

- **The web services** in Oracle application server processes requests received over the network from desktop clients.
- **The forms services** in Oracle applications R12 are provided by the forms listener servlet or form socket mode, which facilitates the use of firewalls, load balancing, proxies, and other networking options.
- **The concurrent processing server** is responsible for processing concurrent requests. The processes that run on the concurrent processing server are called concurrent requests. When you submit such a request, either through HTML-based applications or forms-based applications, a row is inserted into a database table. The row specifies the program that needs to be run. A Concurrent Manager then reads the applicable requests in the table, and starts the associated concurrent program.

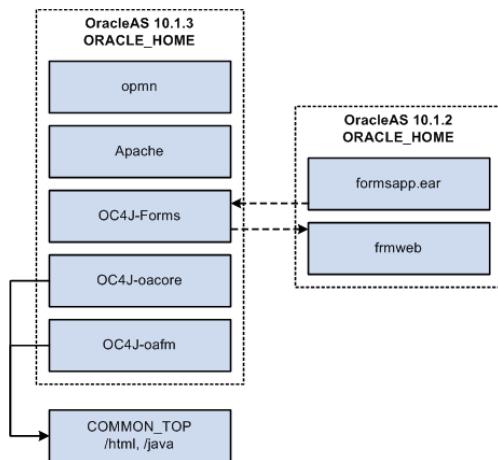
Note: There is no concept of an administration server in R12. By default, patching can be undertaken from any application tier node.

About the Oracle application server 10g

Two versions of Oracle application server 10g (OAS10g) are used. They are as follows:

- **The Oracle application server 10.1.2 ORACLE_HOME** (also referred as Tools, C, or Developer ORACLE_HOME) replaces the 8.0.6 ORACLE_HOME provided by Oracle9i Application Server 1.0.2.2.2 in Release 11i.
- **The Oracle application server 10.1.3 ORACLE_HOME** (also referred as Web or Java ORACLE_HOME) replaces the 8.1.7-based ORACLE_HOME provided by Oracle9i Application Server 1.0.2.2.2 in Release 11i.

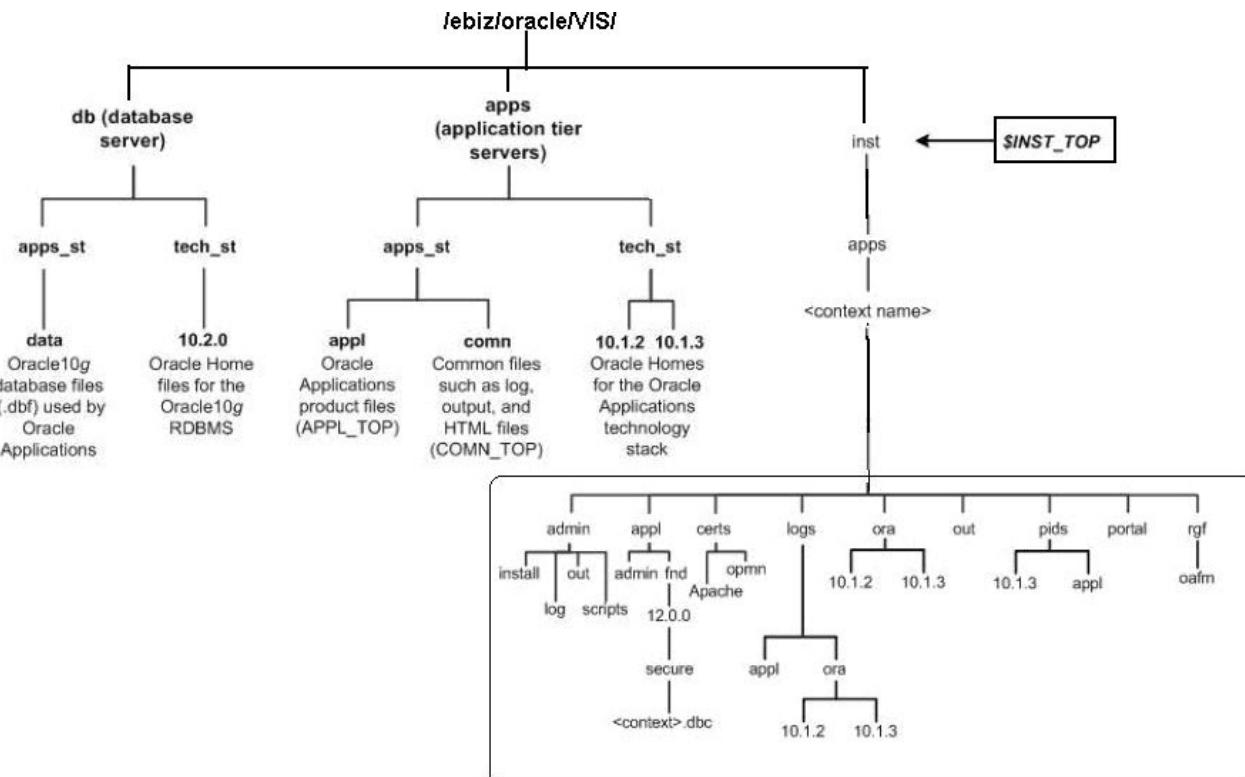
Figure 3 shows the components available in OAS 10.1.2 and OAS 10.1.3 and interaction between them.

**Figure 3: R12 e-Biz Oracle homes**

About the R12 e-Biz directory structure

The image describes the complete directory structure for complete e-Biz installation. The e-Biz installation consists of existing DB_TOP, APPL_TOP and new INST_TOP area. The INST_TOP contains the configuration files, the start-stop scripts, the log files, the certificate files, the pid files, and so on. The DB_TOP area and APPL_TOP area are untouched for any instance specific changes, thus, allowing you to make them read only.

Figure 4 explains the R12 e-Biz directory structure.

**Figure 4: R12 e-Biz directory structure**

About the VCS agent for Oracle e-Business components

The agent for Oracle e-Business components brings the component instances online, monitors the instances, and brings the instances offline. The agent monitors the system processes, server states, and can shutdown the Oracle e-Business component instance in case of a failover. It supports both the 11i release and the R12 releases of Oracle e-Business component.

The agent manages the following Oracle e-Business components:

Version	Components
R12	Administration Listener
	OPMN
	OC4J Forms Server
	OC4J OACORE
	OC4J OAFM
	HTTP Server
	Fulfillment Server
	Discoverer 10g
11i	Administration Listener
	Forms Server
	Forms Metrics Server
	Forms Metrics Client
	Forms Listener
	FulfillmentServer
	Report Server
	Discoverer 4
	9IAS R1 Web Application Server
	9IAS R1 Web Application Server Listener

Note: Use the VCS Agent for Oracle application server (OracleAS9) to configure the Discoverer 10g component.

For more information about the VCS Agents for Oracle e-Business Components, refer to the *Veritas™ High Availability Agent for Oracle e-Business Components Installation and Configuration Guide*.

About the Oracle application server

The Oracle application server is a standard based application server that provides a comprehensive and fully integrated platform for running web sites, J2EE applications, and web services. It provides full support for J2EE platform, XML, emerging web services, and grid standards.

The Oracle application server provides components that address the development and deployment challenges common to e-Business Web sites. These solutions include:

- J2EE and Internet applications
- Portals
- Wireless
- Business intelligence (Oracle application server forms services, report server, and discoverer)
- e-Business integration
- Web cache
- System management (Oracle enterprise manager 10g)
- Identity management and security

For more information about the VCS Agents for Oracle Application Server, refer to the *Veritas™ High Availability Agent for Oracle Application Server Installation and Configuration Guide*.

About the OEBS Concurrent Manager

The Concurrent Manager manages your concurrent requests in OEBS environment. You can assign single request or batch job and allow the Concurrent Manager to manage these requests. The Concurrent requests execute the concurrent programs at scheduled intervals or as per business requirement. These programs can be implemented in PL/SQL, Shell Script, C/C++, and so on.

The Concurrent Manager is responsible for:

- Executing the concurrent programs
- Ensuring that each concurrent program runs successfully without any conflicts and the applications are not overloaded with requests
- Managing the batch processing and report generation
- Taking care of the job load
- Scheduling the jobs periodically
- Running the concurrent programs according to assigned priorities in specific work-shifts
- Adjusting the number of concurrent processes that it can handle concurrently

The default installation of Oracle applications includes installation of a number of pre-defined Concurrent Managers. However, you can create custom Concurrent Managers to spread out the load of your job processing. Apart from the pre-defined Concurrent Managers, there are super Concurrent Managers who are responsible for governing the behavior of the slave Concurrent Managers.

OEBS has Concurrent Managers namely Internal Concurrent Manager (ICM), Standard Manager (SM), Conflict Resolution Manager (CRM), and Transaction Manager. ICM, SM, and CRM are important master Concurrent Managers. A brief description of each of the manager is as follows:

- **Internal Concurrent Manager** – The ICM is the master Concurrent Manager. It controls the behavior and the functioning of the other managers. It runs before any other manager can be activated. The main function of the ICM is to start up and shutdown the individual Concurrent Managers; and reset the other managers after one of them experiences a failure.
- **Standard Manager** – The SM is a master Concurrent Manager. The main function of the SM is to run reports and batch jobs that have not been defined to run in any specific product manager. For example, the Inventory Manager, the CRP Inquiry Manager, and the Receivables Tax Manager.
- **Conflict Resolution Manager** – The main function of CRM is to check concurrent program definitions for incompatibility rules. However, the ICM can be configured to take over the CRM's job to resolve incompatibilities.
- **Transaction Manager** – The main function of the transaction manager is to take off the load of the concurrent request table for pooling the request submitted by the user. It takes care of these requests and directly sends it to Standard Manager. In a RAC environment the Transaction Manager is required to be activated on each node of the RAC environment.

Oracle provides scripts to monitor Concurrent Managers. For more information, refer to [About the Concurrent Manager scripts](#).

Different Concurrent Managers are started by different executables. For more information about executables, refer to [About the Concurrent Manager executables](#).

About the Concurrent Manager executables

The Concurrent Managers run on Oracle applications executable. The **FNDLIBR** executable is located at \$FND_TOP/bin.

You could also grep the FNDLIBR executable to check if any Concurrent Manager processes are running.

```
$ ps -ef | grep FNDLIBR
```

The \$FND_TOP/sql/afcmstat.sql script provides a list of Concurrent Managers and their respective status.

FNDSM is the Generic Service Management Framework Process (GSM). It is executable and core component in GSM. It starts the FNDSM services through application listener on all nodes in application tier in OEBS.

Each executable manages particular managers. The list is as follows:

- **FNDLIBR** manages the following Managers:
 - Marketing Data Mining Manager
 - Transportation Manager
 - Session History Cleanup
 - UWQ Worklist Items Release for Crashed session
 - Collections Manager
 - OAM Metrics Collection Manager
 - Contracts Core Concurrent Manager
 - Standard Manager
 - WMS Task Archiving Manager
 - Oracle Provisioning Manager
- **INVLIBR** manages the Inventory Manager
- **MRCLIB** manages the MRP Manager
- **PALIBR** manages the PA Streamline Manager

About the Concurrent Manager scripts

Oracle supplies several scripts (located in \$FND_TOP/sql directory) for monitoring the Concurrent Managers. The scripts and their description are as follows:

afcmstat.sql	Displays the defined managers, their maximum capacity, pids, and their status.
afimchk.sql	Displays the status of ICM and PMON method in effect, the ICM's log file, and determines if the Concurrent Manager monitor is running.
afcmcreq.sql	Displays the Concurrent Manager and the name of its log file that processed a request.
afrqwait.sql	Displays the requests that are pending, held, and scheduled.
afrqstat.sql	Displays the summary of concurrent request execution time and status since a particular date.
afqpmrid.sql	Displays the operating system process ID of the FNDLIBR process based on a concurrent request ID. The process ID can then be used with the ORADEBUG utility.
afimlock.sql	Displays the terminal ID and process ID that may be causing locks. These locks are awaited by the ICM and CRM. You should run this script if there are long delays when submitting jobs or if you suspect that ICM is in a gridlock with another oracle process.

About the VCS Agent for Oracle e-Business Concurrent Manager

The agent for Oracle e-Business Concurrent Manager brings the Concurrent Manager instances online, monitors the instances, and brings the instances offline. The agent monitors the system processes, server states, and can shutdown the Oracle e-Business Concurrent Manager instance in case of a failover. It supports 11i release and R12 release of Oracle e-Business component.

For more information about the VCS Agents for Oracle e-Business Concurrent Manager, refer to the *Veritas™ High Availability Agent for Oracle e-Business Concurrent Manager Installation and Configuration Guide*.

Setting up a cluster

Setting up a cluster involves installing OEBS on a virtual IP, configuring the VCS agents for OEBS, and configuring service groups and resources.

Installing OEBS on virtual IP

The Oracle e-Business Concurrent Manager is installed along with OEBS installation. You can install OEBS on virtual IP (virtual host name) by following the mentioned steps:

1. Enable the IP address assigned to the Concurrent Manager component.
2. Run the Oracle supplied installer
\$ rapidwiz -servername <virtual hostname>
where,
<virtual hostname> is the virtual host name of the CM instance.
3. Follow the instructions in the installation GUI and complete the component installation.

For more information on installing OEBS, refer to the *Installation and Configuration Guide* for Oracle e-Business Components, Oracle e-Business Concurrent Manager, and Oracle Application Server.

About configuration of VCS agents for OEBS

VCS uses application specific agents to start, stop, monitor, and switch over different applications and infrastructure components. VCS environment running OEBS uses the VCS agents for Oracle e-Business components, Oracle e-Business Concurrent Manager, Oracle application server, and Oracle database.

To configure OEBS under VCS, you need to install and configure VCS agents for Oracle e-Business Components, Oracle e-Business Concurrent Manager, Oracle Application Server based upon the component configured.

For more information on installing and configuring VCS agents for Oracle EBS, refer to the *Installation and Configuration Guide* for Oracle e-Business Components, Oracle e-Business Concurrent Manager and Oracle Application Server.

About service groups and resources configuration

Configuring the OEBS service group involves creating OEBS service group, creating its resources, and defining attribute values for the configured resources.

These service groups should be configured such that the cluster can start, stop, monitor, and switch the service groups between the nodes, depending upon the server or the resource faults. You must have administrator privileges to create and configure a service group.

Each OEBS service group contains a set of dependent resources. The application requires lower-level components to operate successfully. The resources include disk groups, disk volumes, file systems, IP addresses, and dependent application processes. The resources within a service group have dependencies, which define the start and the stop order that VCS uses to bring the service group online and offline.

For more information about configuring the service group, refer to the *Installation and Configuration Guide* for Oracle e-Business Components, Oracle e-Business Concurrent Manager and Oracle Application Server.

OEBS deployment scenarios

OEBS can be installed on a single node or on multiple nodes. Usually the OEBS clusters contain 2-node or 4-node clusters. In 2-node clusters everything can be installed on one node and the other node can be used for failover, or one node is used for database and other for apps and they can fail over to the other in case of system failure. In 4-node clusters the applications and database are installed on two different nodes and two additional nodes are used for failover purpose.
Few sample deployment scenarios with 2-node and 4-node clusters are as follows:

4-node cluster with 2 nodes for apps failover and 2 nodes for database failover

This sample deployment scenario consists of 4-node cluster, where two nodes are configured as Oracle database and other two nodes are used for Oracle applications R12 services.

Two service groups are created—one for apps and other for db resources.

The apps service group is configured on OracleEBiz_sys1 and OracleEBiz_sys2. The SG contains the following resources:

1. v12apps_formsserver: This resource manages Oracle e-Biz FormsServer component. This resource is of OracleApps agent type.
2. v12apps_opmn: This resource manages Oracle e-Biz OPMN component. This resource is of OracleApps agent type.
3. v12apps_oacore: This resource manages Oracle e-Biz OACORE component. This resource is of OracleApps agent type.
4. v12apps_oafm: This resource manages Oracle e-Biz OAFM component. This resource is of OracleApps agent type.
5. v12apps_webserver: This resource manages Oracle e-Biz HTTP_SERVER component. This resource is of OracleApps agent type.
6. v12apps_fulfillmentserver: This resource manages Oracle e-Biz fulfillment component. This resource is of OracleApps agent type.
7. v12apps_listener: This resource manages Oracle e-Biz listener component. This resource is of OracleApps agent type.
8. v12apps_cm: This resource manages Oracle e-Biz Concurrent Manager. This resource is of OracleAppsCM agent type.
9. v12apps_discoverer: This resource manages Oracle business intelligence discoverer. This resource is of OracleAS9 agent type.

The database service groups are configured on OracleEBiz_sys3 and OracleEBiz_sys4. The SG contains the following resources:

- v12db_Oracle: This resource manages Oracle database. This resource is of Oracle agent type.
- v12db_Netlsnr: This resource manages Oracle database Net Listener. This resource is of Netlsnr agent type.

Moreover, both the service groups contain resources for NIC, IP, diskgroup, and mount.

Figure 5 shows the resources with their respective agent types in tree structure.

Figure 6 shows the service group dependency. The v12_apps service group is online only when the v12_db service group is completely online on one system in the cluster. The Concurrent Manager and other components need the database to be up before they go online.

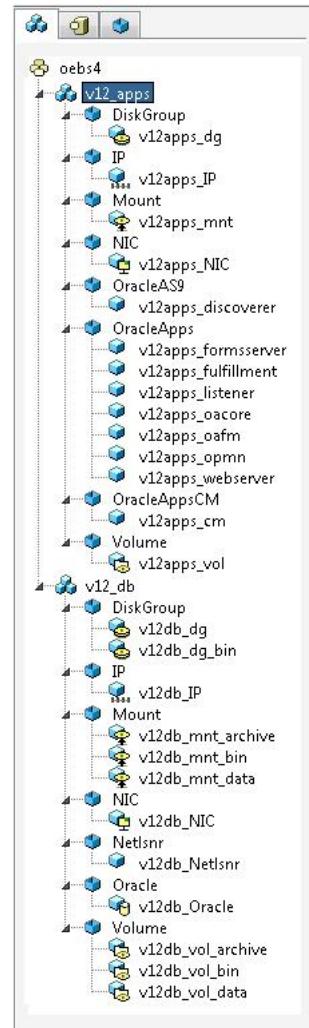


Figure 5: Resource tree for R12 e-Biz instance

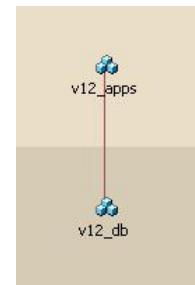


Figure 6: Service group dependency for R12 e-Biz instance

Figures 7 and 8 show the sample service groups with resource dependency for OEBS and Oracle database.

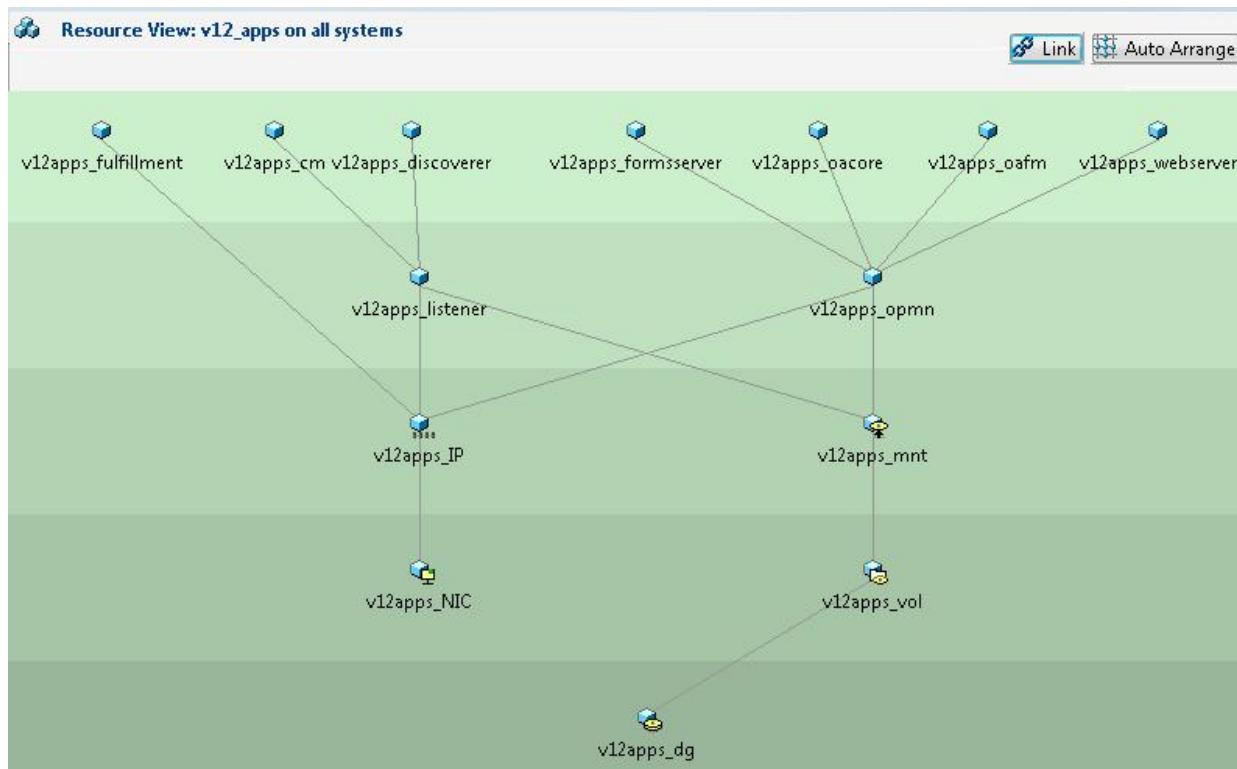


Figure 7: Resource dependency diagram for Oracle Apps instance

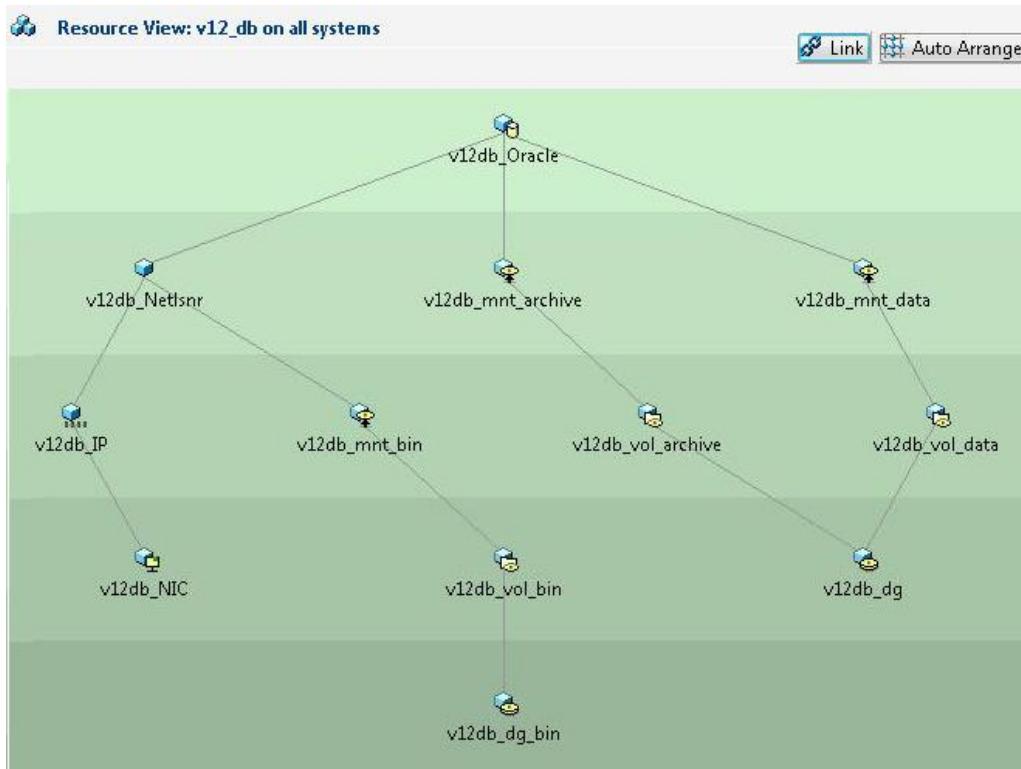


Figure 8: Resource dependency diagram for Oracle database instance

Figures 9, 10, and 11 show the sample attribute description for different agent types.

Figure 9 shows the attributes and their respective values for v12apps_formserver resources, which is of OracleApps agent type. This resource takes attributes namely User, OracleHome, ScriptHome, EnvFile, DBConnectionString, VirtualHostName, and ServerType.

For more information, refer to Chapter 4 *Configuring the agent for Oracle e-Business Components in the Veritas™ High Availability Agent for Oracle e-Business Components Installation and Configuration Guide*.

Type Specific Attributes	
Attribute	Value
• ResLogLevel	: INFO
• User	: oracle
• OracleAppsVersion	: 12
• OracleHome	: /d04/oracle/VIS12/apps/tech_st/10.1.3
• ScriptHome	: /d04/oracle/VIS12/inst/apps/VIS12_linux01/admin/scripts
• EnvFile	: /d04/oracle/VIS12/inst/apps/VIS12_linux01/ora/10.1.3/VIS12_linux01.env
• ServerType	: FormsServer
• Port	: 0
• DBConnectionString	: VIS12
• SecondLevelMonitor	: 0
• MonitorProgram	:
• VirtualHostname	: linux01

Figure 9: OracleApps attribute description

Figure 10 shows the attributes and their respective values for v12apps_cm resources, which is of OracleAppsCM agent type. This resource takes attributes namely User, OracleHome, ScriptHome, SQLDIRm EnvFile, DB_USER, DB_Password, VirtualHostName, ProcMon, and ProcClean. ProcMon contains the concurrent manager processes that are mandatory for declaring the concurrent manager to be online. ProcClean contains the processes, which needs to be cleaned after failure.

For more information, refer to Chapter 4 *Configuring the agent for Oracle e-Business Concurrent Manager in the Veritas™ High Availability Agent for Oracle e-Business Concurrent Manager Installation and Configuration Guide*.

Type Specific Attributes	
Attribute	Value
• ResLogLevel	: INFO
• User	: oracle
• OracleHome	: /d04/oracle/VIS12/apps/tech_st/10.1.2
• ScriptHome	: /d04/oracle/VIS12/inst/apps/VIS12_linux01/admin/scripts
• SQLDIR	: /d04/oracle/VIS12/apps/apps_st/app/fnd/12.0.0/sql
• EnvFile	: /d04/oracle/VIS12/apps/apps_st/app/APPSVIS12_linux01.env
• DB_USER	: apps
• DB_Password	: eqfSesEsh
• VirtualHostname	: linux01
• SecondLevelMonitor	: 1
• MonitorProgram	:
• ProcMon	: FNDLIBR FNDSM
• ProcClean	: FNDLIBR FNDSM PALIBR INVLIBR MRCLIB FNDCRM APPS RCVOLTM APPS POXCON APPS INCTM APPS CYQLIB APPS

Figure 10: OracleAppsCM attribute description

Figure 11 shows the attributes and their respective values for v12apps_discoverer resources, which is of OracleAS9 agent type. This resource takes three mandatory attributes namely User that is valid UNIX user, OracleHome for discoverer instance, and ComponentProcessType whose value is discoverer.

For more information, refer to Chapter 4 *Configuring the agent for Oracle Application Server* in the *Veritas™ High Availability Agent for Oracle Application Server Installation and Configuration Guide*.

Attribute	Value
• ResLogLevel	: INFO
• User	: oracle
• OracleHome	: /d04/oracle/MIS12/DiscoHome
• ComponentProcessType	: Discoverer
• SecondLevelMonitor	: 0
• MonitorProgram	:

Figure 11: OracleAS9 attribute description

2-node cluster with apps and database on different nodes

This sample deployment scenario consists of 2-node cluster, where Oracle database is up and running on one node and Oracle applications R11 Services are up and running on other node. At the time of failure, one is failed-over to the other node.

Two service groups are created, one for apps and other for db resources.

The apps service group is configured on OracleEBiz11i_sys1. The SG contains the following resources:

1. v11apps_FORMSSERVER: This resource manages Oracle e-Biz FormsServer component. This resource is of OracleApps agent type.
2. v11apps_REPORTSERVER: This resource manages Oracle e-Biz report server component. This resource is of OracleApps agent type.
3. v11apps_FMC: This resource manages Oracle e-Biz Form metric client component. This resource is of OracleApps agent type.
4. v11apps_FMS: This resource manages Oracle e-Biz Form metric server component. This resource is of OracleApps agent type.
5. v11apps_WEB SERVER: This resource manages Oracle e-Biz web server component. This resource is of OracleApps agent type.
6. v11apps_FULFILMENT: This resource manages Oracle e-Biz fulfillment server component. This resource is of OracleApps agent type.
7. v11apps_LISTENER: This resource manages the Oracle e-Biz listener Component. This resource is of OracleApps agent type.
8. v11apps_CM: This resource manages the Oracle e-Biz Concurrent Manager. This resource is of OracleAppsCM agent type.
9. v11apps_discoverer: This resource manages Oracle business intelligence discoverer. This resource is of OracleApps agent type.

Note: In this scenario, there are three mount points in v11apps_SG service group that is for APPL_TOP, COMMON_TOP, and ORA_TOP.

The database service group is configured on OracleEBiz11i_sys2. The SG contains the following resources:

1. v11apps_ORA: This resource manages the Oracle Database. This resource is of Oracle agent type.
2. v11apps_ORA_LSNR: This resource manages the Oracle Database Net Listener. This resource is of Netlsnr agent type.

Note: In this scenario, there are five mount points in v11apps_db_SG service group that is two for archive logs, one for redo logs, one for data, and one for database binary files.

Moreover, both the service groups contain the resources for NIC, IP, diskgroup and mount.

Figure 12 shows the resources with their respective agent types in tree structure.

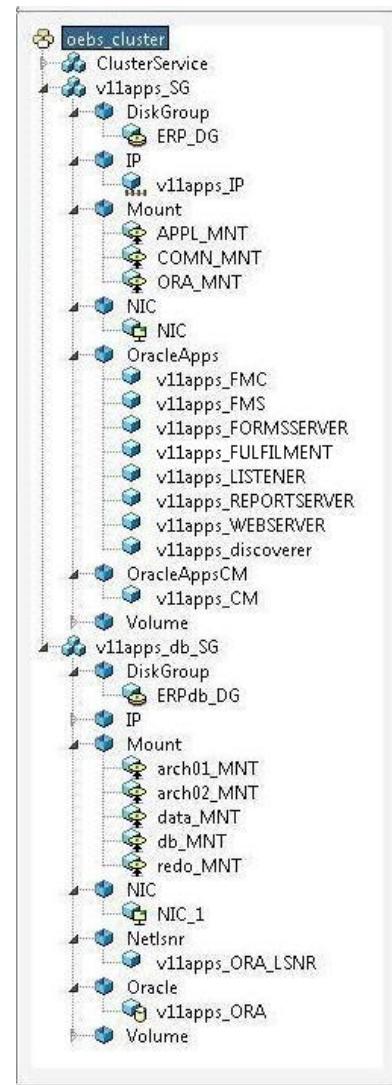


Figure 12: Resource tree for 11i e-Biz instance

Figure 13 shows the service group dependency. The v11_apps_SG service group is online only when the v11apps_db_SG service group is completely online on one system in the cluster. The Concurrent Manager and other components need the database to be up before they go online. The service group dependency type is firm online local here.



Figure 13:
Service group dependency for 11i e-Biz instance

Figures 14 and 15 show the sample service groups with resource dependency for OEBS and Oracle database.

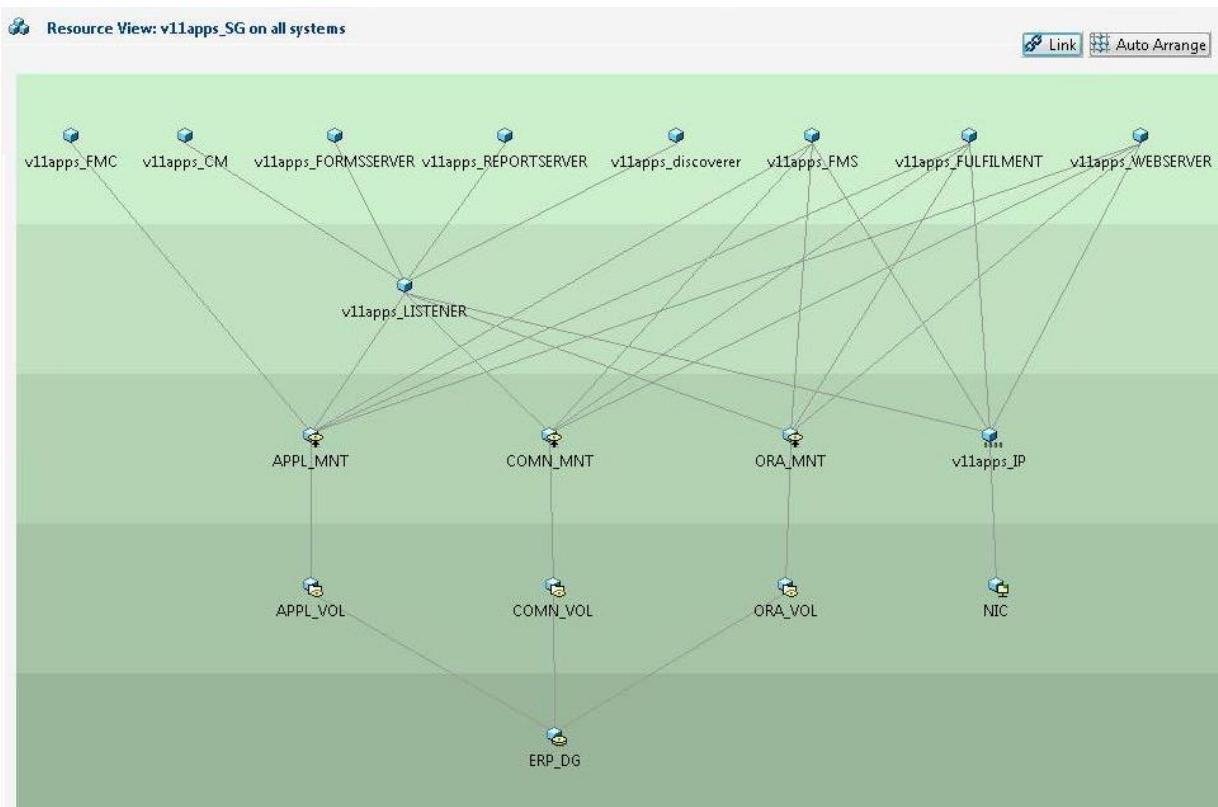


Figure 14: Resource dependency diagram for Oracle Apps instance

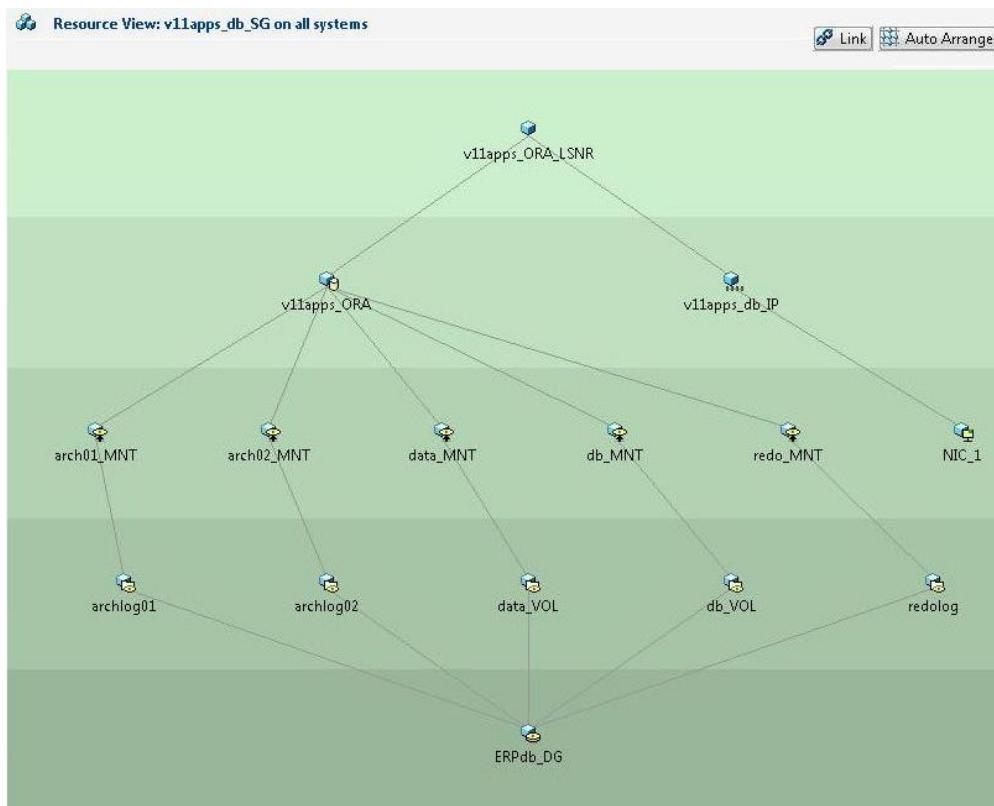


Figure 15: Resource dependency diagram for Oracle database instance

Figures 16 shows some sample attribute description for different agent types:

Figure 16 shows the attributes and their respective values for v12apps_formserver resources, which is of OracleApps agent type. This resource takes attributes namely User, OracleHome, ScriptHome, EnvFile, DBConnectionString, VirtualHostName, and ServerType.

For more information, refer to Chapter 4 *Configuring the agent for Oracle e-Business Components in the Veritas™ High Availability Agent for Oracle e-Business Components Installation and Configuration Guide*.

Attribute	Value
• ResLogLevel	: INFO
• User	: oraebiz
• OracleAppsVersion	: 0
• OracleHome	: /u01/oracle/oratop/8.0.6
• ScriptHome	: /u01/oracle/comntop/admin/scripts/_erpprod
• EnvFile	: /u01/appstop/APPS_erp.env
• ServerType	: ReportServer
• Port	: 7000
• DBConnectionString	: APPS
• SecondLevelMonitor	: 0
• MonitorProgram	:
• VirtualHostname	: erp

Figure 16: OracleApps attribute description

About Symantec

Symantec is a global leader in infrastructure software, enabling businesses and consumers to have confidence in a connected world. The company helps customers to protect their infrastructure information, and interactions by delivering software and services that address risks to security, availability, compliance, and performance. Headquartered in Cupertino, Calif., Symantec has operations in 40 countries. More information is available at www.symantec.com.

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