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Serviceguard Manager – Administration, Configuration, Monitoring and Role Based Access



Agenda

- **HA overview**
- **Serviceguard Manager features**
- **Monitoring**
- **Administration**
- **Role Based Access**
- **Configuration**
- **Futures**
- **Q&A**



HA technology Components - HPUX/Linux



Serviceguard Manager

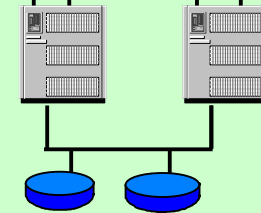


Availability through Manageability:

- Monitoring
- Administration
- Configuration
- Role Based Access
- Ease of Use

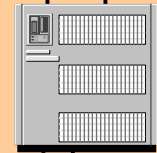
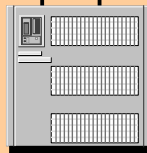


MetroCluster
ContinentalCluster



Disaster
Tolerance

Single
system
Availability



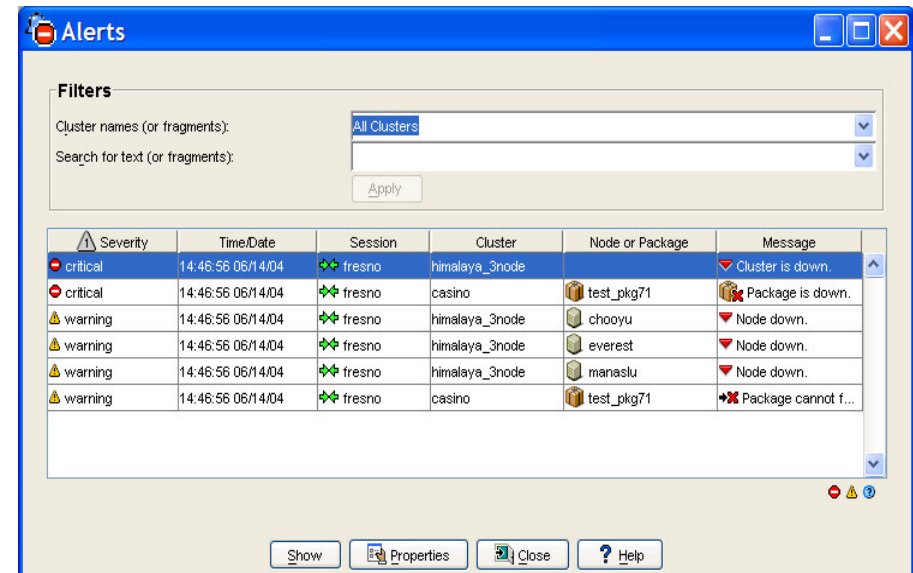
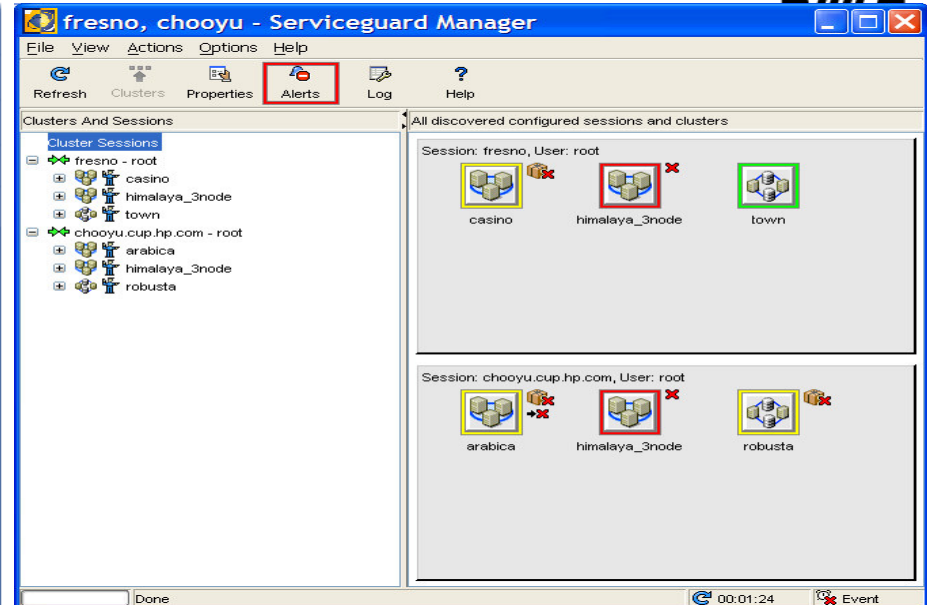
Multi-system
Availability

SG and SGeRAC
Clusters

HP-UX/LINUX today

Serviceguard Manager Features Overview

- View and manage HP-UX and Linux Serviceguard clusters
 - Multiple subnet support
 - Status badges and tool tips
 - Property sheets
 - Auto refresh (Polling)
 - Large scale cluster display
- Graphical user interface
 - Run and halt clusters, nodes and packages
 - Change package and node switching parameters
 - Package drag and drop
- Cluster, node and package administration
- Alerts panel and event browser
- Extensive online help



Serviceguard Manager Features Overview cont'd.

➤ Configuration

- Cluster create/modify/delete
- Package create/modify/delete
- Operation Log (Progress messages) for configuration and administration operations

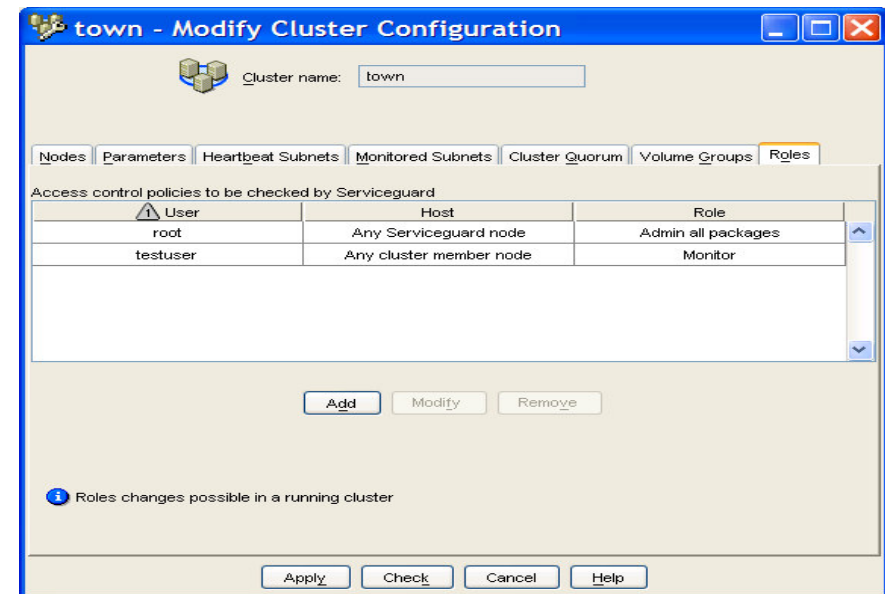
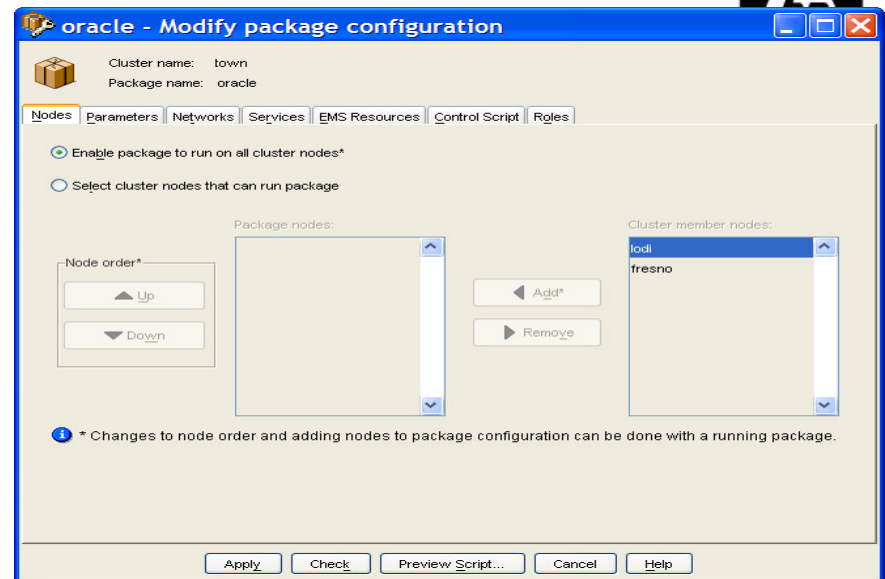
➤ Role based access

- Management of cluster and package access policies
- Administration for non-root user

➤ Integrated with Openview Operations 8.0

➤ Integrated with HP SIM 4.1

➤ Serviceguard Manager can run as client on HPUX, Linux and Windows platform



Serviceguard Manager User Interface

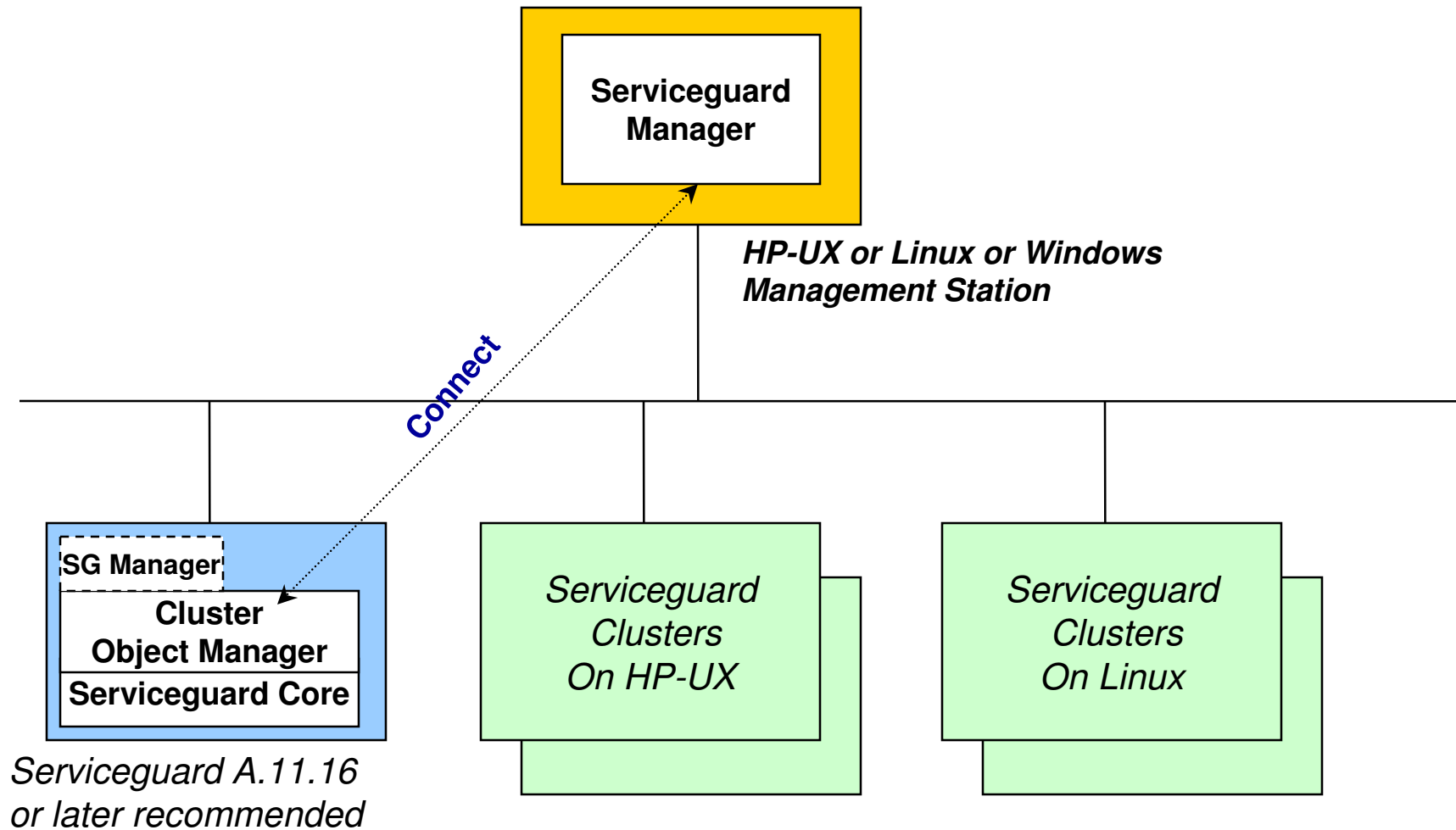


The screenshot shows the Serviceguard Manager interface for a cluster named 'arabica'. The interface is divided into several sections:

- Menu Bar:** Located at the top, containing 'File', 'View', 'Actions', 'Options', and 'Help'.
- Tool Bar:** Below the menu bar, containing icons for 'Refresh', 'Clusters', 'Properties', 'Alerts' (highlighted with a red box), 'Log', and 'Help'.
- Tree:** A left-hand pane showing a hierarchical view of cluster sessions. The 'arabica' session under 'chooyu.cup.hp.com - root' is selected.
- Map Title/Description:** A header for the main map area, displaying 'All nodes and packages in cluster arabica'.
- Map:** A central area showing a hierarchical diagram of the cluster. The root node is 'arabica', which branches into nodes 'decaf', 'latte', and 'moca'. 'decaf' further branches into packages 'pkg1_test', 'pkg2_test', and 'snp'. The 'SAP' package is shown as a separate node below 'snp'. Some nodes and packages have red boxes and 'X' icons, indicating errors or alerts.
- Progress Bar:** A bar at the bottom left showing 'Done'.
- Status Bar:** A bar at the bottom right showing an 'Auto-Refresh Timer' set to '00:01:50' and an 'Event' status icon.



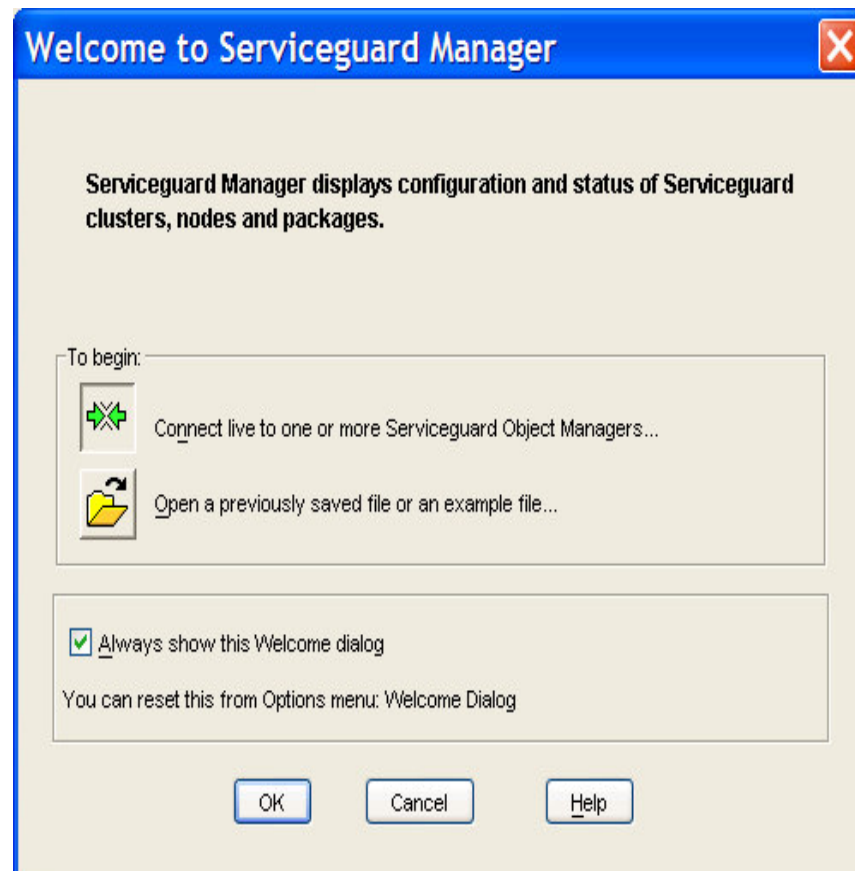
Serviceguard Manager Environment



Sessions

- 2 types of sessions
 - Connect live to Serviceguard node (Cluster Object Manager – COM)
 - Open a previously saved cluster data file (.sgm)

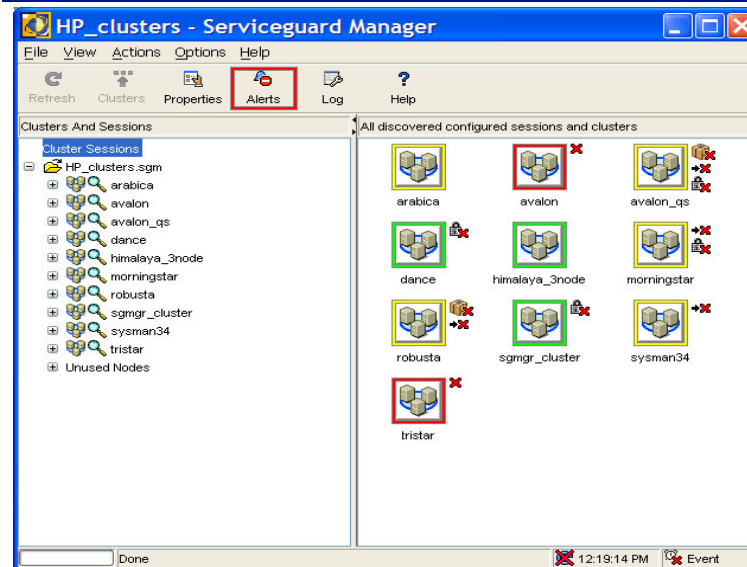
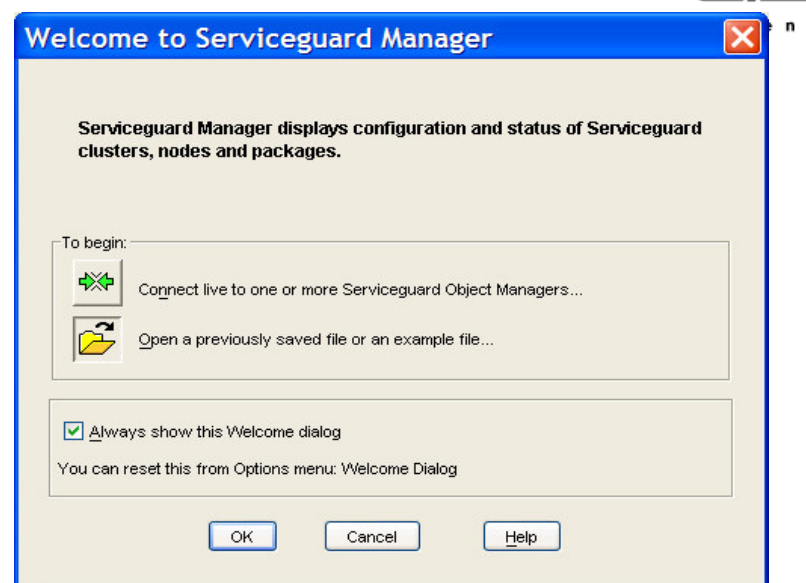
- Saved session and live session cannot be viewed together



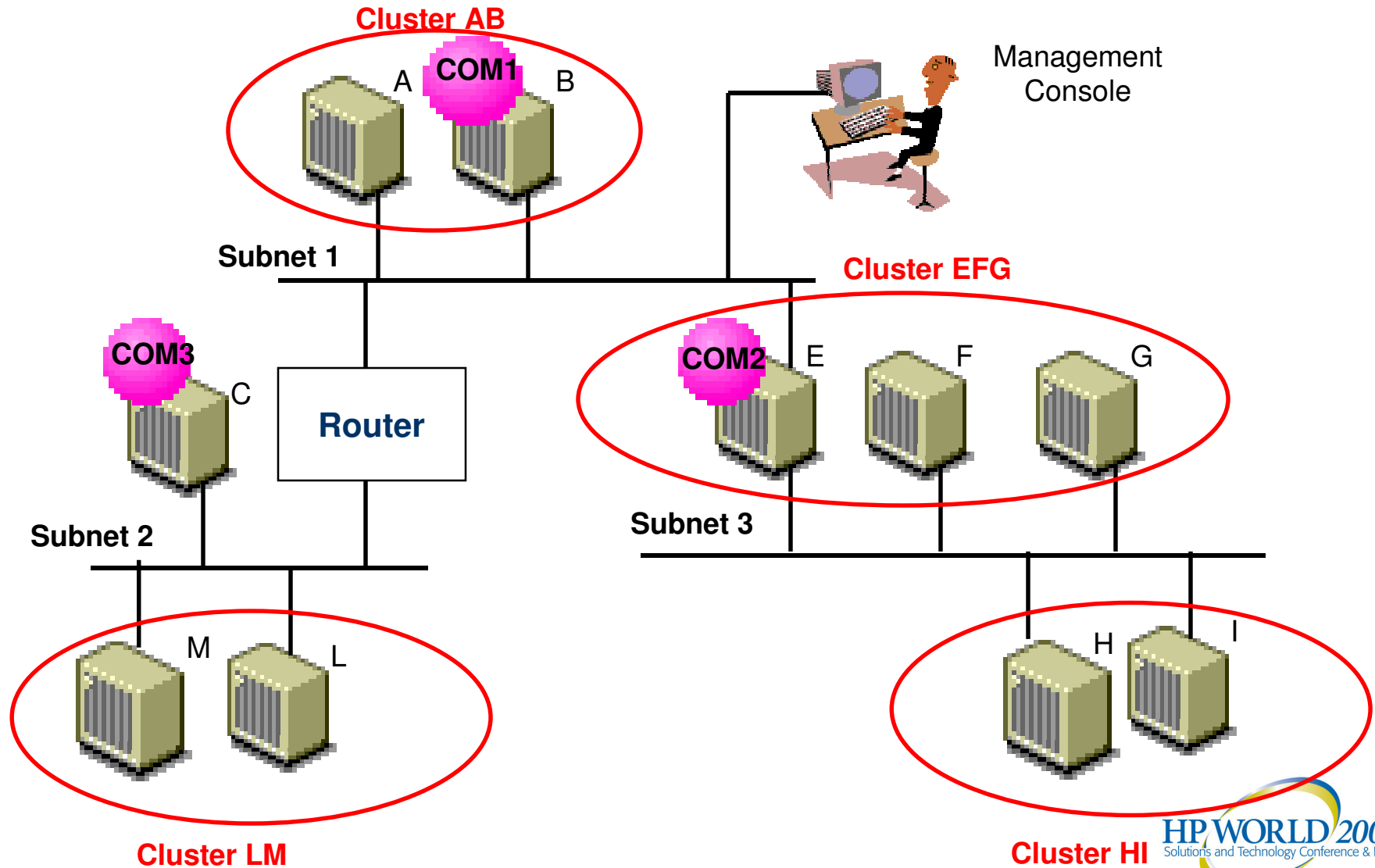


Sessions – Saved session - .sgm file

- Saved .sgm session data cannot be refreshed or updated
- Only one saved data file can be viewed at any time
- File menu provides option to save live session data into .sgm file

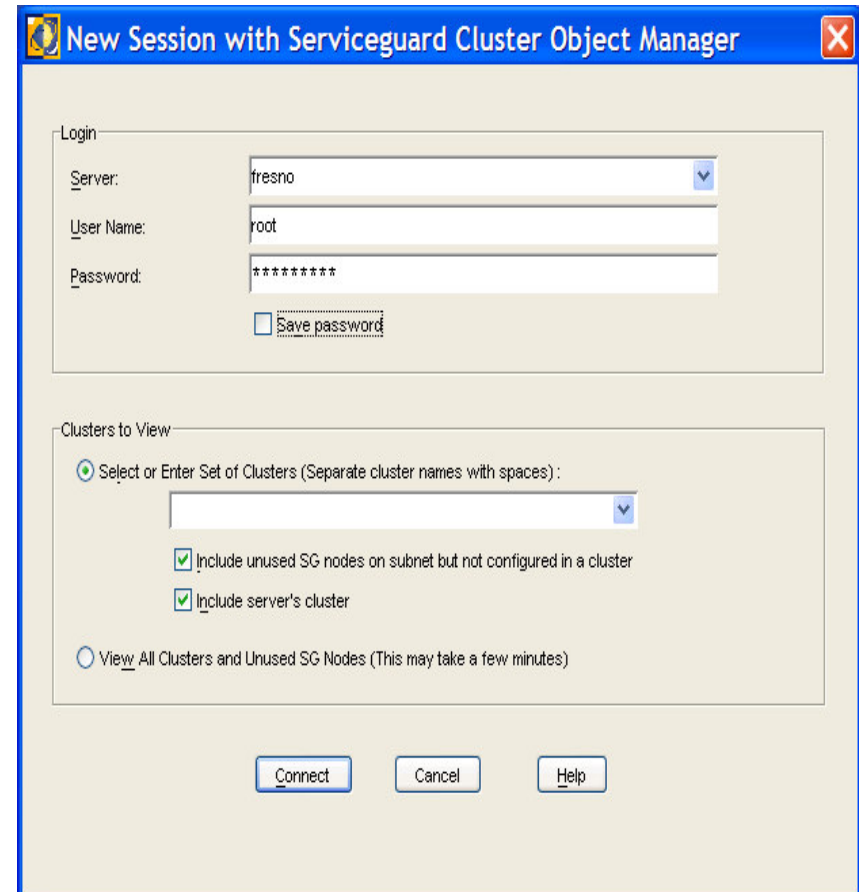


Cluster Discovery



Connect to cluster – Live session

- Connect to the COM on a Serviceguard node with valid user name and password (root or non-root)
- User can enter cluster names to view – Specify clusters to be monitored, or choose local cluster
- Or User can view all the clusters discovered automatically by COM
- Can connect to more than one live session at a time
- Live sessions can have their status refreshed at regular intervals



New Session with Serviceguard Cluster Object Manager

Login

Server: fresno

User Name: root

Password: *****

Save password

Clusters to View

Select or Enter Set of Clusters (Separate cluster names with spaces):

Include unused SG nodes on subnet but not configured in a cluster

Include server's cluster

View All Clusters and Unused SG Nodes (This may take a few minutes)

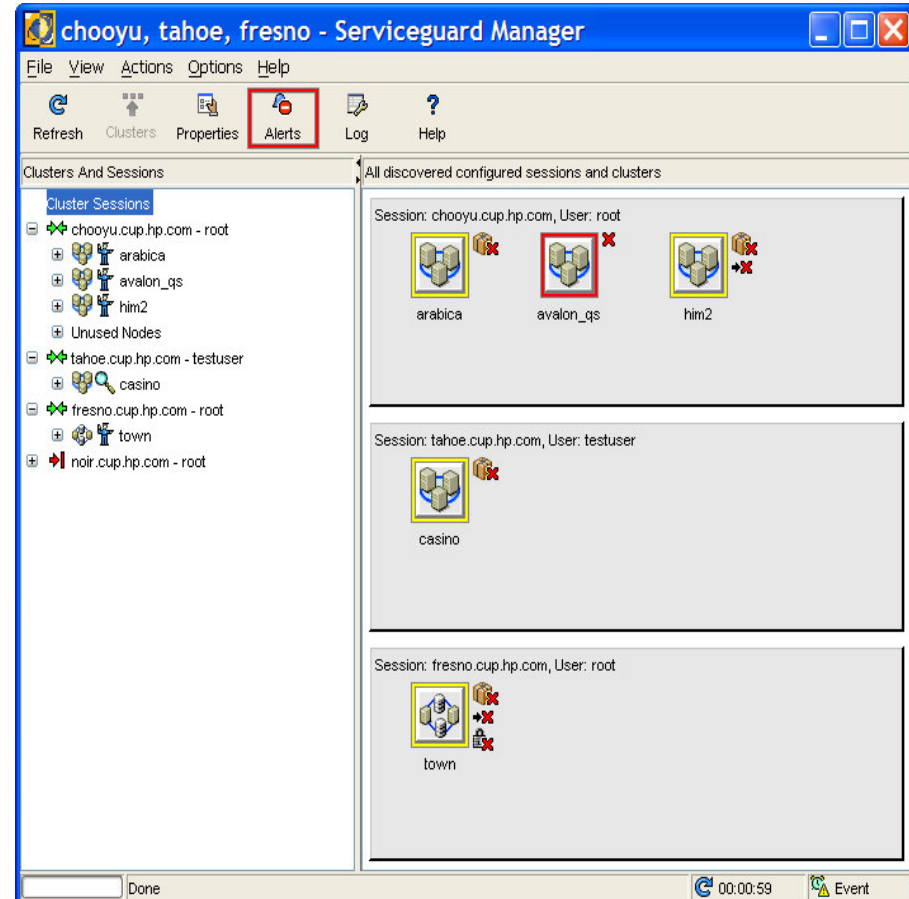
Connect Cancel Help

Navigation - Tree

- Tree provides an inventory and is for navigation
- Displays 5 different objects
 - Cluster sessions – multiple subnets
 - Clusters
 - Nodes
 - Packages
 - Unused nodes
- Drill down to view individual cluster/packages/nodes
- Tree displays role icon at cluster level based on user connected and also status information about each session



Session connected
Session disconnected

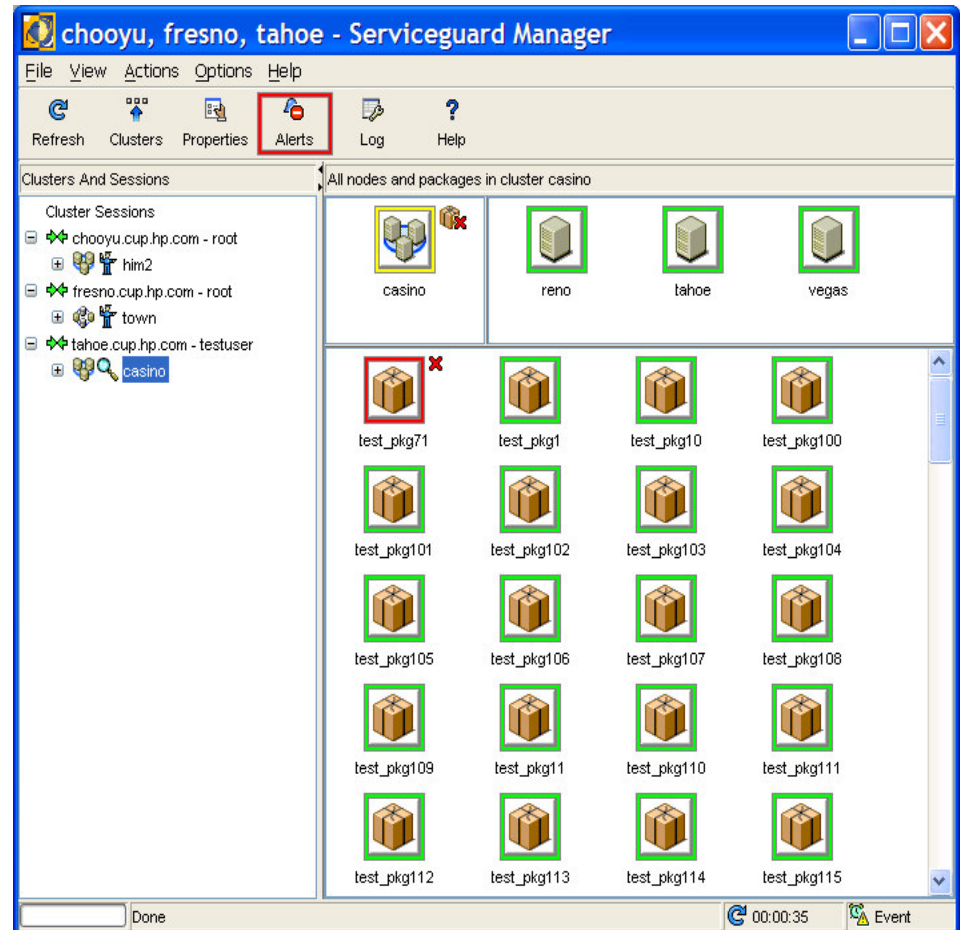


Serviceguard cluster
SGeRAC cluster
Cluster-wide Admin Role
Package Admin Role
Monitor Role

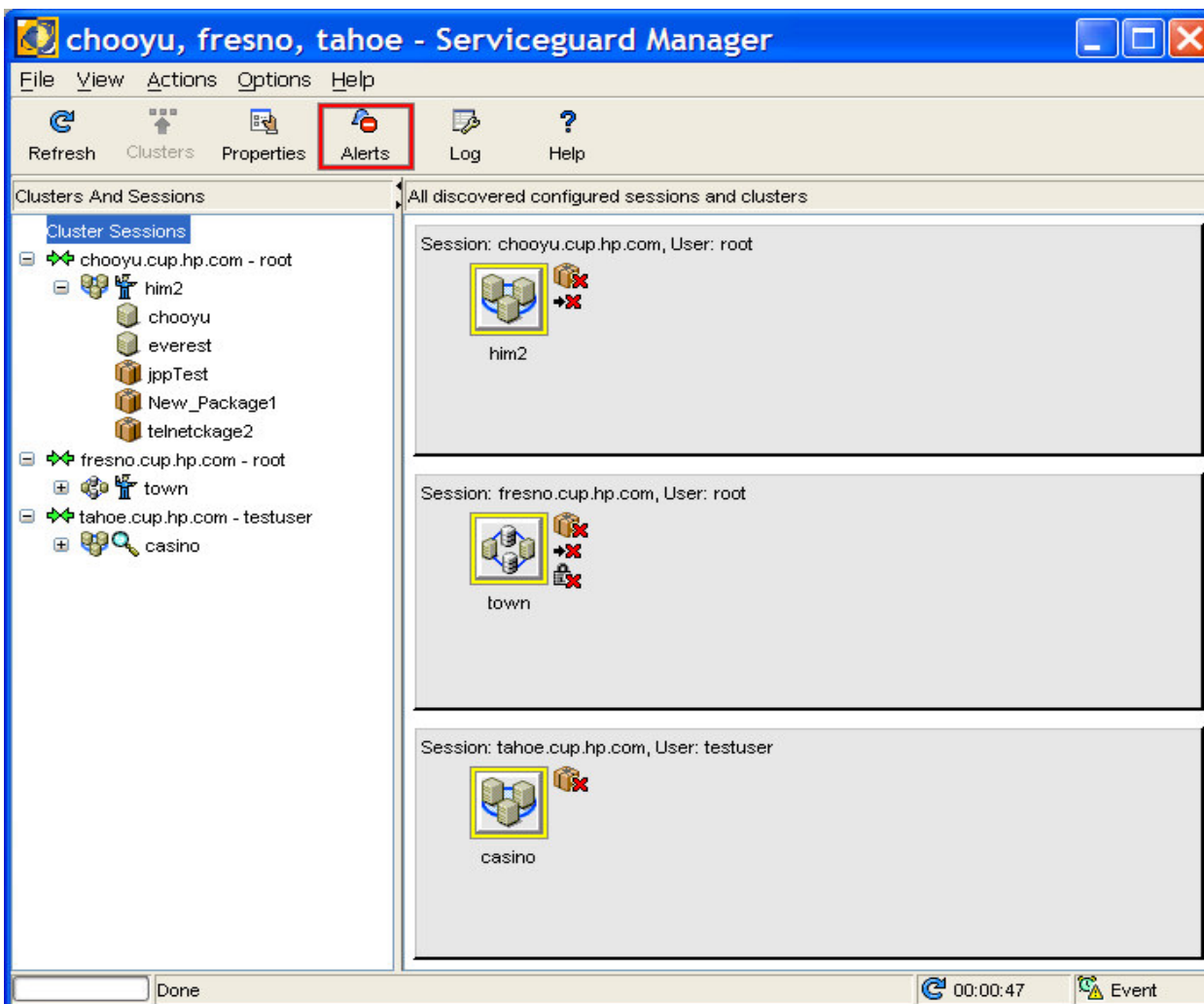


Topology - Map

- Map shows the topology, status and relationships
- 5 Different views
 - Cluster sessions view
 - Sessions view
 - Two cluster views – Regular and Large scale map display
 - Node view
 - Package views
- Large scale map view for displaying large number of nodes and packages.
- Display status information for all elements in focus



Cluster Sessions View

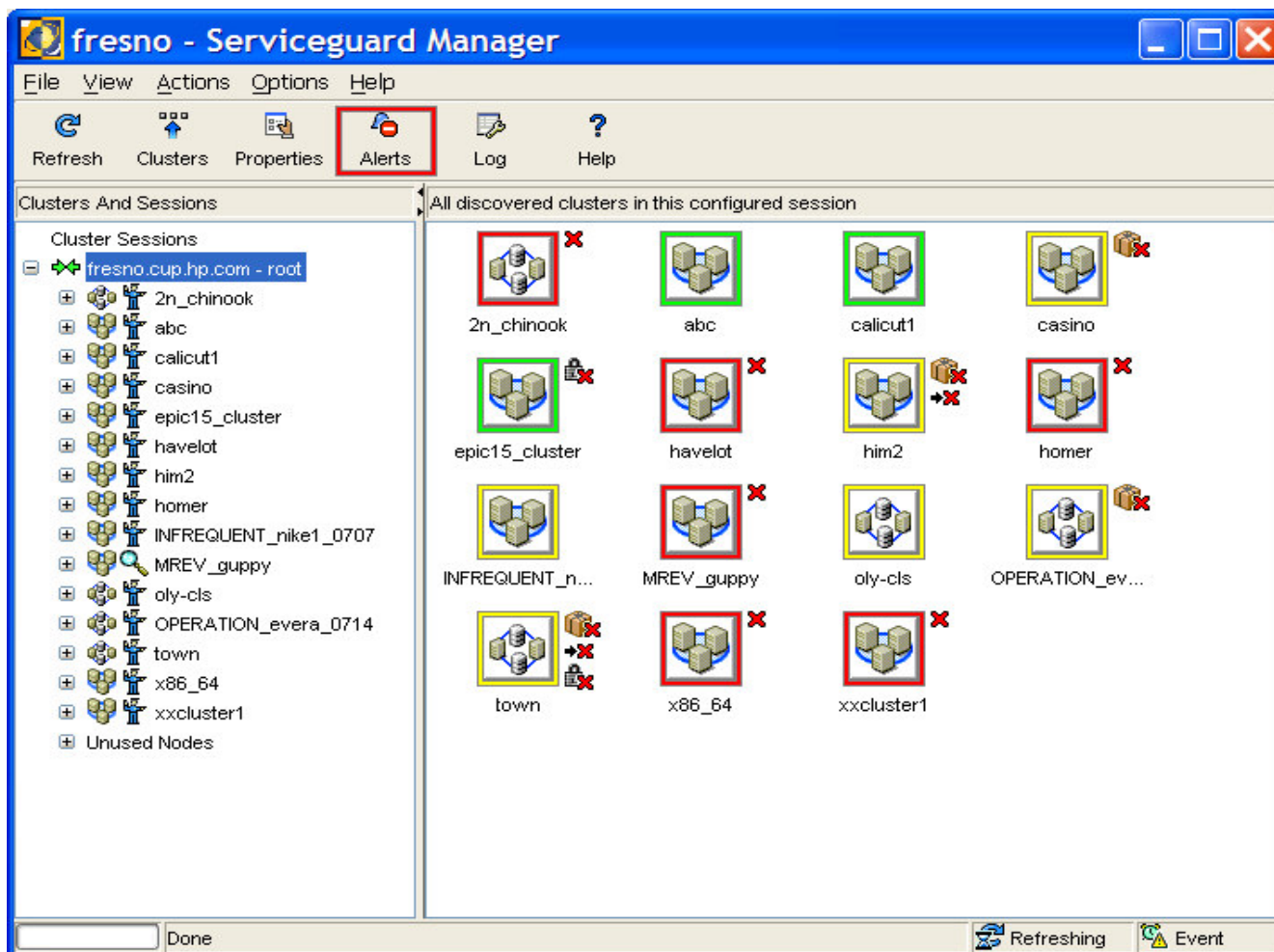


The screenshot shows the Serviceguard Manager interface. The title bar reads "chooyu, fresno, tahoe - Serviceguard Manager". The menu bar includes "File", "View", "Actions", "Options", and "Help". The toolbar contains "Refresh", "Clusters", "Properties", "Alerts" (highlighted with a red box), "Log", and "Help". A red arrow points to the "Cluster Sessions" folder in the left-hand tree view. The right-hand pane displays three session details:

- Session: chooyu.cup.hp.com, User: root
Cluster: him2
- Session: fresno.cup.hp.com, User: root
Cluster: town
- Session: tahoe.cup.hp.com, User: testuser
Cluster: casino

Each session entry includes a cluster icon and a red 'X' icon, indicating a problem or error. The status bar at the bottom shows "Done", a timer at "00:00:47", and an "Event" icon.

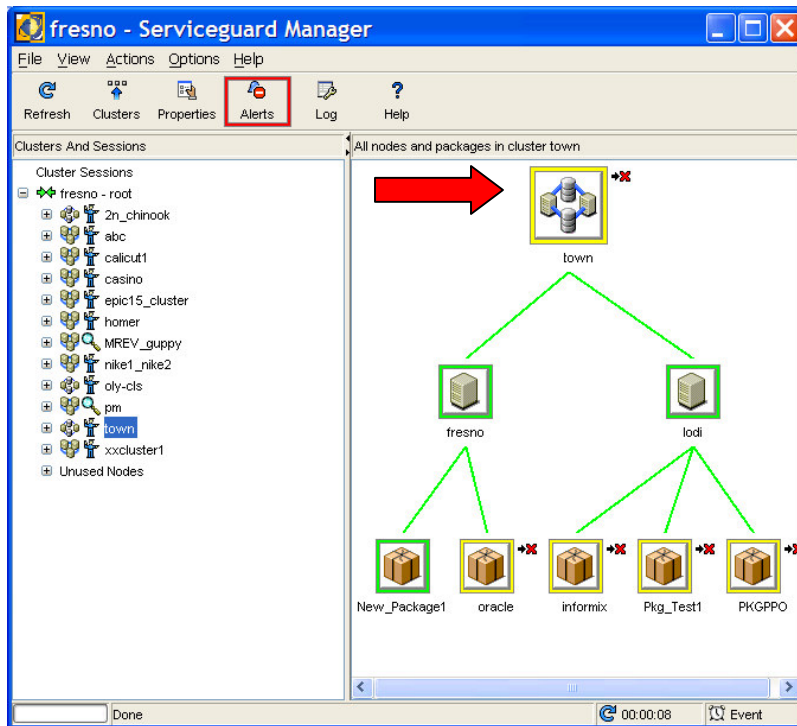
Sessions View



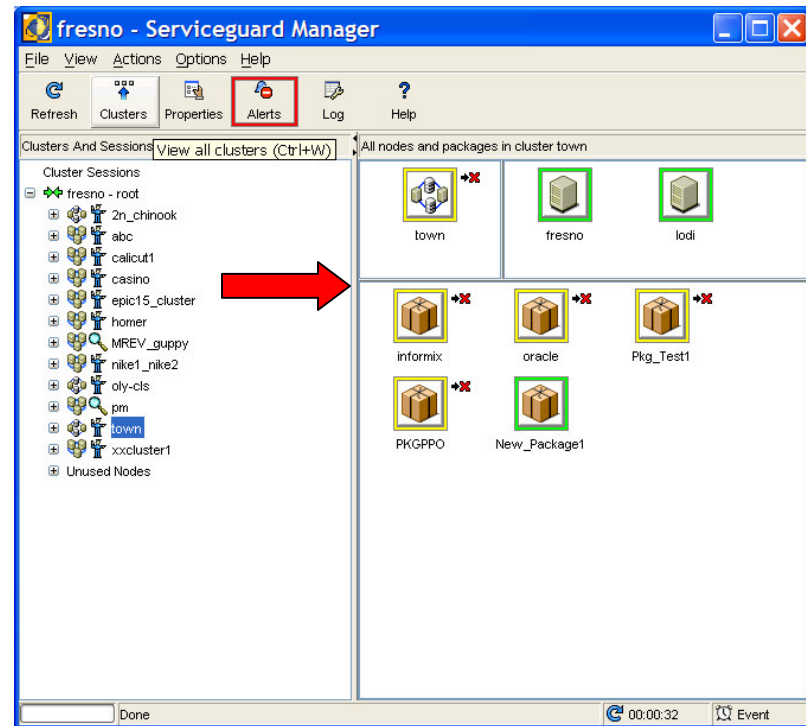
Cluster View



Regular cluster view



Large scale map view

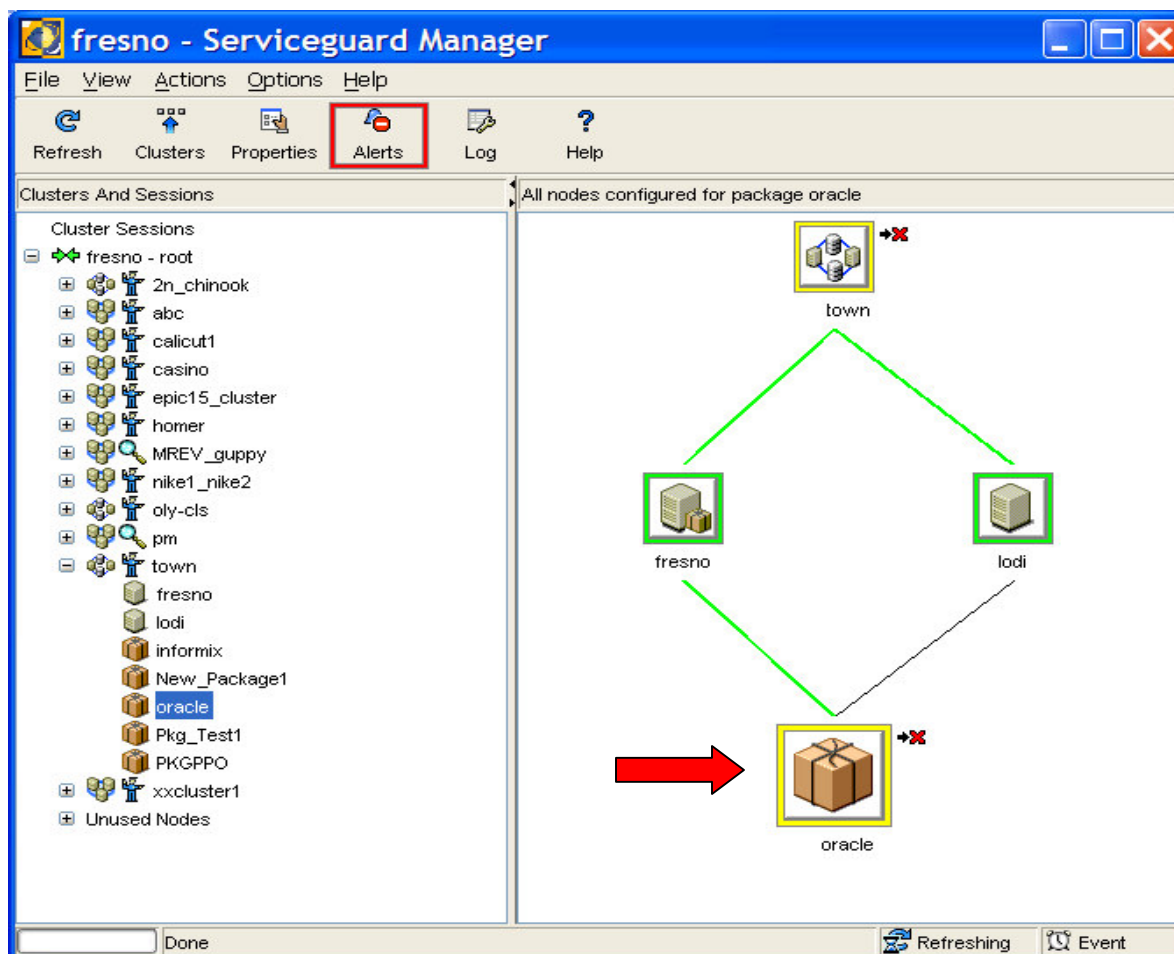


Node View



The screenshot shows the 'fresno - Serviceguard Manager' application window. The 'Alerts' menu item is highlighted with a red box. The left pane shows a tree view of cluster sessions, with 'lodi' selected. The right pane displays a network diagram where the 'lodi' node is highlighted with a green box and a red arrow points to it from the left. The diagram shows 'lodi' connected to 'town', 'informix', 'Pkg_Test1', and 'PKGPP0'. The 'town' node and the three bottom nodes have a red 'X' icon next to them, indicating an error or failure state. The status bar at the bottom shows 'Done', a timer at '00:01:11', and an 'Event' icon.

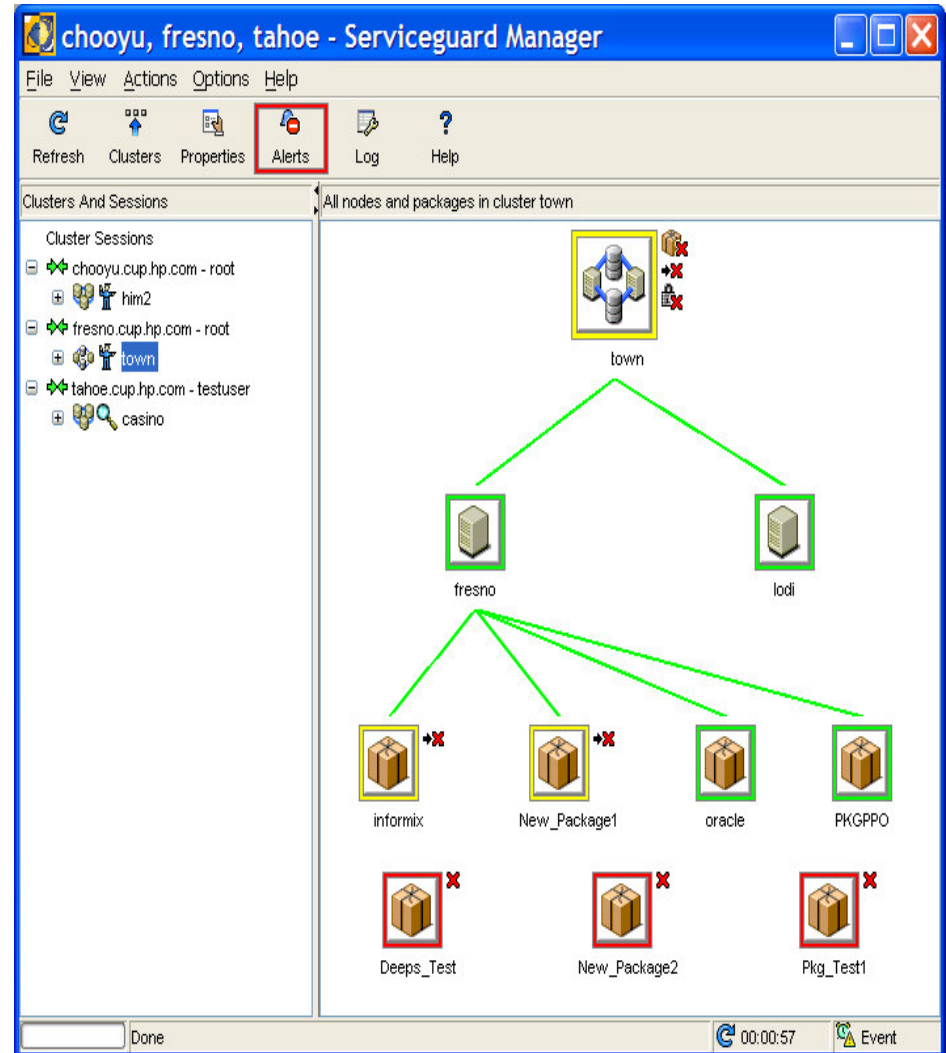
Package view



The screenshot shows the 'fresno - Serviceguard Manager' application window. The 'Alerts' menu item is highlighted with a red box. The main area displays a network diagram for the 'oracle' package. The diagram shows a diamond-shaped topology with nodes 'town', 'fresno', and 'lodi' at the top level, and 'oracle' at the bottom level. Green lines connect 'town' to 'fresno' and 'lodi', and 'fresno' and 'lodi' to 'oracle'. A red arrow points to the 'oracle' node, which is highlighted with a yellow box and has a red 'X' icon next to it. The left pane shows a tree view of cluster sessions, with 'oracle' selected. The status bar at the bottom indicates 'Done', 'Refreshing', and 'Event'.

Status

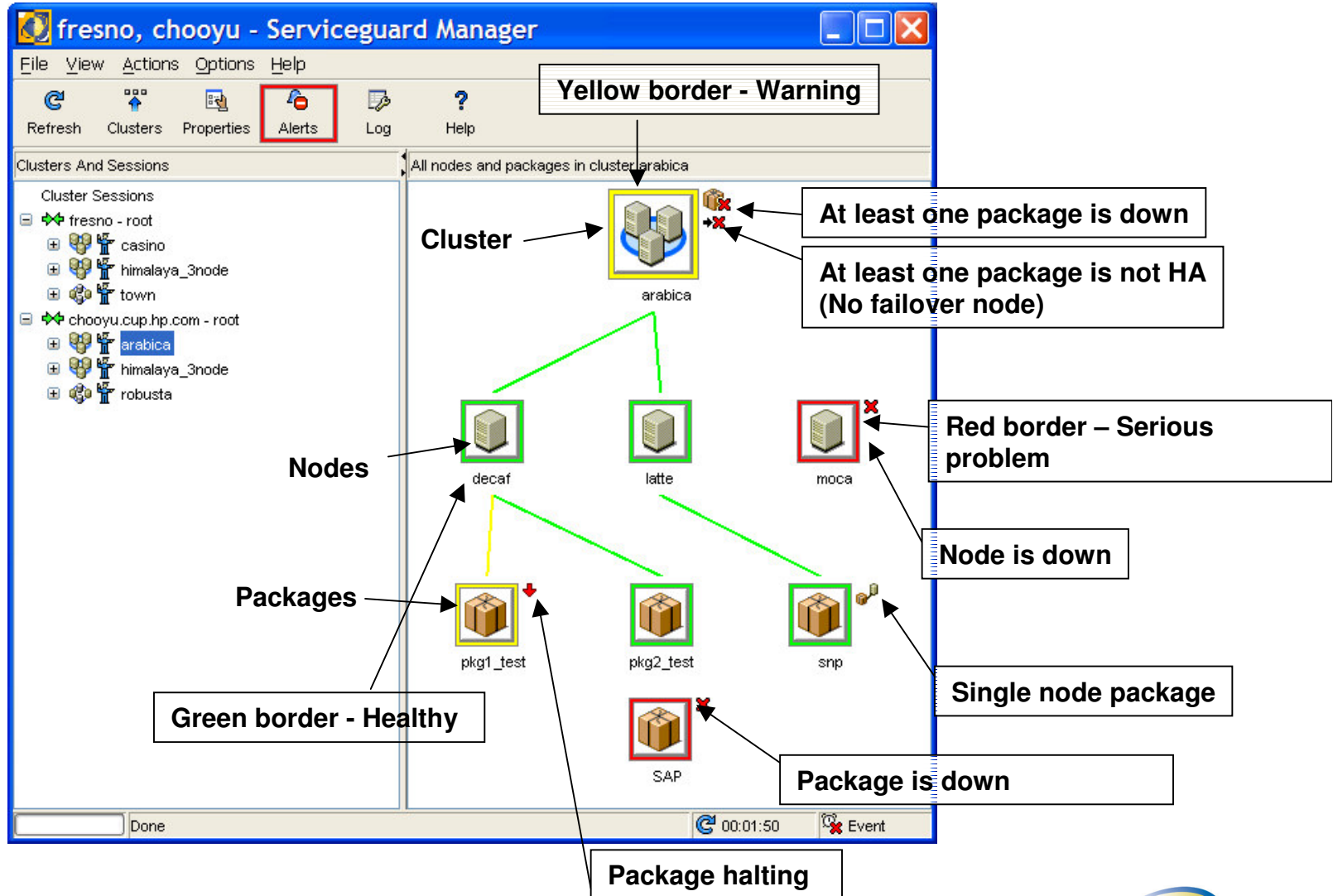
- 4 different ways to find status
 - Map Icons –Border colors/Badges/Lines
 - Property Sheets
 - Alerts Panel
 - Tool tips
- Auto refresh (polling) – regular status updates
- Event Browser for SNMP event notification



The screenshot shows the Serviceguard Manager interface for a cluster named 'town'. The interface includes a menu bar (File, View, Actions, Options, Help) and a toolbar with icons for Refresh, Clusters, Properties, Alerts (highlighted with a red box), Log, and Help. The main area displays a tree structure of nodes and packages:

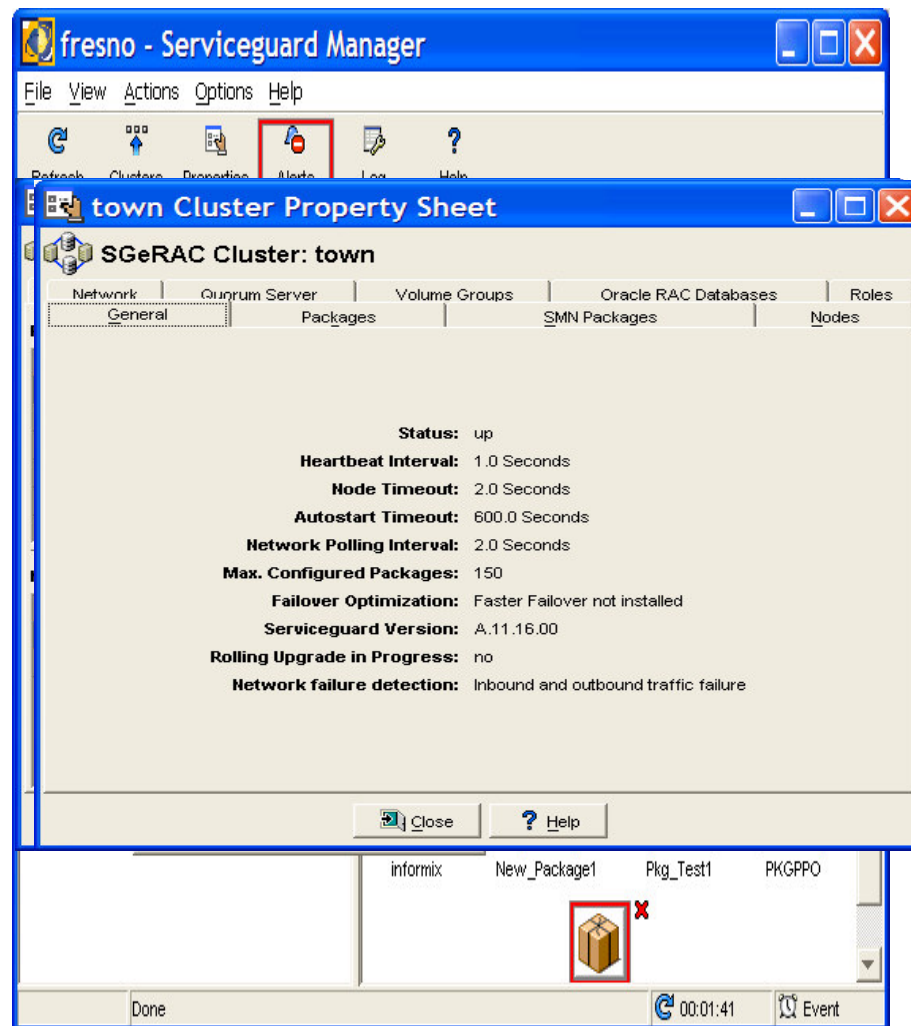
- Cluster Sessions:
 - chooyu.cup.hp.com - root
 - him2
 - fresno.cup.hp.com - root
 - town (selected)
 - casino
 - tahoe.cup.hp.com - testuser
- All nodes and packages in cluster town:
 - town (root node, highlighted with a yellow box)
 - fresno (node, highlighted with a green box)
 - informix (package, highlighted with a yellow box and a red 'X' badge)
 - Deeps_Test (package, highlighted with a red box and a red 'X' badge)
 - New_Package1 (package, highlighted with a yellow box and a red 'X' badge)
 - New_Package2 (package, highlighted with a red box and a red 'X' badge)
 - oracle (package, highlighted with a green box)
 - PKGPP0 (package, highlighted with a green box)
 - Plkg_Test1 (package, highlighted with a red box and a red 'X' badge)
 - lodi (node, highlighted with a green box)

SG Manager Status Display



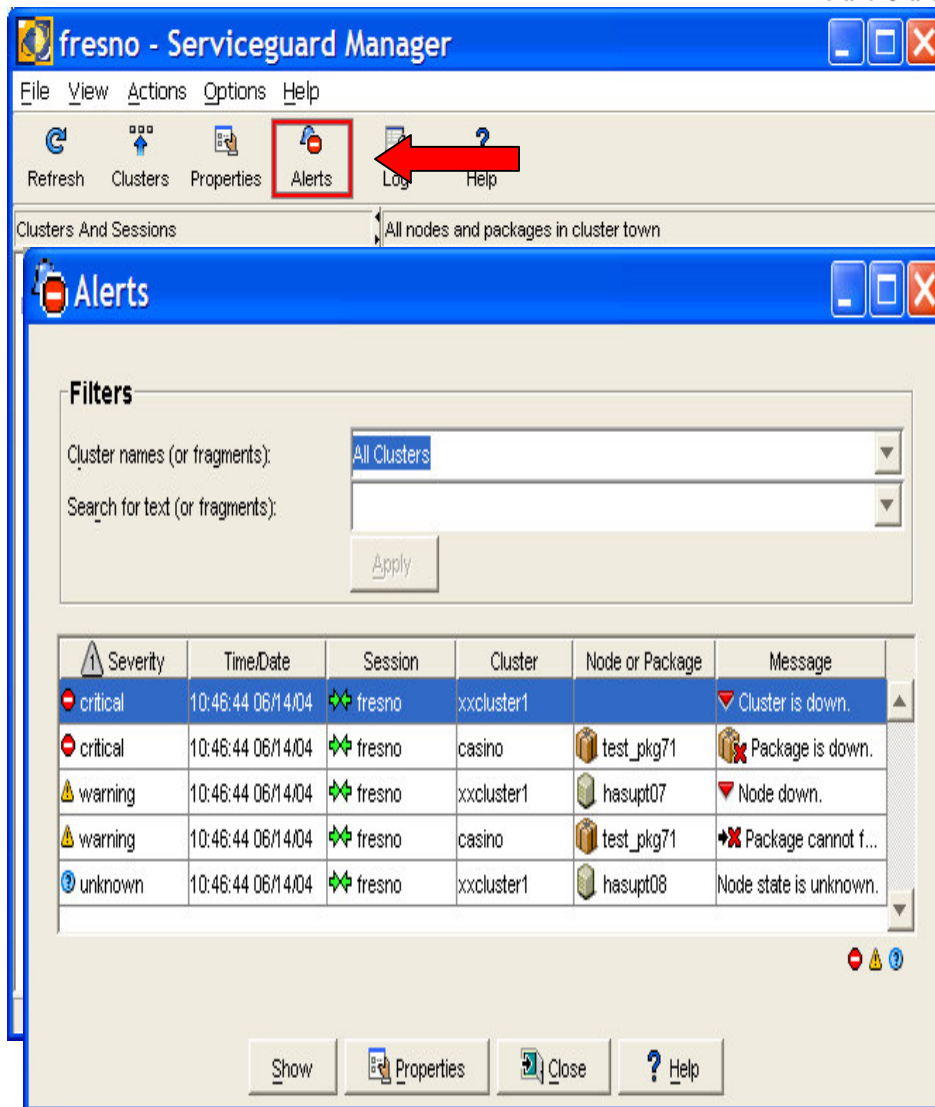
Property Sheet

- Every map/tree object has its own property sheet
- A property sheet is a collection of property tabs
- Tab can show a pair of tables, where selection on a top row triggers information displayed in a lower table.
- If Auto refresh is enabled, information on the property sheet is automatically updated at regular intervals



Alerts Panel

- Reports problems on every cluster monitored
- Offers "at glance" summary of all current problems with all clusters monitored
- Filter the "alerts" by cluster or package or by alert type
- Invocation of property sheets from Alerts panel
- All table columns allow sorting
- Allows user to search on text data
- Allows switching to main GUI



Alerts

Filters

Cluster names (or fragments): All Clusters

Search for text (or fragments):

Apply

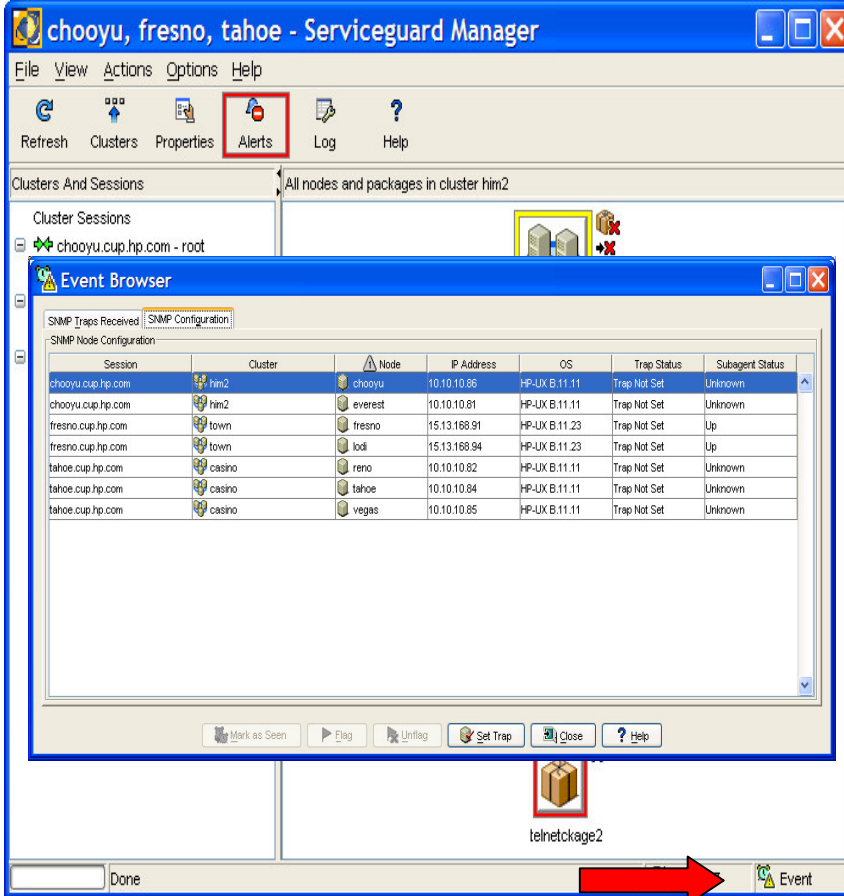
Severity	Time/Date	Session	Cluster	Node or Package	Message
critical	10:46:44 06/14/04	fresno	xxcluster1		Cluster is down.
critical	10:46:44 06/14/04	fresno	casino	test_pkg71	Package is down.
warning	10:46:44 06/14/04	fresno	xxcluster1	hasupt07	Node down.
warning	10:46:44 06/14/04	fresno	casino	test_pkg71	Package cannot f...
unknown	10:46:44 06/14/04	fresno	xxcluster1	hasupt08	Node state is unknown.

Show Properties Close Help

Event Browser – SNMP event notification

- Receives SNMP traps from the nodes monitored
- Notifies the user of the status change
- Triggers refresh when a SG-related trap received
- Use Event Browser to see traps received (500 entries)
- All traps are logged in log files
- Support HP-UX clusters only

➤ Events received



The screenshot shows the Serviceguard Manager interface with the Event Browser window open. The Event Browser window displays a table of SNMP traps received from various nodes in a cluster. The table has the following columns: Session, Cluster, Node, IP Address, OS, Trap Status, and Subagent Status.

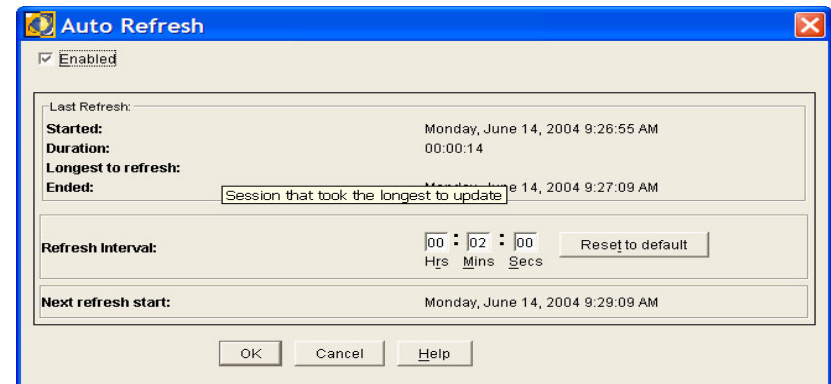
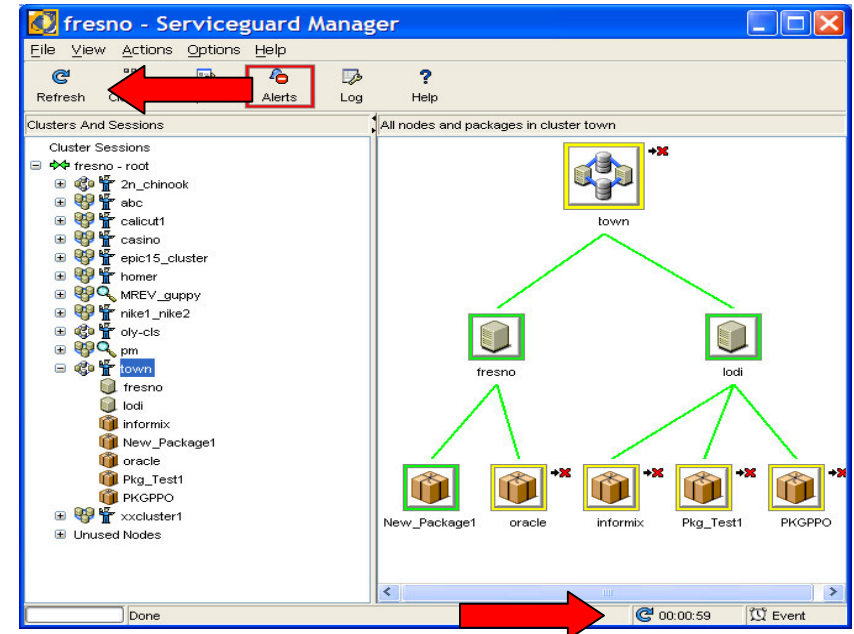
Session	Cluster	Node	IP Address	OS	Trap Status	Subagent Status
chooyu.cup.hp.com	him2	chooyu	10.10.10.86	HP-UX B.11.11	Trap Not Set	Unknown
chooyu.cup.hp.com	him2	everest	10.10.10.81	HP-UX B.11.11	Trap Not Set	Unknown
fresno.cup.hp.com	town	fresno	15.13.168.91	HP-UX B.11.23	Trap Not Set	Up
fresno.cup.hp.com	town	lodi	15.13.168.94	HP-UX B.11.23	Trap Not Set	Up
tahoe.cup.hp.com	casino	reno	10.10.10.82	HP-UX B.11.11	Trap Not Set	Unknown
tahoe.cup.hp.com	casino	tahoe	10.10.10.84	HP-UX B.11.11	Trap Not Set	Unknown
tahoe.cup.hp.com	casino	vegas	10.10.10.85	HP-UX B.11.11	Trap Not Set	Unknown

The Event Browser window also includes a toolbar with buttons for 'Mark as Seen', 'Flag', 'Unflag', 'Set Trap', 'Close', and 'Help'. A red arrow points to the 'Event' icon in the bottom right corner of the Serviceguard Manager window.

Auto Refresh - Polling

- Keeps status updated by refreshing map, tree, alerts panel, property sheets at regular configured time intervals
- Countdown timer displays time before the next refresh
- Polling interval can be set by user
- Partial refresh after every administration, configuration operations and when SNMP event is received.

- Manual Auto refresh
- Count down timer triggers full refresh





Task #1

Monitoring Clusters on Your Network

Task 1 - Request



ServiceGuard Manager - Message (HTML)

File Edit View Insert Format Tools Actions Help

Reply Reply to All Forward [Icons]

From: Sent:
To: Huang, Perry (The Boss) Wed 8/23/2004 11AM
Cc: Ravichandran, Aruna (Operator)
Subject: ServiceGuard Manager

Hi *Aruna The Operator*,

Our administrator is out for this afternoon. Could you help monitor our clusters this afternoon ?

There is this wonderful GUI called Serviceguard Manager which is shipped with the Serviceguard product which is pretty cool. It makes the monitoring of the clusters so east. So why don't you try it out?

Our cluster is located on node (machine) "fresno.cup.hp.com" and the cluster to monitor is called "town". You can connect to the Object Manager on fresno from Serviceguard Manager which is already installed on your PC. An account has been set-up on fresno under your user name.

If anything comes up, call the admin at his beach house in L.A. (213) 123-4567.

Thanks for helping out,

Perry The Boss





Live Demo – Monitoring – Tree/Map/Property sheets/Event Browser/Auto Refresh/Alerts/

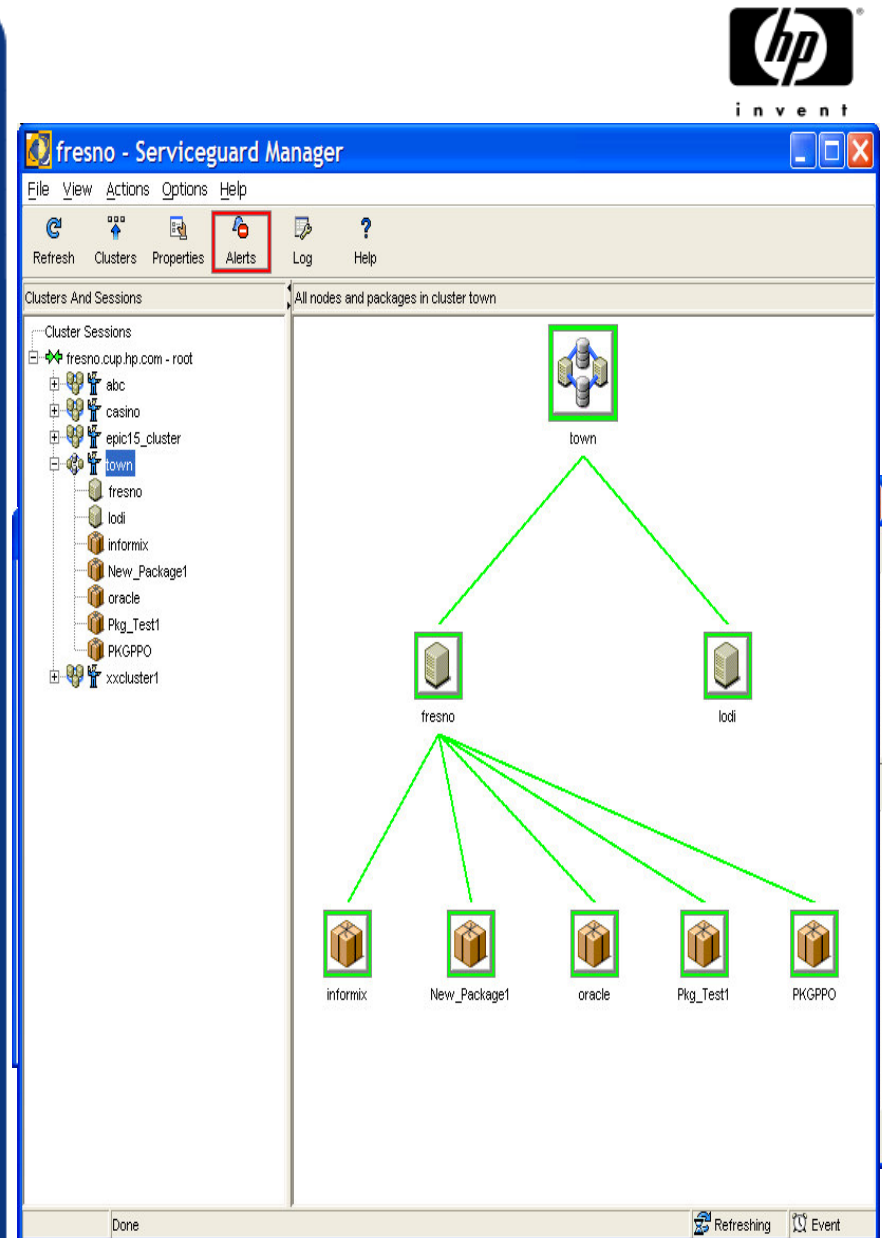
Serviceguard Manager
High Availability Cluster Management Solutions

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Live demo here

Administration

- Available only with SG 11.13 or later
- Admin Operations
 - Run/Halt cluster
 - Run/Halt node
 - Run/Halt package - Drag and drop package also available
 - Enable/disable package and node switching
- Results can be viewed in operation log
- Role based access – (only 11.16 or later)
 - Full admin access (All admin operations listed above)
 - Package admin – all packages and specific packages (run & halt, change switching parameters)
 - Monitor access – No administration
- To administer an 11.16 cluster, connect to an 11.16 or later COM





Serviceguard Administration Commands – Serviceguard Manager vs Command-line

- ✓ Run cluster – *cmruncl*
- ✓ Halt cluster – *cmhaltcl -f*
- ✓ Run node – *cmrunnode*
- ✓ Halt node – *cmhaltnode -f*
- ✓ Run package – *cmrunpkg*
- ✓ Halt package – *cmhaltpkg -f*
- ✓ Enable/disable package switching – *cmmodpkg -v -e pkg* or *cmmodpkg -v -d pkg*
- ✓ Moving a package:
cmhaltpkg -n node1 pkg and
cmrunpkg -n node2 pkg

Note: You cannot interrupt or undo an admin operation.



Task #2

Run Package on alternate node

Task #2 - Request



Hey Admin! Package oracle on fresno is down! What should I do????

Hey, calm down a bit...
I'll call our IT to see if there's anything wrong with that node...
In the mean time, why don't you go ahead and run oracle on the lodi?



Task #2 - Request



How do I do that? I don't know those Serviceguard commands!

Not a problem. Just use ServiceGuard Manager and drag-n-drop oracle to lodi. That will do it... and you'll need the root password to fresno...



Task #2 - Request



That's it? It sounds so easy!

That's right! Don't worry, Serviceguard Manager is very easy to use.

I'll call the IT right now and see what we can do... See yah!



Live Demo – Administration – Run/Drag Package, Enable package switching



Serviceguard Manager
High Availability Cluster Management Solutions



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Live demo here





Task #3

Move a running package

Task #3 - Request



ServiceGuard Manager - Message (HTML)

File Edit View Insert Format Tools Actions Help

Reply Reply to All Forward

Wed 9/25/2002 3PM

From: ***** (The IT Wizard) Sent:

To: Ravichandran, Aruna (The Operator)

Cc:

Subject: ServiceGuard Manager

Hi ***Aruna the Operator,***

I've fixed the problem and our Admin has requested you to move the package back to node fresno, using Serviceguard Manager.... Remember to set the package switching parameter as well!

Thanks!

The IT Wizard

Live Demo – Administration – Move Package



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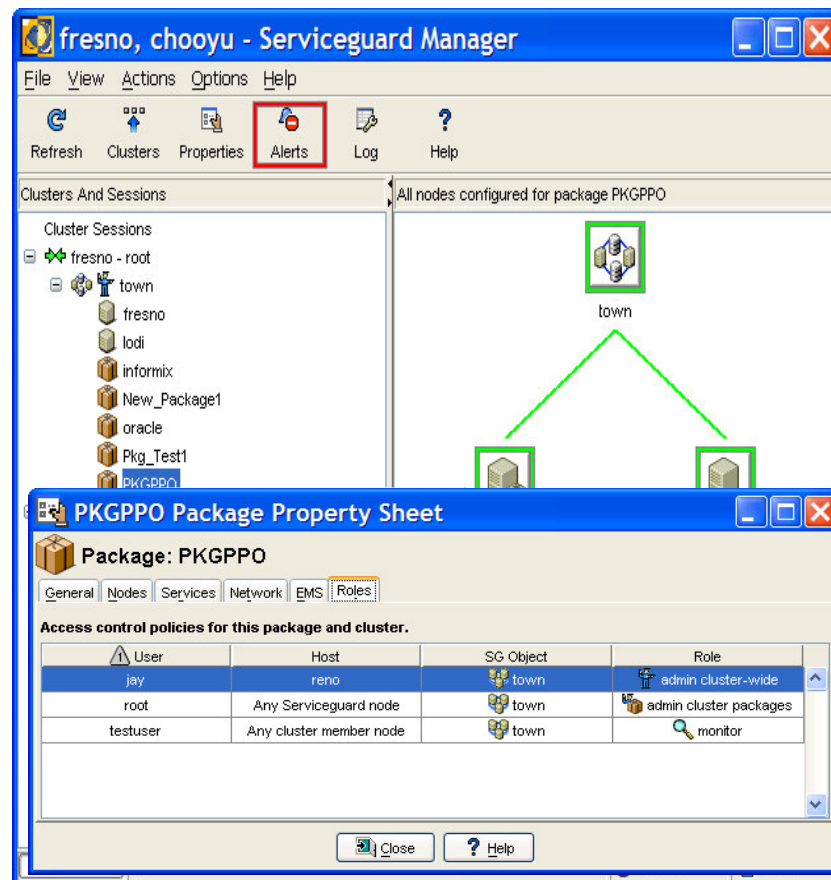
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Live demo here



Role Based Access (RBA)

- Three roles defined - *Full admin*, *Package admin* and *Monitor* roles
- Configured in cluster and package configuration files by root authorized user
- RBA requires use of SG 11.16 or later
- Root user has full configuration and admin capability (no separate config role)
- Monitoring roles created for non-root entries and "remote roots" in */etc/cmclnodelist* after complete rolling upgrade



The screenshot shows the Serviceguard Manager interface. The top window is titled "fresno, chooyu - Serviceguard Manager" and has a menu bar with "File", "View", "Actions", "Options", and "Help". Below the menu bar is a toolbar with icons for "Refresh", "Clusters", "Properties", "Alerts" (highlighted with a red box), "Log", and "Help". The main area shows a tree view of "Clusters And Sessions" with "fresno - root" expanded to show "town" and its sub-nodes: "fresno", "Iodi", "informix", "New_Package1", "oracle", "Pkg_Test1", and "PKGPP0". A diagram on the right shows a tree structure for "town" with two child nodes.

The bottom window is titled "PKGPP0 Package Property Sheet" and has tabs for "General", "Nodes", "Services", "Network", "EMS", and "Roles". The "Roles" tab is selected, showing "Access control policies for this package and cluster." with the following table:

User	Host	SG Object	Role
jay	reno	town	admin cluster-wide
root	Any Serviceguard node	town	admin cluster packages
testuser	Any cluster member node	town	monitor



Role Based Access : Roles

Full cluster admin

- Configured for the specific cluster
- Root still provides admin access to clusters with SG releases before 11.16

Package admin (all packages or specific package)

- Configured for specific cluster and/or packages
- Specific role capabilities detailed in cluster and/or package property sheets

Monitoring

- Monitoring is configured for specific cluster

town - Modify Cluster Configuration

Cluster name: town

Nodes Parameters Heartbeat Subnets Monitored Subnets Cluster Quorum Volume Groups Roles

Access control policies to be checked by Serviceguard

User	Host	Role
jay	reno	Admin cluster-wide
root	Any Serviceguard node	Admin all packages
testuser	Any cluster member node	Monitor

Add Modify Remove

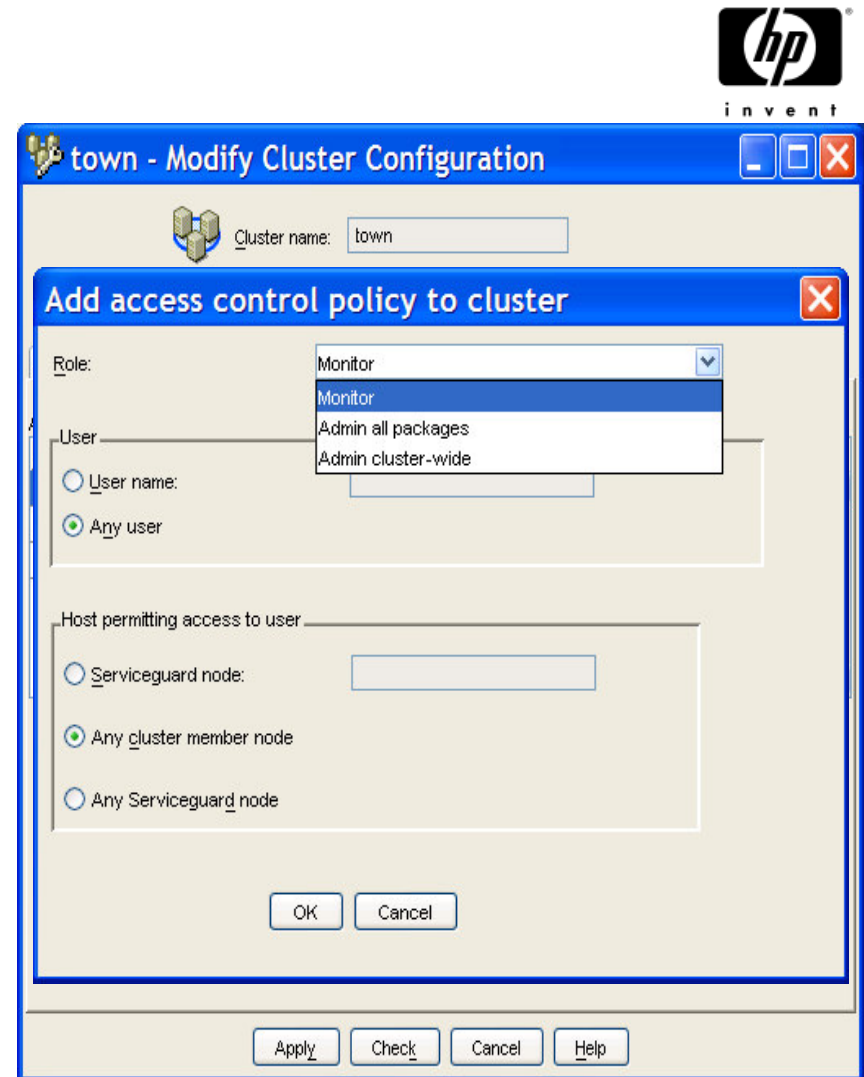
Roles changes possible in a running cluster

Apply Check Cancel Help

Role Based Access: Access control policies

Defined in cluster and package configuration files:

- **USER_NAME**
 - user login name for role
 - can be ANY_USER
- **USER_HOST**
 - host name of SG node where user is granted access
 - can be CLUSTER_MEMBER_NODE
 - can be ANY_SERVICEGUARD_NODE
- **USER_ROLE**
 - In cluster configuration file:
 - full_cluster_admin
 - package_admin (all packages)
 - monitor
 - In package configuration file
 - package_admin (specific package)





Task #4

Configuring a new role

Task #4 - Request

A screenshot of an email client window titled "ServiceGuard Manager - Message (HTML)". The window has a menu bar with "File", "Edit", "View", "Insert", "Format", "Tools", "Actions", and "Help". Below the menu bar is a toolbar with icons for "Reply", "Reply to All", "Forward", "Print", "Delete", "Move", "Copy", "Paste", "Undo", and "Redo". The email header shows: "From: ***** (The IT Wizard)", "To: Ravichandran, Aruna (The Operator)", "Cc:", "Subject: ServiceGuard Manager", and "Sent: Wed 8/22/2004 3PM". The main body of the email contains the following text:

Hi ***Aruna the Operator,***

We have a new operator by name "tom" who has joined the project. Since he is going to be working with you, could you add him with as a "cluster wide admin" on "any service guard node" on fresno ?

The IT Wizard

Live Demo – Role Based Access – Configure/Add a new Role



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High Availability Cluster Management Solutions



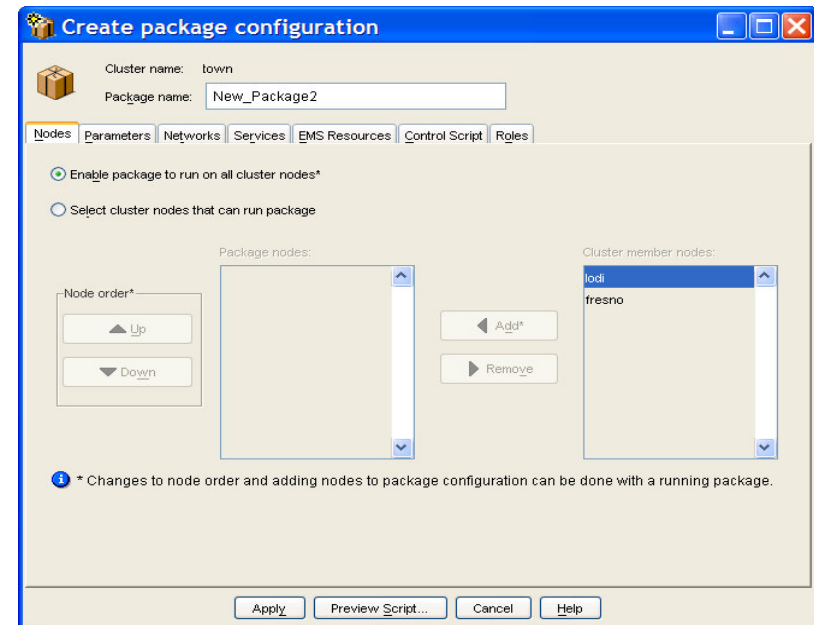
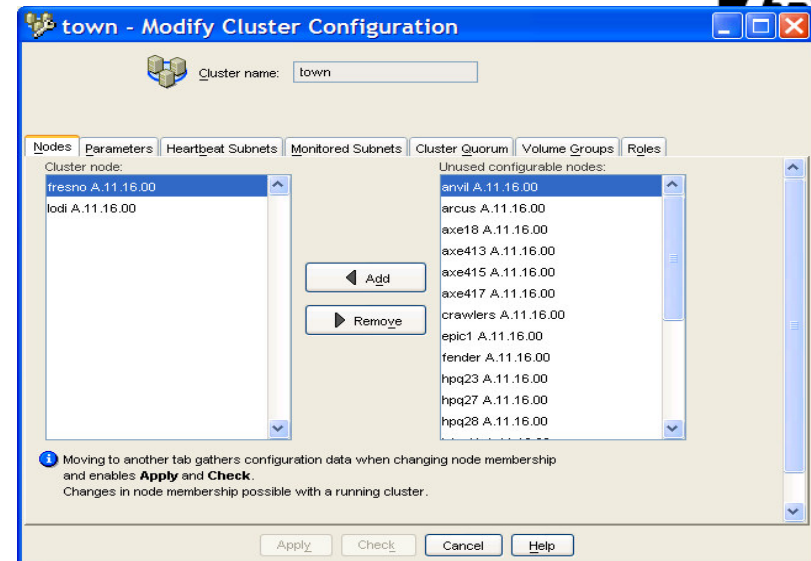
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Live demo here



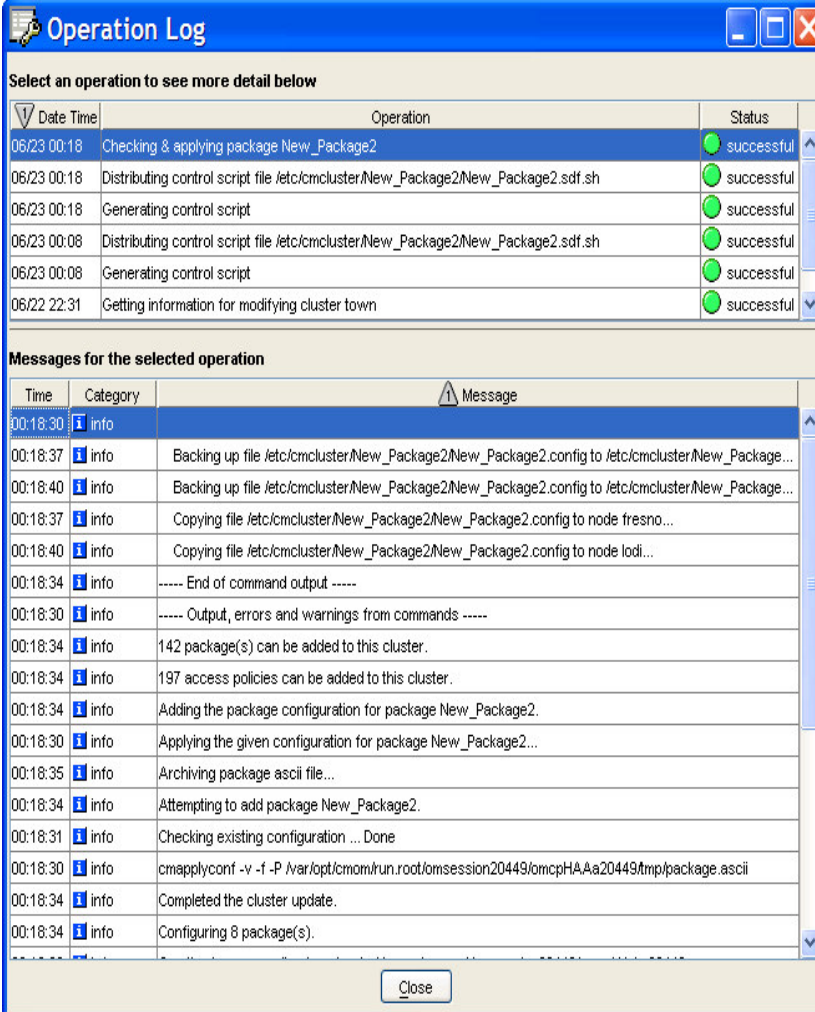
Configuration Overview

- **Cluster configuration**
 - Cluster creation
 - Cluster modification
 - Cluster deletion
- **Package configuration**
 - Package creation
 - Package modification
 - Package deletion
- **Support for creating and modifying package control scripts**
 - Guided style of package control script data
 - Editing existing ASCII package control scripts
 - Consistency checking and automatic distribution of package control scripts to cluster nodes – both styles



Configuration Overview cont'd.

- Role based access configuration for cluster and package
- Backup of cluster and package configuration files and control scripts on successful apply
- Check option to verify input values available during cluster and package modification
- Operations log presented for all configuration operations which is the output of *cmapplyconf* and *cmcheckconf*
- Operation log is a master-detail table, with a summary of the operation at the top.
- The lower table shows detailed information about the operation executed. This is very useful for debugging failures.



Operation Log

Select an operation to see more detail below

Date Time	Operation	Status
06/23 00:18	Checking & applying package New_Package2	successful
06/23 00:18	Distributing control script file /etc/cmcluster/New_Package2/New_Package2.sdf.sh	successful
06/23 00:18	Generating control script	successful
06/23 00:08	Distributing control script file /etc/cmcluster/New_Package2/New_Package2.sdf.sh	successful
06/23 00:08	Generating control script	successful
06/22 22:31	Getting information for modifying cluster town	successful

Messages for the selected operation

Time	Category	Message
00:18:30	info	
00:18:37	info	Backing up file /etc/cmcluster/New_Package2/New_Package2.config to /etc/cmcluster/New_Package...
00:18:40	info	Backing up file /etc/cmcluster/New_Package2/New_Package2.config to /etc/cmcluster/New_Package...
00:18:37	info	Copying file /etc/cmcluster/New_Package2/New_Package2.config to node fresno...
00:18:40	info	Copying file /etc/cmcluster/New_Package2/New_Package2.config to node lodi...
00:18:34	info	----- End of command output -----
00:18:30	info	----- Output, errors and warnings from commands -----
00:18:34	info	142 package(s) can be added to this cluster.
00:18:34	info	197 access policies can be added to this cluster.
00:18:34	info	Adding the package configuration for package New_Package2.
00:18:30	info	Applying the given configuration for package New_Package2...
00:18:35	info	Archiving package ascii file...
00:18:34	info	Attempting to add package New_Package2.
00:18:31	info	Checking existing configuration ... Done
00:18:30	info	cmapplyconf -v -f -P /var/opt/cmcom/run.root/omsession20449/cmcpHAAa20449tmp/package.ascii
00:18:34	info	Completed the cluster update.
00:18:34	info	Configuring 8 package(s).

Close

Serviceguard Configuration Commands – Serviceguard Manager vs Command-line

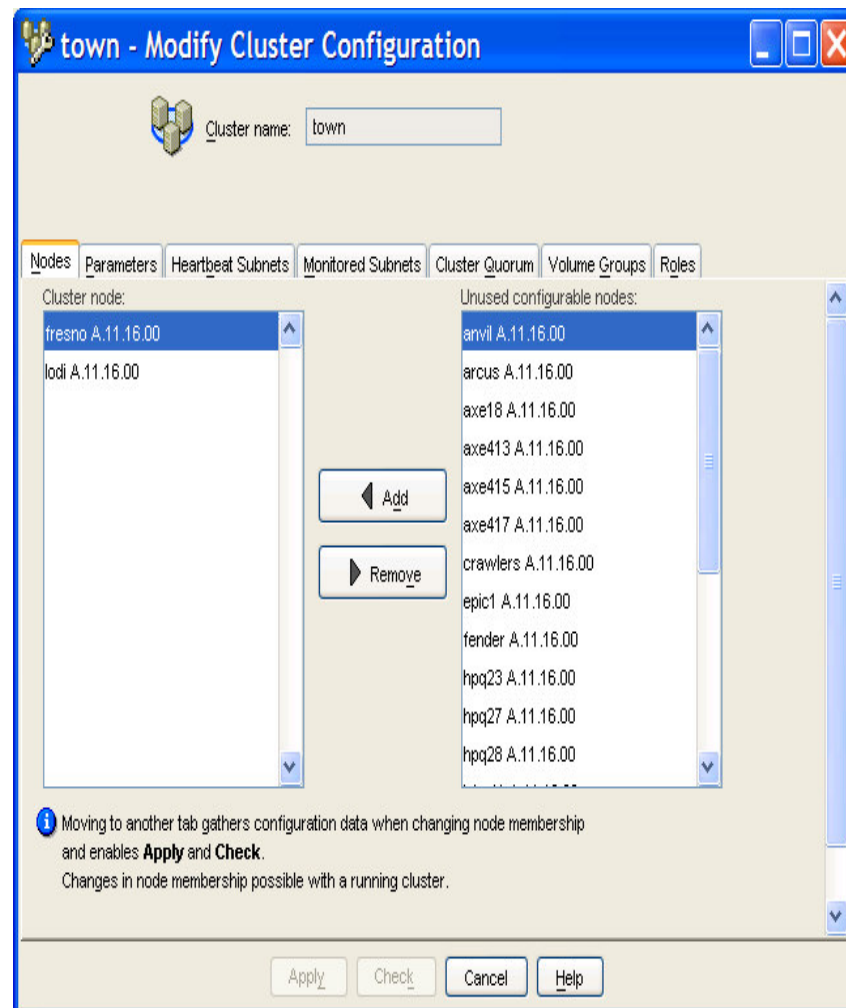


invent

- ✓ Create cluster – `cmapplyconf -C <cluster_ascii_file>`
- ✓ Modify cluster – `cmapplyconf -C <cluster_ascii_file>`
- ✓ Check cluster configuration – `cmcheckconf -C <cluster_ascii_file>`
- ✓ Delete cluster – `cmdeleteconf -f`
- ✓ Create package – `cmmakepkg, cmapplyconf -P <pkg_ascii_file>`
- ✓ Modify package – `cmapplyconf -P <pkg_ascii_file>`
- ✓ Check package configuration – `cmcheckconf -P <pkg_name>`
- ✓ Delete package – `cmdeleteconf -P <pkg_name>`
- ✓ Distribute package control script – Manual on command line.

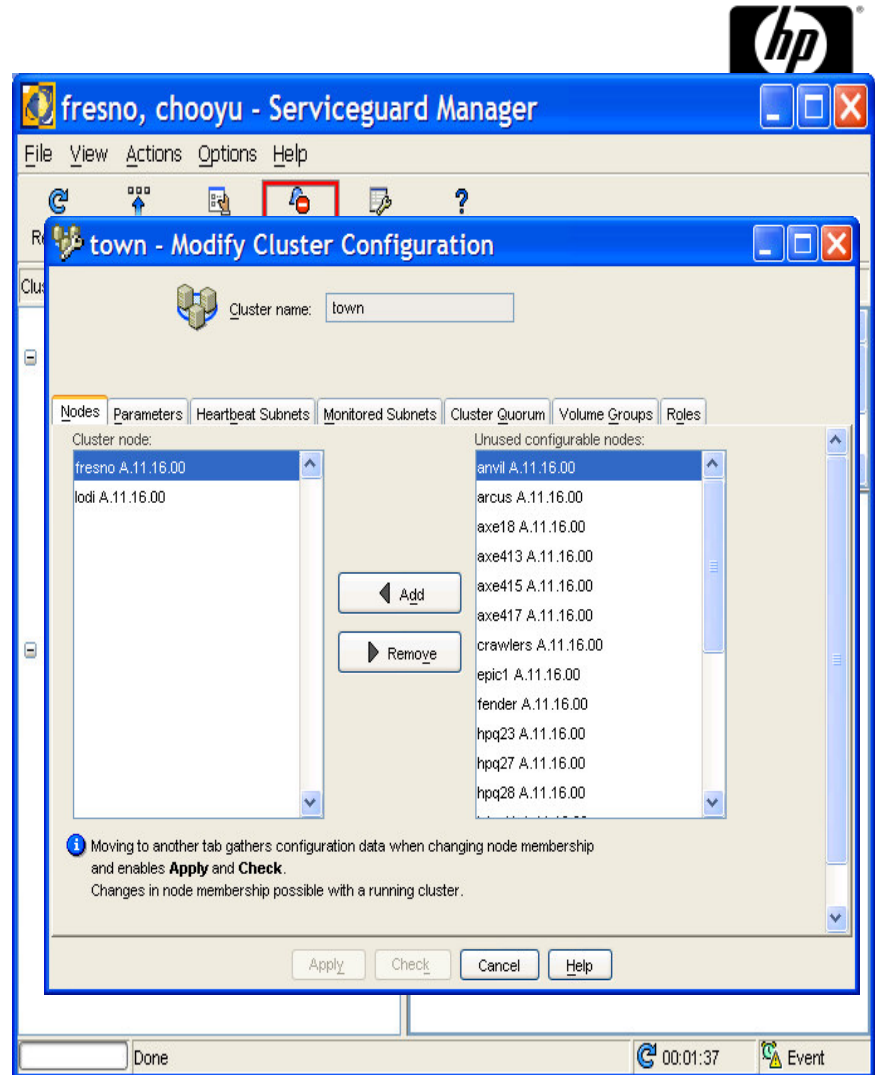
Cluster Configuration

- Requires root access to a SG 11.16 or later cluster member node
- Configuration is a local operation and connection is established to one of the cluster member nodes
- Configuration menus accessible to all users
- Non-root users challenged for root password on configuration menu selection
- Network and storage discovery are performed similar to *cmquerycl*
- Apply creates/updates cluster configuration file and distributes it to all cluster nodes.



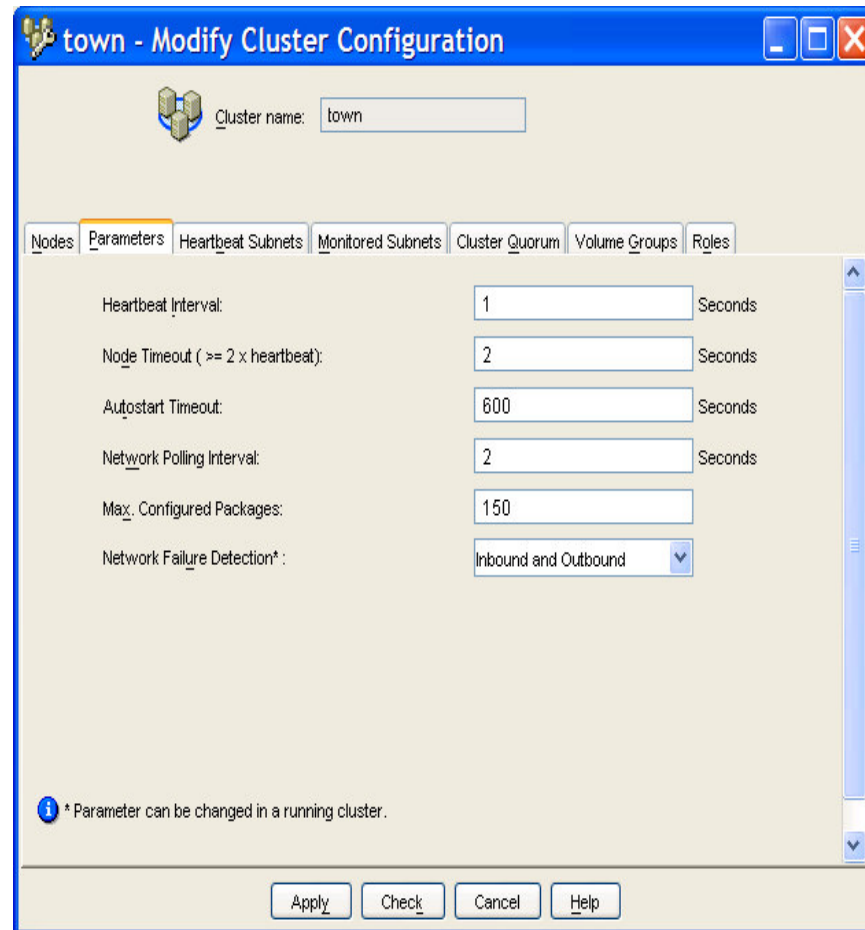
Cluster Configuration – Nodes Tab

- Only 11.16 or later nodes are available for configuration
- Once user selects a cluster node, the available nodes list will be filtered to contain only nodes of the same version and operating system
- Mixed operating system nodes are not supported (i.e. hp-ox, Linux)
- Once cluster membership is established and user switches to next tab, Serviceguard manager obtains cluster topology and default parameters
- Nodes selected will be entered in cluster configuration file on successful Apply



Cluster Configuration – Parameters Tab

- All the parameters are entered in cluster configuration file
- Allows user to specify cluster parameters
- The new parameter, Network Failure Detection allows a user to change the mode that triggers local LAN failover.
- A new product, SG extension for Faster Failover for 2-node clusters, can be installed to improve failover time. If this product were installed, the parameter Failover Optimization can be set to TWO_NODE, to enable it.



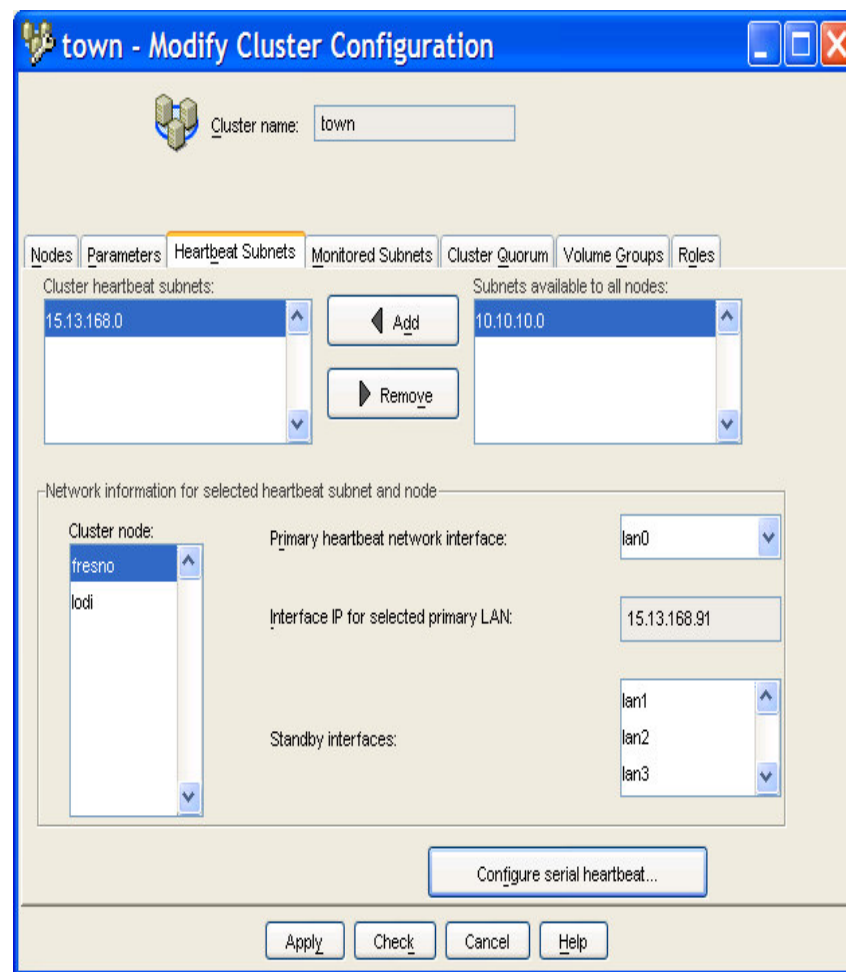
The screenshot shows the 'town - Modify Cluster Configuration' dialog box with the 'Parameters' tab selected. The 'Cluster name' is 'town'. The parameters are as follows:

Parameter	Value	Unit
Heartbeat Interval:	1	Seconds
Node Timeout (>= 2 x heartbeat):	2	Seconds
Autostart Timeout:	600	Seconds
Network Polling Interval:	2	Seconds
Max. Configured Packages:	150	
Network Failure Detection* :	Inbound and Outbound	

At the bottom, there is an information icon and the text: '* Parameter can be changed in a running cluster.' Buttons for 'Apply', 'Check', 'Cancel', and 'Help' are located at the bottom right.

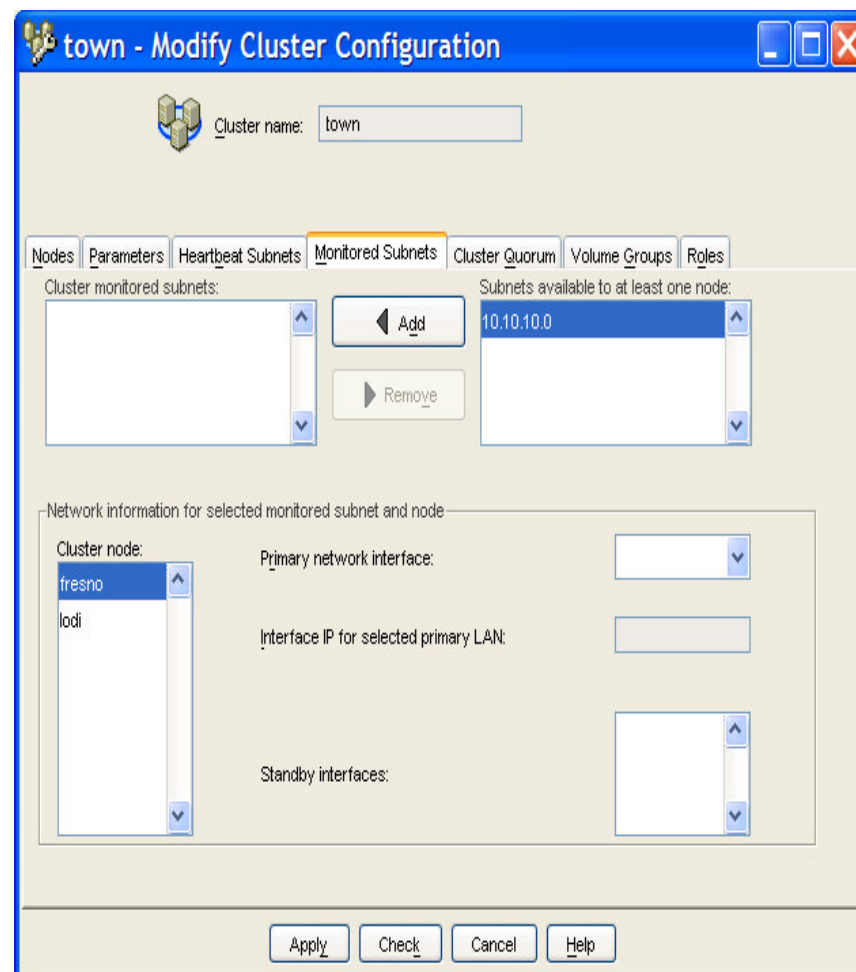
Cluster Configuration – Heartbeat Subnets Tab

- Automatic discovery of all subnets shared between all cluster member nodes
- Once user selects heartbeat subnets, the corresponding default network interface and IP address are set
- User can change the above default setting by selecting heartbeat and cluster member node
- For 2 node-clusters, allows the configuration of serial heart-beat
- All the parameters are entered in cluster configuration file



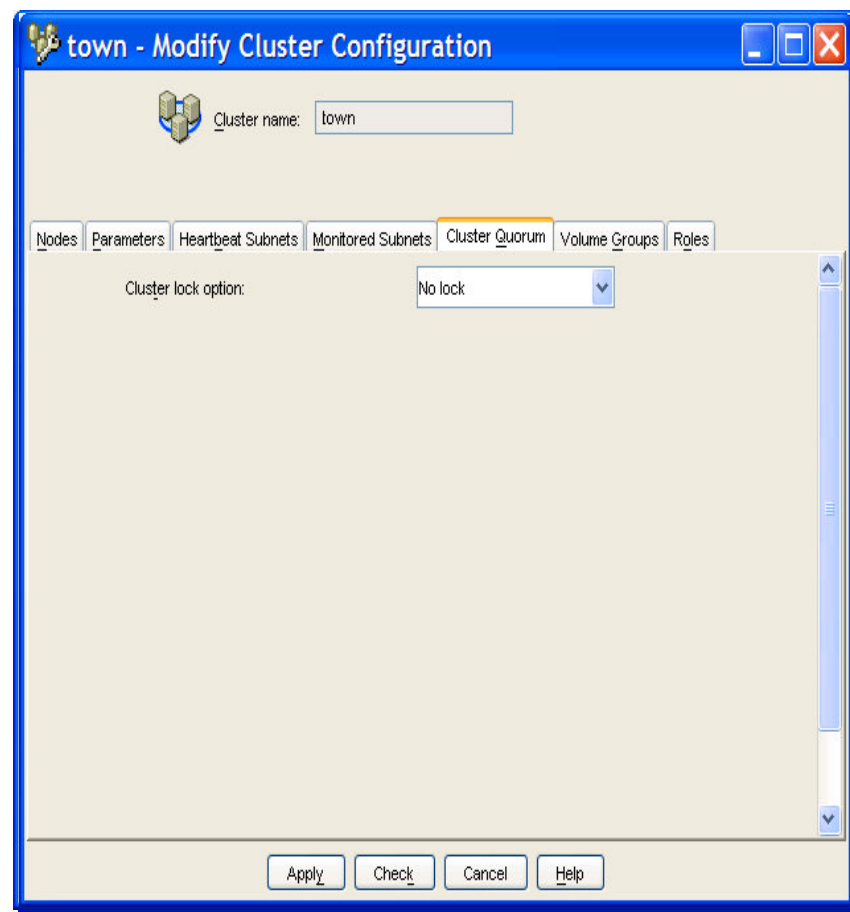
Cluster Configuration – Monitored Subnets Tab

- Automatic discovery of all subnets that are connected to at least one of the cluster member nodes
- Setting parameters for monitored subnets is similar to that of heartbeat subnets



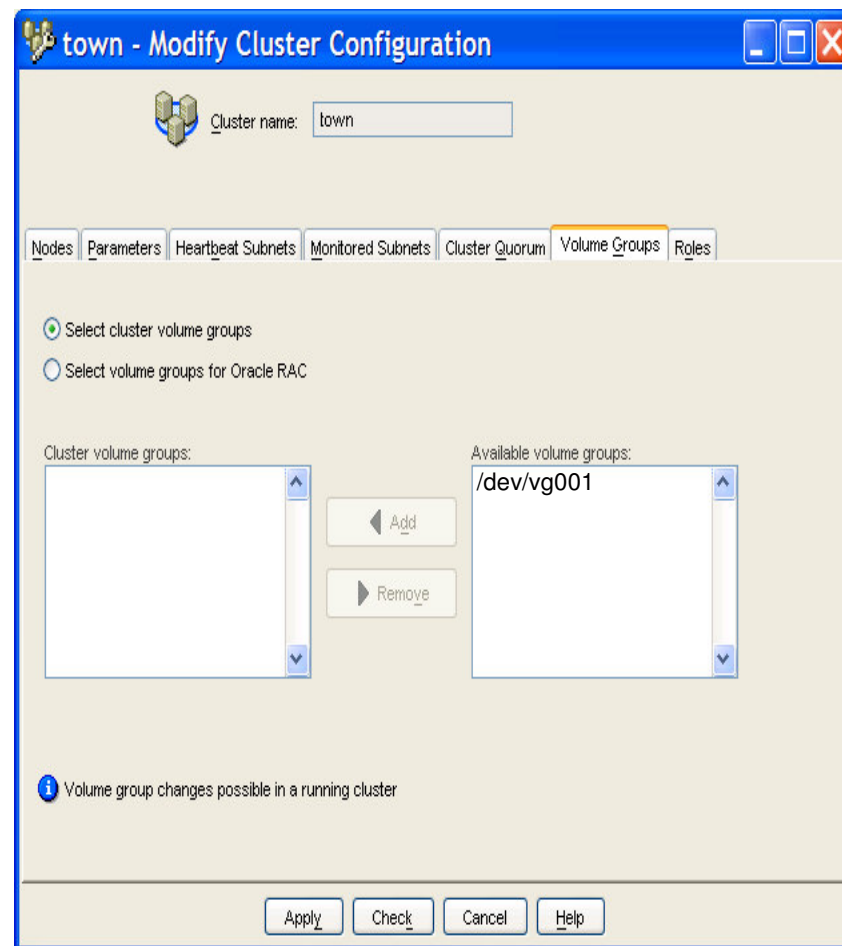
Cluster Configuration – Cluster Quorum Tab

- Provides mechanism to select and configure cluster lock
- Provides 4 cluster lock options :
 - Single lock disk (HP-UX only)
 - Dual lock disk (HP-UX only)
 - Quorum server (HP-UX or Linux)
 - No lock
- Single and Dual lock disks have automatic discovery of volume groups and physical volume
- Quorum server hostname, polling interval and timeout extension parameters need to be specified by user



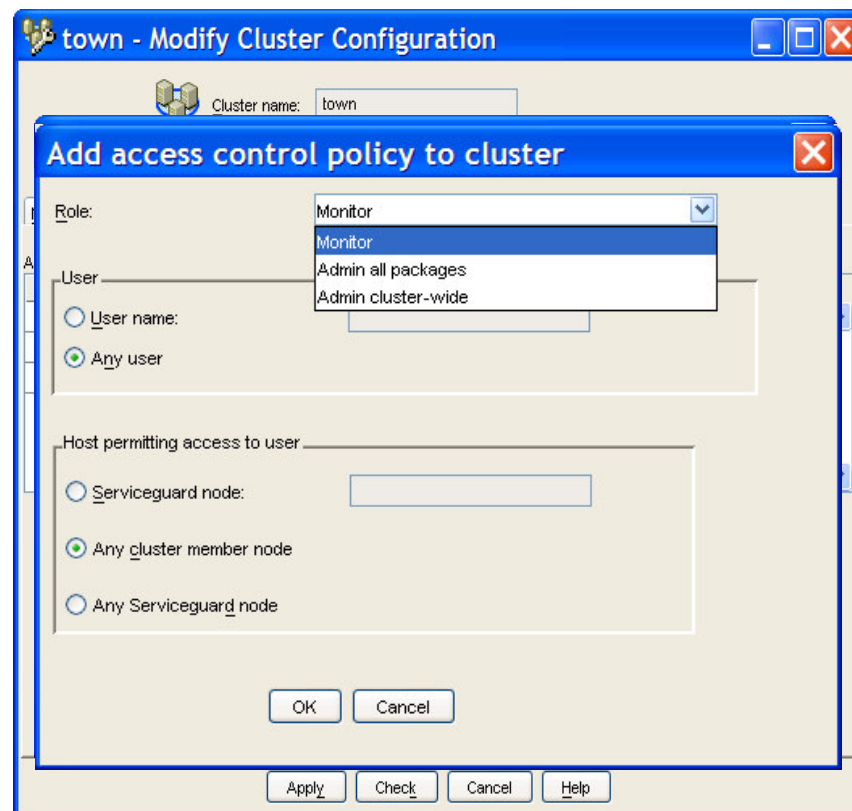
Cluster Configuration – Volume Groups Tab

- Automatic discovery of volume groups shared by one or more cluster member nodes.
- Volume groups selected by user will be marked as “cluster-aware”
- For SGeRAC cluster, the selected volume groups will be activated as “shared” when used by package
- For Serviceguard cluster, the selected volume groups will be activated as “exclusive” when used by package
- Cluster volume groups chosen are entered in cluster configuration file



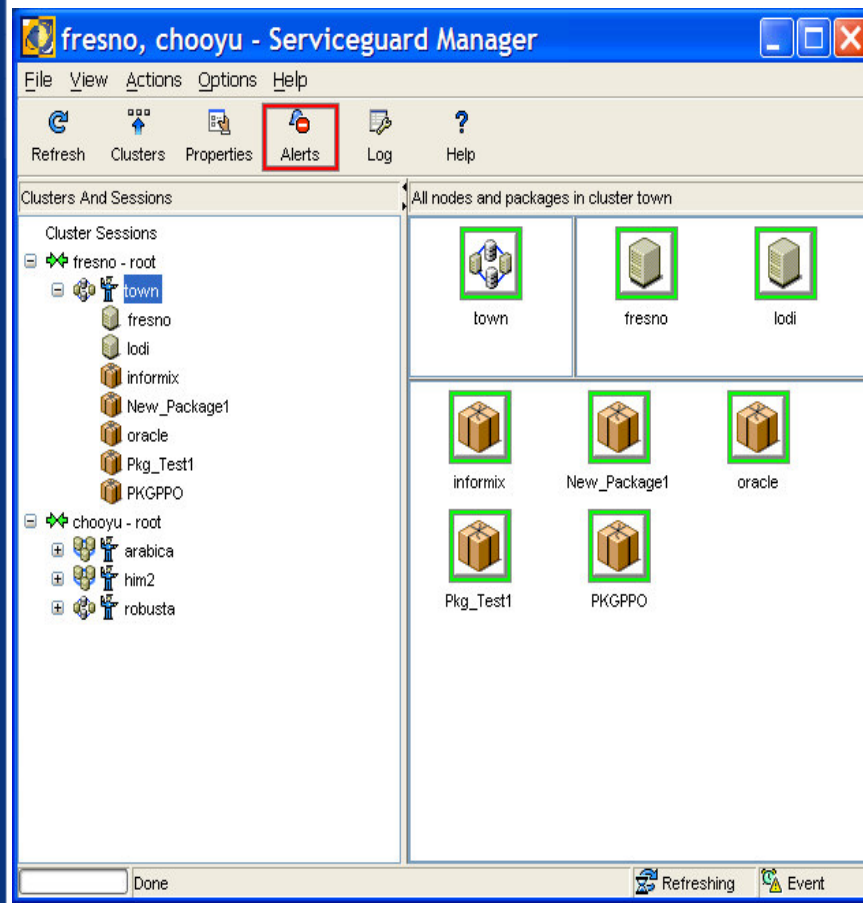
Cluster Configuration – Roles Tab

- Cluster-wide roles are defined in cluster configuration file
- Allows user to add/modify and delete roles without halting cluster/package.
- Access policy has 3 parts
 - User name – Can be any name defined in */etc/passwd* or any user (*)
 - Hostname – Can be name of session server (COM), or any cluster member node or any Serviceguard node
 - Role – Can be Full Admin/Package Admin/Monitor



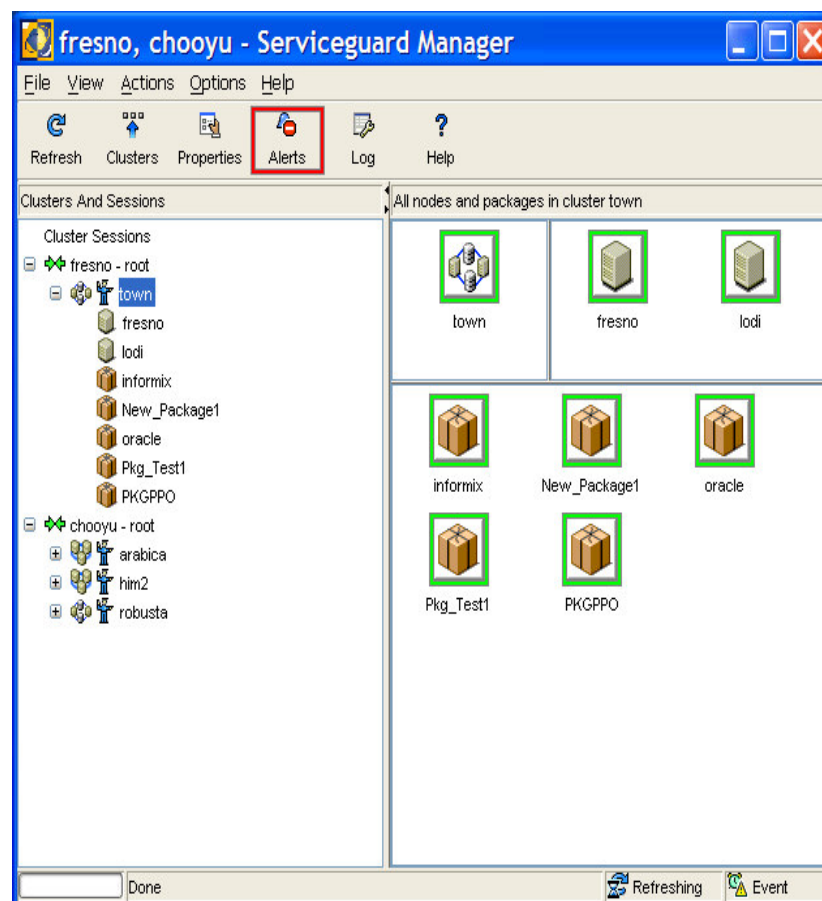
Cluster Configuration – Apply and Progress

- Apply will create/modify cluster configuration file after validating for errors and if no errors will distribute file to all nodes in cluster
- All validation operations being done will be displayed in the Operation log asynchronously
- After every successful Apply, automatic refresh of that cluster is performed and map and tree will be updated
- If Apply fails, operation log will indicate why and the user can correct the problem and apply again.
- Check will validate the data entered by user. Check only available during cluster modification



Cluster Configuration – Conditions

- To make any configuration changes, all cluster nodes must be up
- A new node can only be added if the OS is running on all cluster nodes.
- Node can only be deleted even if it is not unavailable or unreachable
- Cluster needs to be halted in order to change the following parameters
 - Maximum configured packages
 - Any timing parameters
 - Cluster lock configuration
 - Serial heartbeat
 - Change IP addresses for heartbeats or monitored subnets
 - Quorum server
 - Failover optimization
 - Delete cluster





Task #5

Modify cluster configuration

Task #5 - Request



Hey Admin! We just got another system – manaslu. Can you add another node to the cluster "him2" ?

Hey, calm down a bit...
That is a breeze to do
with Serviceguard
Manager. I will get it
done in a jiffy !



Live Demo – Modify Cluster Configuration



Serviceguard Manager
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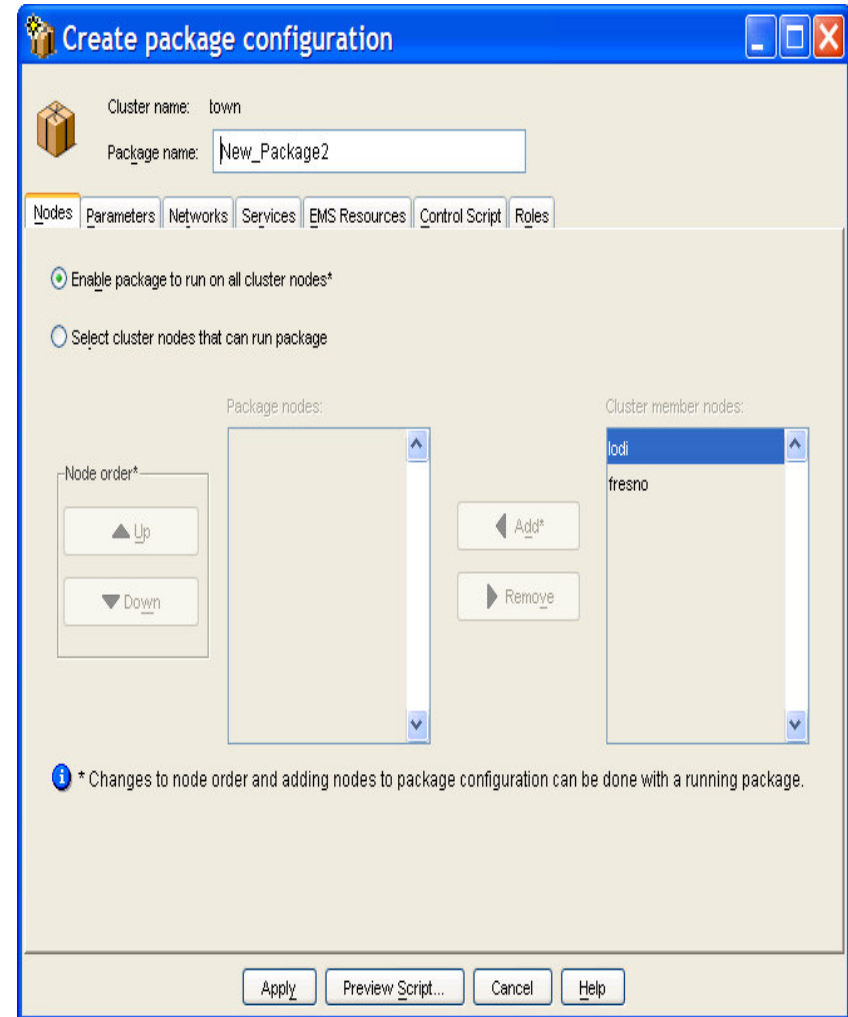
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Live demo here



Package Configuration

- Two package styles supported
- Guided style packages
 - New interface for entering and modifying basic control script data and creating/modifying new packages
- ASCII style packages
 - For existing old package configurations
 - View/edit existing control script file with an editor
- Co-located package configuration file and control script file parameters (e.g., networks tab and services tab)
- Both package modes provide automatic distribution of package control scripts to cluster nodes, with a backup (.bak) file being saved on all cluster member nodes



Package Configuration cont'd.

- Allows converting from Guided style to ASCII but reverse mode not allowed
- *Check (cmcheckconf)* option to check for errors with the input values
- *Preview Script* to view control script content at any time in Guided style.
- Control script steps are only available for creation and modification of guided style packages. Not available for ASCII style package
- Package using guided style are less error prone and do not require manual edition of control script



Cluster name: town
Package name: New_Package2

Nodes Parameters Networks Services EMS Resources Control Script Roles

Enable package to run on all cluster nodes*
 Select cluster nodes that can run package

Package nodes: Cluster member nodes:
lodi
fresno

Node order*
▲ Up
▼ Down

◀ Add* Remove ▶

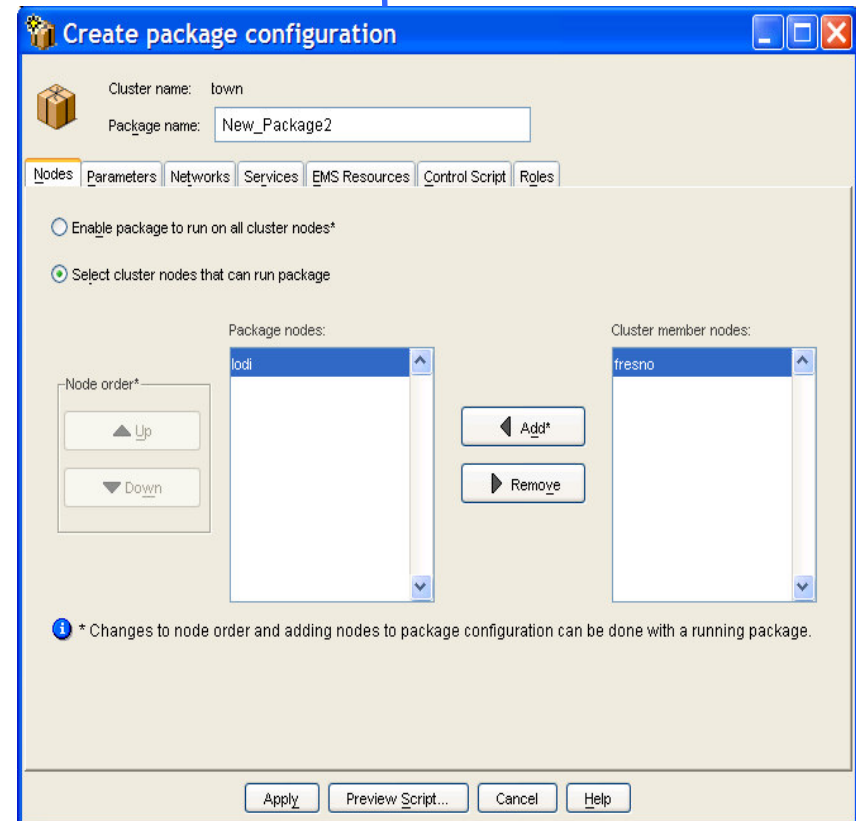
** Changes to node order and adding nodes to package configuration can be done with a running package.*

Apply Preview Script... Cancel Help

Package Configuration – Nodes Tab

- User can select cluster nodes that can run package
- Or select the option to choose all cluster nodes (equivalent to * in package configuration file), and Serviceguard will determine the node order
- Allows the ordering of package nodes to define primary node, secondary node etc., only when user selects cluster nodes.
- All the components in this tab are specific to package configuration file

Package Configuration file parameters



Package Configuration – Parameters Tab

- All the components in this tab are specific to package configuration file
- Cluster Volume Manager (CVM) disk group parameter available only if CVM is configured on all the cluster nodes
- Package template for Oracle RAC parameter available only if it is an SGeRAC cluster

Package Configuration file parameters



Cluster name: town
Package name: New_Package2

Nodes Parameters Networks Services EMS Resources Control Script Roles

Package auto run*

Local LAN failover*

Node fail fast*

Failover policy* configured node

Failback policy* manual

No run script timeout Run script timeout: 300 Seconds(g)*

No halt script timeout Halt script timeout: 300 Seconds*

CVM Disk Groups

Package Template for Oracle RAC

Enable template(x)

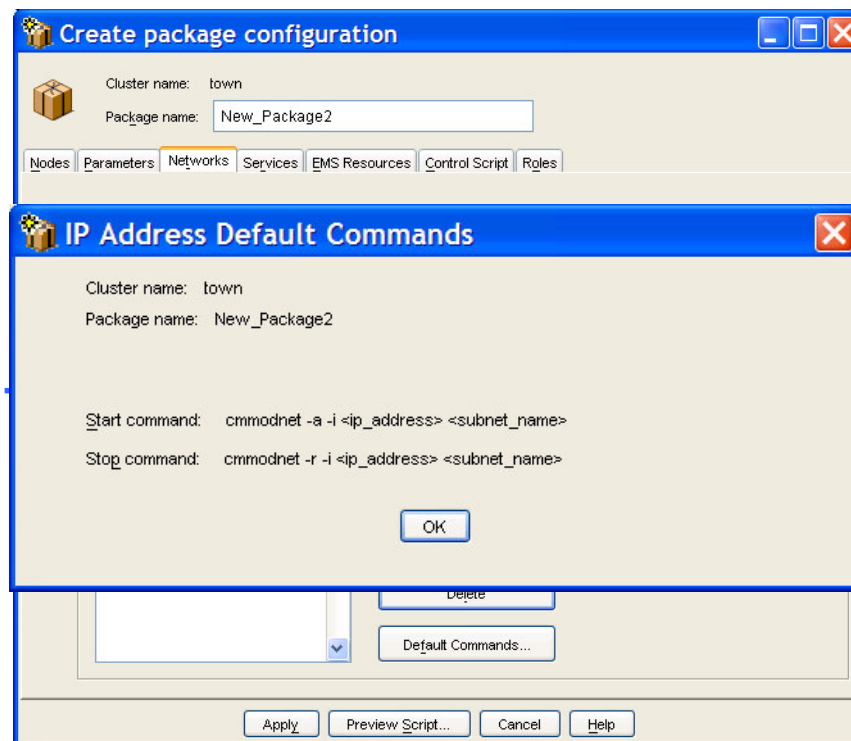
i * Parameters can be changed in a running package.

Apply Preview Script... Cancel Help

Package Configuration – Networks Tab

- Updates both package configuration file as well as control script file
- Automatic subnets discovery (from the ones configured in the cluster)
- Allows user to specify relocatable IP (IPv4/IPv6 IP) address and subnet pairs which are entered into control script
- View the default command associated with the IP address – *cmmodnet* command and parameters which are entered into control script
- Guided entry elements are grayed out for ASCII style packages

Package Configuration file parameters



Control script file parameters

Package Configuration – Services Tab

- Updates both package configuration file as well as control script file
- Allows user to add/modify/delete services with its parameters
- View the default command associated with the Service configured – *cmhaltserv* command and parameters which are entered into control script
- Guided entry elements are grayed out for ASCII style packages

Package Configuration file parameters



Create package configuration

Cluster name: town
Package name: New_Package2

Configure service parameters

Cluster name: town

Service Default Commands

Cluster name: town
Package name: New_Package2

Start command: cmrunserv -r \$restartsAllowed \$ < name > \$command
Stop command: cmhaltserv \$ < name >

OK

OK Cancel Help

Modify Delete Default Commands...

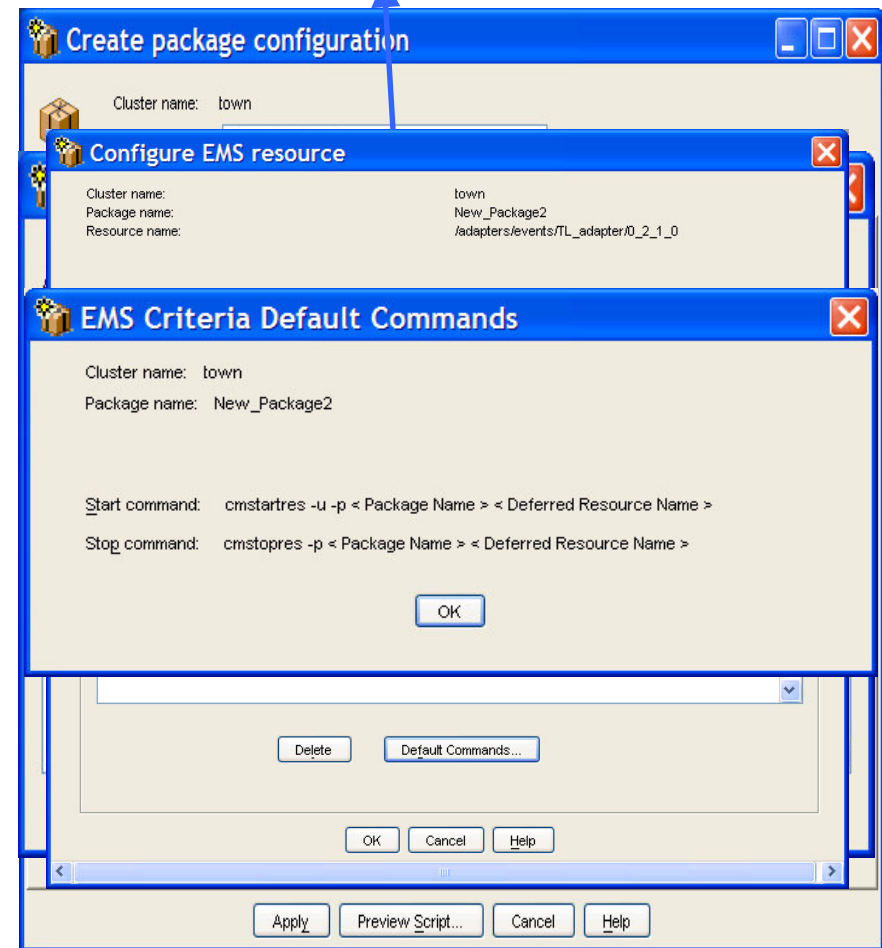
Apply Preview Script... Cancel Help

Control script file parameters

Package Configuration – EMS Resources Tab

- All the components in this tab are specific to package configuration file
- Browse feature provides automatic discovery of all the EMS Resources that are installed on all package nodes, with user choosing from the discovered tree
- Or user can manually specify the complete path to EMS resource
- View the default command associated with the resource – *cmstartres* command and parameters which are entered into control script
- If deferred resource, components will go to control script file also

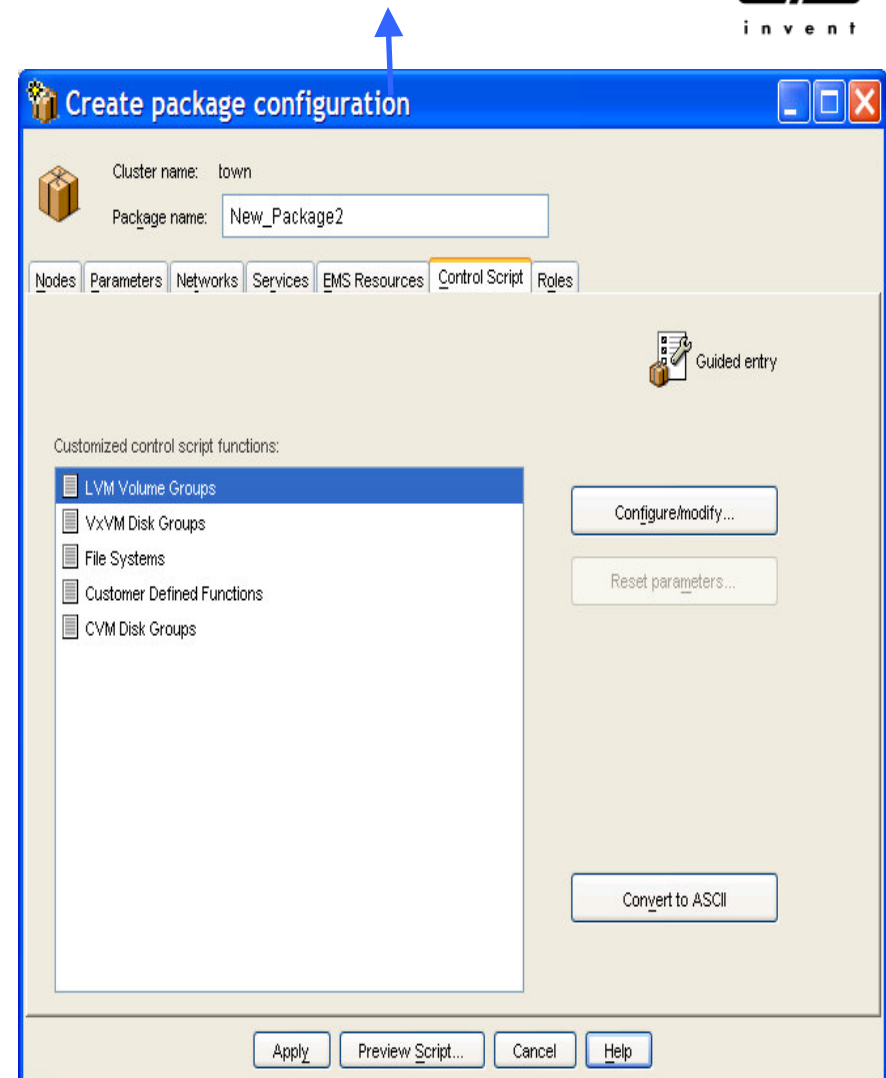
Package Configuration file
and Control script file (if
deferred only)



Package Configuration – Control Script Tab

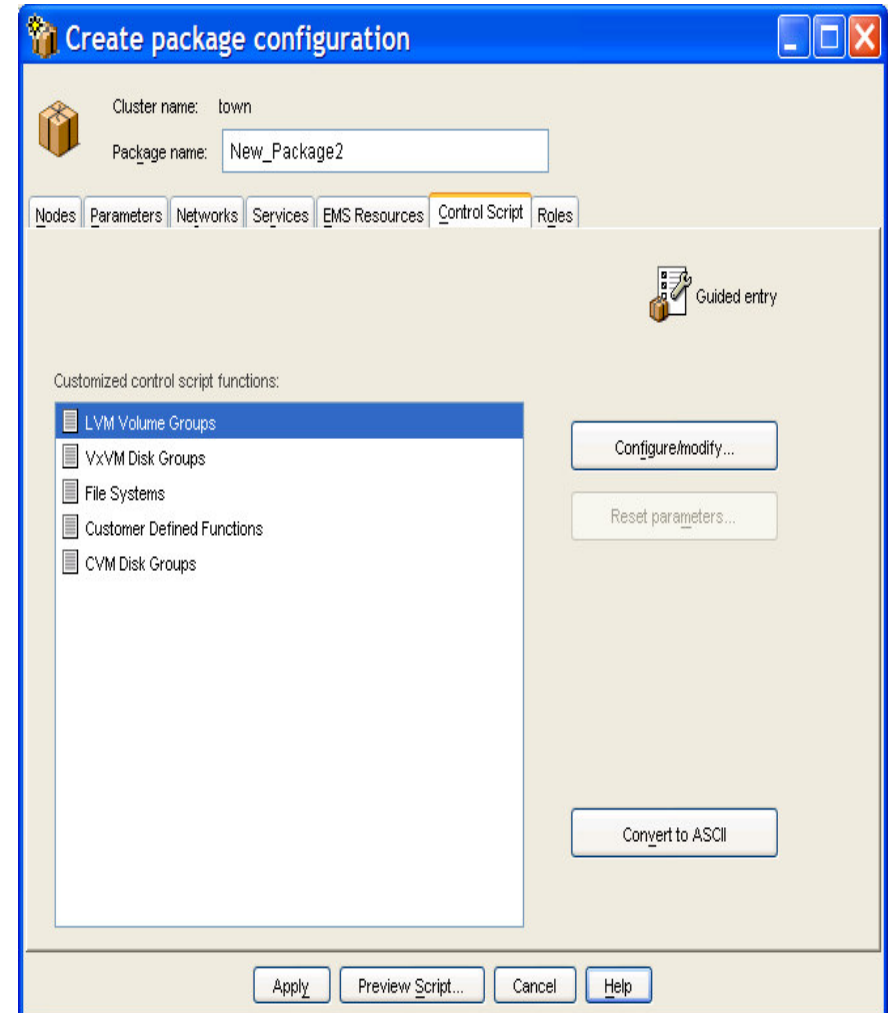
- All components in this tab are entered into package control script file
- Provides 2 styles for control script data
 - Guided style approach - New step-by-step interface, which is completely GUI driven for entering and modifying control script data
 - ASCII style approach - Mainly for supporting existing control scripts
- Provides automatic distribution of control script on all cluster member nodes

Package control script file



Package Configuration – Control Script Tab - Guided Style

- New step-by-step user interface for entering and modifying all control script data and viewable actions
- Completely GUI driven, no editing large control scripts
- Any configured control script step can be un-configured with a single reset button on apply
- Automatic creation and distribution of control scripts to all the configured cluster nodes on apply
- Allows conversion from Guided Style to ASCII
- Limitations
 - Does not support attributes specific to Metrocluster or Continentalcluster
 - For SGeRAC packages, need to create package on each node in cluster

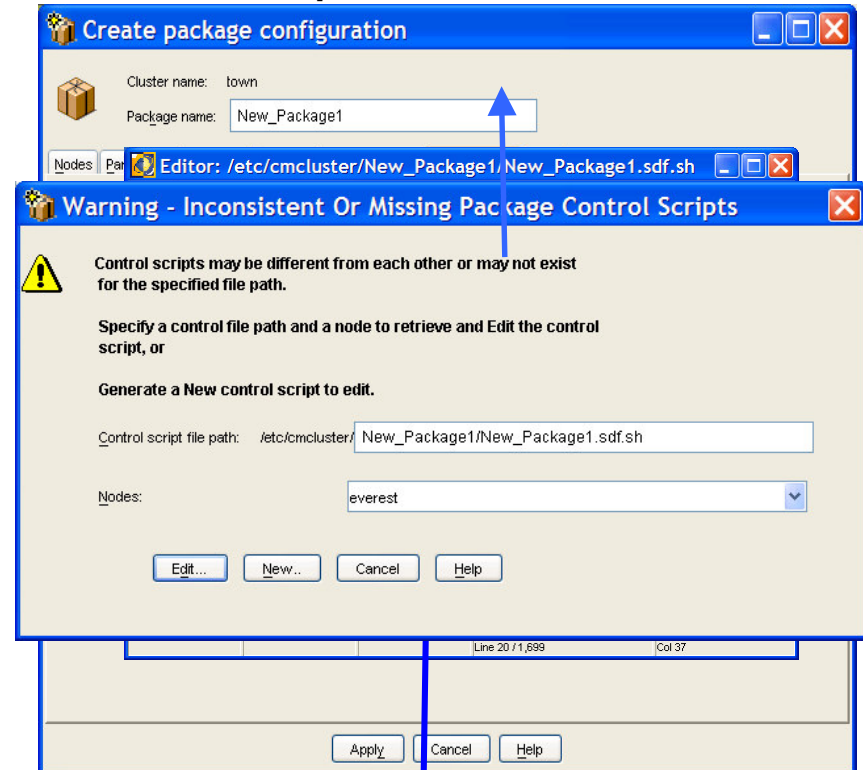


Package Configuration – Control Script Tab - ASCII Style

- Mainly available to support existing old ASCII package (previous command line created control scripts) configuration
- Provides consistency check for the control file on all cluster member nodes
- If inconsistent, then user has option to select the control script by specifying the cluster node
- Provides automatic distribution of control scripts to all the configured cluster nodes on apply.
- Creates backup file of the old control script on all cluster member nodes
- Limitations
 - ASCII to Guided style not supported



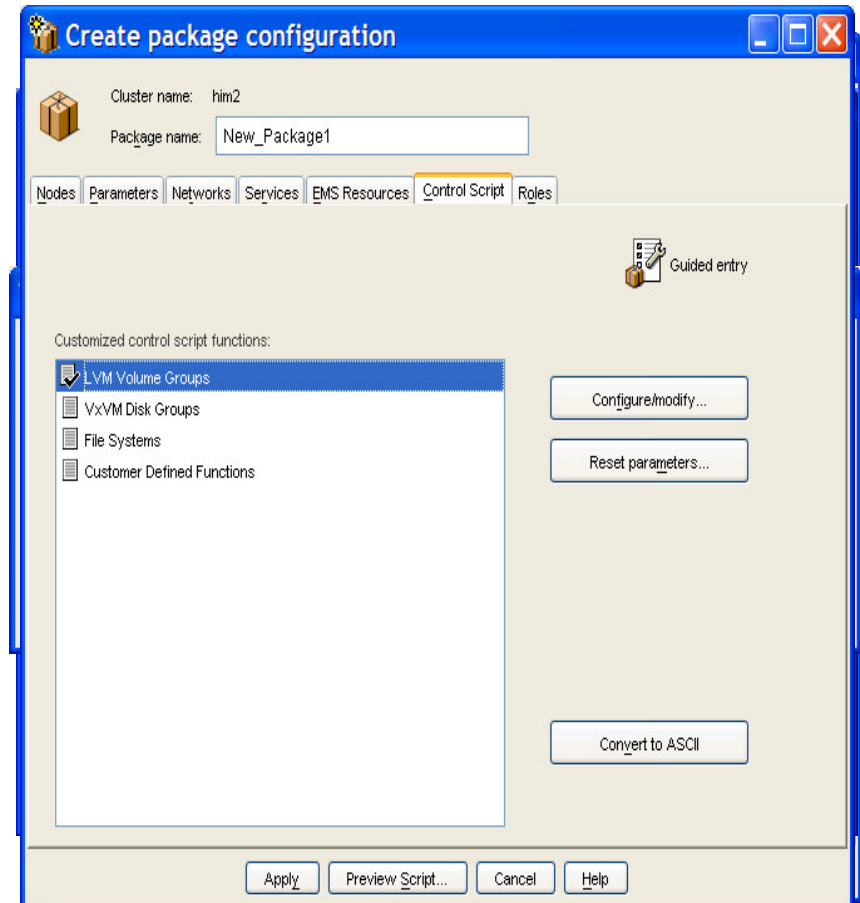
- If consistency check is a success
 - If consistency check is a failure
- Package Configuration file parameters



Distributes control script to all cluster nodes when pressed

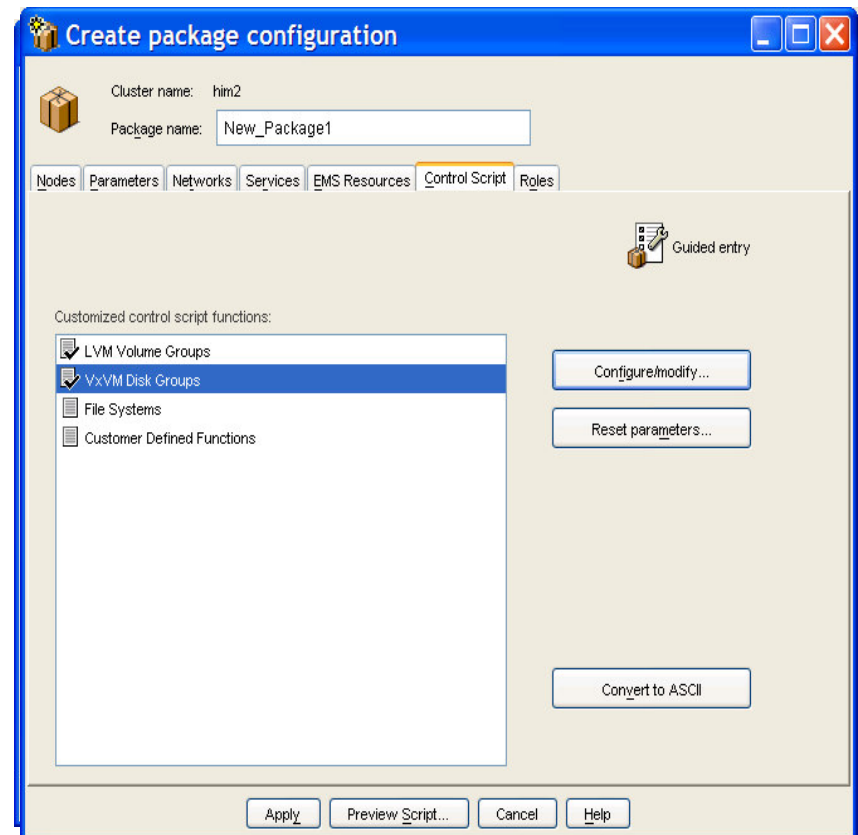
Package Configuration – Control Script Tab – LVM Volume Groups

- Automatic volume groups discovery (need to have volume groups configured in the cluster)
- View the default start and stop command associated with the LVM volume groups – *vgchange* command and parameters which are entered into control script
- Activation method once chosen applies to all the configured volume groups for package



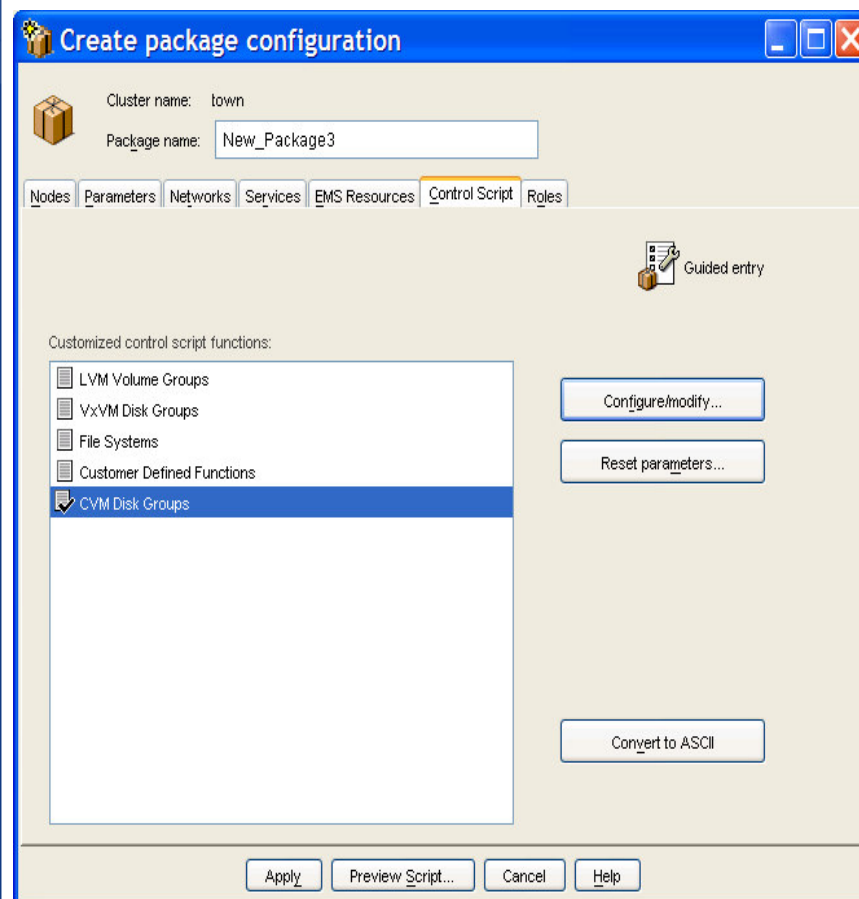
Package Configuration – Control Script Tab – VxVM Disk Groups

- VxVM volume groups are not automatically discovered. User needs to enter VxVM volume groups name
- View the default start and stop command associated with the VxVM volume groups – `vxdg` command and parameters which are entered into control script



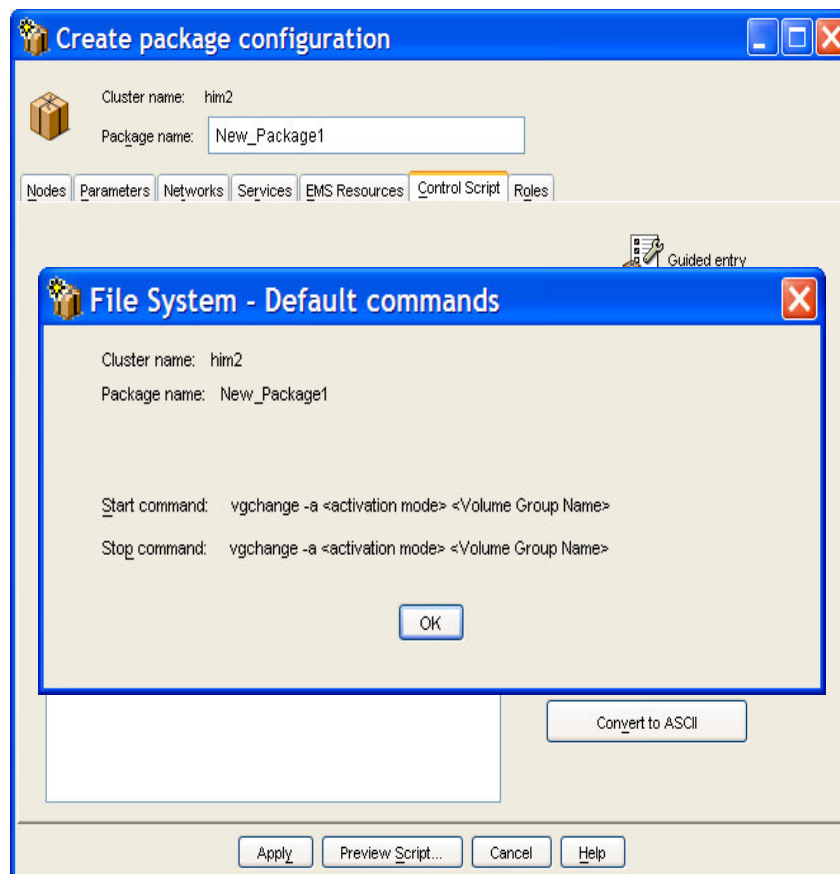
Package Configuration – Control Script Tab – CVM Disk Groups

- Cluster Volume Manager (CVM) disk group step available only if CVM is configured on all the cluster nodes.
- The CVM dependency parameter in the parameters tab should be selected if the user wishes to configure CVM step. (If not selected, configuring CVM step will automatically enable CVM dependency parameter.)
- CVM volume groups are not automatically discovered. User needs to enter CVM volume groups name
- View the default start and stop command associated with the CVM volume groups – `vx dg` command and parameters which are entered into control script



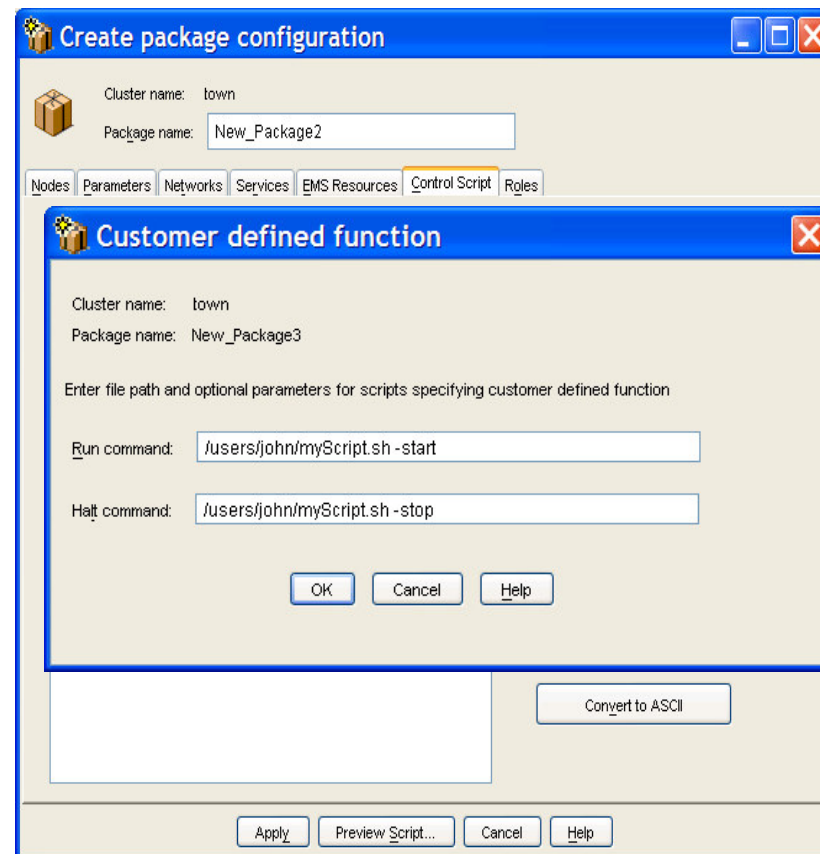
Package Configuration – Control Script Tab – File Systems

- File system configuration only available if at least one of the volume group steps (LVM/CVM/VxVM) have been configured. Otherwise, all options will be grayed out
- View the default start and stop command associated with the FileSystems – *vgchange* command and parameters which are entered into control script



Package Configuration – Control Script Tab – Customer Defined Functions

- User can enter start and stop command which point to a file path with optional parameters
- User needs to create a script with run/halt commands and needs to distribute it to cluster member nodes



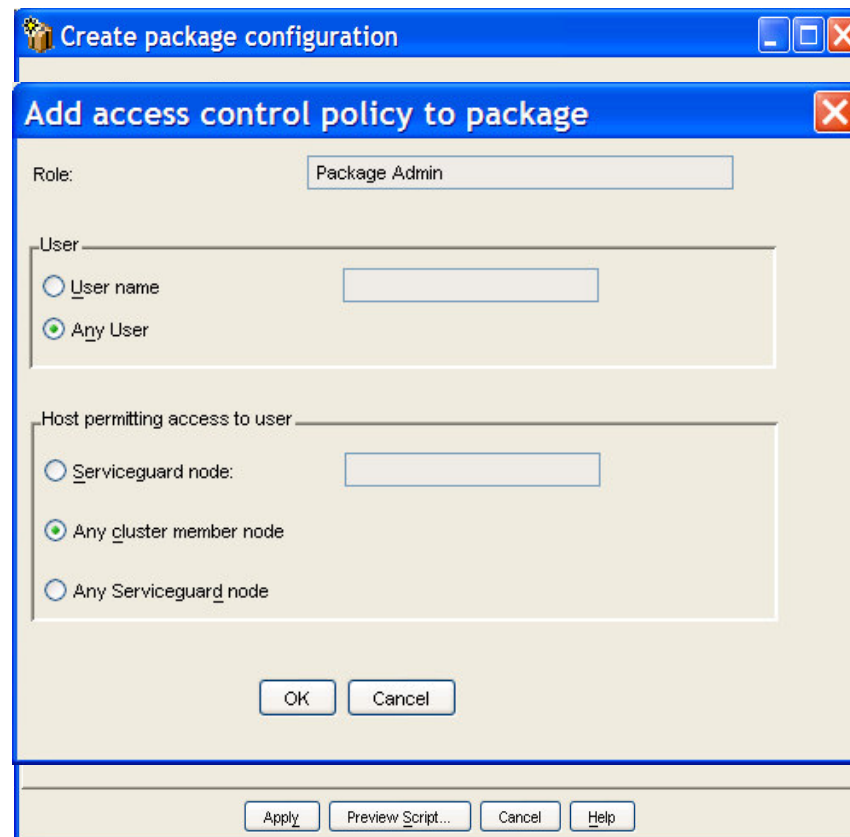
The screenshot shows the 'Create package configuration' dialog box with the 'Control Script' tab selected. A 'Customer defined function' dialog is overlaid on top. The 'Customer defined function' dialog has the following fields and controls:

- Cluster name: town
- Package name: New_Package2
- Enter file path and optional parameters for scripts specifying customer defined function
- Run command: /users/john/myScript.sh -start
- Halt command: /users/john/myScript.sh -stop
- Buttons: OK, Cancel, Help

The main dialog also has a 'Convert to ASCII' button and 'Apply', 'Preview Script...', 'Cancel', and 'Help' buttons at the bottom.

Package Configuration – Roles Tab

- Can specify only one role in package configuration file – Package Admin – Specific to the package
- Access policy has 3 parts
 - User name – Can be any name defined in */etc/passwd* or any user (*)
 - Hostname – Can be name of session server (COM), or any cluster member node or any Serviceguard node
 - Role – Package Admin only



Create package configuration

Add access control policy to package

Role: Package Admin

User

User name

Any User

Host permitting access to user

Serviceguard node:

Any cluster member node

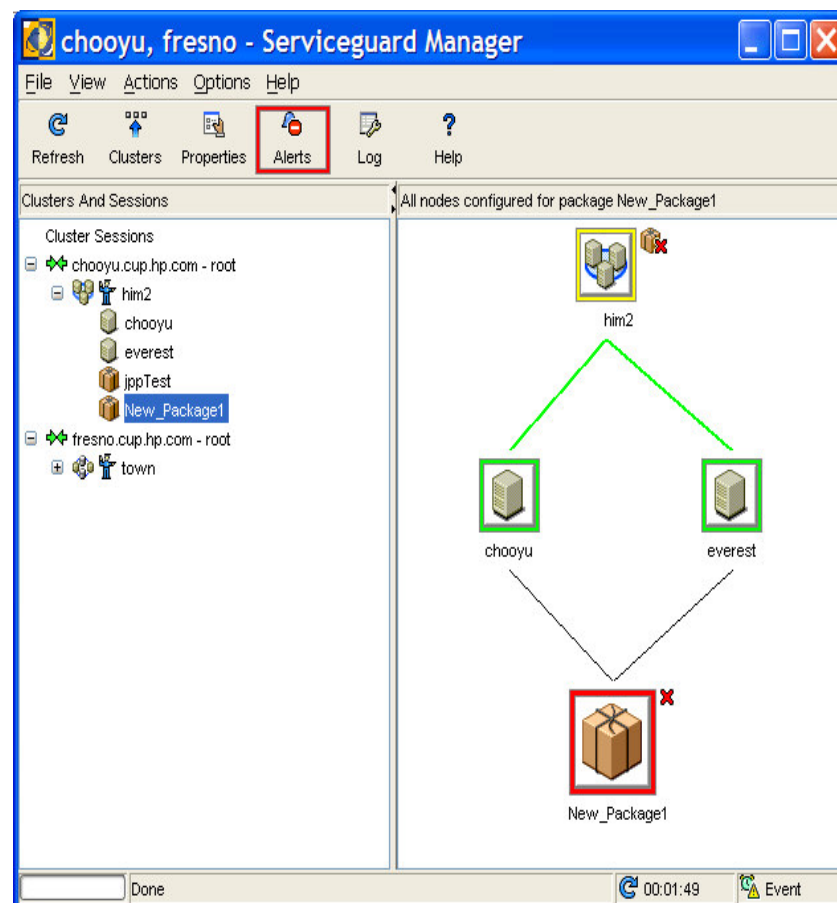
Any Serviceguard node

OK Cancel

Apply Preview Script... Cancel Help

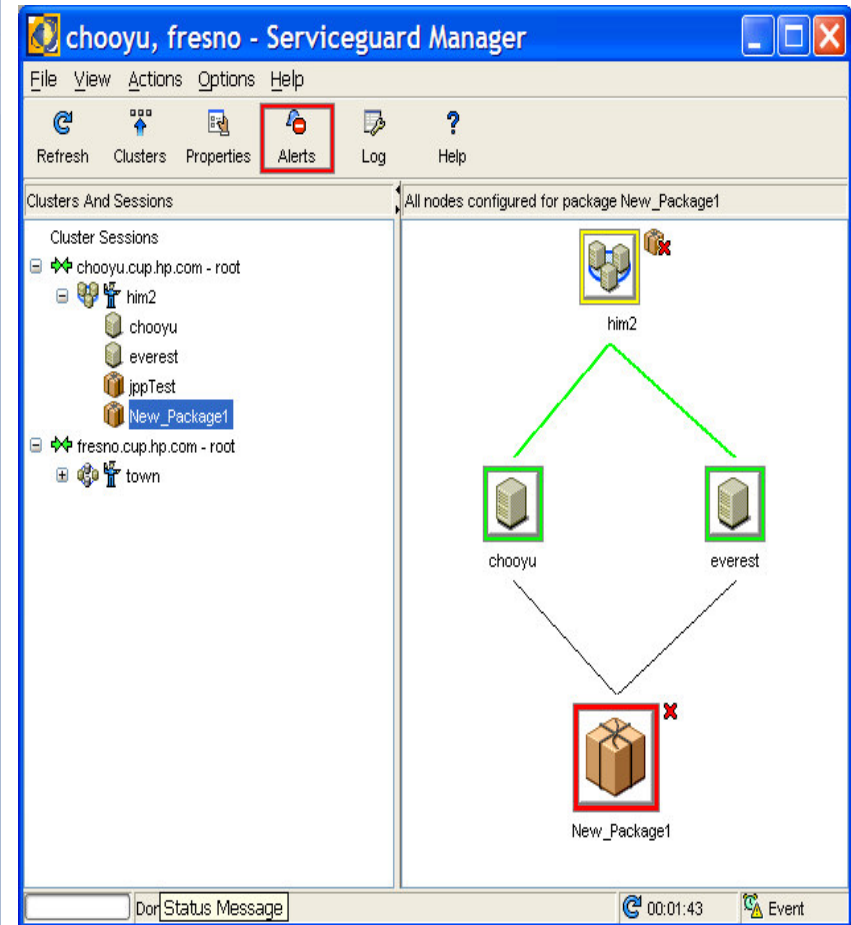
Package Configuration – Apply and Progress

- Apply will create/modify package configuration file and control script file and if no errors will distribute files to all nodes in cluster
- All validation operations being done will be displayed in the Operation log asynchronously
- After every successful Apply, automatic refresh of that package is performed and map and tree will be updated
- Check will validate the data entered by user. Check only available during package modification



Package Configuration – Conditions

- To change any package parameter, need to have root permission
- Package needs to be halted in order to change the following parameters
 - Delete package
 - Add service
 - Remove service
 - Add/Remove subnet
 - Add/Remove resource
 - Add/remove volume group
 - Service timeouts
 - Service failfast
 - Run/Halt script timeout





Task #6

Create package configuration

Task #6 - Request



Hey Admin! Sorry to bother you again ! Can you create a new package and configure a new service ?

Hope this is the last task for the day ! I will get it done, don't worry ! As long as I have Serviceguard Manager, nothing is too hard to do !





Live Demo – Create Package Configuration

Serviceguard Manager
High Availability Cluster Management Solutions



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Live demo here



Serviceguard Manager 4.0 Benefits

- Enable IT staff to quickly identify problems and dependencies with drill down screens for multiple HA clusters across the enterprise
- Administration and monitoring tasks can be assigned to operators for specific clusters and packages through RBA
- Less experienced system administrators can perform cluster/package configuration and modification tasks easily
- System administrators can easily view detailed logs of all administration and configuration operations
- Minimizes operator training requirements
- Configuration automates distribution of files ensuring consistency across cluster.



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HP SIM Integration

- Serviceguard Manager launch able from within HP Systems Insight Manager 4.1 (SIM)

HP SIMClient

The screenshot displays the HP SIMClient interface. The top window shows a 'Cluster List: all viewable clusters' with a table of cluster details. Below it, the 'HP_clusters - Serviceguard Manager' window is open, showing a tree view of nodes under the 'arabica' cluster.

cluster	cluster name	cluster address	cluster type	cluster description
✓	Sedgft	16.129.70.27	TuCluster	HP TuA4 Unix Cluster
✓	Sthaly	16.129.70.28	MSCS	Proliant 6400 MSCS Cluster
✓	Phoenix	16.129.70.29	TuCluster	HP TuA4 Unix Cluster
✓	Sopack	16.129.70.30	MSCS	Proliant 6400 MSCS Cluster
✓	Benado	16.129.70.30	OVMS	HP OpenVMS Cluster
✓	Diler	16.129.70.30	MSCS	Proliant 6400 MSCS Cluster
✓	Moxe	16.129.70.30	MSCS	Proliant 6400 MSCS Cluster
✓	Sinatra	16.129.70.30	NWCS	Novel
✓	Blizzard	16.129.70.30	MSCS	Proliant 6400 MSCS Cluster
✓	Trplych	16.129.70.30	MSCS	Proliant 6400 MSCS Cluster
✓	Alfala	16.129.70.30	TuCluster	HP TuA4 Unix Cluster
✓	Squad	16.129.70.30	MSCS	Proliant 6400 MSCS Cluster
✓	Gertrude	16.129.70.30	TuCluster	HP TuA4 Unix Cluster
✓	Stalone	16.129.70.30	MSCS	Proliant 6400 MSCS Cluster
✓	Magnum	16.129.70.30	OVMS	HP OpenVMS Cluster
✓	Nebula	16.129.70.30	MSCS	Proliant 6400 MSCS Cluster
✓	Sprolzyzy	16.129.70.30	TuCluster	HP TuA4 Unix Cluster
✓	Sporkman	16.129.70.30	OVMS	HP OpenVMS Cluster
✓	Homer	16.129.70.30	MSCS	Proliant 6400 MSCS Cluster
✓	JarJar	16.129.70.30	MSCS	Proliant 6400 MSCS Cluster
✓	Slacker	16.129.70.30	MSCS	Proliant 6400 MSCS Cluster
✓	Klmg	16.129.70.30	MSCS	Proliant 6400 MSCS Cluster

The Serviceguard Manager window shows a tree view of nodes under the 'arabica' cluster:

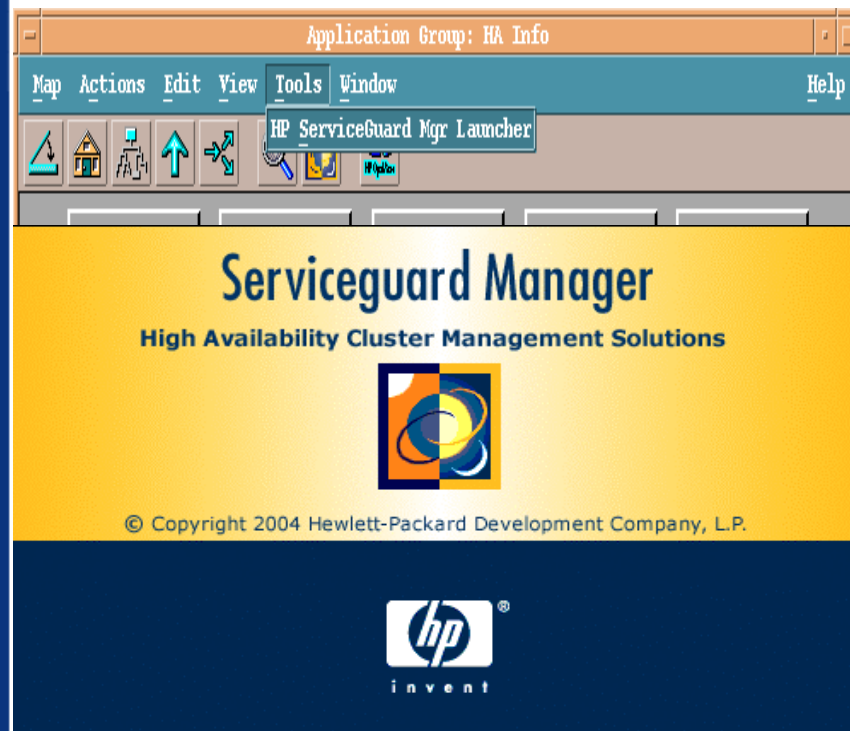
```

graph TD
    arabica --> decal
    arabica --> jamaica
    arabica --> latte
    arabica --> moca
    jamaica --> informix
    latte --> oracle
  
```



HP OpenView Integration

- Integrated with OpenView 8.0
- Serviceguard Manager Launcher
- Serviceguard Event Templates



Futures



Serviceguard Manager

- Enhance property sheets for cluster locks
- Configuration and RBA for SG on Linux
- Support HP-UX 11iv3 enhancements (e.g. AdvFS support)
- Support new enhancements for SG 11.17

Cluster Mgr 1.0 (Cleansweep plug-in)

- TruCluster management (e.g. creation and modification)
- CFS Management
- System Insight Manager integration



Q&A !



- Any additional comments on what you've seen?
- Your input helps us decide
 - ✓ Where we have usability problems
 - ✓ What future features might be most useful
- We thank you for your time and your thoughtful feedback!



i n v e n t

