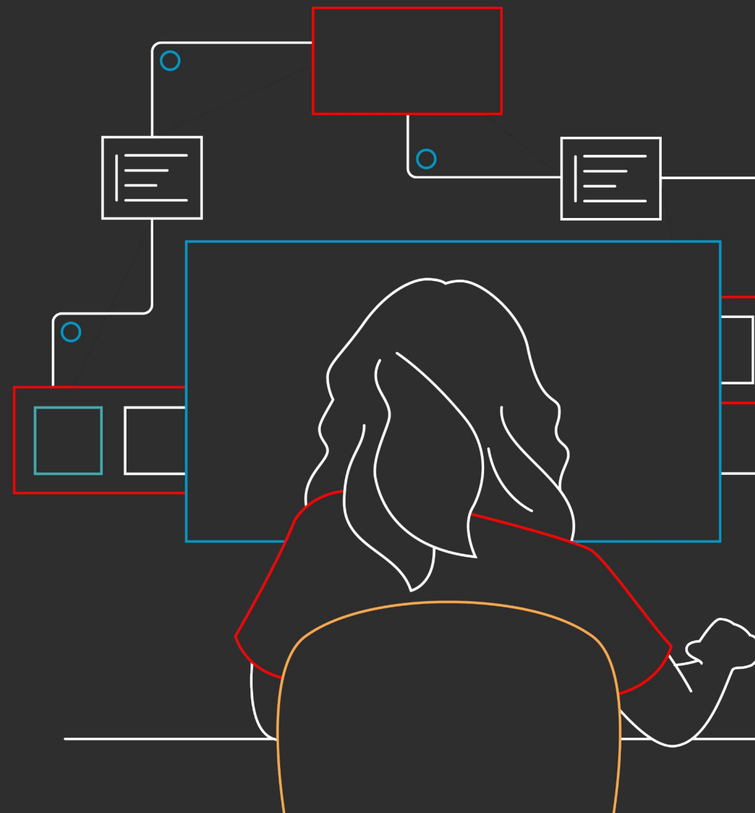
Operation, Update, and Monitoring

Updating SAP HANA Operating System and the cluster



General Overview of Update Procedures

Rolling updates

- remove one node from the fully formed active cluster
  - move all services and stop the daemons
  - remove node from cluster
- update the OS software
- rejoin the node into the cluster and wait until the cluster is fully functional
- repeat these steps with each remaining node

General Overview of Update Procedures

Entire Cluster Update At Once

- Stop and shutdown the whole cluster
- update the OS software on all nodes
- restart the cluster as whole

Rolling Update Commands Overview

`pcs resource disable` *`resource`*	Stop a running resource (group) entirely and to prevent the cluster from starting it again
`pcs resource move` *`resource`*	Move resource to another node and add constraints to prevent to run on the originating node
`pcs node standby` *`clusternode`*	Place the chosen node into standby mode
`pcs cluster stop` *`clusternode`*	Stop the cluster software on the chosen node
`yum -y update`	Update the cluster (Optional other software)
`pcs cluster disable` *`clusternode`* `reboot`	In case a reboot is required after the update make sure to disable the cluster service to avoid auto-rejoin
`pcs cluster enable` *`clusternode`*	re-enable the cluster software
`pcs cluster start` *`clusternode`*	Rejoin the updated node into the cluster
`pcs status`	Check that everything appears as it should
`pcs node unstandby` *`clusternode`*	re-activate node for service
`pcs resource move` *`resource`*	Optional: move resource back to this node
`pcs resource enable` *`resource`*	re-start previously stopped resource

Entire Cluster Update Commands Overview

`pcs resource disable resource`	Stop all resources (groups) in proper order (or use `--all`)
`pcs node standby --all`	Place all nodes into standby mode
`pcs cluster stop --all`	Stop the cluster software on all nodes
`yum -y update`	Update the cluster (Optional other software)
`sidadm> HDB stop`	gracefully shutdown HANA DBs
`pcs cluster disable --all` `reboot`	In case a reboot is required after the update make sure to disable the cluster service to avoid auto-rejoin
`pcs cluster enable --all`	re-enable the cluster software
`pcs cluster start --all`	Rejoin the updated nodes into the cluster
`pcs status`	Check that everything appears as it should
`pcs node unstandby --all`	re-activate all nodes for service
`pcs resource enable resource`	re-start all stopped resources in proper order (or use `--all`)

Updates for SAP HANA DB or for Applications

Entire Cluster Update At Once

- Check for SAP application support
- Put the cluster in to maintenance mode
  ```
  # pcs property set maintenance-mode=true
  ```
  Alternatively: Stop the cluster completely
  ```
  # pcs cluster stop --all
  # pcs cluster disable --all
  ```
- perform the update
- Release the maintenance mode:
  ```
  # pcs property set maintenance-mode=false
  ```
  Alternatively: Re-Start the cluster completely
  ```
  # pcs cluster enable --all
  # pcs cluster start --all
  ```
-

SAP Operations Ansible Collection

Separate subscription required for certified Ansible Collection on Red Hat Automation Hub

https://console.redhat.com/ansible/automation-hub/repo/published/sap/sap_operations/

- Customer feedback driven
- Native Ansible modules (not commands) for SAP related operations
- “Lego blocks” for SAP customer automation use cases
- Main focus on SAP HANA and SAP NetWeaver ABAP automation
- Fast development cycle and quick pace of customer feedback implementation
- Test automation and CI/CD
- Working with partners and customers to find most valuable SAP Ansible automation use cases
- Partners and customers are actively contributing to SAP Operations Ansible Collection and creating content for their own use cases
- Community of partners and customers is governing and leading content development for SAP Operations Ansible collection
- Documentation for all content is available using ansible-doc command

Community Ansible Content for SAP operations (1 of 2)

Galaxy collection: sap.sap_operations **Repository:** github.com/redhat-sap/rh_operations/tree/galaxy
Documentation: docs.galaxy.saponrhel.org

Repository:
community.sap_operations

- os_ansible_user [R]
- os_knownhosts [R]
- sap_rhsm [R]
- sap_facts [M]
- sap_monitor_hana_status [M]
- sap_monitor_nw_status [M]
- sap_monitor_nw_perf [M]
- sap_monitor_nw_response [M]
- sap_control [R]
- sap_fapolicy [R]
- sap_firewall [R]
- os_etchosts [R]
- sap_profile_update [R]

R - Ansible Role
M- Ansible Module
P - Ansible plugin

Roles:

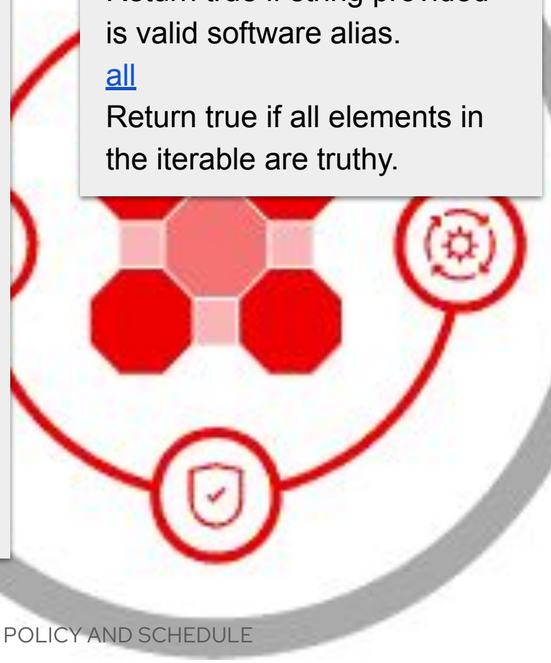
hana_update
Update SAP HANA instance
pcs_config_checks
Run cluster configuration checks
cloudconnector
Manage SAP Cloud Connector
sapjvm
Manage SAP JVM
prepare
Prepare RHEL managed host
hana
Manage SAP HANA instance
cf
Manage cloud foundry CLI
sap_kernel_update
Update SAP kernel.
unpack
Unpack *.zip and *.sar files

Filter plugins:

any - Return true if any element in the iterable is truthy
all - Return true if all elements in the iterable are truthy
pcs_resources_from_status - Get pcs cluster resources lists
me_enr_from_alias - Return the ENR from alias.
pcs_cluster_property_mapping - Get pcs cluster property from pcs_cib_info result
pcs_resources - Get pcs cluster resources lists
valid_sid - Verify that SAP system ID (SID) is valid.
license_content - Get sap license attributes from sap license file
pcs_resources_from_cib - Get pcs resources list from result of sap.sap_operations.pcs_cib_info module
mount_path - Return the mount path of the filepath.
combine_default - Combine two dictionaries, second dictionary will be used as default.
any - Return true if any element in the iterable is truthy.
valid_sid - Verify that SAP system ID (SID) is valid.
me_valid_alias - Return true if string provided is valid software alias.
all - Return true if all elements in the iterable are truthy.

Test plugins:

any
Return true if any element in the iterable is truthy.
valid_sid
Verify that SAP system ID (SID) is valid.
me_valid_alias
Return true if string provided is valid software alias.
all
Return true if all elements in the iterable are truthy.



Community Ansible Content for SAP operations (2 of 2)

Galaxy collection: sap.sap_operations **Repository:** github.com/redhat-sap/rh_operations/tree/galaxy **Documentation:** docs.galaxy.saponrhel.org

Cloud Foundry plugins (SAP BTP):

cf_service_instances_info
Fetch information about Cloud Foundry service instances
cf_service_instance_info
Fetch information about Cloud Foundry service instance
cf_marketplace_info
Fetches Cloud Foundry marketplace service offerings
cf_service_plans_info
Fetch information about Cloud Foundry service plans
cf_service_instance
Manage Cloud Foundry service instances
cf_spaces_info
Fetch information about Cloud Foundry spaces

Cluster and HA Modules:

pcs_capabilities_info
Get pacemaker capabilities
pcs_cib_info
Get pacemaker CIB (configuration information base) information
ha_check_failoverconfig_info
Run sap host agent function HACheckFailoverConfig
ha_get_failoverconfig_info
Run sap host agent function HAGetFailoverConfig
ha_check_config_info
Run sap host agent function HACheckConfig
pcs_status_info
Get pacemaker status information
pcs_fence_azure_arm_list_info
Get list of hosts from Azure fence ARM

ABAP, HANA Modules:

hana_backup
Create SAP HANA database file backup
abap_transport_info
Fetch information about transport request from SAP ABAP system
hana_restore
Restore SAP HANA database backup
abap_transport_create
Create transport request in SAP ABAP system
service
Manage SAP HANA services
abap_system_info
Fetch SAP ABAP system information
hdbuserstore
Manage the HANA user store (HANA command hdbuserstore)
abap_transport_import
Import transport request
abap_transports_info
Fetch transport requests from SAP ABAP system based on search criteria
hdbuserstore_info
Get information from HANA user store (HANA command hdbsuserstore)

SAP host Modules:

saplikey_show_info
Get information about SAP license keys with saplikey program
rolling_kernel_switch
Manage Rolling kernel switch
host_info
Collect information about installed SAP instances on the host
system
Manage SAP system
saplikey
Manage sap license keys for SAP application instance with saplikey program.
parameter_info
Parameter information
service
Manage SAP HANA services
saplikey_get_info
Get host hardware key information and other useful information with saplikey program.
system_info
SAP system information

Other modules:

proc_info
Reads content from files in the /proc directory
azure_imds
Get Azure instance metadata
pcs_fence_azure_arm_list_info
Get list of hosts from Azure fence ARM

SAP for me modules:

me_downloadbasket_info
Fetch information from SAP software center download basket
me_file_info - File information
me_downloaditemset_info
Fetch information from SAP software download center

Red Hat Supported Ansible Content for SAP operations

AAP collection: sap.sap_operations[1] **Repository:** redhat-sap/rh_operations

Roles:

- hana_update – Update SAP HANA instance
- sap_kernel_update – Update SAP kernel.
- unpack – Unpack *.zip and *.sar files
- prepare – Prepare RHEL managed host to run content from sap.sap_operations
- sapjvm – Manage SAP JVM

Filter plugins:

- valid_sid – Return true if SAP system ID is valid

Filter plugins:

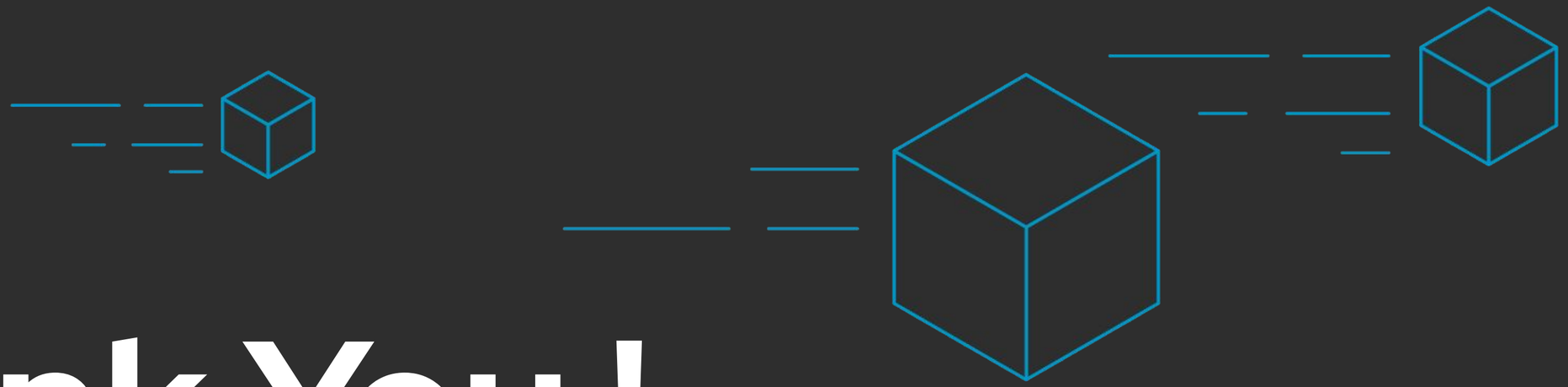
- valid_sid – Verify that SAP system ID (SID) is valid

Modules:

- abap_system_info – Fetch SAP ABAP system information
- system – Manage SAP system
- service – Manage SAP HANA services
- rolling_kernel_switch – Manage Rolling kernel switch
- host_info – Collect information about installed SAP instances on the host
- parameter_info – Parameter information
- system_info – SAP system information
- hana_backup – Create SAP HANA database file backup
- hdbuserstore_info – Get information from HANA user store (HANA command hdbsuserstore)
- hdbuserstore – Manage the HANA user store (HANA command hdbuserstore)
- ha_get_failoverconfig_info – Run sap host agent function HAGetFailoverConfig
- ha_check_failoverconfig_info – Run sap host agent function HACheckFailoverConfig
- ha_check_config_info – Run sap host agent function HACheckConfig

1 - Available via Red Hat Automation Hub with Ansible Automation Platform (AAP) subscription

Red Hat



Thank You !

https://linkedin.com/company/Red-Hat

https://facebook.com/RedHatinc

https://youtube.com/user/RedHatVideos

https://twitter.com/RedHat

SAP Platinum Partner