vRealize Automation Release Notes Archive

vRealize Automation

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https://docs.vmware.com/

Contents

Release Versions

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vRealize Automation Cloud	December 2022
vRealize Automation 8.11 | 01/19/2023 ■ Easy Installer build 21147090 ■ vRA appiance build 21128098

Updates made to this document

Date	Description of update	Type
01/07/2023	Initial publishing for vRealize Automation Cloud December 2022	
01/19/2023	Initial publishing for vRealize Automation 8.11	

NEW DOCUMENT FORMAT

The Release Notes for both vRA 8.8.1 and later, and vRA Cloud are now combined into one document. Some things to expect:

■ Currently, vRA Cloud and vRA 8.x.x release on separate dates. It is important to note the release dates as listed above and verify that the content is applicable. For example, if the dates above say vRA Cloud May 2022 and vRA 8.8.1 TBD, that means the content at that point in time is applicable only to vRA Cloud. Once vRA 8.8.1 is released the date would be updated to reflect the release date.

■ Resolved and Known issues are now listed in the What's New section, organized by Month/ 8.x.x version.

About vRealize Automation

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You can find information about these new features and more at [VMware vRealize Automation](#) and in the signpost and tooltip help in the user interface. Even more information is available when you open the in-product support panel where you can read and search for related topics, and view community posts and KBs, that appear for the active user interface page.

- **NOTICE: Do not delete NSX-v cloud account after V2T migration if vRA was migrated from 7 to 8**

  NSX-v to NSX-T migration does not update any description objects as the endpoint_links are not expected to be set there. So, after V2T migration the load balancer description records still point to NSX-v and get deleted when the NSX-v cloud account is deleted. This causes problems with Day-2 operations on such deployments

  Workaround: Do not delete the NSX-v cloud account after migration if the vRA 7 to 8 migration was performed using VRA version prior to 8.11.

Before you begin 3

Familiarize yourself with the supporting documents.

VRealize Automation Cloud	VRealize Automation 8.11
After setting up your users, you can use the *Getting Started* and *Using and Managing* guides for each of the included services. The *Getting Started* guides include an end-to-end proof of concept. The *Using and Managing* guides provide more in-depth information that supports your exploration of the available features. Additional information is also available in vRealize Automation product documentation. ■ *Getting Started with vRealize Automation Cloud Assembly* ■ *Using and Managing vRealize Automation Cloud Assembly* ■ *Getting Started with vRealize Automation Code Stream* ■ *Using and Managing vRealize Automation Code Stream* ■ *Getting Started with vRealize Automation Service Broker* ■ *Using and Managing vRealize Automation Service Broker*	■ *Install vRealize Automation with vRealize Easy Installer* ■ *Administering Users in vRealize Automation* ■ *vRealize Automation Transition Guide* After installing vRealize Automation and setting up your users, you can use the *Getting Started* and *Using and Managing* guides for each of the included services. The *Getting Started* guides include an end-to-end proof of concept. The *Using and Managing* guides provide more in-depth information that supports your exploration of the available features. Additional information is also available in vRealize Automation 8.11 product documentation. ■ *Getting Started with vRealize Automation Cloud Assembly* ■ *Using and Managing vRealize Automation Cloud Assembly* ■ *Getting Started with vRealize Automation Code Stream* ■ *Using and Managing vRealize Automation Code Stream* ■ *Getting Started with vRealize Automation Service Broker* ■ *Using and Managing vRealize Automation Service Broker*

For information on vRealize Orchestrator 8.11 features and limitations, see the vRealize Orchestrator 8.11 Release Notes.

SaltStack Config Upgrade Requirements

Before you can upgrade your SaltStack Config appliance you must upgrade the Master plugin. For information on upgrading the Master plugin, see Upgrade the Master Plugin.

March 2023/ vRA 8.11.2 What's New

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- **Upgrade Deprecated Cloud Extensibility Proxy Versions**

  As of April 28, all vRealize Automation Cloud Extensibility Proxies on versions 8.3 to 8.8 will be deprecated and no longer supported by VMware. Customers are encouraged to upgrade their extensibility proxy before April 28th 2023. For information on how to upgrade the extensibility proxy, refer to Upgrading a cloud extensibility proxy.

- **vRealize Automation API Documentation for some services are now upgraded to OpenAPI 3.0 standard**

  vRealize Automation API Documentation for services like Blueprint, Catalog, Deployment and Migration Assistant are now upgraded from OpenAPI 2.0 to OpenAPI 3.0 standard.

  If a new API client library needs to be generated for these services, it is recommended to use to OpenAPI 3.0 standard.

- **Day 0 support for Azure disk performance tiers**

  vRealize Automation supports Azure performance tiers when provisioning Azure Premium managed disks. In your VMware Cloud Template, you can set the performanceTier property for Azure managed disks to specify the applicable performance tier.

- **Ability to upgrade the Salt Master plugin from SaltStack Config**

  SaltStack Config now provides the ability to upgrade Master Plugin to the latest version directly from the UI.

- **Support for Azure Government Cloud with vRealize Automation**

  vRealize Automation now supports Azure for US Government Regions as an endpoint.

This chapter includes the following topics:

- Known Issues

- Resolved Issues

Known Issues

- **SSH keys and configuration enhancements for Aria Automation appliance prevents further modification of SSH configuration**

  Starting this release, Aria Automation Extensibility virtual appliance, Aria Automation virtual appliance, and Aria Orchestrator virtual appliance use a new SSH config

  /etc/ssh/sshd_config_effective instead of the previously used */etc/ssh/sshd_config.*

  As a result, further modifications to the SSH config is not supported post upgrade to 8.11.2 or post 8.11.2 installation.

  It is recommended to upgrade to 8.12 (or higher release). Further modifications of the SSH service *is supported* in the new config */etc/ssh/sshd_config_effective* in 8.12 (or higher).

- **Storage policy not taken into account when picking datastore**

  During the allocation phase of a deployment, when a datastore is being selected for the disks included in the deployment it is possible that the storage profiles are not taken into account. Hence, a datastore that does not mach the constraints set by the storage profiles could be selected for the disk.

- **A file with user credentials is created in the CD-ROM unit for some Windows VMs**

  Deploying a Windows VM in vCenter Server with the usernamePassword authentication method for remoteAccess in Cloud Template creates a file with user credentials in the CD-ROM unit of the VM.

  Impacts: This known issue impacts vRealize Automation 8.10.2 and later.

  Workaround:

  - Use any key based authentication method: publicPrivateKey or generatedPublicPrivatekey for remoteAccess in Cloud Template

  - Automatically change the password on first logon: configure cloudbase-init to force the user to change the password at next logon, by adding to cloudbase-init.conf: first_logon_behaviour=always.Learn More

  - Manually change the password on first logon

Resolved Issues

- **Logs stop getting compressed after 6 months uptime**

  After an extended period of uptime, vRA logs might stop getting compressed. Old logs will keep getting deleted, but the log rotation might not get compressed. This can cause the log bundle to get too large to collect. This issue has been fixed in 8.11.2, and a KB article outlining the fix can be found here https://kb.vmware.com/s/article/91113.

- **Change Project is greyed out for Deployments of Onboarded VMs that were migrated from 7.6**

  When migrating a deployment that includes machines and attached disks, the origin of the disks (including boot, attached, and inline disks) is updated to "ONBOARDED" during the subsequent resource sync cycle. This is incorrect, as the origin should remain as "MIGRATED".

  This causes the "Change Project Day 2" action to be greyed out. The "Change Project Day2" operation should only be greyed out for hybrid deployments with resources from different origins. The bug was introduced in the 8.10.0 release and will persist until version 8.11.1.

  The bug fix is included in version 8.11.2 onwards. This change will address all affected disks without impacting newly created ones.

- **Deprecate NodeJS 14 Polyglot Runtime**

  Starting this release, vRealize Orchestrator Polyglot supports NodeJS 18.14.2 runtime. The old NodeJS 14 runtime is now deprecated and will be removed when that version reaches EOL (https://github.com/nodejs/release#release-schedule)

  It is recommended to review and run the scripts with NodeJS 18.14.2 runtime.

- **Tags on Azure cloud zone and compute deleted after upgrade**

  When upgrading to vRealize Automation 8.11.0, some users noticed that tags on Azure availability zone computes were no longer available.

- **Deprecate an identity service endpoint in vRealize Automation**

  The `GET /am/api/auth/token-public-key` endpoint is deprecated and instead `GET /.well-known/openid-configuration` endpoint is introduced in this release that returns OpenID configuration information.

  To prevent any scripts from breaking once the deprecated endpoint is removed after a few releases, update Any automation that uses `GET /am/api/auth/token-public-key` endpoint to get the Identity service's public key to use `GET /.well-known/openid-configuration` endpoint and then use the URL contained in the "jwks_uri" element in order to achieve the same.

  For more information on this endpoint, refer to: https://developer.vmware.com/docs/17860//GUID-6561CDF8-A174-498D-9FBD-F9BD89EF7660.html and to access all Swagger specifications from a single landing page, go to `https://<vRA-FQDN>/automation-ui/api-docs` where vRA-FQDN is the FQDN of your vRealize Automation appliance.

- **Secure strings in Composite types inside a configuration element get lost after pulling the remote git repo**

  Pulling the remote git repository causes the Configurations that contain CompositeTypes with secure strings to become invalid and lose the secure string value.

- **SaltStack Config - "Disconnected" Salt Masters are ranked higher in the report**

Any Salt Masters that are disconnected show up higher in the report when both Present and Disconnected filters are enabled. While disconnected masters are important information, the default focus should be on the masters that are active and present.

February 2023/ vRA 8.11.1 What's New

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- **SaltStack Day2 Action Enhancements**

  You can now configure "*additionalAuthParams*", "*additionalMinionParams*", and "*pillarEnvironment*" properties to SaltStack Day-2 action "*Attach SaltStack Resource"* .

- **vRealize Automation Terraform Service and accompanying Terraform provider now supports Terraform 1.0**

  The vRealize Automation Terraform Service and accompanying Terraform provider now supports Terraform 1.0. This will allow our vRA customers the ability to consume Terraform 1.0 and provide the latest support for it.

- **Customized notifications in Service Broker**

  You can now customize the look and feel of notification emails sent out from VMware vRealize Automation Service Broker. The email header and footer can be standardized to your organization's branding requirements across all notification templates. For each notification scenario, you can now edit the email's body text and utilize dynamic attributes of deployments in the text. Learn more.

- **Capacity management enhancements - Storage allocation limits**

  You can now specify a maximum storage allocation at the datastore level for all managed Disks. During provisioning, these properties are checked for placements to prevent storage overallocation.

  This is controlled by a feature toggle PREVENT_COMPUTE_STORAGE_OVERALLOCATION that is turned off by default.

- **Deprecation of an identity service endpoint in vRealize Automation**

  Starting with this release, the `POST /am/idp/auth/login` endpoint is being deprecated; however, the `POST /csp/gateway/am/api/login` endpoint performs the same operation.

  For more information on this endpoint, refer to the API Programming Guide . To access all Swagger specifications from a single landing page, go to `https://<vRA-FQDN>/automation-ui/api-docs` where vRA-FQDN is the FQDN of your vRealize Automation appliance.

To prevent any scripts from breaking once the deprecated endpoint is removed after a few releases, perform this update:

- Any automation that uses `POST /am/idp/auth/login` endpoint will have to be reworked to use the `POST /csp/gateway/am/api/login` endpoint.

- **Provision GCP TCP Load Balancers and perform Day 2 actions**

  You can now provision Google Compute Engine TCP Load Balancers, modify their properties, and setup health checks for the load balancers from vRealize Automation.

- **Provision GCP storage bucket resources**

  vRealize Automation now supports GCP storage buckets that allow users to easily create and manage their storage buckets. This includes the creation of multi-regional/dual-regional buckets, restricted public access, and encryption support.

This chapter includes the following topics:

- [Resolved Issues](#)

Resolved Issues

- **Restore support for vRA Console to establish VMRC connections**

  vRA 8.11.1 restored the way VM Remote Console (VMRC) works as in pre-vRA 8.10.2 versions. Now, both ticket types (Mks & WebMks) are supported again and it is possible to leverage the vRA Console Proxy when establishing VMRC connections with Mks tickets. It is no longer required to open ESXi port 443 to public.

   Note: Since vCenter version 8.0 and newer only supports WebMks tickets, the only option when working with vRA VMRC is to use WebMks tickets. As a result, the Console Proxy cannot be used for VMRC functionality with vCenter 8.0 version.

- **Enhance Identity service (on-prem) endpoint to have more restrictive access**

  Some endpoints from vRealize Automation Identity API can now be accessed only by users with org owner role. It is recommended to review if the user accessing those endpoints has org owner role.

  Please reach out to VMware support for more information.

- **vRealize Orchestrator - StackOverFlowError during garbage collection of the Version History repository**

  The nightly garbage collection process of the Version History repository would fail due to a StackOverFlowError and would leave the Version History repository in a non-functional state.

- **Pushing an object using the Version button results in all local changes being pushed**

Whenever you have an integrated active remote Git repository and you attempt to push either a single content object using the **Version** button, or a subset of your available **Local changes**, more than the expected number of selected items could be pushed to the remote Git repository. This issue would occur after a **Remote Branch** change, or after switching between active repositories.

- **When deployments with missing resources are deleted, those resources are still displayed as missing**

  When deployments with all missing resources are deleted, those resources are orphaned and still show in the UI as missing. These orphaned resources can no longer be removed from vRealize Automation.

- **External vRealize Orchestrator fail to start after change of vRealize Automation certificate**

  In vRO server version 8.10.2, if the system property **com.vmware.o11n.certPathValidator** is enabled with vRO is configured to use an external vRA as authentication provider, and vRA certificates are replaced with a certificate from the same Certificate Authority, then vRO UI throws an 404 error in the browser.

  For more info on this property, refer to: Enabling the Certificate Path Validation Algorithm

- **Composite types are not visible as input parameters when adding new input type in a workflow or day 2 actions**

  CompositeTypes that are declared only as part of Arrays (e.g. Array/ CompositeType(name:string,grade:number):Student) will now be indexed and available for use in the type selectors across browser tabs and instances.

December 2022/ vRA 8.11 What's New

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This chapter includes the following topics:

New Features

- **New Consume tab**

    This feature streamlines the vRealize Automation Service Broker user experience. Catalogs, resources and supervisor namespaces (part of Cloud Consumption Interface which is currently under Initial Availability only in vRealize Automation Cloud) are all moved under a single "Consume" tab to centralize multiple ways to work with infrastructure and provision resources. As part of this, a new project selector was also introduced which allow you to select one or more projects with the entire Consume tab output including Catalog Items, Deployments, Resources and Supervisor Namespaces filtered based on that selection. Content and Policies, Infrastructure, and Inbox tabs in Service Broker will continue to be next to Consume tab at the top level in horizontal fashion. Learn more

- **Support for shared VPCs (GCP) in vRealize Automation**

    Shared VPC allows an organization to connect resources from multiple projects to a common Virtual Private Cloud (VPC) network, so that they can communicate with each other securely and efficiently using internal IPs from that network. Shared VPCs are key constructs used by GCP users to enable usage of shared networks across multiple GCP projects (applications).

    Shared VPC can now be discovered in vRA when a GCP cloud account is added.

- **SaltConfiguration property is no longer available in Cloud Assembly Template**

    The `saltConfiguration` property is no longer supported from cloud templates. In order to deploy minions and state files as a day 0 action, it is recommended to update the cloud templates and use the SaltStack Config resource.

- **Day 2 action [GCP] - ability to create a snapshot of VM and attached disks**

This feature is available only for GCP resources.

For GCP resource there is a new Day 2 action to create a snapshot. When this Day 2 action is executed it takes the snapshot of VM and all attached disks. The snapshot includes a snapshot of VM and a snapshot of all attached disks to the VM. The VM and attached disks should be managed as a single entity.

You can "name" the snapshot and save a description with it.

- **"Reset VM" available as Day 2 action for GCP VMs**

  vRealize Automation now provides a Day 2 action called, Reset VM. This option is only available only for GCP VMs.

  Note: Using this option wipes the memory contents of the machine and resets the VM to its initial state.

- **Manage a VMware Cloud on AWS Environment in an AWS GovCloud Region**

  vRealize Automation now supports connecting to and managing VMware Cloud on AWS environments hosted in an AWS GovCloud Region.

- **Snapshot limits in vRealize Automation is independent of vSphere backups**

  The snapshot limit set through vRealize Automation no longer interferes with the snapshot actions (such as scheduled backups) directly performed on vSphere.

- **Support for Selecting Azure Availability Zones**

  vRealize Automation now supports selecting Azure Availability Zones that deployments should be deployed in. By setting the "attachAvailabilityZone" boolean property in the blueprint to "true", you can facilitate the allocation mechanism to work with availability zones supportability, based on tags, and selected flavor mapping.

- **Enable Change Project for deployments with Ansible resource**

  Previously, if the deployment contained an Ansible resource, then the change project feature was not enabled. Now, the change project action is available for provisioned deployments with Ansible resource.

  Currently, resources that are supported for provisioned deployments are machines, volumes, load balancers, networks, security groups, Azure resource groups, nats, gateways, custom resources, Terraform configurations, Ansible resource.

- **Create a Guardrails Template from an Existing Azure Environment**

  You can now create a Guardrails template from an Azure environment and use it as a desired state. When scheduled to run, it will allow users to identify any drift in the environment in case any changes are made.

- **Dry Run a Guardrails template in an Azure Environment**

You can now test run a Guardrails template against an Azure environment without making any changes to the environment. This allows users to identify all the changes that will be made to the environment, once the template is enforced. It helps in making an informed decision.

- **Capacity management enhancements - CPU allocation limits**

  You can now specify a maximum CPU allocation percent globally and per host/cluster. During provisioning these properties are checked for placement and prevent CPU overallocation in the host/cluster.

- **AD Group support within Service Broker for Day-2 Action Policy**

  Day-2 action policies within Service Broker have been enhanced to support AD groups in addition to users during configuration.

- **Enable Change Project for deployments with Terraform resource**

  Previously, if the deployment contained Terraform resource, the change project feature was not enabled. Now, thechange project action is available for provisioned deployments with terraform resource.

  Currently, resources that are supported for provisioned deployments are machines, volumes, load balancers, networks, security groups, Azure resource groups, nats, gateways, custom resources, Ansible resource, Terraform configurations.

Resolved Issues

- **NSX-v to NSX-T migration does not update any description objects**

  Previously, NSX-v to NSX-T migration did not update any description objects as the endpoint_links are not expected to be set there. So, after V2T migration the load balancer description records still pointed to NSX-v and got deleted when the NSX-v cloud account was deleted. This caused problems with Day-2 operations on such deployments.

- **External vRealize Orchestrator fail to start after change of vRealize Automation certificate**

  If the system property **com.vmware.o11n.certPathValidator** is enabled with vRO configured to use an external vRA as authentication provider and vRA certificates are replaced with a certificate from the same Certificate Authority, then vRO UI would issue an 404 error in the browser.

- **First firewall rule defined in vRA deployment is failing in vRA UI**

  The Day-2 reconfigure action is failing for new security group without rules in deployment. When empty, security groups are configured and updated later. vRealize Automation fails but the group actually gets updated.

- **Service Broker Deployments filter not set correctly when navigating from Cloud Assembly with Project filter**

In Cloud Assembly, when users select a project in the filter, and then go to the Service Broker, deployments were also filtered by that project. The only way to change it is to click "Clear All".

- **Windows Vulnerability Results not always showing the 'description' value**

  From Saltstack Config, when viewing a Windows Vulnerability, the description value wasn't consistently being displayed.

- **Puppet: Command line length error when invoking script to install agent**

  Previously, the puppet facts sent from vRA contained information of all hosts present in the deployment. When the script to install the puppet agent and apply the facts was run, the maximum character length of arguments of a bash command was exceeded, which resulted in deployment failure.

Known Issue

The following known issues exist.

- **ESXi port 443 required for VMRC connections**

  In vRealize Automation 8.10.2 & 8.11.0, the Remote Console (VMRC) does not work with Mks tickets or with vRA Console Proxy when establishing a VMRC connection between an end-user browser and a VM.

  vRA 8.10.2 & 8.11.0 supports WebMks tickets for VMRC and requires end-users to accept ESXi certificates (self-signed or intermediate) when establishing VMRC connections. This requires ESXi port 443 to be accessible for end-users.

  For more information, see KB 2108294.

- **DynamicTypes plugin workflows and actions do not support session propagation**

  DynamicTypes plugin uses workflows and actions to retrieve vRO objects. These are internally used workflows/actions and do not support session propogation.

November 2022/ vRA 8.10.2 What's New

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- **Audit log enhancements for Cloud Assembly**

  vRealize Automation now supports these audit logging enhancements:

  - All Event Broker subscription create, delete, and update operations are now tracked by auditing.

  - All types of policies - day 2 actions policy, lease policy, content sharing policy, approval policy, deployment limit policy, resource quota policy create, delete, and update operations - are now tracked by auditing.

  - Feature toggles in the product that control when the feature are enabled is also tracked in auditing.

  - Property group create, delete, and update operations are tracked by auditing. For example, if a user changes the property in a property group, that event is tracked in the audit log.

- **Configuration Drift Insight and Dashboard Reporting (vRealize Automation SaltStack Config)**

  vRealize Automation SaltStack Config (powered by Salt) now provides a Configuration Drift dashboard to visualize Highstate information.

- **Enable quick create VM for project members**

  As a Service Broker or Cloud Assembly admin, you can now enable your project admin or member to quickly create a VM under Service Broker by turning on **Create new resource** under **Settings** in **Infrastructure**. When turned on, this gives project admins and members, who are also Service Broker users and viewers, the ability to quickly create a VM on their own in the projects they are part of. Service Broker admins can create a VM in any project. This new setting is set to **off** by default for existing vRealize Automation customers and **on** for new vRealize Automation customers. The most common uses are:

  - Quick create a VM

  - Quick create a VM with an existing network

  - Quick create a VM with new or existing storage

- **Ability to run the Change Project action on deployments that contain custom resources**

  The **Change Project** action can now be performed on deployments that contain custom resources. Currently, the supported resources for provisioned deployments are machines, volumes, load balancers, networks, security groups, Azure resource groups, NATs, gateways, and custom resources.

  The **Change Project** action is available for provisioned deployments with organization-scoped custom resources but not for project-scoped custom resources.

- **Discover existing cloud accounts and enforce governance**

  Guardrails can now discover member accounts attached to an AWS root account on a scheduled basis. When discovered, you can choose to create a template from the environment based on the policies already applied. You can also choose to "dry run" a governance template against the discovered environment to preview potential changes before enforcing a new state.

- **Support for network proxies in vSphere endpoints**

  Previously, when using a network proxy, internal traffic that made specific external calls would bypass the proxy. Certain VMware Cloud on AWS and NSX calls required external connectivity to the VMware Cloud Services Platform. Now, these external calls, along with all external traffic, use the network proxy. Only internal traffic can bypass the proxy.

- **Additional Guardrails security and cost library templates**

  Additional cost and security templates are added in the Guardrails template that can be leveraged to start enforcing best practices in your cloud environments.

- **Guardrails support for Azure environments**

  Guardrails can now manage Azure environments. Additionally, there are new library templates available to help govern Azure environments, such as creating management groups and resource groups, creating policy definitions and assignments, and other best practice templates for storage and security.

This chapter includes the following topics:

- Resolved Issues
- Known Issues

Resolved Issues

- **Internal service name is displayed as "started by" user for vRealize Orchestrator workflow runs**

The internal service name is displayed as **started by** for vRealize Orchestrator workflow runs and not the actual user that started the workflow. Now the name of the user that initiated the vRealize Orchestrator workflow is displayed as expected.

- **A file with user credentials is created in the CD-ROM unit for some Windows VMs**

  When deploying a Windows VM in a vCenter environment with the username and password authentication method for remote access in a cloud template, a file with user credentials is created in the CD-ROM unit of the VM.

- **Cannot create a configuration element variable in the vRealize Orchestrator Client with a period in its name**

  Previously, you were unable to create a configuration element variable with special characters in its name from the vRealize Orchestrator Client. Now, you can create a configuration element variable with special characters in its name.

- **Adding a route as a day 2 action on a deployed NSX-T load balancer fails**

  Reconfiguring an NSX-T load balancer (with a persistence configuration) and adding a route as a day 2 action can fail with an error similar to following:

  routes[0].persistenceConfig: Expected '

  ' OneOf '[com.vmware.json.schema.model.JsonSchemaImpl@6b8a713e, com.vmware.json.schema.model.JsonSchemaImpl@f0ffa739, com.vmware.json.schema.model.JsonSchemaImpl@a11ca322]' but matched several.

- **Rapid7 xml import does not show any advisory details for unsupported items when importing using XML**

  When attempting to import a Rapid7 XML, traditional and v2 reports, only **unsupported** appears in the advisory ID column. Previously, when unsupported advisories were created, they were not assigned a unique name. This was done to provide uniqueness, but it was constantly being overwritten by the next advisory. Providing a unique name on a per unsupported advisory level has resolved this issue when importing from a third party.

- **The multi value picker using the Complex data type now supports search terms**

  The multi value picker using the Complex data type did not support search terms. Until now, the search terms could be bound to a string action input for value options only if the multi value picker was of the Reference type. Now, the multi value picker supports search terms. Additionally, if the multi value picker is using the Complex type and has a value list with an external source, such as an action with an input bound to the field's search term, then the Complex multi value picker reloads the options whenever its search term changes.

- **Import button is not working in the V2T migration page**

NSX-V to NSX-T migration is performed by following a multi-step wizard. During the NSX Migration step, a user is asked to import a file produced from NSX. The user can select a file but after clicking OK on the import file dialog, nothing happens. The wizard should detect that a file is selected, upload it to vRealize Automation, and then move to the next step, but instead the user is stuck at the NSX Migration step with no way to move forward. As a result, no NSX V2T migration with vRealize Automation can be completed.

Known Issues

- **ESXi port 443 required for VMRC connections**

  In vRealize Automation 8.10.2 & 8.11.0, the Remote Console (VMRC) does not work with Mks tickets or with vRA Console Proxy when establishing a VMRC connection between an end-user browser and a VM.

  vRA 8.10.2 & 8.11.0 supports WebMks tickets for VMRC and requires end-users to accept ESXi certificates (self-signed or intermediate) when establishing VMRC connections. This requires ESXi port 443 to be accessible for end-users.

  For more information, see KB 2108294.

- **Updates to the action scripts might not take effect in the form in some scenarios**

  The script content of actions set as external sources in workflow input forms is cached for one minute after the last form evaluation, which is performed when the input form was last opened. If this action is updated and the form is opened in this timeframe, the cached script is run and the effect of the updated action script is not seen in the form. Users might need to wait on or two minutes after the last time the input form has been opened in order have the updated action script performed.

  Workaround: A system property com.vmware.o11n.forms.external-sources.caching.enabled can be set in the Control Center panel with a value of false. The flag with this value disables the caching of action content during workflow input form evaluation. The indented purpose of the flag is to workaround the caching of external sources actions scripts during workflow development.

October 2022/vRA 8.10.1 What's New

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This chapter includes the following topics:

- New Features
- Resolved Issues
- Known Issues

New Features

- **Support for vRA SaltStack Config on RHEL8 and RHEL9**

  Support added to deploy SaltStack Config and SecOps on RHEL8 and RHEL 9.

  Notes:

  - Support for SaltStack Config and SecOps on RHEL 7 is available until end of March 2023.
  - Saltstack Config does not support onedir installations yet. For more information, refer to KB 89728.

- **VMware Aria Guardrails Tech Preview is moving to Aria Automation**

  The Tech Preview of VMware Aria Guardrails will no longer be accessible from VMware Cloud Assembly. Users can now access Guardrails through VMware Aria Automation. More information can be found at: https://kb.vmware.com/s/article/89701.

- **Onboarded deployment compliant with project resource limits**

  Deployments that include VM and disks are now compliant towards project limits. For project cloud zone limits, onboarded deployment are counted towards the limits below:

  - instance limit
  - memory limit
  - CPU limit
  - Storage limit

  You can choose to allow onboarding resources to count towards limits by switching the option to do so to "on". By default, the option is "off", which is consistent with the previous behavior.

Note: Currently, this feature has these limitations:

- Azure and GCP CPU and memory are not counted, but storage is counted

- VCD virtual machines and storage are counted, but not memory

- **Provide the ability to track usage and consumption with vRA using Audit Log**

    The Audit Log now allows administrators to track usage and consumption with vRA:

    - Audit Log UI Available to search, filter and view audit log events

    The Audit Log also now tracks these events:

    - Catalog & Blueprint Submissions

    - Catalog & Blueprint Requests (Completed or Failed)

    - Day-2 Actions (Submitted, Completed or Failed)

- **Ability to configure automatic updates in Azure for Windows VM**

    Previously, when an Azure Windows VM was provisioned through vRA automatic updates on a Windows virtual machine, the automatic updates setting was set to TRUE. After provisioning there was no option to change the mode to manual. Now, you can specify the OS update mode in VCT by setting the following parameter - automaticOSPatchUpdate = false

    Note: Automatic update is set to true by default.

- **Ability to share VMware Cloud Templates (VCT) in shared pipelines**

    Previously, if a pipeline that was using shared VCT was shared to another project, the pipeline failed because shared VCT was not available in that project. Now, shared VCT option is available in shared pipelines and projects.

- **Preview/Perform a Dry Run of a Guardrails Template**

    Customers can now perform a "dry run" of a template in Aria Guardrails before saving the template. This allows customers to see potential changes a template might perform on an existing environment without making any actual changes.

- **Amazon GuardDuty and AWS Config Findings are surfaced in VMware Aria Guardrails**

    VMware Aria Guardrails now shows findings from Amazon GuardDuty and AWS Config, allowing users quick visibility into alerts and information about their AWS environments.

- **Just-In-Time Cloud Access from VMware Aria Guardrails**

    VMware Aria Guardrails now allows users to obtain credentials in a self-service, just-in-time fashion to access a cloud environment. Access for different users can be specified using roles and are time-bound. Users are able to access the environment in a programmatic fashion or through the console.

Resolved Issues

- **Mitigate vulnerability in Apache commons-jxpath library used in vRO vCenter plug-in**

  An issue was identified in Apache commons-jxpath library used in VMware vRealize Orchestrator Plug-In for vCenter Server.

  More info about this issue: https://nvd.nist.gov/vuln/detail/CVE-2022-41852

   This issue is fixed in this release of VMware vRealize Orchestrator Plug-In for vCenter Server.

  Any customers using vRO < 8.10.1 must upgrade the plug-in to the latest version (7.0.0.20681619) available from VMware Marketplace.

  VMware vRealize Orchestrator Plug-In for vCenter Server

- **Saltstack config upgrade sometimes fails with authentication errors**

  Saltstack config upgrade sometimes fails with errors if the authentication token expires, since it was not refreshed automatically.

  With this fix, the authentication token refreshes automatically (if expired) and the upgrade completes successfully.

- **If NSX-V to NSX-T migration is perfomed, it fails after importing vRA_output.json file**

  If NSX-V to NSX-T migration is perfomed, it fails after importing vRA_output.json file with the following error - '*Unrecognized field "syncDueAt" not marked as ignorable*'

  This issue occurs because of a version inconsistency between services. The problem is seen only after migration is completed in NSX and the output file is absorbed in vRA. It is recommended not to perform NSX-v to NSX-T migration if using vRA 8.5.1

Known Issues

- **Leftover Azure functions due to changed naming convention in Action Based Extensibility**

  ABX is changing the naming mechanism for Azure functions, since it was observed that the constructed names were not unique, which is mandatory for Azure functions. When running an existing action, ABX uses the new naming convention, which creates a new function app. As a result the former function apps exist as leftovers.

September 2022/ vRA 8.10.0 What's New

7

This chapter includes the following topics:

New Features

- **Integration support between vRA and vRO user interactions**

  The vRA and vRO integration now supports 'User Interaction' during provisioning to Allow the ability to collect information that may not be known during the request time. Approvals are now located under the users 'Inbox' within Service Broker. This feature has these limitations:

  - Nested workflows containing Manual User Interactions don't create work items under 'Inbox' tab. In that case, the interaction can only be answered from vRO directly.

  - Script operations on LdapUsers and LdapGroups from executions from vRA won't yield result

  - Requires the latest version of vRO (8.9.1) to work properly, due to fixes in vRO itself

  - Variables of type SecureString cannot be displayed in the MUI form properly

  Supported for Catalog Items, Custom Resources and Resource Actions. Learn more about user input requests.

- **Custom form fields with defined valueList are displayed as multi value picker**

  When adding a row or object fields in the custom forms designer, complex nested fields that have a defined valueList in their schema are now displayed as Value Picker or Multi Value Picker with enhancements to show default labels.

- **Provide the ability to set custom salt grain data with SaltStack Config resource on Cloud Template**

Cloud admins can now set custom salt grains as part of SaltStack Config Resource on a Cloud Template. This enables the cloud admins to manage the provisioned resource using the highstate file.

- **Display salt grains data in Cloud Assembly for a more detailed resource view**

  This release provides the ability for SaltStack users to view grains data of the salt vms at the time of deployment in Cloud Assembly.

- **Cloud Guardrails (vRA Cloud Only) - Guided Setup**

  A guided setup is now included in Guardrails. This feature takes you through guided steps to onboard the cloud environments into Guardrails and enforce governance.

Resolved Issues

- **Code Stream (vRA 8.x only) Button to create a new project now appears**

  Previously, the **Projects** > **New Project** button was missing for all user roles.

- **REST operations fail to encode special characters**

  As of 8.8.0 vRO version, invoking REST operations with query parameter values that contained certain special characters ($,) failed with "Illegal group reference" error. Another manifestation of this bug could be incorrectly sent query parameter values, which didn't match the server's expectations.

  Resolution: Upgrade vRO platform version to 8.10.0 or upgrade just the REST plug-in to the build released with vRO 8.10.0

- **vRealize Orchestrator(vRO) - Scheduled tasks were failing intermittently because the authentication tokens had to be renewed.**

  The issue is now fixed with this release. vRO Scheduled tasks no longer require authentication tokens to be renewed for non-administrator users when not using the vRA plugin in the Workflow. Scheduled tasks will continue to run successfully.

- **Overprovision occurs when attempting to onboard past resource limits**

  Analysis of Relocation showed that the Provisioning Service API erroneously returned a capacity that was available when in fact it shouldn't have been. This was reflected by the cloud zone where resources were not consumed by onboarded workloads when they should have been.

  Now, the requests coming to provisioning service are now serialized, so capacity requests and allocation worked as expected.

- **vRealize Orchestrator (vCOIN) - Context Actions sometimes are not Initialized on clean setup**

  When an administrator tries to assign a context action from a workflow page it may throw an error.

  Note: If an error occurs again after the upgrade, log into the vRO Web Client with an administrator account to the Configurations page, and delete the configuration elements residing in the following directory - '/vCOIN/_system'. Then login again in the vSphere client with administrator account and navigate to the context actions page and retry again.

- **Inconsistencies with data may occur when switching from text to password field in custom form**

  Data inconsistencies might occur when service broker admins switch from text to password field in custom form.

- **First Class Disk resize from vRA fails on vCenter versions >= 7.0.3**

  From vRA, the resize action on a First Class Disk attached to a VM fails on vC version 7.0.3. The same action completed successfully when performed directly on the vCenter using PowerCLI. The issue is identified with the fail fast mechanism present in vRA that checks if the disk is attached and immediately fails the request.

- **Spaces in Action Based Extensibility name is causing some issues in UI**

  When working with an action name that starts or ends with a white space, you cannot search for these actions in the UI. In the editor the white space is trimmed, resulting in an error "Action is not in same project as Flow ", because the action with the trimmed name could not be found.

- **vRA deployed boot disk show as Discovered in resource center**

  Boot disk which is a part of the deployment appears as deployed/onboarded resources ** in resource view.

- **Error importing Qualys scan results in Saltstack (SecOps) config UI**

  Importing latest version of Qualys scan report results in an error in Saltstack config (SecOps) UI.

- **Default cluster group is not enabled for Cloud Assembly user with custom role**

  Cloud assembly user with custom role for managing integrations can't select default cluster group on TMC integration.

Changed and Deprecated Functionality

- **Deprecate PowerCLI 11.5**

Powershell 6 with PowerCLI 11.5 has been deprecated. Use PowerCLI 12.7.0 in its place.

- **SaltStack Config**

  Upcoming in the October 2022 (next) release, the saltConfiguration property will be deprecated and removed. Users are encouraged to use the saltResource property in its place

August 2022/vRA 8.9.1 What's New

<div style="text-align: right; font-size: xx-large;">8</div>

This chapter includes the following topics:

- New Features
- Resolved Issues
- Known Issues

New Features

- **Cloud Assembly Deployments can be owned by AD groups via the day-2 action change owner in vRA.**

    - AD groups must be added directly as a group in a project to allow deployment ownership

    - Specific user-limits are not supported for users that are in the AD group. The group is considered a seperate user for the purpose of quotas.

    - The feature is currently limited to support 50 AD groups per project. Adding more than 50 AD groups to a project results in truncation when performing the change owner action.

- **Share Terraform based content source across projects**

    Using the Terraform resource type, you can now share content sources to multiple projects.

- **Code Stream - Share pipeline across projects**

    In previous releases, a pipeline could not be shared across projects in an organization. The cloud admin would end up creating multiple copies of same pipeline for each project. Editing copies of these pipeline was a huge effort. Any changes had to be done in multiple projects.

    With this release, sharing a pipeline across projects also enables pipeline content to be shared on Service broker as a catalog item in different projects.

    - When a shared pipeline (project A) is executed on project B, it will only get the pipeline content from project A. However, shared pipeline will still get executed in context of project B

- Shared/global pipelines can be executed in any project say project B. User has to create resources like endpoints, variables used by global pipeline in project B so that execution passes

- Shared pipelines can be executed in any project say project B.

- Shared pipelines can be extended by consuming them as nested pipelines in another project

- On service broker, shared pipelines can be added to multiple projects as catalog item

- *Resources like endpoints, variables are not shared across projects.*

Learn more about Creating and Using Shared Pipelines.

- **Support Github Enterprise on-prem from vRA Cloud**

  You can now connect a Github on-prem enterprise account with vRA cloud to synchronize VMware Cloud Template, Terraform configurations and Action Based Extensibility.

  Learn more.

- **Cloud Guardrails (vRA Cloud Only) - Violations, Delete for Templates & Desired States**

  This month, the vRA Cloud Guardrails team has introduced support for RBAC and the ability to delete templates & desired states. In the coming months, we expect to announce larger core features that are still under active development.

  If you are an existing vRA customer and would like hands-on assistance from VMware to get working with Cloud Guardrails, reach out to **vra-cloud-guardrails@vmware.com**

  Multi-Persona Support with RBAC

  - The entire product now supports Project and Persona RBAC in-line with other products within the vRA suite. This means that environments, templates, desired states, enforcements, and account profiles are limited to assigned projects for visibility and actions unless you have a CSP Guardrails Admin role.

  Deleting of Templates & Desired States

  - Guardrails now allows users to delete Templates & Desired States with an additional screen to show dependencies and impact around the deletion.

- **vRO now accepts certificates from vRA and vSphere that have been signed by a trusted certificate authority**

  Previously, updating certificates required reconfiguring vRO. Now, the trusted certifications work without reconfiguring vRO. This streamlines authentication and reduces maintenance as certificates are rotated.

- **Support for IP Address/Range Restriction Authentication Policy**

Previously it was a known issue that VMware vRealize Automation did not support IP address/range restrictions that were configured in VMware Cloud Services (CSP) Authentication Policies. vRealize Automation now supports this Authentication Policy and no longer results in service limitations.

- **Infoblox external IPAM plug-in for vRA support for DNS A and PTR records**

  Infoblox IPAM plugin for vRA now supports creating DNS A and PTR records in addition to host records that were supported before.

- **DNS suffix configuration for multiple NICs is now supported by Infoblox 1.5. IPAM plugin**

  Infoblox 1.5 IPAM plugin for vRealize Automation now supports DNS suffix configuration for multiple NICs. The plugin previously had the property **Infoblox.IPAM.Network.dnsSuffix** which can be specified as part of the cloud template as a VM property. If this property is supplied it will affect all the NICs that are attached to the VM in the blueprint. Now a new property is configurable per NIC:

  Infoblox.IPAM.Network0.dnsSuffix:-nic1

  Infoblox.IPAM.Network1.dnsSuffix:-nic2

Resolved Issues

- **External validations via API can now handle action parameters of type array/reference**

  Previously, an error might occur if a form had an external validation action, and if the action parameter was of type array/reference. The API now handles the parameter as expected.

Known Issues

- **After upgrading to vRA 8.9.1, the "Connect to Remote Console" day2 action and IAAS GET resource requests are not working for some cloud users.**

  This bug impacts users that are:

  - Cloud users (without viewer role and admin role on a service level)

  - Members (without viewer role and admin role on a project level) of the closed project (with deployment sharing deactivated)

  - Added to any project via an AD group

  Workarounds:

  a   <u>Recommended</u> - Add the project viewer role to the user and the user's group.

  b   Change the project from closed project to an open project by checking the **Deployment are shared between all users in the project** check box.

  c   Update the user or the user's group to project admin.

d   Remove all groups that the user is a part of from all projects, then add the user separately to the project.

- **vRealize Orchestrator REST Plugin intermittent connection issues due to TCP connections kept open for too long**

  For every created "REST host", a TCP connection is opened. These TCP connections are now closed proactively after N number of seconds (where N is any positive integer).

  The default time is 3600 seconds and can be modified by adding the system property:

  plugin.http_rest.httpclient.connectionpool.tcp_close_after_inactivity_timeout_seconds

  To reuse the existing open TCP connections, provide a negative value for N for the system property.

- **After upgrading to a vRealize Orchestrator version 8.5.1 through 8.9, some previously working REST plugin requests may start to fail**

  After an upgrade from vRealize Orchestrator 8.5.0 or earlier to a version between 8.5.1 and 8.9, some previously working REST plugin requests may start to fail, for example with status codes: 400 bad request or 401/403 (Unauthorized/Unauthenticated).

  Upgrade to vRO 8.9.1 or later, or upgrade just the REST plugin to the version released with vRO 8.9.1 or later to resolve this issue

- **IP address discrepancy on vRA's network interface state of an Azure VM**

  When provisioning an Azure VM, vRA uses a private IP address to populate vRA's network interface state. However, during data collection, vRA's Azure endpoint enumeration uses the public IP to populate network interface state. This creates an IP address discrepancy on vRA's network interface state of an Azure VM.

  This issue only impacts how vRA collects Azure VM resource data. It does not impact anything on the actual Azure endpoint. To work around the problem, change vRA's Azure endpoint enumeration so that it uses the private IP address to populate vRA's network interface state. In this way, the IP address of an Azure VM's network interface state will always be the private IP.

- **Cloud Services Plug-in removed from vRealize Orchestrator for vRealize Automation Cloud**

  Since the introduction of the vRealize Automation plug-in, the Cloud Services Plug-in (o11n-cloudservices-plugin) has been obsolete. It has been removed with this release and workflow runs and actions will fail if they use the Cloud services plug-in.

  Use the vRealize Automation plug-in for all workloads to vRealize Automation Cloud.

- **Custom Form field IDs cannot include a dot (.)**

  Custom form fields with a dot in the ID cannot be used as parameters of actions, parameters of binding to a field, or a custom resource property.

  If a custom form includes a field with an ID that contains a dot, external source requests for the specific vRO action are not firing because the field is not found. The custom form is evaluated incorrectly and is bound to another field or used as a parameter of action.

To work around this issue, change the ID of the custom form field to an ID that does not contain a dot (.)

July 2022/vRA 8.9 What's New

9

This chapter includes the following topics:

- New Features
- Resolved Issues
- Known Issues

New Features

- **Cloud Guardrails (vRA Cloud only) - Desired state scheduled enforcement, drift visibility, and more**

  The vRA Cloud Guardrails team has introduced a large set of new core functionality that builds out the product story. Cloud Guardrails has evolved greatly over the last few releases, and we believe it is now the perfect time for customer to start testing this against your use-cases.

  If you are an existing vRA customer and would like hands-on assistance from VMware to get working with Cloud Guardrails, reach out vra-cloud-guardrails@vmware.com

  Cloud Visibility

  - The first iteration of Cloud Visibility has launched, supporting AWS OU and Member Accounts with information around project assignment, desired states enforced, and drifts detected.

  AWS Member Account View

  - A timeline of drifts and the idem state the drift is associated with before and after are now shown when clicking into the details page of an AWS Member Account.

  - Desired States are now shown in the context of a AWS Member Account and project, easily giving admins an understanding of what is being enforced on any given Member Account.

  Enforcement Scheduling

  - Desired State Enforcements can now be scheduled at standard intervals using the Schedules sidebar to ensure continuous and constant compliance.

Account Discovery Scheduling

- Discovery schedules can now be scheduled at standard intervals by Cloud Guardrails administrators. This feature allows for a constant refresh on the cloud inventory, and is intended to be used on high privilege / root credentials for complete inventory discovery.

Account Profiles

- Cloud Guardrails has decoupled from the Cloud Accounts service in Cloud Assembly, and has introduced Account Profiles to collect public cloud credentials.

- Supported Credentials: AWS, Azure, SaltStack SecOps, Secure State, TMC

Content Library Clean-Up

- Cloud Guardrails has standardized the names of templates in our library to ensure items are easy to find and quickly identify.

Native Project Management

- While Cloud Guardrails still uses the same Project construct as the rest of vRA, we've created a slim system to allow the creation and management of projects within Guardrails that hides Cloud Assembly specific controls.

- **Read-only Object fields can now be expanded and collapsed for nested objects and arrays of objects.**

  As part of the Custom Resource Schema Modification feature we added Form Renderer in the Deployment Details View. Additionally, validation errors in Object Fields are shown only after the user has changed the value of one of its nested fields, or when the user attempts to submit a form with invalid values for an Object Field. This means that for a form containing a read-only Object Field, any validation errors for that Object Field's default values will become apparent only once the user attempts to submit the form. But these types of errors should be highlighted immediately, if the user cannot address them while filling in the form, as is the case with read-only Object Fields.

  In read-only Object Fields, the data for non-complex nested fields is displayed as label: value pairs, while complex values are displayed as collapsable tree nodes (expanded by default), with a child node for each of the complex object's properties.

  Additional changes to read-only Object Fields are:

  - Boolean values are displayed as either "true" or "false" strings.

  - An array of non-complex values is displayed as a single string, where the array values are concatenated with a comma.

  - An array of complex objects is displayed as a tree node with each object in the array being a separate child node (that can also be collapsed / expanded).

The changes to validation errors in Object Fields are:

- When there are validation errors in some of the nested fields, hovering over the error icon in the info group for the object field will no longer display "There are validation issues with some of the nested fields!", but instead display "There are validation issues with the following nested fields:", followed by the labels of the nested fields with validation errors.

- If there is an error in the value of a nested field in a read-only Object Field, display the error icon for the Object Field as soon as the it is rendered, or when it becomes read-only. The nested fields with invalid values will be listed in the error message that appears when the user hovers over the error icon.

In the Datagrid fields, if there is an array of objects, the array is displayed as '[Object, object]' in the table. The values in the first visible column of the Datagrid act as links. Clicking any of those links will open a modal with detailed information about the values in the corresponding Datagrid row.

In the modal non-complex values are displayed as label: value pairs, while complex values and arrays of complex values are displayed as expandable tree nodes (they are collapsed by default) so that the user can examine their contents.

Changes in how values are displayed in Datagrid cells:

- Boolean values are no longer displayed as a checkbox, but instead are displayed as strings "true" or "false".

- For empty values, the corresponding cell is not empty, but instead displays "-".

- When a column's value is complex, there are several cases:

    1. If the value is an array of objects - "{objects.count} objects" is displayed in the cell, or just "object", if the array has only 1 member.

    2. If the object has 2 or less properties, an neither of them is complex, its label : value pairs are concatenated with a comma and displayed in the cell.

    3. If the object has more than 2, or has a complex property, "object" is displayed in the cell.

For the purpose of the Datagrid row data modal, the cells in the first visible column of the grid act as links and they should always remain visible. Because of this, the option to hide the Datagrid's link column was removed from the UI control in the footer.

Additionally, when the Datagrid has only one column, the hide/show UI control in the footer will not be rendered.

Notes:

1. If the user makes API call related to the Custom Resources based on ABX, he should validate the schema himself.

2. The user should not change the type of a nested property. There is a validation only for the top level properties

- **vRA is now integrated with TMC to provide a single pane of glass for VMs and Clusters management**

  As multi-cloud is becoming the norm in large organizations, the need for consistent management across different clouds and workload types is increaing. As a result, vRealize Automation Cloud now integrates with Tanzu Mission Control to tackle the problem of unmanageable cloud complexity by facilitating unified governance and consumption of cloud, VM and Kubernetes-based workloads.

  Customers that have an entitlement to vRealize Automation Cloud and Tanzu Mission Control can design and deploy Kubernetes clusters from vRealize Automation Cloud while simplifying management at scale by inheriting Tanzu Mission Control policies through its cluster groups and complying to vRealize Automation Cloud rules and constraints.

  - Cloud administrators and operators can deliver Tanzu Mission Control-created rules and self-service lifecycle management through vRealize Automation Cloud catalog.

  - vRA Cloud admins will be able to attach a cluster to a cluster group and this cluster will inherit policies that are created by TMC for the respective cluster group.

  - DevOps and Developers can now use a single platform for consuming cloud infrastructure and Kubernetes based on a consistent operating model. Admins can retain the richness of their individual tools for VM and Kubernetes design while providing a unified experience for users.

  Learn more.

- **vRealize Orchestrator plug-in for vSphere Web Client**

  The vRealize Orchestrator Plug-in for vSphere Web Client (also known as the vCOIN plug-in) provides integration between vRealize Orchestrator (vRO) and the vSphere Client. The plug-in is supported for standalone vRealize Orchestrator 8.9 instances.

  The plug-in enables users logged in to the vSphere Client to run, schedule, and monitor vRealize Orchestrator workflows from within the vSphere Client. With this plug-in, you can select one or more inventory objects and run or schedule a vRealize Orchestrator workflow with its input parameters being automatically pre-populated with the selected context objects.

  The vRealize Orchestrator plug-in for vSphere Web Client follows the standard remote plug-in architecture for vSphere plug-ins and comes as a separate service within standalone vRealize Orchestrator deployments. To activate the vCOIN plug-in, your vRealize Orchestrator deployment must use vSphere as its authentication provider.

  Learn more about the vRealize Orchestrator Plug-in for vSphere Web Client.

- **Custom form list and select improvements for read only mode**

  Dual List, Multi Select, Array and Multi Value Picker have a common behavior with a read-only state and are now unified. Each of these components is loading its values in a table. In addition, the table contains a header in the first row - 'Values'. Array component is loading decimal/integer values with text align - 'right' while rest of the types are using 'left'.

- **Support for AWS GovCloud Regions**

  vRealize Automation now supports AWS GovCloud endpoints. When adding a new cloud account, customers can select the Amazon Web Services type and provide credentials for their AWS GovCloud environment.

- **Pipeline task will automatically refer to the latest version of custom integration**

  If the pipeline has a custom task and if the version of the custom integration is "Set as Latest", then the pipeline execution will always pick the latest version of the custom integration script. You do not need not manually change all tasks. Learn more.

Resolved Issues

- **VCD 1.2 adapter bug fixes**

  vCD Adapter improvements are done to enable the support of:

  - Snapshot creation of an existing VM on-boarded to vRA

  - System properties for proxy configuration

  - vRA standard OSType for VM enumeration and creation

  - Boot ordering of while fetching disks

- **O11N Actions used for External Validation are now properly handled when they throw an exception**

  Previously, vRA custom forms o11n actions that had crashed were ignored when constructing the validation messages. Now, O11N Actions that threw an exception during validation are no longer ignored, which results in validation messages being shown through the API endpoint for validation and through the UI. Forms that were previously incorrectly submitted with wrong data, now explicitly fail with the appropriate validation message.

Known Issues

- **Your workflow run is blocked by an evalOGNL error.**

  For vRealize Orchestrator instances in vRealize Automation Cloud, launching specific workflows can cause you to receive the following error alert in the workflow form UI:

  ```
  There was a problem invoking action com.vmware.o11n.forms/evalOGNL
  ```

  The latest vRealize Orchestrator release adds a new action validation that can fail for workflows with a complex dynamic presentation.

Workaround: To mitigate this issue, log in to the vRealize Orchestrator Control Center, add the system property **com.vmware.o11n.forms.evalognl-validator.enabled**, and set its value to **false**.

- **Code Stream (vRA 8.x only) vRO endpoint creation fails with basic authentication.**

  When creating a vRO endpoint in Code Stream version 8.8 or later, users must select "Token" as the authentication type and provide an API token or endpoint creation fails. However, the button used to generate a token is missing. This will be resolved in an upcoming release.

- **Code Stream (vRA 8.x only) No button to create a new project**

  To add a project in Code Stream, you must have the Code Stream administrator role. However, the **Projects** > **New Project** button is missing for all user roles.

  Workaround: If you are an administrator in Cloud Assembly, create the project in Cloud Assembly.

June 2022/vRA 8.8.2 What's New

10

This chapter includes the following topics:

- New Features
- Known Issues

New Features

- **Cloud Guardrails (vRA Cloud Only)**

  Last month, we released the technical preview of Cloud Guardrails as a new feature suite in vRA Cloud Assembly. This month, we continue to build upon that foundation with new capabilities that bring us closer to the full release.

  - **Template code is now fully reflected in the UI**

    - Last month's release included code added from the library with cryptic state file references. These have been replaced with actual code to give users a better understanding of how these templates operate and can be customized.

  - **The Enforcement tab now includes Desired State Returns**

    - When a Desired State is enforced, Cloud Guardrails provides a return that indicates what actions the system took. This outcome is now provided as a return file attached to each enforcement.

  - **Added content to the Template Library**

    - The out of the box template library has expanded with new content that include OS Security, Cloud Costing, CIS Security, Security WAF rules, and TMC and DLP reference implementations.

- **Service broker introduces Content Sharing Policy**

  Service Broker now includes a new policy specifically for sharing content for catalog consumption. The Content Sharing Policy replaces the existing Content Sharing system and expands the granularity to support per-user and per-ad group level entitlements in addition to full project and org permissions. Learn more about content sharing policies.

▪ **vRealize Automation Terraform Service and accompanying Terraform provider now supports Terraform 1.0**

The vRealize Automation Terraform Service and accompanying Terraform provider now supports Terraform 1.0. This allowsyou to use Terraform 1.0 and provide the latest support for it.

▪ **NSX-T Load-balancer persistence profile support**

This feature enables source IP and cookie persistence support for NSX-T load-balancer deployments as per NSX-T documentation.Afterconfiguration in a VMware Cloud Template, a new persistence profile is added to the NSX-T load-balancer with the options configured under the VCT. Day 2 reconfigure action is also available to update the deployment.

▪ **Simplified activation of vRealize Automation Cloud Trial from VMware Cloud on AWS**

This feature simplifies the enablement of vRA Cloud trial from VMC SDDC and reduces the time it takes for customers to start leveraging vRA for automating VMC workloads. API token and vCenter credentials are no longer required. Also,a cloud proxy VM is no longer installed but instead it is replaced by infrastructure fully managed by VMware. At the end of the process, the vRA Cloud trial is activated and the default configuration is added to vRA that allows customers to get started with the product quickly.

▪ **Spread by Memory placement policy to improve spread algorithm**

The feature introduces a new type of placement policy called spread by memory. This policy isset on the project level and on the cloud zone level. Depending on if it's anaylyzing public or private cloud capacity, it spreads VMs based on either the currently allocated memory or the currently free memory.

▪ **Support for binding vRO attributes for workflows**

You can now utilize vRO Workflow variables when requesting a vRO Workflow in vRA. This is applicable only for variables that either have a constant value or are bound to a vRO Configuration value. Using an API and a mechanism to provide additional context coming from the vRO Workflow, the Form Renderer can populate all of the values needed by the form. Also, all dependent values are refreshed when the project field changes, because the projectId determines which Integration to use,the variables could be different.Learn more.

▪ **Change project for migrated deployments**

The Day 2 action to change project is now enabled for migrated deployments. Migrated deployments can contain any number of Machines, Disks, Load Balancers, Networks, Security Groups, NATs, Gateways and Custom Resources. If a migrated deployment is updated to contain a not aforementioned resource, for example: terraform configuration, or an onboarded/ provisioned resource, the change project action is not available. If the resource is deleted, then the change project action becomes available again.

Day 2 action is restricted to cloud administrators only.

Machines' and Disks' cloud zones must be present in the target Project and set quota limits are respected. The quota is released from the initial project and reserved in the target project. In case of any failure, the action is automatically rolled back.

See Day 2 Actionsfor more information.

- **Provide the ability to manage target groups from the SSC UI**

    You can now manage target groups from the SaltStack Config user interface. This new capability allows for a more enterprise friendly way to manage minions and target groups. You now have the ability to view all your target groups in a single view, while still being able to nagivatedown to see the details of your minions and related data. The Target Manager will replace the current Minions view in a future version.

Known Issues

- **Salt-run commands from the UI are incompatible with Salt 3005**

    Saltstack Config versions 8.8.2 and earlier are incompatible with Salt 3005, and as a result you should not upgrade Salt to 3005. This will be resolved in the upcoming 8.9 release.

- **Custom resources and resource actions based on extensibility action do not work with flows.**

    Currently, extensibility action flows do not work with vRealize Automation custom resources or resource actions. Custom resources based on vRealize Orchestrator allow you to run workflows that accomplish similar tasks, particularly for longer running workflows. If you would like to submit a request to add support for custom resources or resource actions that use extensibility action folows, contact your account team or submit a feature request so that we can understand your use case.

11

This chapter includes the following topics:

- New Features
- Resolved Issues
- Known Issues

New Features

- **Cloud Guardrails Initial Functionality Release (vRA Cloud Only)**

  vRealize Automation has made it a priority to expand our capabilities deeper in the public cloud space. One of the areas we've identified to add value is in the provisioning, policy application, and continuous management of public cloud environments with an everything-as-code approach. This release represents our first step toward that vision with vRealize Automation Cloud Guardrails, a feature suite focused on the challenges faced with managing cost, performance, security, networking, and configuration at scale for multi-cloud environments.

  Our goal is for Cloud Guardrails to tackle the multi-cloud management space ,with tasks like creating on-demand AWS Member Account with appropriate security and IAM configurations, while Cloud Assembly continues to handle the provisioning of services into multi-cloud environments. You'll see a continuous flow of updates to build-out Cloud Guardrails in service of that goal.

  - **Guardrails tab visible in Cloud Assembly**

    - The Guardrails tab is now visible in Cloud Assembly for users. The Cloud Guardrails User CSP role is required to operate this new feature suite.

  - **Enforce Desired State using Cloud Guardrails**

    - Cloud Guardrails at this stage is fundamentally a Salt Idem SLS launcher. Cloud Guardrails take a group of Idem SLS templates, bundled together as composite templates, and define them as a Desired State. A Desired State is a group of templates, or composite templates, with the input parameters provided.

- Once defined, the Desired State is Enforced which triggers the engine to perform actions such as creating a cloud environment and instantiating cloud-native policies as defined in the Desired State. The system is Idempotent, meaning the end-result is always what is defined templates regardless of whether the actual steps include creating a new environment, updating an existing environment, or just updating a specific policy.

- **In-product library to host VMware-provided templates**

  - To assist customers in their journey with Cloud Guardrails, VMware is providing a set of out-of-the-box templates to accomplish common use-cases needed in the public cloud.

  - The initial release of cloud guardrails includes some templates in the library like creating AWS Organizational Units (OU) and Member Accounts and creating IAM roles directly into the public cloud.

  - VMware will continue to build out this library as the feature suite matures and additional functionality is released.

We look forward to your feedback around this announcement, and you'll hear more about vRealize Automation Cloud Guardrails and its vision soon.

- **Storage limits are applied for Independent Disks and First Class Disks (FCD)**

  Previously, vRealize Automation only supported storage limits for day 0 attached disks and disks added via day2 operation. Independent disk & FCDs were not counted towards the storage limit set by the user. Now, if the disk size exceeds the storage limit set then the deployment will fail. This is also supported in IaaS API.

- **Support for remote vCenter Server Cloud accounts**

  Similarly to 7.x releases of vRealize Automation, vRA 8.8.1 and later now supports the management of remote vCenter Server Cloud accounts. Instead of deploying a whole vRealize Automation instance in a remote site, you can now deploy a small vRealize Automation Extensibility (vREx) Proxy. This proxy VA helps a single central vRealize Automation instance to connect to the remote site and manage its resources. You will need to configure proper firewall rules and networking for a single communication channel only. This way, it is possible to manage resources of multiple sites while still having a simpler setup and and configuration.

  There is no impact for existing deployments, this is a new feature that is toggled off by default. For additional information on enabling and using the feature, please consult with the vRealize Automation documentation.Learn more.

- **Ability to enable/disable Log Analytics for Azure VMs - Day2**

  You can now enable/disable Azure VM log Analytics. This allows you to capture VM log data for further analysis by Azure Monitor and Query solutions.

Resolved Issues

- **Spring is updated to 5.3.latest due to CVE-2022-22965**

  Updated Spring version 5.3.18 to resolve CVE-2022-22965.

  For more information on these vulnerabilities and their impact on VMware products, see
  https://www.vmware.com/security/advisories/VMSA-2022-0010.html.

Known Issues

- **Machines connected to an NSX-T global network are not being tagged on NSX-T**

  Machine tags are defined in the cloud template and apply to the machine if deployed on
  vCenter, but also on the NSX-T if the machine is connected to an NSX-T network.   Thi NSX-T
  Federation support was introduced in vRA 8.4. However, deployed machines with tags that
  are connected to an NSX-T global network are not being tagged on the NSX-T. NSX-T global
  networks are networks that are defined by the NSX-T global manager and apply to one or
  more NSX-T local managers.

  Note: Machine tagging is different than machine NIC (network interface) tagging, which is
  working as expected.

  Workaround: Manually add the tag on the machine on the NSX-T.

API Documentation and Versioning

<div style="text-align: right; font-size: 2em;">12</div>

API documentation is available with the product. To access all Swagger documents from a single landing page, go to:

- https://www.mgmt.cloud.vmware.com/automation-ui/api-docs/ for vRealize Automation Cloud.

- https://*<appliance.domain.com>*/automation-ui/api-docs for vRealize Automation 8.x, where *appliance.domain.com* is your vRealize Automation appliance.

Before using the API, consider the latest API updates and changes for this release, and note any changes to the API services that you use. If you have not locked your API using the apiVersion variable before, you might encounter a change in an API response. Any API updates and changes are provided in the What's New section for each release.

For unlocked APIs, the default behavior varies depending upon the API.

- For Cloud Assembly IaaS APIs, all requests which are executed without the apiVersion parameter will be redirected to the first version which is 2019-01-15. This redirect will allow every user who did not previously specify the apiVersion parameter to transition smoothly to the latest version without experiencing breaking changes.

    NOTE: For the Cloud Assembly IaaS APIs, the latest version is apiVersion=2021-07-15. If left unlocked, IaaS API requests will be redirected to the first version which is 2019-01-15. The first version is deprecated and will be supported for 24 months. To ensure a smooth transition to the new version, lock your IaaS API requests with the apiVersion parameter assigned to 2021-07-15.

- For other APIs, your API requests will default to the latest version. If you select one of the earlier version dates listed for the Swagger spec, the API behavior will reflect APIs that were in effect as of that date and any date until the next most recent version date. APIs are not versioned for every vRealize Automation release and not all APIs support the apiVersion parameter.

For more information about using the apiVersion parameter, see the Programming Guides listed in vRealize Automation APIs and CLI.

This chapter includes the following topics:

- December 2022/vRA 8.11 API Changes

- [November 2022/vRA 8.10.2 API Changes](#)

- [October 2022/vRA 8.10.1 API Changes](#)

- [September 2022/vRA 8.10 API Changes](#)

- [August 2022/vRA 8.9.1 API Changes](#)

- [July 2022/vRA 8.9 API Changes](#)

- [June 2022/vRA 8.8.2 API Changes](#)

- [May 2022/vRA 8.8.1 API Changes](#)

December 2022/vRA 8.11 API Changes

The following table lists the API services with updates or changes since the previous release.

Service Name	Service Description	API Updates and Changes

Content	Connect to your infrastructure as code content in external content sources, such as Source Code Management providers.	New endpoint and payload to patch the content source changing the state from unshared to shared and vice versa.
		
		`PATCH /content/api/sources/{id}`
		With payload:
		`{ "requestScopeOrg": true/false}`

November 2022/vRA 8.10.2 API Changes

The following table lists the API services with updates or changes since the previous release.

Service Name	Service Description	API Updates and Changes
Deployment	Access deployment objects and platforms or blueprints that have been deployed into the system.	Access to the following Deployment API endpoint has changed: `POST /deployment/api/resources` - Service Broker administrators can access the endpoint without restriction Service Broker users and viewers can access the endpoint depending on their project roles. See What are the Service Broker user roles.

October 2022/vRA 8.10.1 API Changes

The following table lists the API services with updates or changes since the previous release.

Service Name	Service Description	API Updates and Changes

Code Stream	Create and run pipelines for continuous delivery of your applications to production.	New input parameter "project" to update a pipeline model using a shared pipeline for rollback or a shared VMware cloud template for a task.
		
		Pipelines API endpoint:
		
		`PUT /codestream/api/pipelines/`
		`{pipelineId}`
		
		Sample payload to add a shared pipeline for rollback.
		
		<pre>"rollbacks": [
		  {
		    "name": "nested",
		    "inputs": {},
		    "project":
		"project_name_1",
		    "stage": "Stage0",
		    "task": "Task0"
		  },
		  {
		    "name": "test-
		pipeline-1",
		    "inputs": {},
		    "project":
		"project_name_2",
		    "stage": "Stage0"
		  }
		]</pre>
		Sample payload to add a shared VMware cloud template as a task. Only applies when the pipeline is configured using the API.
		
		<pre>"tasks":
		{
		  "Task0":
		    {
		      "ignoreFailure":
		false,
		      "endpoints":
		{},
		      "input":
		
		{
		        "action":
		"CreateDeployment",
		
		"deploymentName":
		"test_deployment",
		
		        "blueprint":
		"test-
		bp",
		
		        "version": "1",
		        "project":</pre>

```
"project_name_1",

        "parameters":
{}
    },

    "inputMeta":
{},
    "output":
{},
    "type":
"Blueprint",

    "_configured": true
  }
 }
```

IaaS	Perform infrastructure setup tasks, including validation and provisioning of resources in iterative manner.	New image mapping field "externalId" to create or update an image profile for OVA in vSphere cloud accounts `POST /iaas/api/image-profiles`

September 2022/vRA 8.10 API Changes

The following table lists the API services with updates or changes since the previous release.

Service Name	Service Description	API Updates and Changes

CMX	When using Kubernetes with vRealize Automation, deploy and manage Kubernetes clusters and namespaces	The following endpoint is deprecated:
		`GET /cmx/api/resources/vsphere/ endpoints/{endpointSelfLinkId}/ storage-classes`
		It is replaced by a new endpoint:
		`GET /cmx/api/resources/vcenter/ endpoints/{endpointSelfLinkId}/ storage-classes`

August 2022/vRA 8.9.1 API Changes

The following table lists the API services with updates or changes since the previous release.

Service Name	Service Description	API Updates and Changes

Approvals	Enforce policies that control who must agree to a deployment or day 2 action before the request is provisioned.	New criteria field "ownerType" in the Approval Policy Data endpoints, enables users to define criteria for the approval policy based on deployment owner type: USER or GROUP.
		
		The following sample payload shows how to apply the approval policy to the deployment owner type: USER.
		
		``
		"criteria": {
		  "matchExpression":
		[
		    {
		      "key":
		"ownerType",
		      "operator":
		"eq",
		      "value":
		"USER"
		    }
		  ]
		}
		``
		
		The following new endpoints return the deployment owner type:
		
		■ `GET /approval/api/policy/data/ownerTypes`
		
		■ `GET /deploymentlimit/api/policy/data/ownerTypes`

Code Stream	Create and run pipelines for continuous delivery of your applications to production	New endpoints and payload values to support the shared pipelines feature.
		
		New endpoints:
		
		■ Update a pipeline by ID to share across all projects in an organization.
		
		  `PATCH /codestream/api/pipelines/{id}/global`
		
		■ Update a pipeline by name to share across all projects in an organization.
		
		  `PATCH /codestream/api/pipelines/{project}/{name}/global`
		
		New payload values and filtering in existing API endpoints:
		
		To share the pipeline, add `"global":true` to:
		
		■ `PUT /codestream/api/pipelines/{id}`
		
		■ `PUT /codestream/api/pipelines/{project}/{name}`

Service Name	Service Description	API Updates and Changes
		To prompt the user to select a project for the run, add `{"comments":"","input": {},"projectName":"testProject"}`to: `POST /codestream/api/pipelines/ {id}/executions` To save a pipeline with nested task details, add `"project": "TestProject"` to: `PUT /codestream/api/pipelines/ {id}` To list all pipelines that are shared across all projects, filter for **`("global eq 'TRUE')`** as in the following example: `https://<server-name>/ codestream/api/pipelines? $filter=substringof('',tolower(na me)) and _link ne '5cecf524- d492-4365-b593-e666e2a25695' and (project eq '1stProjectt' or` **`(global eq 'TRUE'))`**`&$top=10&$skip=0&$expand= true&$count=true`
IaaS	Perform infrastructure setup tasks, including validation and provisioning of resources in iterative manner.	The following existing endpoints now require the request parameter `apiVersion=2021-07-15`: ■ `delete /iaas/api/cloud- accounts-aws/{id}` ■ `delete /iaas/api/cloud- accounts-azure/{id}` ■ `delete /iaas/api/cloud- accounts-gcp/{id}` ■ `delete /iaas/api/cloud- accounts-nsx-t/{id}` ■ `delete /iaas/api/cloud- accounts-nsx-v/{id}` ■ `delete /iaas/api/cloud- accounts-vcf/{id}` ■ `delete /iaas/api/cloud- accounts-vmc/{id}` ■ `delete /iaas/api/cloud- accounts-vsphere/{id}` ■ `delete /iaas/api/cloud- accounts/{id}` ■ `delete /iaas/api/ configuration-properties/{id}`

Service Name	Service Description	API Updates and Changes
		■ `delete /iaas/api/integrations/{id}`
		■ `delete /iaas/api/naming/{id}`
		■ `get /iaas/api/certificates/{id}`
		■ `get /iaas/api/cloud-accounts/region-enumeration/{id}`
		■ `get /iaas/api/configuration-properties`
		■ `get /iaas/api/configuration-properties/{id}`
		■ `get /iaas/api/folders`
		■ `get /iaas/api/integrations`
		■ `get /iaas/api/integrations/{id}`
		■ `get /iaas/api/naming/projectId/{id}`
		■ `get /iaas/api/naming/{id}`
		■ `patch /iaas/api/cloud-accounts-aws/{id}`
		■ `patch /iaas/api/cloud-accounts-azure/{id}`
		■ `patch /iaas/api/cloud-accounts-gcp/{id}`
		■ `patch /iaas/api/cloud-accounts-nsx-t/{id}`
		■ `patch /iaas/api/cloud-accounts-nsx-v/{id}`
		■ `patch /iaas/api/cloud-accounts-vcf/{id}`
		■ `patch /iaas/api/cloud-accounts-vmc/{id}`
		■ `patch /iaas/api/cloud-accounts-vsphere/{id}`
		■ `patch /iaas/api/cloud-accounts/{id}`
		■ `patch /iaas/api/configuration-properties`
		■ `patch /iaas/api/integrations/{id}`
		■ `patch /iaas/api/machines/{id}/network-interfaces/{networkId}`
		■ `post /iaas/api/cloud-accounts`
		■ `post /iaas/api/cloud-accounts-aws`
		■ `post /iaas/api/cloud-accounts-aws/region-enumeration`

Service Name	Service Description	API Updates and Changes
		■ `post /iaas/api/cloud-accounts-azure`
		■ `post /iaas/api/cloud-accounts-azure/region-enumeration`
		■ `post /iaas/api/cloud-accounts-gcp`
		■ `post /iaas/api/cloud-accounts-gcp/region-enumeration`
		■ `post /iaas/api/cloud-accounts-nsx-t`
		■ `post /iaas/api/cloud-accounts-nsx-v`
		■ `post /iaas/api/cloud-accounts-vcf`
		■ `post /iaas/api/cloud-accounts-vcf/region-enumeration`
		■ `post /iaas/api/cloud-accounts-vmc`
		■ `post /iaas/api/cloud-accounts-vmc/region-enumeration`
		■ `post /iaas/api/cloud-accounts-vsphere`
		■ `post /iaas/api/cloud-accounts-vsphere/region-enumeration`
		■ `post /iaas/api/cloud-accounts/region-enumeration`
		■ `post /iaas/api/integrations`
		■ `post /iaas/api/machines/{id}/operations/revert/{snapshotId}`
		■ `post /iaas/api/naming put /iaas/api/naming`
		■ `put /iaas/api/naming`

July 2022/vRA 8.9 API Changes

The following table lists the API services with updates or changes since the previous release.

Service Name	Service Description	API Updates and Changes
CMX	When using Kubernetes with vRealize Automation, deploy and manage Kubernetes clusters and namespaces.	New request parameter "ignoreTMC" that delegates whether to return an admin kubeconfig for the cluster or a TMC generated Kubeconfig for the following endpoints: ■ `GET /cmx/api/resources/k8s/clusters/{id}/kube-config` ■ `GET /cmx/api/resources/k8s/namespaces/{id}/kube-config` New endpoint to get download links to the Tanzu CLI binaries for Mac, Linux, and Windows `GET /cmx/api/resources/tmc/endpoints/tanzu-cli-binaries`
Deployment	Access deployment objects and platforms or blueprints that have been deployed into the system.	New parameter to filter results by a list of project IDs for the following endpoints: ■ `GET /deployment/api/resources/filters/{filterId}?projects={projectIds}` ■ `GET /deployment/api/deployments/filters/{filterId}?projects={projectIds}`

June 2022/vRA 8.8.2 API Changes

The following table lists the API services with updates or changes since the previous release.

Service Name	Service Description	API Updates and Changes
Custom Forms (form-service)	Define dynamic form rendering and customization behavior in Service Broker and Cloud Assembly VMware services.	New optional query parameter `"includeCrResourceActions": "true"` to retrieve a RunnableItem for a ResourceAction that is part of a CustomResource. `GET /form-service/api/custom/resource-actions/{id}/runnable-item`
Deployment	Access deployment objects and platforms or blueprints that have been deployed into the system.	New endpoint to return paged user events for a given deployment ID. User events are events that require user input, for example: Create, Day 2, Approval, or vRO user interaction. `GET /deployment/api/deployments/{deploymentId}/userEvents`
IaaS	Perform infrastructure setup tasks, including validation and provisioning of resources in iterative manner.	(Cloud only) By including a new optional request parameter `"environment": "aap"` that applies to a VMC account with VMware Cloud on AWS activated on the SDDC, you can: ■ create or update a VMC account without requiring manual deployment of a cloud proxy VM. ■ get available regions for the VMC cloud account. VMC-specific cloud account API: ■ `POST /iaas/api/cloud-accounts-vmc` ■ `PATCH /iaas/api/cloud-accounts-vmc` ■ `POST /iaas/api/cloud-accounts-vmc/region-enumeration` Generic cloud account API: ■ `POST /iaas/api/cloud-accounts` ■ `PATCH /iaas/api/cloud-accounts` ■ `POST /iaas/api/cloud-accounts/region-enumeration`

May 2022/vRA 8.8.1 API Changes

No API services with updates or changes since the previous release.