



Morpheus – ServiceNow Integration

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INTRODUCTION

IT Service Management (ITSM) is an important area of focus. By and large most organizations I come across have an ITSM solution in place. ITSM solutions have evolved over the years beyond just Change Management Database (CMDB) and incident management (Incident, Problem, Change, and more). CMDB tools enable an effective IT Service delivery model. Most organizations expect significant value from their CMDB, which is why so much time and cost is invested in them.

This is no different for Morpheus clients. They have invested in ITSM and use Morpheus' unified orchestration and automation CMP to manage their hybrid IT. Morpheus ITSM integrations include leading technologies such as ServiceNow, Remedy, and Cherwell.

This document will focus specifically on leveraging the Morpheus – ServiceNow integration.

MORPHEUS – SERVICENOW INTEGRATION

The Morpheus – ServiceNow integration covers primarily four use cases that organizations may choose to take advantage of. Here's a short overview of each use case (we will dig deeper in later sections).

CMDB Integration

Organizations leveraging ITIL want to be able to track resources in their CMDB. When provisioning resources – regardless if this is done from Morpheus directly or by using the Morpheus Plugin for ServiceNow - Configuration Items (CI) are created in ServiceNow. When any updates are made to a resource in Morpheus the respective CI record is updated as well. This integration is turned on at the Group or the Cloud constructs in Morpheus.

Approvals Integration

In Morpheus, users can create Provisioning Approval Policies. Provisioning policies are configured to leverage native Morpheus approvals or ITSM-integrated approvals, in this case ServiceNow. This integration is activated by creating a Provisioning Approval Policy and selecting the configured ServiceNow instance that will manage the approval workflow process.

Incident Management Integration

If resources provisioned by Morpheus experience performance or health-related issues that lead to resource degradation or negatively impact resource availability, incidents are automatically raised in Morpheus. These incidents will automatically close once the degradation or health related issues have been resolved. The incidents can be modified and closed manually in Morpheus if desired. Organizations using ServiceNow would want these incidents to be visible in the ServiceNow portal. This integration is turned on in Morpheus by enabling the ServiceNow monitoring in Morpheus (in addition to the Morpheus monitoring).

Morpheus ServiceNow Plugin Integration

One of Morpheus' key strengths is Self-Service Orchestration and Automation. This is done in the Morpheus UI and can be consumed via CLI and API. Some ServiceNow users prefer to provision resources from the ServiceNow Service Catalog. Morpheus has released a plugin for ServiceNow. This can be installed from the ServiceNow Store. Once installed and configured, Morpheus Service Catalog Items can be presented in the ServiceNow Service Catalog for ordering. This integration is turned on by installing the Morpheus Plugin for ServiceNow and sharing the desired resources from Morpheus.

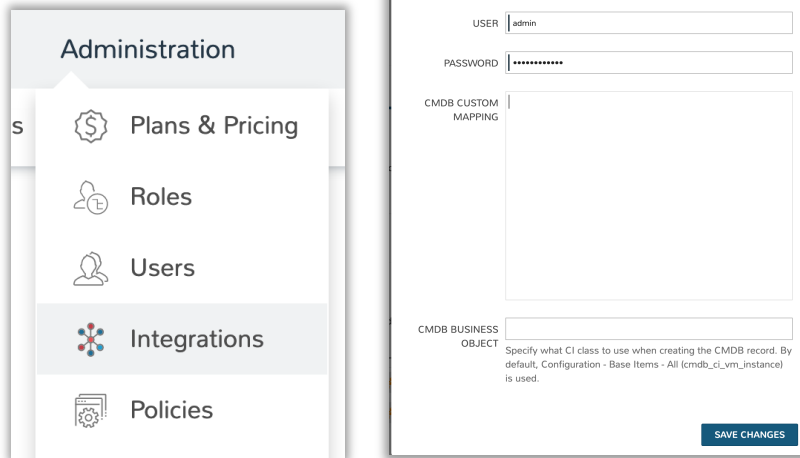
The Morpheus plugin supports both single and multi-tenant ServiceNow environments. When ServiceNow is configured for multiple tenants (companies), the Morpheus plugin will automatically detect this. Using the supplied service account credentials, Morpheus creates a link between a specific tenant and ServiceNow company. In doing so, integrated Clouds and catalog items from a distinct Morpheus tenant are only shared with the associated company on the ServiceNow side.

The remainder of this document will focus on the 4 integration areas mentioned above and provide more details on their setup, configuration, and consumption. Let's jump into the details...

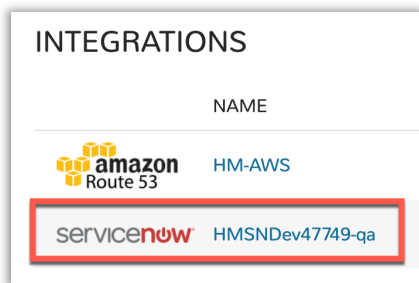
INTEGRATION DETAILS

In order to take advantage of any of the above-mentioned integration use cases with ServiceNow, the very first step is to connect Morpheus to the ServiceNow instance(s).

To do this you will need the ServiceNow instance details. In Morpheus go to the **Administration** menu option and select **Integrations**. Select **+New Integration** and scroll down to the **ITSM** section and choose **ServiceNow**. Provide the ServiceNow details and then **Save Changes**. Please see figures below.



Again, this initial step simply connects Morpheus with ServiceNow. In the list of integrations, you will now see the integration entry available.



If you have multiple ServiceNow instances that you would like to connect you can simply repeat the instructions above.

Integration dialog field descriptions

- **NAME:** Friendly name you would like to describe your ServiceNow instance integration
- **ENABLED:** Enable or disable this integration. An integration entry can exist, but this integration can be disabled by unchecking ENABLE
- **SERVICENOW HOST:** The ServiceNow instance you are connecting to. (remember you can create multiple ServiceNow integrations if you have multiple ServiceNow instances)
- **USER/PASSWORD:** The User credentials that Morpheus will use to interact with ServiceNow. This is a ServiceNow user with the appropriate roles assigned in order for these integration use cases to work properly. In a multi-tenant installation, this user must be a member of the company to which you intend to expose Morpheus catalog items later. Here's a list of the ServiceNow roles necessary:
 - **x_moda_morpheus_ca.integration** (will be available if/when the Morpheus ServiceNow Plugin is installed from the ServiceNow Store)

- **catalog_admin**
- **itil**
- **rest_service**
- **web_service_admin**
- **import_transformer**
- **CMDB CUSTOM MAPPING:** If there is a desire to populate some specific field in the ServiceNow table, specify the field mapping here. This is a JSON code snippet. In the example below we are mapping a field in ServiceNow which has a label of “object_id” and we are populating it with the value in the Morpheus variable “\${instance.name}”

```
{
  "object_id": "<${instance.name}>"
}
```
- **CMDB BUSINESS OBJECT:** By default, Morpheus will populate the ServiceNow table using the following configuration item (CI) class “cmdb_ci_vm_instance”. Users wanting to populate a different CI class would simply enter that class in this field
- **DEFAULT CMDB BUSINESS CLASS:** Specify a default CI class to be used when creating the CMDB record. By default, Configuration – Base Items – All (cmdb_ci_vm_instance) is used.

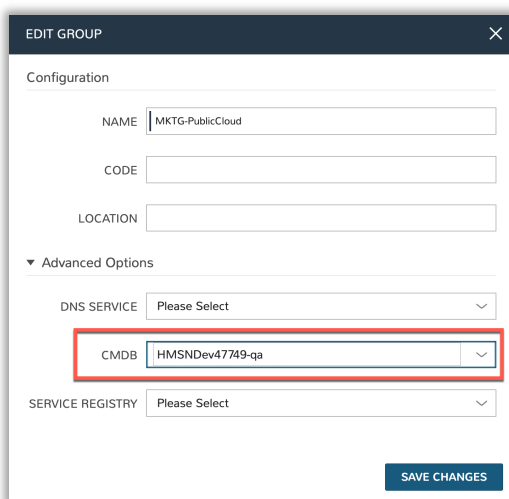
There are additional integration areas that will be discussed in the corresponding integration sections below.

Activating the CMDB Integration

As noted earlier, users wanting to update the ServiceNow CMDB with CI records of any services provisioned using the Morpheus CMP would enable this capability. Any updates made to a resource in Morpheus also have their respective CI record updated as well. To turn this on it's really a matter of assigning the ENABLED ServiceNow integration defined earlier to a Morpheus Group, or directly to a defined Cloud environment.

GROUP definition: A Group defines which resources a user has access to. This is defined by User Roles. Defined Clouds are then added to the group, and users can only access those assigned Cloud environments.

CLOUD definition: A cloud is a set of resources that reside in a private or public cloud or bare metal servers. These cloud integrations can belong to one or more groups.



The screenshot shows the 'EDIT GROUP' dialog box. It has a 'Configuration' section with fields for NAME (MKTG-PublicCloud), CODE, and LOCATION. Below this is an 'Advanced Options' section with three dropdown menus: DNS SERVICE (Please Select), CMDB (HMSNDev47749-qa, highlighted with a red box), and SERVICE REGISTRY (Please Select). A 'SAVE CHANGES' button is located at the bottom right of the dialog.

Above, I have a group named **MKTG-PublicCloud** and I've assigned the CMDB integration to be the ServiceNow integration created earlier. From the Morpheus platform any resources deployed to the **MKTG-PublicCloud** group will now have CI entries created in the ServiceNow CMDB. Any updates in Morpheus to the resource will also be reflected in the ServiceNow CMDB. If there is a preference to do this at the Cloud level, you would simply assign the CMDB integration at the Cloud object. Here's an example of that below where one of the many options in a Cloud configuration is CMDB integration.

BACKUP PROVIDER: Internal Backups

REPLICATION PROVIDER: None

GUIDANCE: Manual

COSTING: Costing and Reservations

DNS INTEGRATION: Please Select

SERVICE REGISTRY: Please Select

CMDB: HMSNDev47749-qa

AGENT INSTALL MODE: Cloud Init / Unattend (when available)

API PROXY:

► Provisioning Command

SAVE CHANGES

Below is an example of provisioning a resource from Morpheus and then having it create the CI record in the ServiceNow CMDB

CREATE INSTANCE

TYPE: GROUP: CONFIGURE: AUTOMATION: REVIEW:

ACTIVE MQ **MMDMACT1001**
MKTG-PublicCloud (HM-AWS)

Summary

INSTANCE OPTIONS

NAME: MMDMACT1001
GROUP: MKTG-PublicCloud
CLOUD: HM-AWS
TYPE: ActiveMQ
PLAN: Amazon T2 Nano - 1 Core, 0.5GB Memory
Version: 5.11
LAYOUT: Amazon ActiveMQ
PRICE: \$5.2456 / Month

VOLUMES

ROOT: 10 GB gp2

NETWORKS

LABS_APP_1A (SUBNET964389F2): DHCP

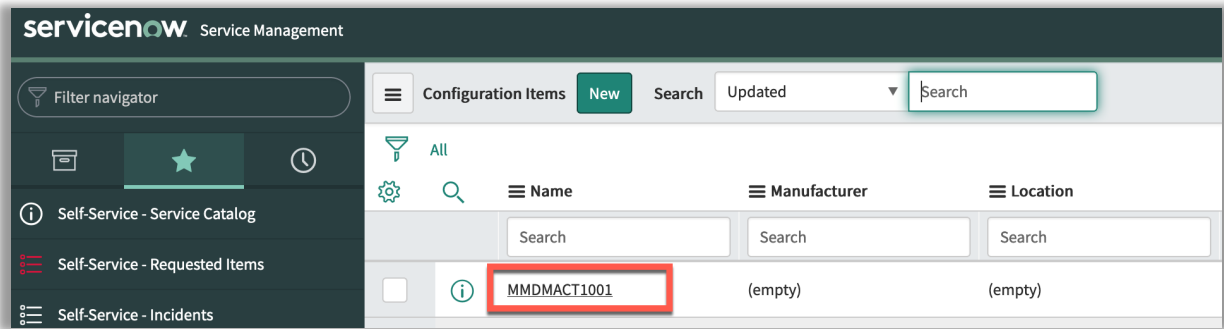
► Options

PREVIOUS **COMPLETE**

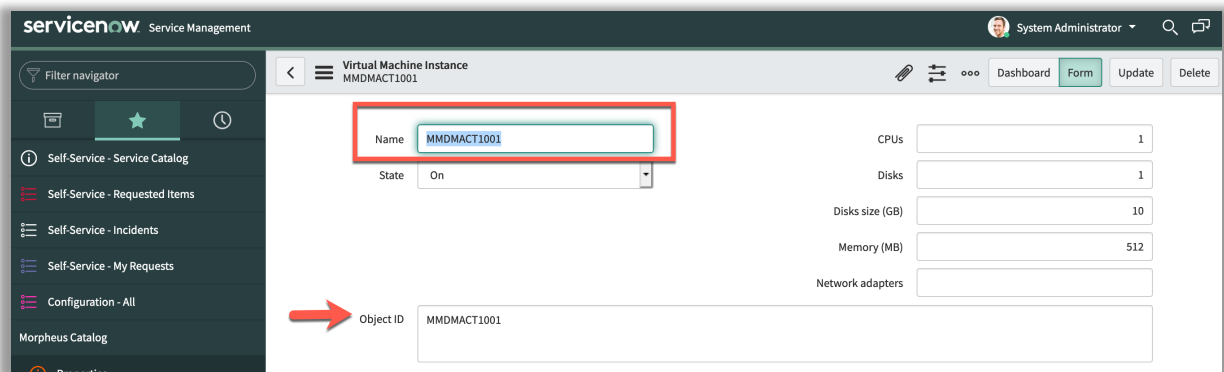
The instance I just created is alive and well (below)

INSTANCES				
Search	All Groups	All Clouds	All Statuses	+ ADD ACTIONS ⚙
<input type="checkbox"/> NAME	SUMMARY	LOCATION	STATS	
<input type="checkbox"/> MMDMACT1001 ACTIVE MQ	Console: 10.226.12.244:8161 Version: 5.11 Virtual Machines: 1	Group: MKTG-PublicCloud Clouds: HM-AWS	STATUS: ▶	HEALTH: ✓
			MAX CPU: 0	MEMORY: 54
				STORAGE: 15

The corresponding CMDB entry in ServiceNow is now available too!



Looking at the details of that record I see the following



Please note that I added a CMDB CUSTOM MAPPING JSON snippet (below) in the integration record, we also see the **Object ID** field populated with the corresponding value from Morpheus as indicated by the red arrow in the figure above. One can also have multiple fields in ServiceNow populated from Morpheus, simply add the field mappings to the JSON code snippet in the CMDB CUSTOM MAPPING area.

CMDB CUSTOM MAPPING	<pre>{ "object_id": "<%=instance.name%>" }</pre>
---------------------	--

If you choose to have multiple field mappings, the code snippet will look like the following example. Lines 2 and 3 are just examples, please substitute the actual desired ServiceNow field labels, and Morpheus variables

CMDB CUSTOM MAPPING	<pre>{ "object_id": "<%=instance.name%>"; "SN_field_id2": "<%=Morph.varname2%>"; "SN_field_id3": "<%=Morph.varname3%>" }</pre>
---------------------	--

A list of the Morpheus variables can be found here:

https://docs.morpheusdata.com/en/latest/troubleshooting/Variables_Examples.html

When a provisioned resource is deleted in Morpheus, the corresponding CI record in ServiceNow will change from **On** to **Terminated**.

State	Terminated
-------	------------

NOTE: Morpheus does set quite a few more fields by default on the CI record. Fields like IP Address, FQDN, and more.

In ServiceNow you can edit or create a new view that has many more of these fields. Here's an example.

Virtual Machine Instance
MMDMACT1001 [Morpheus view]

New default view called Morpheus View with many more fields visible

Name	MMDMACT1001	Fully qualified domain name	mm-hostname-1.localdomain
IP Address	10.226.12.244	Memory (MB)	512
State	Terminated	CPUs	1
Operational status	Operational	Disks size (GB)	10
Environment	-- None --	Disks	1
Domain	global	MAC Address	
Installed	2020-06-16 08:49:50	Start date	
Server		Status	Installed
Serial number		Cost center	
Updated by	admin	VM Instance ID	
Created by	admin	Object ID	MMDMACT1001
Cost		Comments	Provisioned from Morpheus: https://qa.morpheusdata.com/provisioning/instances/108845/nodes/207176
Description	Provisioned from Morpheus: https://qa.morpheusdata.com/provisioning/instances/108845/nodes/207176		

Activating the Approvals Integration

Approvals can be handled in Morpheus; however, some organizations choose to have ServiceNow be the approval authority and take advantage of the ServiceNow approval workflows. To enable this capability, one must create a **Provisioning Approval** policy in Morpheus and assign the ServiceNow instance that will manage the approval workflow process and choose the scope this policy will be applied to. Once activated approval checks take place every 1 minute.

From the **Administration** menu navigate to **Policies**, and then select **+ADD POLICY**

NEW POLICY

TYPE: Provision Approval

NAME: Provisioning Approval Policy

DESCRIPTION: Must be approved by ServiceNow

☒ ENABLED

Config

APPROVAL INTEGRATION: HMSNDev47749-qa

WORKFLOW: Service Catalog Request

Filter

SCOPE: Group

GROUP: MKTG-PublicCloud

SAVE CHANGES

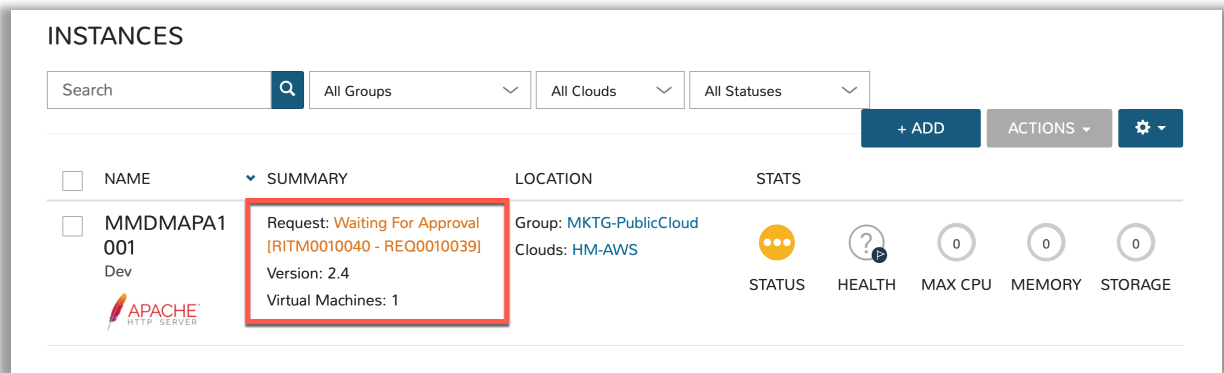
For the **TYPE**, select the **Provision Approval** from the dropdown. Provide the **Name** and **Description**.

The **Config** and **Filter** sections are the important sections.

For **APPROVAL INTEGRATION**, select the dropdown and change it from **Internal Approvals** to the ServiceNow Integration you desire (in this case it's **HNSNDev47749-qa**). The ServiceNow approval workflow you will want to use is **Service Catalog Request** (unless you have some other desired workflow).

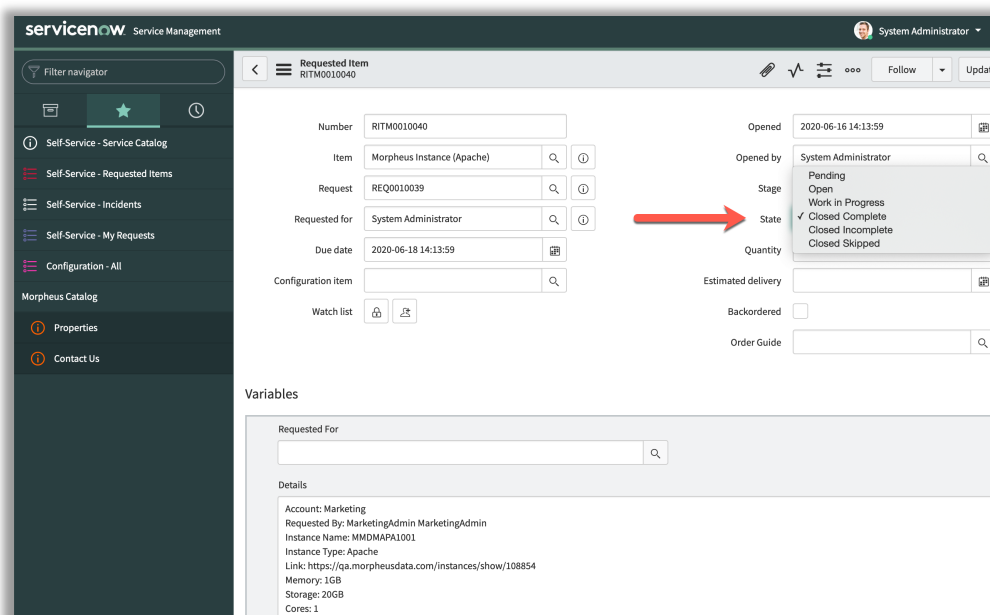
The **Filter** is how we decide what portion of the environment this policy applies to. The **SCOPE** has 5 options to choose from: **Global, Group, Cloud, Role, User**. We have selected **Group** and chose **MKTG-PublicCloud**. By doing so, anything provisioned in Morpheus to the **MKTG-PublicCloud** group must be approved in ServiceNow.

Let's demonstrate what this will look like now that we have an approval policy in place.



Upon provisioning an instance or application from Morpheus, the instance is now added to the instances list, but in a **Waiting for Approval** state. We are also presented with the ServiceNow Request Number and Request Item Number. Go to ServiceNow to approve (or reject) this service request.

In ServiceNow go to the **My Requests** page, and then find the request **REQ0010039**. From the request we will open the request item **RITM0010040** to approve it.



Change the State from **Open** to **Closed Complete** is the equivalent of approving this for request. You must then update this request item by clicking the **Update** button.

Now in the Morpheus UI we will see the instance transition to a blue **Provisioning** state, and eventually to a green **Running** state.

INSTANCES

All Groups


All Clouds

All Statuses

+ ADD

ACTIONS

⚙️

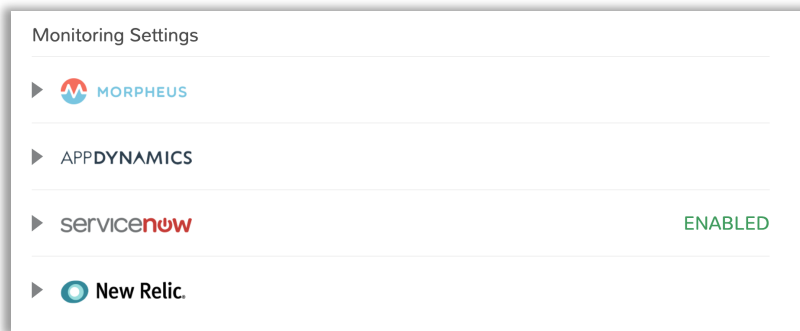
<input type="checkbox"/>	NAME	SUMMARY	LOCATION	STATS
<input type="checkbox"/>	MMDMAPA1001 Dev 	Http: 10.226.12.18:80 Version: 2.4 Virtual Machines: 1	Group: MKTG-PublicCloud Clouds: HM-AWS	<div>▶ STATUS</div> <div>✓ HEALTH</div> <div>0 MAX CPU</div> <div>33 MEMORY</div> <div>9 STORAGE</div>

Note: In the example above the resource request was initiated from Morpheus. If you are provisioning resources from the ServiceNow Service Catalog by using the Morpheus Plugin for ServiceNow (discussed later), this approval process will function the same way. A ServiceNow user would request the service from the ServiceNow Service Catalog. Morpheus would present the instance or application in a **Waiting for Approval** state. A ServiceNow approver would have to approve the request before the provisioning would proceed in Morpheus.

Activating the Incident Management Integration

As noted earlier, incidents in Morpheus will open and close based on the health of their respective resource services. Organizations using ServiceNow may prefer to have these incidents be visible in the ServiceNow portal. This integration must be enabled in Morpheus.

From the **Administration** menu navigate to Monitoring. Note there are other integrations possible.



Expand the ServiceNow section to enable and choose the desired configuration and behavior. Select **Enabled**. From the Integration dropdown select the desired ServiceNow instance (remember you can have multiple ServiceNow instances configured for integration in Morpheus).

For the **New Incident Action** selection there are two options, **No Action** or **Create new incident in ServiceNow**. I always choose the later - **Create new incident in ServiceNow**.

For **Close Incident Action** there are three options, **No Action**, **Add Activity to Incident in ServiceNow**, or **Resolve Incident in ServiceNow**. Again, I choose the later - **Resolve Incident in ServiceNow**.

The ServiceNow Impact can also be modified against the Morpheus severity levels. These are mostly left at the default levels.

servicenow ENABLED

Enabled ☒

Integration HMSNDev47749-qa

New Incident Action Create new incident in ServiceNow

The Service Now action to take when a Morpheus incident is created.

Close Incident Action Resolve Incident in ServiceNow

The Service Now action to take when a Morpheus incident is closed.

MORPHEUS SEVERITY	SERVICE NOW IMPACT
Info	Low
Warning	Medium
Critical	High

APPLY


To demonstrate the behavior, I will purposely break an instance to cause an incident creation to trigger in Morpheus and then in ServiceNow.

INSTANCES

🔍 All Groups All Clouds All Statuses

+ ADD ACTIONS ⚙️

<input type="checkbox"/>	NAME	SUMMARY	LOCATION	STATS
<input type="checkbox"/>	MMDMAPA1001 Dev	Http: 10.226.12.18:80 Version: 2.4 Virtual Machines: 1	Group: MKTG-PublicCloud Clouds: HM-AWS	<div> <div>▶ STATUS</div> <div>❌ HEALTH</div> <div>0 MAX CPU</div> <div>34 MEMORY</div> <div>9 STORAGE</div> </div>



Oops, I broke my Apache instance

In Morpheus the incident looks like the following. Its severity is critical, and the status is open.

MORPHEUS Search Support MarketingAdmin Market

Operations Provisioning Infrastructure Backups Logs **Monitoring** Tools Adm

Status Apps Checks Groups Incidents Contacts Alert Rules


Incidents > MMDMAPA1001

19496: MMDMAPA1001 MUTE EDIT CLOSE

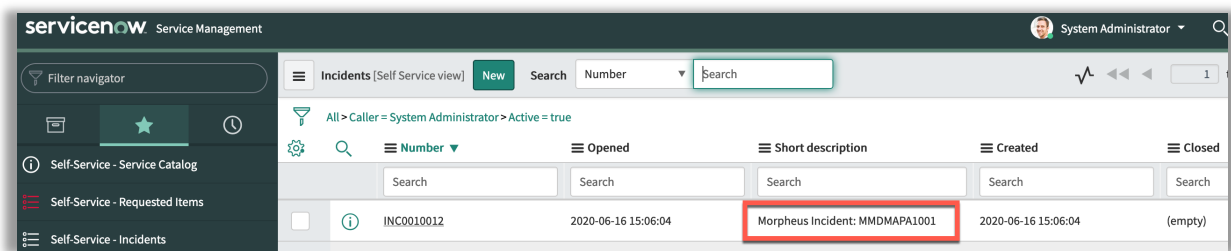
MMDMAPA1001
Critical

Start: 06/16/2020 06:06 PM End: Duration: 17 minutes Status: open

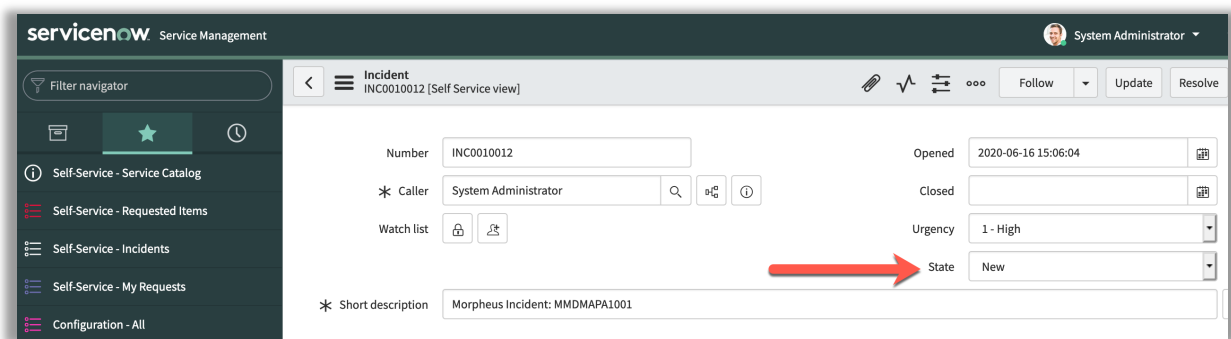
Issues History Members

SEVERITY	AVAILABLE	TYPE	NAME	DATE CREATED
	No	Group	MMDMAPA1001	17 minutes ago

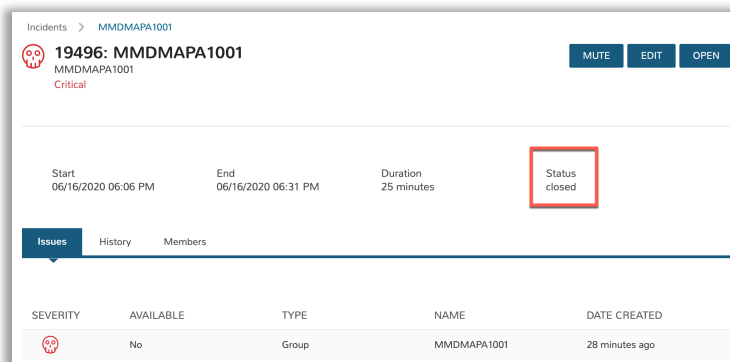
In ServiceNow navigate to the **Self-Service – Incidents** page to see the new incident. The description will indicate that it was a Morpheus Incident and the resource name.



Expand this incident in ServiceNow to get additional details.



Resolving the health condition on the Apache server will cause the incident to close in Morpheus and therefore ServiceNow.



In ServiceNow this will be indicated as **Resolved**.

servicenow Service Management

System Administrator

Filter navigator

- Self-Service - Service Catalog
- Self-Service - Requested Items
- Self-Service - Incidents
- Self-Service - My Requests
- Configuration - All
- Morpheus Catalog
 - Properties
 - Contact Us

Incident INC0010012 [Self Service view]

Number INC0010012

Opened 2020-06-16 15:06:04

* Caller System Administrator

Closed

Watch list

Urgency 1 - High

State Resolved

* Short description Morpheus Incident: MMDMAPA1001

Related Search Results >

Additional comments (Customer visible)

Post

Activities: 5

System Administrator

Incident is closed in Morpheus

Additional comments • 2020-06-16 15:31:23

System Administrator

Resolution code Closed/Resolved by Caller

Resolution notes Closed by Caller

Incident state Resolved was New

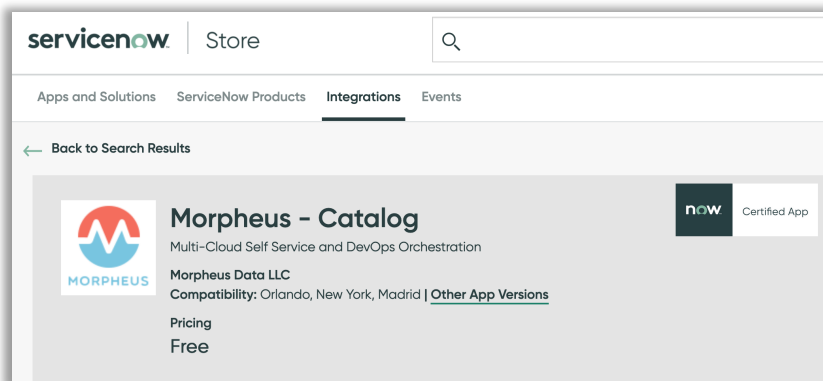
Field Changes • 2020-06-16 15:31:23

Activating the Morpheus ServiceNow Plugin Integration

ServiceNow users that prefer to provision resources from the ServiceNow Service Catalog can do so by installing the free Morpheus Plugin for ServiceNow. This can be installed from the ServiceNow Store. It does require you have your HI Credentials to get this plugin. Once installed and setup, Morpheus self-service catalog items can be presented in the ServiceNow Service Catalog for ordering.

The Morpheus plugin supports integration with ServiceNow whether it's configured for a single tenant or for multiple domains. When both Morpheus and ServiceNow are configured for multiple Tenants, we can create ServiceNow integrations in any relevant Morpheus Tenant and map those to specific companies in ServiceNow. Any exposed catalog items would only be shared with users in the relevant ServiceNow company. The Morpheus plugin will automatically detect whether the ServiceNow Domain Support – Domain Extensions Installer plugin has been installed and respond accordingly. Additionally, ***the User Criteria Scoped API plugin must also be enabled on the ServiceNow instance for multi-tenant use.*** Depending on the scenario, setup steps for the Morpheus plugin will be slightly different. Setup steps for both single and domain-separated ServiceNow environments are included below.

Single Tenant Configuration



Once installed in ServiceNow, the Morpheus environment details must be configured in the Properties section. In ServiceNow go to **Morpheus Catalog** and select **Properties**. On this page provide the URL to the Morpheus appliance and the user credentials. This user in Morpheus must have the necessary Morpheus privileges to provision to the exposed clouds, library instances and blueprints. If using a MID server, you can also specify the name here and Morpheus will utilize it.

Multi-Tenant Configuration

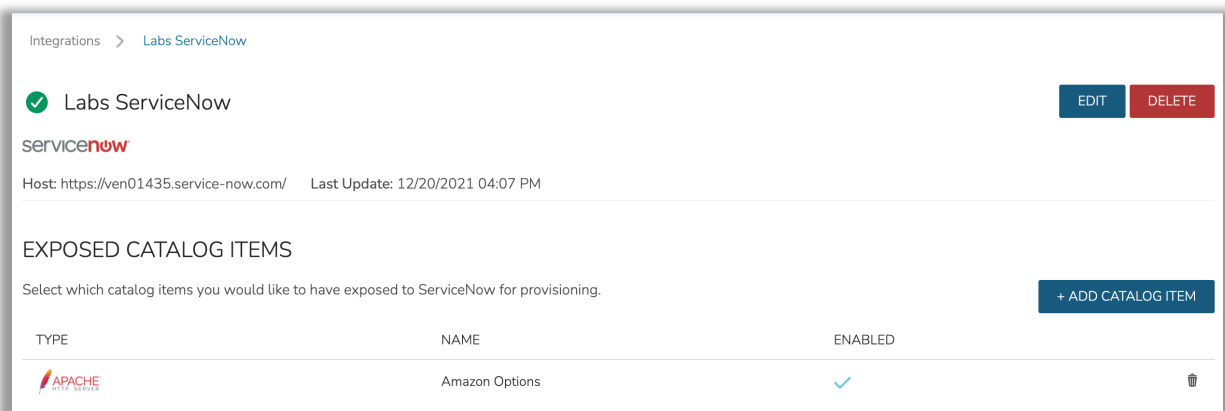
Once the ServiceNow plugin is installed, Morpheus environment details are configured in the Multi-Tenant Credentials section. Selecting the Properties section, where these details would be configured in a single tenant installation, will simply link you through to the Multi-Tenant Credentials section when Multitenancy is detected.

On this page, click “New” to start a new Tenant-Company association, then provide the URL to the Morpheus Appliance, the Morpheus Tenant ID and user credentials. You must provide credentials to a Morpheus user in the same Tenant as the ServiceNow integration was created on the Morpheus side. Next, select the ServiceNow Company. This must be a company that includes the ServiceNow user you integrated with on the Morpheus side. Finally, configure the MID server name, if necessary.

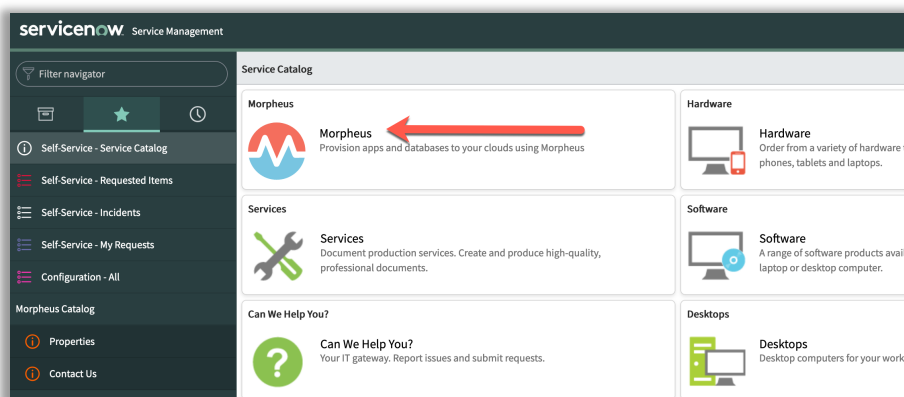
Continue on to the next section to expose catalog items from this Tenant to the now-associated ServiceNow company.

Exposing Catalog Items to ServiceNow

Self-Service Catalog Items are shared from the **Exposed Catalog Items** tab. New Catalog Items are built by accessing **Catalog Items** from within the Library > Blueprints menu. New Catalog Items can be exposed in ServiceNow by clicking **+ADD CATALOG ITEM**.



The Morpheus catalog items are made available in the **ServiceNow Self-Service – Catalog**



Selecting **Morpheus** will then show the exposed Morpheus items. From here a ServiceNow user would order any of the exposed services.

If a customized Catalog in ServiceNOW is required instead of the 'Service Catalog' or if the 'Service Catalog' is renamed, users can select the customized catalog and have exposed items routed to it. Please update the catalog name value in the properties of "x_moda_morpheus_ca.service_catalog_name" in the Morpheus Catalog under Applications.

The screenshot shows the ServiceNow configuration page for the property `x_moda_morpheus_ca.service_catalog_name`. The page is titled "x_moda_morpheus_ca.service_catalog_name" and has a breadcrumb trail "Applications > Morpheus Catalog > x_moda_morpheus_ca.service_catalog_name". The configuration form includes the following fields:

- Suffix:** `service_catalog_name`
- Name:** `x_moda_morpheus_ca.service_catalog_name`
- Description:** (empty text area)
- Choices:** (empty list)
- Type:** `string`
- Value:** `Service-Catalog` (highlighted with a red arrow)
- Ignore cache:** ☒
- Private:** ☐
- Read roles:** ☒
- Write roles:** ☒

At the bottom of the form, there are buttons for "Update" and "Delete". Below the form, there is a table with the following columns: "Categories", "Edit", "New", "Search", "Order", and "Search". The table contains one row with the property name `x_moda_morpheus_ca.service_catalog_name` and a "Category" column.

SUMMARY

We've discussed the integration between Morpheus and ServiceNow; we dove into the details of the four areas of integration, and how they are setup, configured and consumed. I hope you found this information helpful and take advantage of these capabilities.

Morpheus Data is the market leader in unified and persona-based multi-cloud management. The Morpheus software platform gives enterprise organizations and service providers the ability to present a simple self-service catalog to users which can span dozens of on-premises and public clouds. As part of delivering on the promise of open and agnostic self-service, the Morpheus platform provides cost optimization, complete role-based access controls, and continuous automation for DevOps teams modernizing applications comprised of bare metal, VMs, containers, and public cloud PaaS services. With more built-in integrations and native functionality than any other platform, customers can standardize workflows, reduce tool sprawl, and unify existing teams and technologies.

To get started with Morpheus today, please visit www.morpheusdata.com
Request a demo of Morpheus at www.morpheusdata.com/demo/