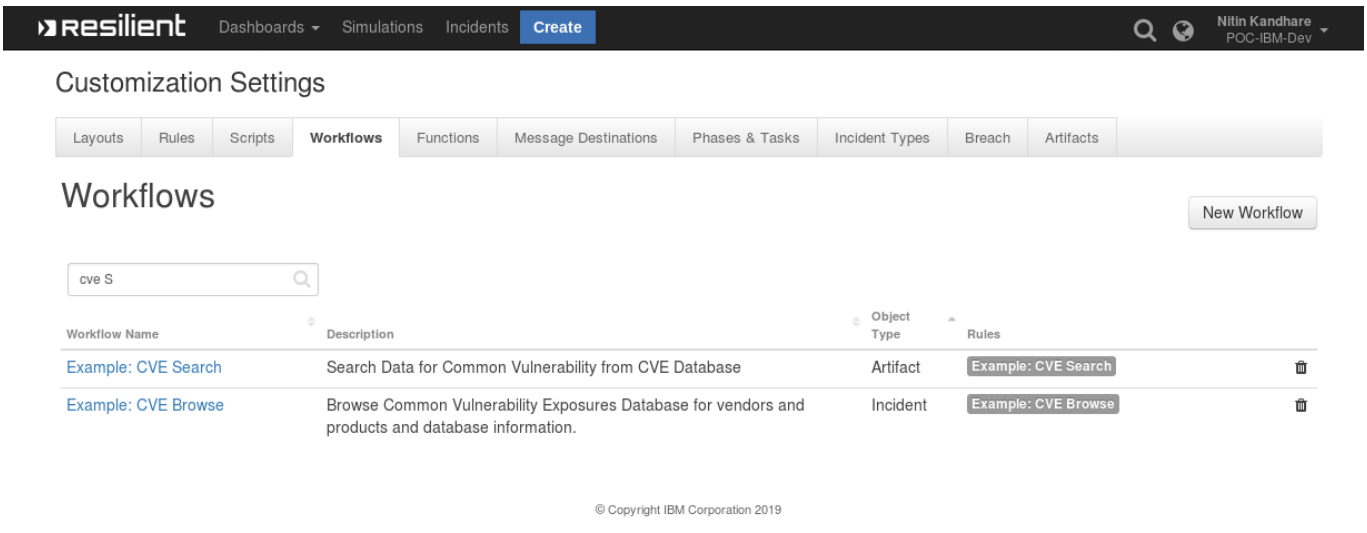
CVE Search Function for IBM Resilient

Table of Contents

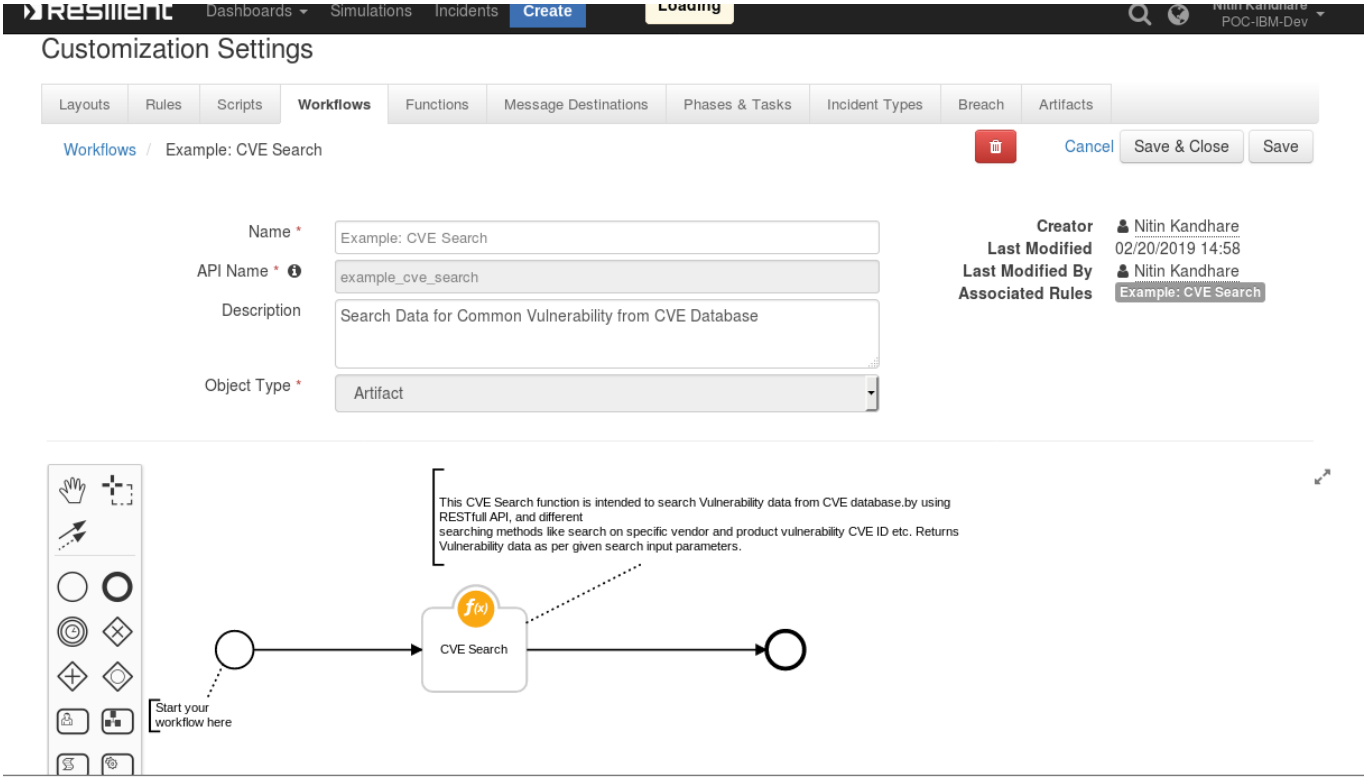
About This Package:

This package contains a Resilient Function that allows you to search for Common Vulnerability Exposures (CVE) from Database.

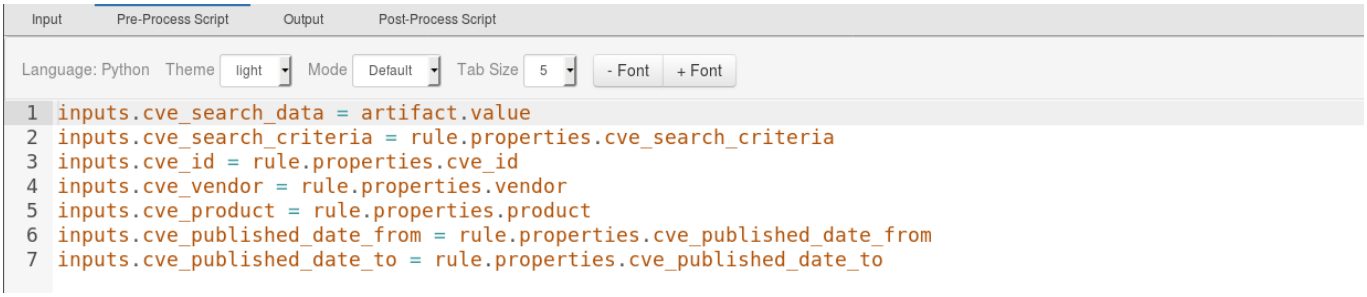
- Function implements different ways to search the database such as:
    - Browse
    - Search
    - Specific CVE ID
    - Last 30 CVE's
    - CVE Database Information
- The function makes use of the CVE `https://cve.circl.lu/api/{search param}/{vendor name}/{product name}` API call to get information on a given query
- For more information see: CVE Search Database



CVE Search Function layout:

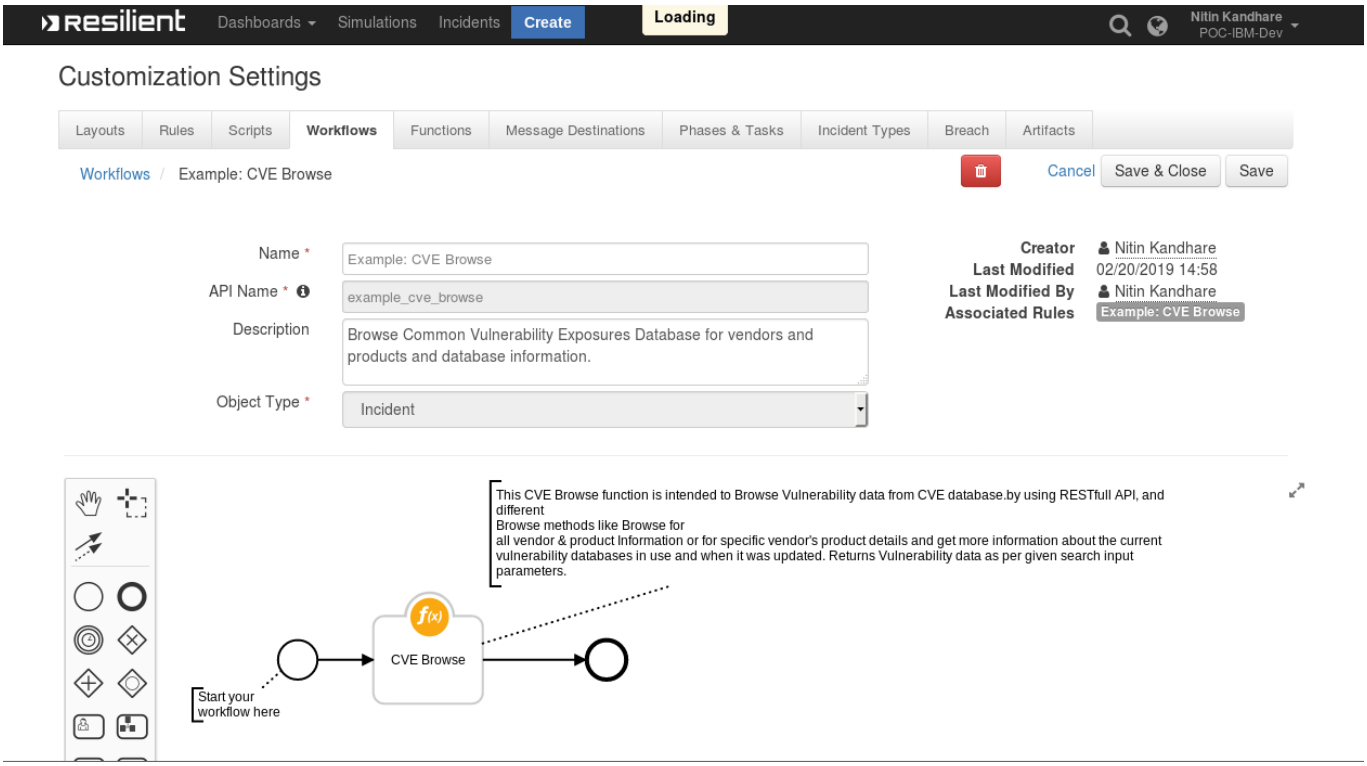


CVE Search Pre-Process Script

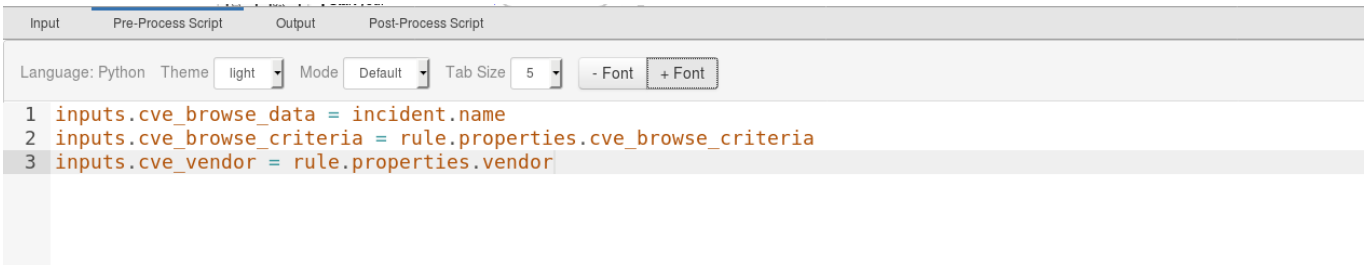


CVE Search Post-Process Script

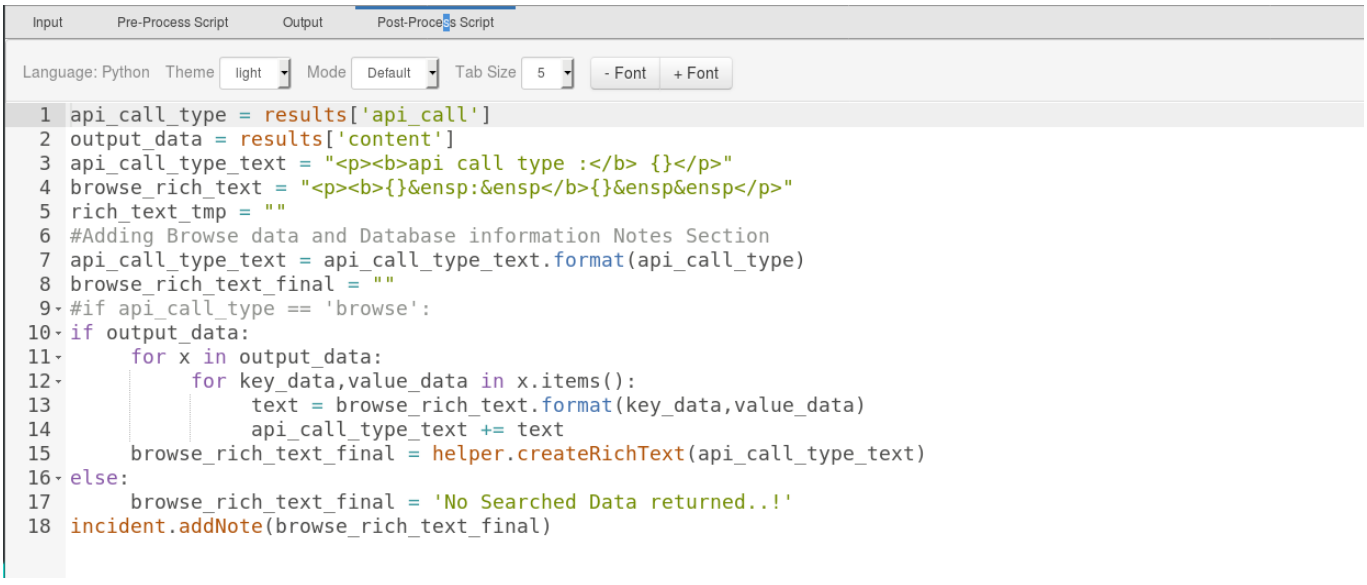
CVE Browse Function layout:



CVE Browse Pre-Process Script



CVE Browse Post-Process Script



Prerequisites:

- Resilient Appliance >= v31.0.0
- Integrations Server running resilient_circuits >= v30.0.0

Installation

This package requires that it is installed on a RHEL or CentOS platform and uses the resilient-circuits framework.

- Download the `.zip` file from our App Exchange and extract it. You will find a file called: `fn_cve_search-<version>.tar.gz`
- Copy this file to your Integrations Server
- To install the package, run:

```
$ pip install fn_cve_search-<version>.tar.gz
```

- To import the function, example rules,data tables and workflows into your Resilient Appliance, run:

```
$ resilient-circuits customize -y -l fn-cve-search
```

- To update your `app.config` file with the required CVE Search configurations, run:

```
$ resilient-circuits config -u
```

- Then open your `app.config` file and check the following configuration data is added:

```
[fn_cve_search]
# Flag display maximum CVE Entries on the resilient table
max_results_display = 50
# Base URL of Common Vulnerability Exposures Data Base.
cve_base_url = https://cve.circl.lu/api
```

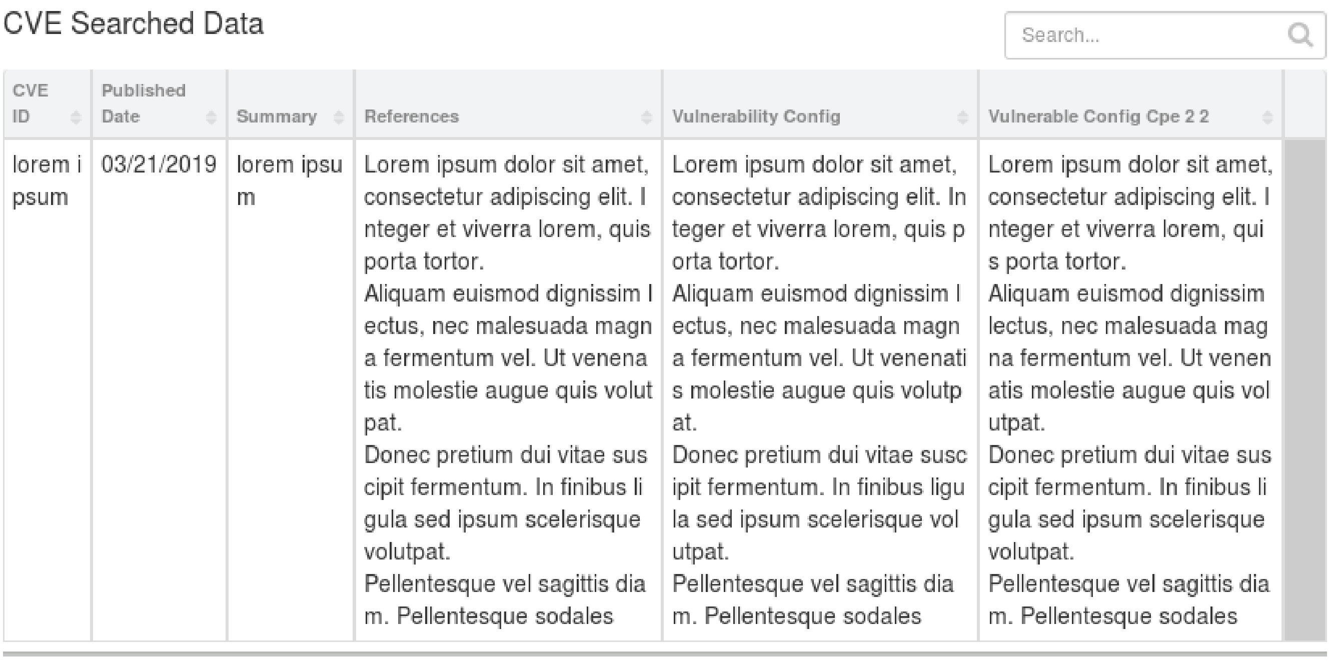
  Edit the `max_results_display` counter value to limit the maximum no of search results to display on table.

- To uninstall CVE Function from Resilient, run:

```
$ pip uninstall fn_cve_search
```

Data Table

Data Table Utils: CVE Searched Data



CVE Searched Data

Search...

CVE ID	Published Date	Summary	References	Vulnerability Config	Vulnerable Config Cpe 2 2
lorem ipsum	03/21/2019	lorem ipsum	Lorem ipsum dolor sit amet, consectetur adipiscing elit. Integer et viverra lorem, quis porta tortor. Aliquam euismod dignissim lectus, nec malesuada magna fermentum vel. Ut venenatis molestie augue quis volutpat. Donec pretium dui vitae suscipit fermentum. In finibus ligula sed ipsum scelerisque volutpat. Pellentesque vel sagittis diam. Pellentesque sodales	Lorem ipsum dolor sit amet, consectetur adipiscing elit. Integer et viverra lorem, quis porta tortor. Aliquam euismod dignissim lectus, nec malesuada magna fermentum vel. Ut venenatis molestie augue quis volutpat. Donec pretium dui vitae suscipit fermentum. In finibus ligula sed ipsum scelerisque volutpat. Pellentesque vel sagittis diam. Pellentesque sodales	Lorem ipsum dolor sit amet, consectetur adipiscing elit. Integer et viverra lorem, quis porta tortor. Aliquam euismod dignissim lectus, nec malesuada magna fermentum vel. Ut venenatis molestie augue quis volutpat. Donec pretium dui vitae suscipit fermentum. In finibus ligula sed ipsum scelerisque volutpat. Pellentesque vel sagittis diam. Pellentesque sodales

API Name :

cve_data

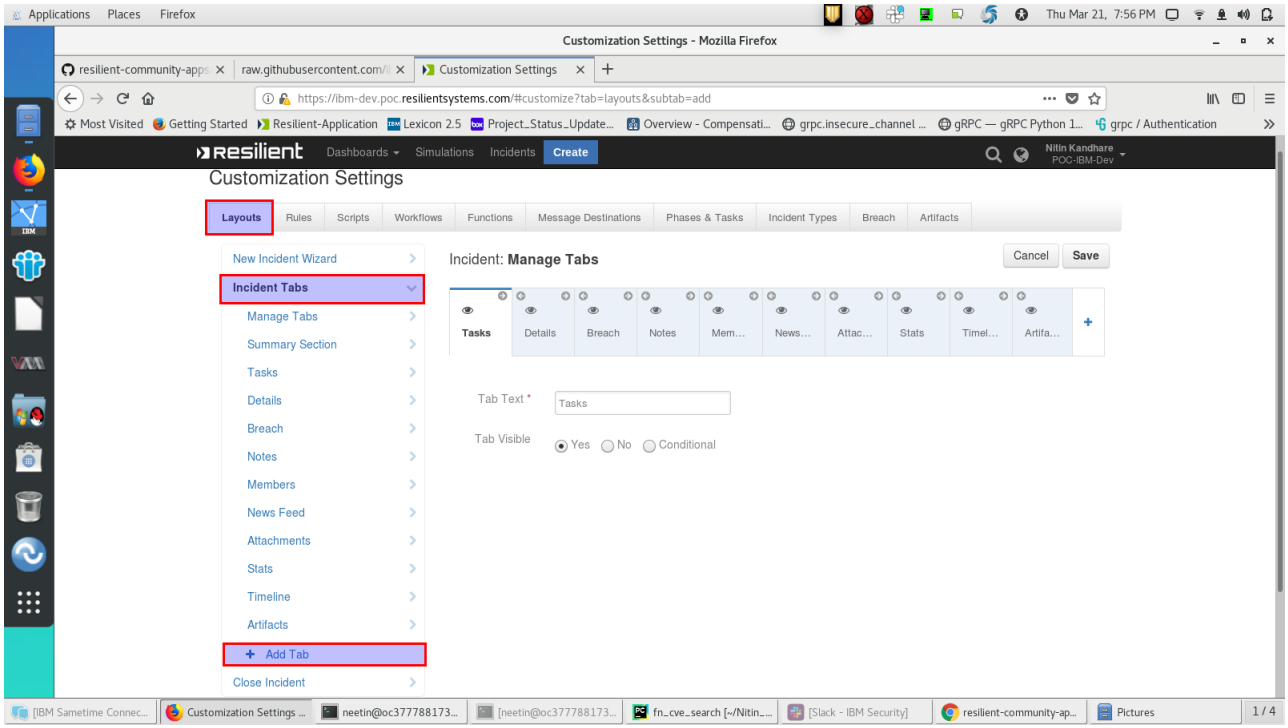
Columns:

Column Name	API Access Name	Type
CVE ID	`cve_id`	`Text`
Published Date	`published_date`	`Date Picker`
Summary	`summary`	`Text`
References	`references`	`Text Area`
Vulnerability Config	`vulnerability_configuration`	`Text Area`
Vulnerable Config Cpe 2 2	`vulnerable_configuration_cpe_2_2`	`Text Area`

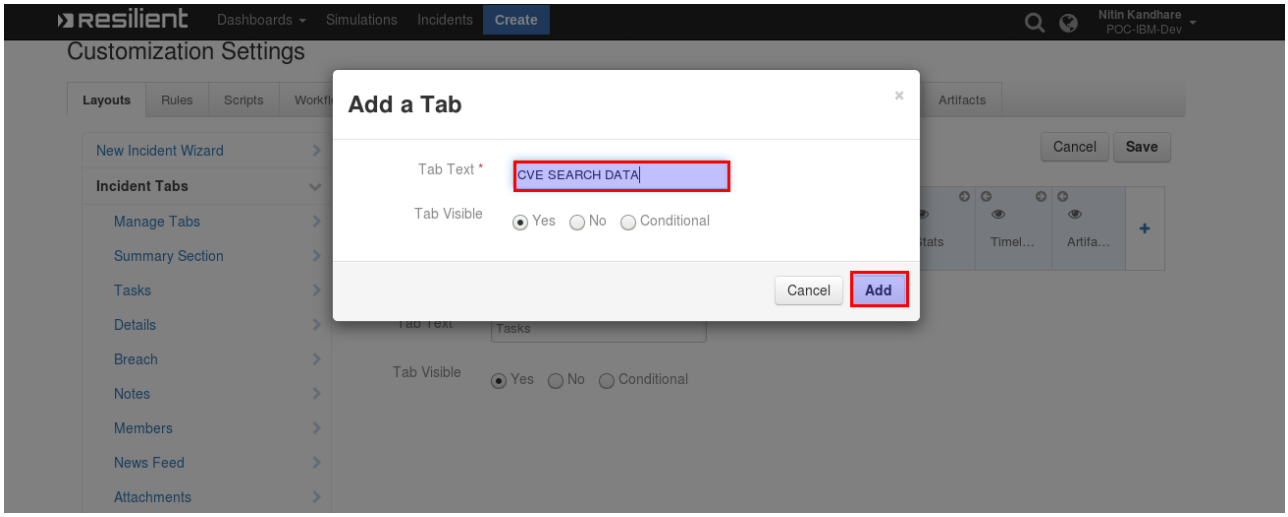
Display the Data table in an Incident

- In order to **display** the CVE Searched Data Table in your Incident, you must **modify your Layout Settings**

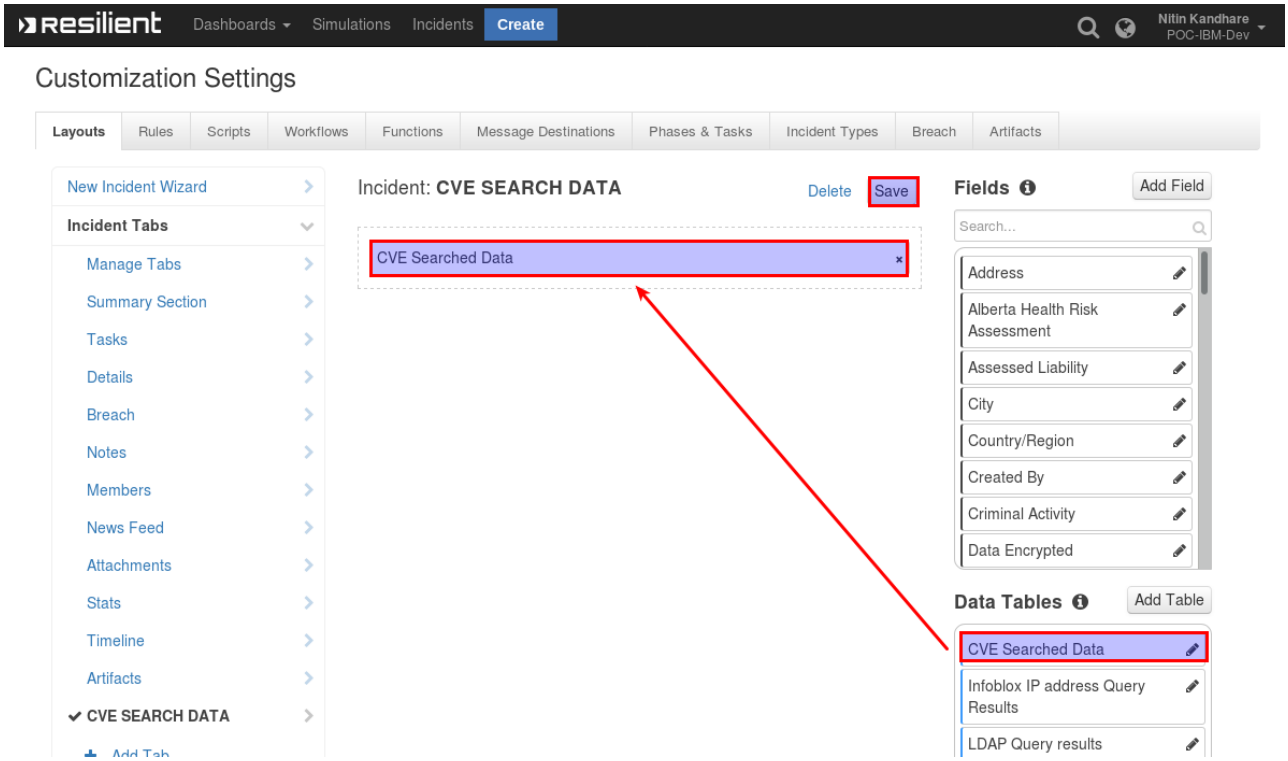
1. Go to **Customization Settings** > **Layouts** > **Incident Tabs** > **+ Add Tab**



2. Enter **Tab Text**: `CVE SEARCH DATA` and click **Add**



3. **Drag** the Data table into the middle and click **Save**



4. Create a new Incident and you will now see the **My Test Tab** with the ** CVE Searched Data Table**

Function Inputs

CVE Search Function

Input Name	Type	Required	Example	Info
cve_search_data	String	yes	python	A artifact data to search for cve
cve_search_criteria	Select	yes	Search	CVE Search Criteria i.e Search(For Specific Product from Vendor),CVE ID(get cve per cve id),Last 30 CVES(get last 30 cves including CAPEC CWE and CPE Expansation)
cve_id	String	yes	CVE-2008-3949	Specific vulnerability ID
cve_vendor	String	yes	microsoft	a vendor name to search for cve
cve_product	String	yes	excel	Name of the Product to Search in CVE Database
cve_published_date_from	Date Picker	yes	03/01/2019	Select CVE Published Date

Input Name	Type	Required	Example	Info
cve_published_date_to	Date Picker	yes	03/01/2019	End date range to search cve data

CVE Browse Function

Input Name	Type	Required	Example	Info
cve_browse_data	Text	yes	Name of the Incident	A incident Name to be browse for vendor and product
cve_browse_criteria	select	yes	Browse	CVE Browse Criteria i.e Browse(For Vendors & Product),CVE DB Info(get information about current cve database)
cve_vendor	text	yes	apple	a vendor name to browse for cve

Function Output

- The payload from the function will contain the JSON from the CVE API Call and the name of the API Call

```
results = {
    "content": #JSON returned from CVE API Call,
    "api_call": #"last"/"browse"/"search"/"cve"/"db"
}
```

- To see the output of each of the API calls for this Function, we recommend running `resilient-circuits` in `DEBUG` mode.
- To do this run:

```
$ resilient-circuits run --loglevel=DEBUG
```

Pre-Process Script

- CVE Browse

This example sets the `cve_browse_data`, `cve_browse_criteria`, `cve_vendor` inputs to the name of incident and entered vendor name and selections to user took action on

```
# Name of the Incident
inputs.cve_browse_data = incident.name
# Search type browse on CVE Data base (may be Browse, CVE DB Info)
inputs.cve_browse_criteria = rule.properties.cve_browse_criteria
```

```
# Name of the vendor
inputs.cve_vendor = rule.properties.vendor
```

- CVE Search

This example sets the `cve_search_data`, `cve_search_criteria`, `cve_id`, `cve_vendor`, `cve_product`, `cve_published_date_from`, `cve_published_date_to` inputs to search selections user took on action and name of vendor , product and date range to limit the search results.

```
# value of the artifact
inputs.cve_search_data = artifact.value
# cve search criteria (may be any string Search,CVE ID,Last 30 CVES)
inputs.cve_search_criteria = rule.properties.cve_search_criteria
# Specific CVE ID
inputs.cve_id = rule.properties.cve_id
# Name of the Vendor
inputs.cve_vendor = rule.properties.vendor
# Name of the product
inputs.cve_product = rule.properties.product
# Search CVE Data from Date
inputs.cve_published_date_from = rule.properties.cve_published_date_from
# Search CVE Data upto Date
inputs.cve_published_date_to = rule.properties.cve_published_date_to
```

Post-Process Script

It can be parsed within the post-process script as `results.get("content")`. Based on the api_call type the data can be represented as user needs.
By default `Example: CVE Browse` function data is displayed on incident Notes,
and `Example: CVE Search` function data displayed on the `CVE searched Data` Table.

- CVE Search Function

```
#globals
ENTRY_TO_DATATABLE_MAP = {
     "cve": "cve_id",
     "pubdte": "published_date",
     "sum": "summary",
     "ref": "references",
     "vc": "vulnerability_configuration",
     "vc2": "vulnerable_configuration_cpe_2_2"
}

api_call_type = results['api_call']
output_data = results['content']
api_call_type_text = "<p><b>api call type :</b> {}</p>"
browse_rich_text = "<p><b>{} : </b>{}  </p>"
rich_text_tmp = ""
```

```
#Adding data to table
ref_link_text = ""
if output_data:
     for dict_element in output_data:
          rich_text_tmp = ""
          table_row_object = incident.addRow("cve_data")
          for key_data,value_data in dict_element.items():
               if key_data == 'Published':
                    table_row_object[ENTRY_TO_DATATABLE_MAP["pubdte"]] =
int(value_data)
               elif key_data == 'id':
                    table_row_object[ENTRY_TO_DATATABLE_MAP["cve"]] =
value_data
               elif key_data == 'summary':
                    table_row_object[ENTRY_TO_DATATABLE_MAP["sum"]] =
value_data
               elif key_data == 'references':
                    for link_url in value_data:
                         ref_link_text += '<p><a href="{0}">{0}</a>
</p>'.format(link_url)
                    table_row_object[ENTRY_TO_DATATABLE_MAP["ref"]] =
ref_link_text
               elif key_data == 'vulnerable_configuration':
                    if value_data:
                         for vc_collection in value_data:
                              if isinstance(vc_collection,dict):
                                   for key_data,value_data in
vc_collection.items():
                                        text =
browse_rich_text.format(key_data,value_data)
                                        rich_text_tmp += text
                              else:
                                   rich_text_tmp += "<p>{}
</p>".format(vc_collection)
                    else:
                         rich_text_tmp = "No Data"
                    table_row_object[ENTRY_TO_DATATABLE_MAP["vc"]] =
rich_text_tmp
               elif key_data == 'vulnerable_configuration_cpe_2_2':
                    rich_text_tmp_2 = ''
                    if value_data:
                         for vc_collection in value_data:
                              rich_text_tmp_2 += "<p>{}
</p>".format(vc_collection)
                    else:
                         rich_text_tmp_2 = "No Data"
                    table_row_object[ENTRY_TO_DATATABLE_MAP["vc2"]] =
rich_text_tmp_2
else:
     incident.addNote("No Data Returned from CVE Search..!")
```

- CVE Browse

```
api_call_type = results['api_call']
output_data = results['content']
api_call_type_text = "<p><b>api call type :</b> {}</p>"
browse_rich_text = "<p><b>{} : </b>{}  </p>"
rich_text_tmp = ""
#Adding Browse data and Database information Notes Section
api_call_type_text = api_call_type_text.format(api_call_type)
browse_rich_text_final = ""
#if api_call_type == 'browse':
if output_data:
     for x in output_data:
          for key_data,value_data in x.items():
               text = browse_rich_text.format(key_data,value_data)
               api_call_type_text += text
     browse_rich_text_final = helper.createRichText(api_call_type_text)
else:
     browse_rich_text_final = 'No Searched Data returned..!'
incident.addNote(browse_rich_text_final)
```

Rules

Rule Name	Object Type	Workflow Triggered	Activity Fields
Example: CVE Browse	`Incident`	`Example: CVE Browse`	`CVE Browse Criteria` values : Browse, CVE DB Info, `CVE Vendor`
Example: CVE Search	`Artifact`	`Example: CVE Search`	`CVE Search Criteria` values : Search, Specific CVE ID, Last 30 CVES, `CVE ID`, `CVE Vendor`, `CVE Product`, `CVE Published Date From`, `CVE Published Date To`

CVE Function offers below search configurations to query vulnerabilities from DB

1. Browse :
    - Select Browse and all other inputs are empty results all the vendor list from Database
    - Select Browse with vendor name given returns all the products associated with the vendor
2. Search :
    - Select Search with all other inputs are empty results all the vendor list from Database
    - Select Search with vendor name given returns all the vulnerabilities associated with given vendor and no of results returned will be limited by given date range and `max_results_display` flag.
    - Select Search with product name given returns all the vulnerabilities associated with given product and no of results returned will be limited by given date range and `max_results_display` flag.
    - Select Search with vendor, product name given returns all the vulnerabilities associated with given vendor's product, and no of results returned will be limited by given date range and

`max_results_display` flag.

3. Specific CVE ID
    - Select Specific CVE ID option from CVE Search Criteria with CVE ID of Vulnerability, returns data related to specific CVE ID & populates into CVE table.
4. Last 30 CVES
    - Returns last 30 latest Vulnerabilities from Database no of results returned controlled by `max_results_display` flag.
5. CVE DB Info
    - To get more information about the current databases in use and when it was updated

Using the CVE Function

There are two functions `Example: CVE Browse` and `Example: CVE Search`

Example CVE Browse :

- This function can be accessed on an Incident Object which offers the capabilities to `browse` for vendors and products and current CVE database information.

Example: CVE Search :

- This function can be accessed on an Artifact Object which offers the capabilities to search for product & vendor vulnerabilities, specific CVE data and the latest vulnerabilities in database.