Splunk Integration for SOAR

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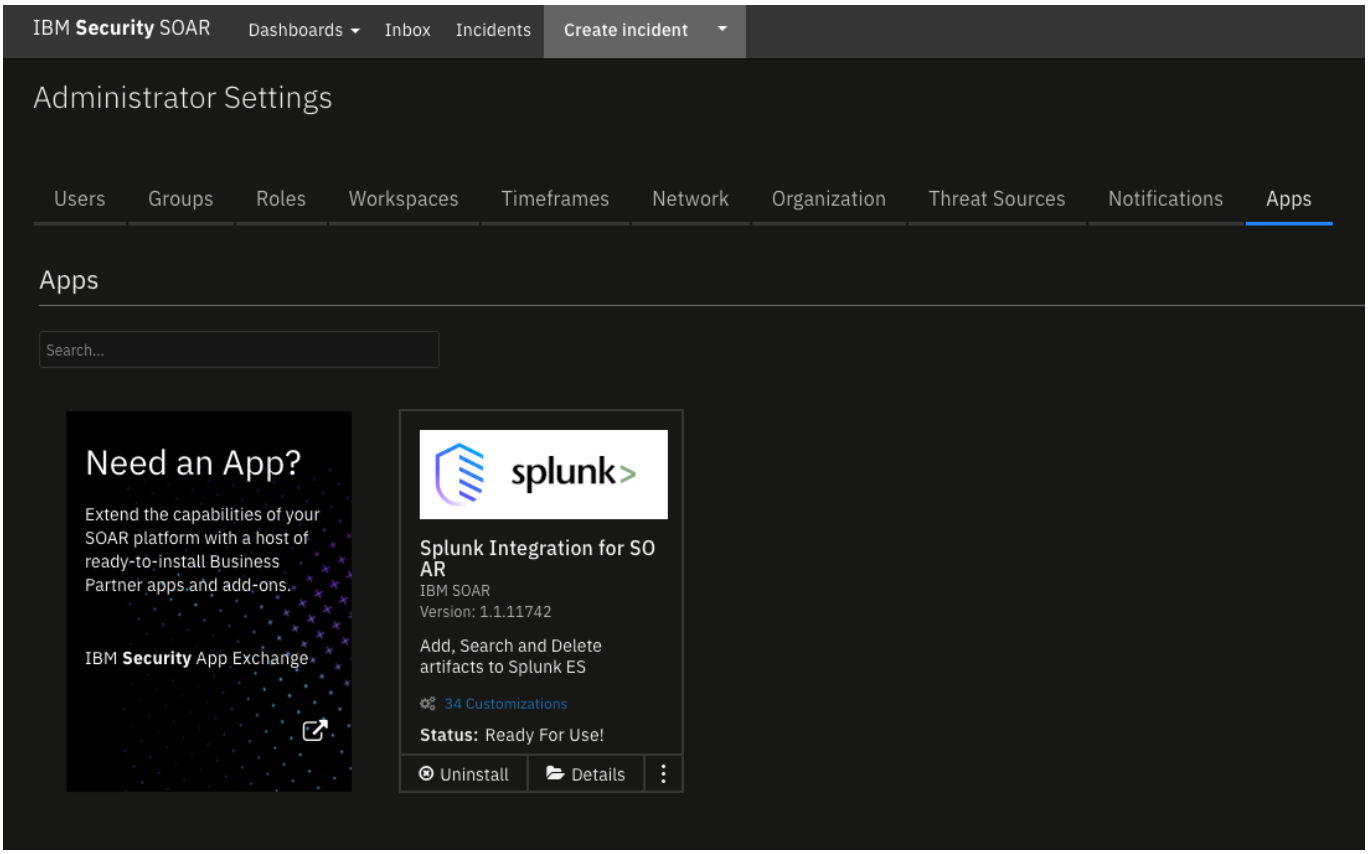
Release Notes

Version	Date	Notes
1.0.0	06/2018	Initial Release
1.0.1	10/2019	added SSL validation to the integrations server
1.0.2	05/2020	Support added for App Host
1.0.3	09/2020	Updated Example Rules and Workflows
1.1.0	03/2022	Allow for configuration of multiple Splunk instances

Overview

Add, Search and Delete artifacts to Splunk ES



Several functions to operate with Splunk ES intel collections, including updates to SplunkES notable events and add, search and delete operations to intel collections based on artifact type values.

Key Features

- Add a new threat intelligence item to the collections of Splunk ES
- Delete a threat intelligence item
- Execute a given Splunk or Splunk ES search/query
- Update a Splunk ES notable event

Requirements

- SOAR Server version 40 or later
- Splunk version 7.0 or later, or Splunk Cloud
- Splunk ES 4.7.2 or later, or Splunk ES Cloud
- Ability to connect to SOAR server with HTTPS on port 443 and 65001
- Ability to connect to Splunk server with HTTPS on port 8089 This app supports the IBM Security QRadar SOAR Platform and the IBM Security QRadar SOAR for IBM Cloud Pak for Security.

SOAR platform

The SOAR platform supports two app deployment mechanisms, App Host and integration server.

If deploying to a SOAR platform with an App Host, the requirements are:

- SOAR platform >= `42.0.7058`.
- The app is in a container-based format (available from the AppExchange as a `zip` file).

If deploying to a SOAR platform with an integration server, the requirements are:

- SOAR platform >= `42.0.7058`.
- The app is in the older integration format (available from the AppExchange as a `zip` file which contains a `tar.gz` file).
- Integration server is running `resilient_circuits>=40.0.0`.
- If using an API key account, make sure the account provides the following minimum permissions:

Name	Permissions
Org Data	Read
Function	Read

The following SOAR platform guides provide additional information:

- *App Host Deployment Guide*: provides installation, configuration, and troubleshooting information, including proxy server settings.
- *Integration Server Guide*: provides installation, configuration, and troubleshooting information, including proxy server settings.
- *System Administrator Guide*: provides the procedure to install, configure and deploy apps.

The above guides are available on the IBM Documentation website at ibm.biz/soar-docs. On this web page, select your SOAR platform version. On the follow-on page, you can find the *App Host Deployment Guide* or *Integration Server Guide* by expanding **Apps** in the Table of Contents pane. The System Administrator Guide is available by expanding **System Administrator**.

Cloud Pak for Security

If you are deploying to IBM Cloud Pak for Security, the requirements are:

- IBM Cloud Pak for Security >= 1.4.
- Cloud Pak is configured with an App Host.
- The app is in a container-based format (available from the AppExchange as a `zip` file).

The following Cloud Pak guides provide additional information:

- *App Host Deployment Guide*: provides installation, configuration, and troubleshooting information, including proxy server settings. From the Table of Contents, select Case Management and Orchestration & Automation > **Orchestration and Automation Apps**.
- *System Administrator Guide*: provides information to install, configure, and deploy apps. From the IBM Cloud Pak for Security IBM Documentation table of contents, select Case Management and Orchestration & Automation > **System administrator**.

These guides are available on the IBM Documentation website at ibm.biz/cp4s-docs. From this web page, select your IBM Cloud Pak for Security version. From the version-specific IBM Documentation page, select Case Management and Orchestration & Automation.

Proxy Server

The app does not support a proxy server.

Python Environment

Python 3.6 are supported. Additional package dependencies may exist for each of these packages:

- resilient_circuits>=40.0.0
- resilient_lib
- splunk-sdk

Installation

Install

- To install or uninstall an App or Integration on the *SOAR platform*, see the documentation at ibm.biz/soar-docs.
- To install or uninstall an App on *IBM Cloud Pak for Security*, see the documentation at ibm.biz/cp4s-docs and follow the instructions above to navigate to Orchestration and Automation.

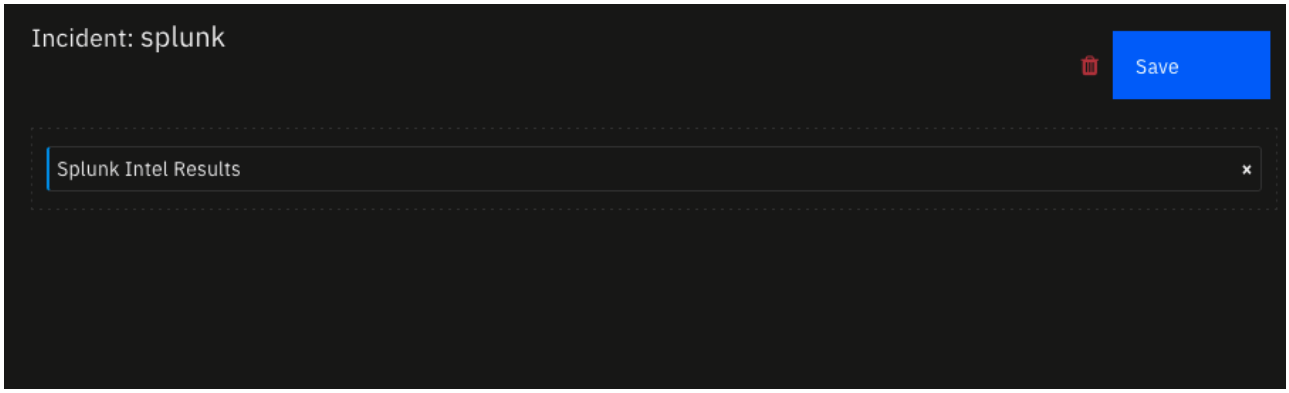
App Configuration

The following table provides the settings you need to configure the app. These settings are made in the app.config file. See the documentation discussed in the Requirements section for the procedure.

Config	Required	Example	Description
host	Yes	`localhost`	Splunk host
port	Yes	`8089`	Splunk port for restapi
splunkpassword	Yes	`changeme`	Splunk password
username	Yes	`admin`	Splunk login username
verify_cert	Yes	`false|/path/to/cert`	Verify https certtificate or not

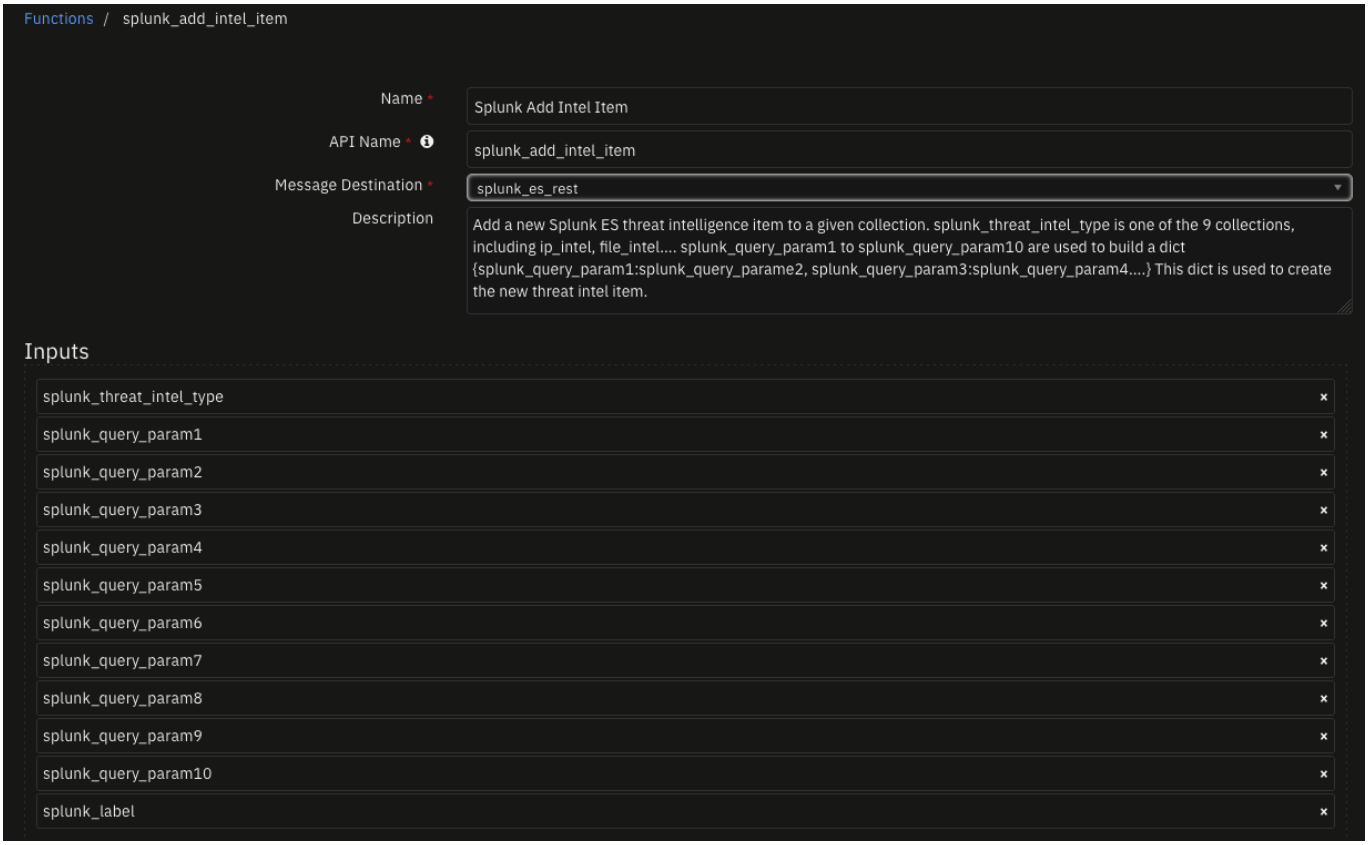
Custom Layouts

- Import the Data Tables and Custom Fields like the screenshot below:



Function - Splunk Add Intel Item

Add a new Splunk ES threat intelligence item to a given collection. splunk_threat_intel_type is one of the 9 collections, including ip_intel, file_intel.... splunk_query_param1 to splunk_query_param10 are used to build a dict {splunk_query_param1:splunk_query_parame2, splunk_query_param3:splunk_query_param4....} This dict is used to create the new threat intel item.



▶ Inputs:

Name	Type	Required	Example	Tooltip
splunk_label	text	No	–	Label given to each splunk server in the app.config
splunk_query_param1	text	No	–	-
splunk_query_param10	text	No	–	-
splunk_query_param2	text	No	–	-
splunk_query_param3	text	No	–	-
splunk_query_param4	text	No	–	-
splunk_query_param5	text	No	–	-
splunk_query_param6	text	No	–	-
splunk_query_param7	text	No	–	-
splunk_query_param8	text	No	–	-
splunk_query_param9	text	No	–	-
splunk_threat_intel_type	text	No	–	-

▶ Outputs:

> **NOTE:** This example might be in JSON format, but `results` is a Python Dictionary on the SOAR platform.


```
results = {
  "content": {
    "message": "Create operation successful.",
    "status": true
  },
  "inputs": {
    "splunk_label": "splunk_76",
    "splunk_query_param1": "domain",
    "splunk_query_param2": "www.hgj.com",
    "splunk_threat_intel_type": "ip_intel"
  },
  "metrics": {
    "execution_time_ms": 2824,
    "host": "local",
    "package": "fn-splunk-integration",
    "package_version": "1.1.0",
    "timestamp": "2022-03-17 10:44:17",
    "version": "1.0"
  },
  "raw": "{\"message\": \"Create operation successful.\", \"status\":
true}",
  "reason": null,
  "success": true,
  "version": "1.0"
}
```


▶ Example Pre-Process Script:

```
lookup_map = {
  "DNS Name": ("ip_intel", "domain"),
  "Email Attachment": None,
  "Email Attachment Name": ("file_intel", "file_name"),
  "Email Body": None,
  "Email Recipient": None,
  "Email Sender": ("email_intel", "src_user"),
  "Email Sender Name": ("email_intel", "src_user"),
  "Email Subject": ("email_intel", "subject"),
  "File Name": ("file_intel", "file_name"),
  "File Path": None,
  "HTTP Request Header": None,
  "HTTP Response Header": None,
  "IP Address": ("ip_intel", "ip"),
  "Log File": None,
  "MAC Address": None,
  "Malware Family/Variant": None,
```

```
  "Malware MD5 Hash": ("file_intel", "file_hash"),
  "Malware Sample": None,
  "Malware Sample Fuzzy Hash": ("file_intel", "file_hash"),
  "Malware SHA-1 Hash": ("file_intel", "file_hash"),
  "Malware SHA-256 Hash": ("file_intel", "file_hash"),
  "Mutex": None,
  "Network CIDR Range": None,
  "Other File": None,
  "Password": None,
  "Port": None,
  "Process Name": ("process_intel", "process"),
  "Registry Key": ("registry_intel", "registry_value_name"),
  "RFC 822 Email Message File": None,
  "Service": ("service_intel", "service"),
  "String": None,
  "System Name": ("service_intel", "service"),
  "URI Path": None,
  "URL": ("http_intel", "url"),
  "URL Referer": ("http_intel", "http_referrer"),
  "User Account": None,
  "User Agent": ("http_intel", "http_user_agent")
}

if artifact.type in lookup_map and lookup_map[artifact.type]:
  threat_type, threat_field_name = lookup_map[artifact.type]
  inputs.splunk_threat_intel_type = threat_type
  inputs.splunk_query_param1 = threat_field_name
  inputs.splunk_query_param2 = artifact.value
  inputs.splunk_label = rule.properties.splunk_servers
else:
  helper.fail("Artifact type not supported: {}".format(artifact.type))
```

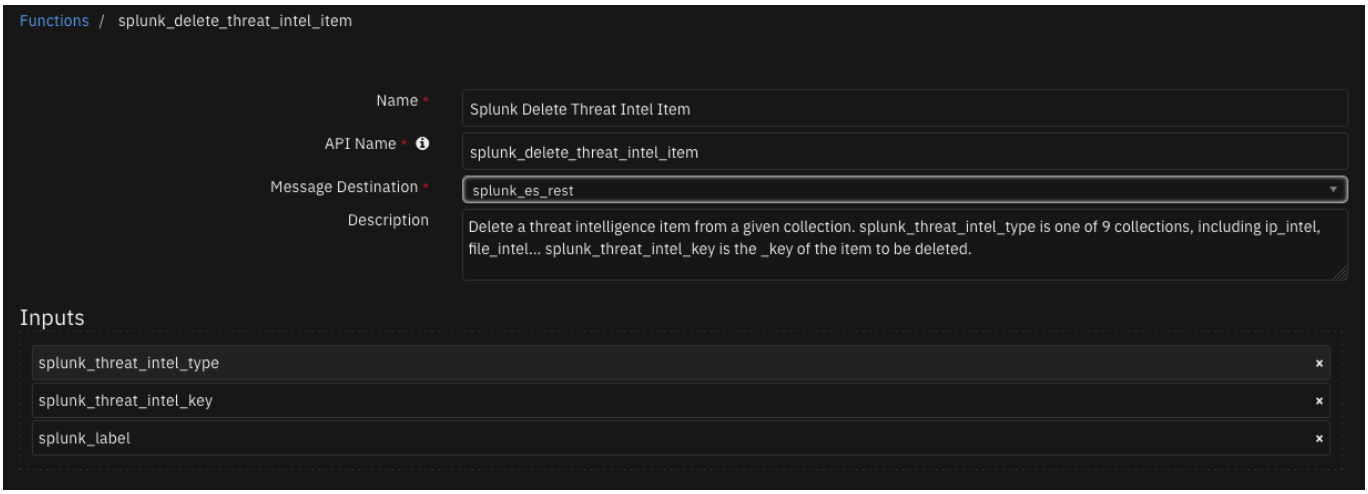
▶ Example Post-Process Script:

```
# {'status_code': 201, 'content': {'message': 'Create operation
successful.', 'status': True}}
import java.util.Date as Date

now = Date().time

result_note = u"""<b>Artifact</b>: {}<br><br>
<b>Splunk Add Status</b>: {}<br>
<b>Message</b>: {}""".format(artifact.value,
                             "Successful" if results.get("content",
{}).get("status", False) else "Unsuccessful",
                             results.get("content", {}).get("message",
"None"))

if results.get("content", {}).get("status", False):
  incident.addNote(helper.createRichText(result_note))
  result_row = incident.addRow("splunk_intel_results")
```

```
    result_row.create_date = now
    result_row.status = "Added"
    result_row.intel_collection = results.inputs['splunk_threat_intel_type']
    result_row.intel_field = results.inputs['splunk_query_param1']
    result_row.intel_value = results.inputs['splunk_query_param2']
    result_row.splunk_server = rule.properties.splunk_servers
```

Function - Splunk Delete Threat Intel Item

Delete a threat intelligence item from a given collection. splunk_threat_intel_type is one of 9 collections, including ip_intel, file_intel... splunk_threat_intel_key is the _key of the item to be deleted.



▶ Inputs:

Name	Type	Required	Example	Tooltip
splunk_label	text	No	-	Label given to each splunk server in the app.config
splunk_threat_intel_key	text	No	-	The _key from Splunk ES for this threat_intel item
splunk_threat_intel_type	text	No	-	-

▶ Outputs:

> **NOTE:** This example might be in JSON format, but `results` is a Python Dictionary on the SOAR platform.

```
results = {
  "content": {
    "message": "Delete operation successful.",
    "status": true
  },
  "inputs": {
    "splunk_label": "splunk_76",
```

```
    "splunk_threat_intel_key": "cabf173ee8c5421c9290cb019ad8acc4",
    "splunk_threat_intel_type": "ip_intel"
  },
  "metrics": {
    "execution_time_ms": 1282,
    "host": "local",
    "package": "fn-splunk-integration",
    "package_version": "1.1.0",
    "timestamp": "2022-03-17 10:45:13",
    "version": "1.0"
  },
  "raw": "{\"message\": \"Delete operation successful.\", \"status\":
true}",
  "reason": null,
  "success": true,
  "version": "1.0"
}
```


▶ Example Pre-Process Script:

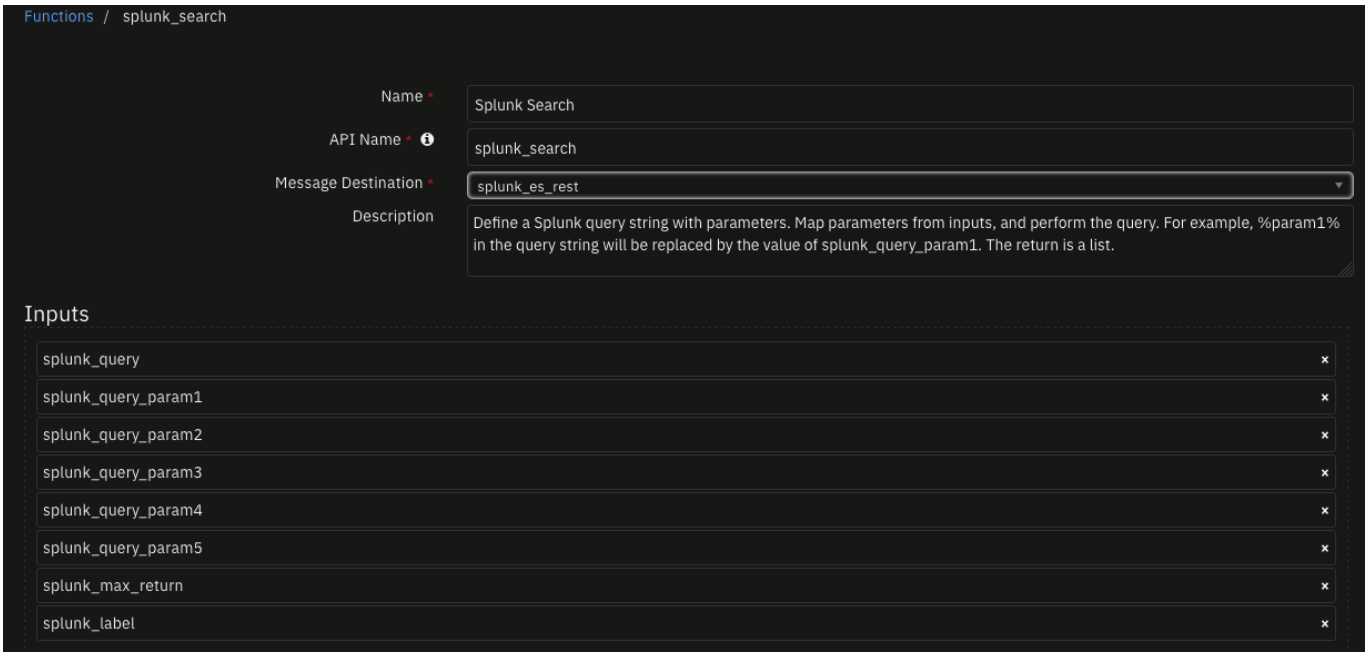
```
inputs.splunk_threat_intel_type = row.intel_collection
inputs.splunk_threat_intel_key = row.intel_key
inputs.splunk_label = row.splunk_server
```

▶ Example Post-Process Script:

```
# {'status_code': 201, 'content': {'message': 'Delete operation
successful.', 'status': True}}

result_note = u"""<b>Artifact</b>: {}<br><br>
<b>Splunk Delete Status</b>: {}<br>
<b>Message</b>: {}""".format(row.intel_value,
                             "Successful" if results.get("content",
{}).get("status", False) else "Unsuccessful",
                             results.get("content", {}).get("message",
"None"))

incident.addNote(helper.createRichText(result_note))
row.status = "Deleted"
```

Function - Splunk Search

Define a Splunk query string with parameters. Map parameters from inputs, and perform the query. For example, %param1% in the query string will be replaced by the value of splunk_query_param1. The return is a list.



▶ Inputs:

Name	Type	Required	Example	Tooltip
splunk_label	text	No	–	Label given to each splunk server in the app.config
splunk_max_return	number	No	–	Max number of events to return (used in head max)
splunk_query	textarea	No	–	-
splunk_query_param1	text	No	–	-
splunk_query_param2	text	No	–	-
splunk_query_param3	text	No	–	-
splunk_query_param4	text	No	–	-
splunk_query_param5	text	No	–	-

▶ Outputs:

> **NOTE:** This example might be in JSON format, but `results` is a Python Dictionary on the SOAR platform.

```
results = {
  "content": [
    {
      "_key": "cabf173ee8c5421c9290cb019ad8acc4",
      "domain": "www.hgj.com",
      "item_key": "cabf173ee8c5421c9290cb019ad8acc4",
      "threat_key": "restapi",
      "time": "1647528256"
    }
  ],
```

```
  "inputs": {
    "splunk_label": "splunk_76",
    "splunk_max_return": 10,
    "splunk_query": {
      "content": "inputlookup %param1% | search NOT disabled=* AND
%param2%=%param3% | eval item_key=_key",
      "format": "text"
    },
    "splunk_query_param1": "ip_intel",
    "splunk_query_param2": "domain",
    "splunk_query_param3": "www.hgj.com"
  },
  "metrics": {
    "execution_time_ms": 3772,
    "host": "local",
    "package": "fn-splunk-integration",
    "package_version": "1.1.0",
    "timestamp": "2022-03-17 10:44:40",
    "version": "1.0"
  },
  "raw": "[{\"_key\": \"cabf173ee8c5421c9290cb019ad8acc4\", \"domain\":
\"www.hgj.com\", \"item_key\": \"cabf173ee8c5421c9290cb019ad8acc4\",
\"threat_key\": \"restapi\", \"time\": \"1647528256\"}]",
  "reason": null,
  "success": true,
  "version": "1.0"
}
```


▶ Example Pre-Process Script:

```
lookup_map = {
  "DNS Name": ("ip_intel", "domain"),
  "Email Attachment": None,
  "Email Attachment Name": ("file_intel", "file_name"),
  "Email Body": None,
  "Email Recipient": None,
  "Email Sender": ("email_intel", "src_user"),
  "Email Sender Name": ("email_intel", "src_user"),
  "Email Subject": ("email_intel", "subject"),
  "File Name": ("file_intel", "file_name"),
  "File Path": None,
  "HTTP Request Header": None,
  "HTTP Response Header": None,
  "IP Address": ("ip_intel", "ip"),
  "Log File": None,
  "MAC Address": None,
  "Malware Family/Variant": None,
  "Malware MD5 Hash": ("file_intel", "file_hash"),
  "Malware Sample": None,
  "Malware Sample Fuzzy Hash": ("file_intel", "file_hash"),
  "Malware SHA-1 Hash": ("file_intel", "file_hash"),
  "Malware SHA-256 Hash": ("file_intel", "file_hash"),
```

```
  "Mutex": None,
  "Network CIDR Range": None,
  "Other File": None,
  "Password": None,
  "Port": None,
  "Process Name": ("process_intel", "process"),
  "Registry Key": ("registry_intel", "registry_value_name"),
  "RFC 822 Email Message File": None,
  "Service": ("service_intel", "service"),
  "String": None,
  "System Name": ("service_intel", "service"),
  "URI Path": None,
  "URL": ("http_intel", "url"),
  "URL Referer": ("http_intel", "http_referrer"),
  "User Account": None,
  "User Agent": ("http_intel", "http_user_agent")
}

if artifact.type in lookup_map and lookup_map.get(artifact.type):
  threat_type, threat_field_name = lookup_map.get(artifact.type)
  inputs.splunk_query_param1 = threat_type
  inputs.splunk_query_param2 = threat_field_name
  inputs.splunk_query_param3 = artifact.value
  inputs.splunk_label = rule.properties.splunk_servers
else:
  helper.fail("Artifact type not supported: {}".format(artifact.type))
```

▶ Example Post-Process Script:

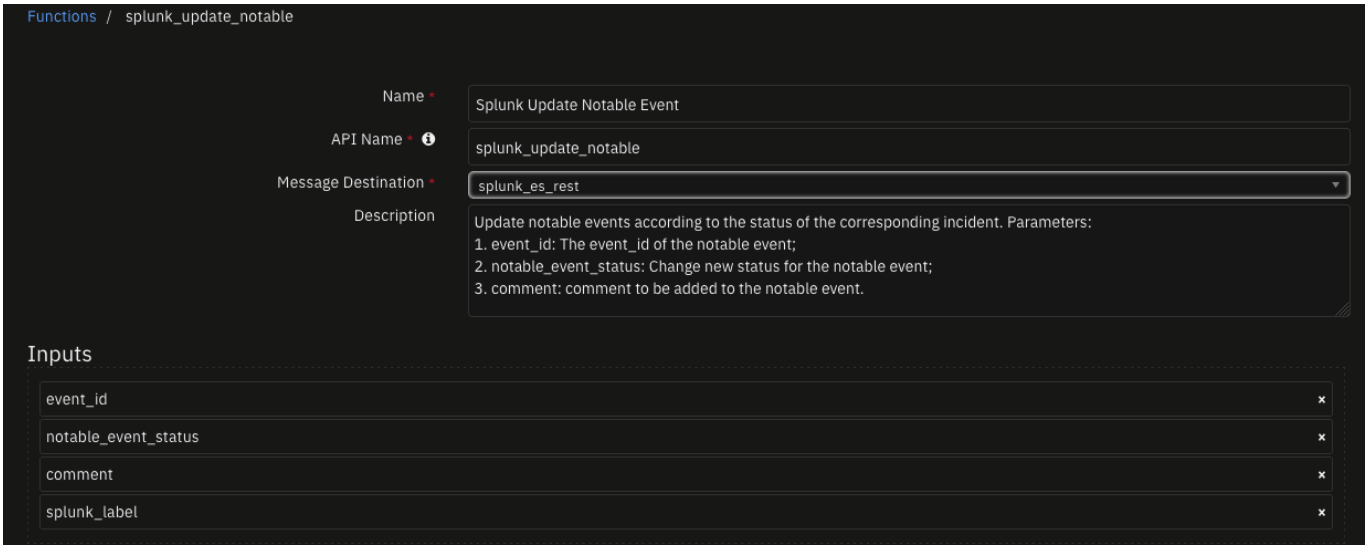
```
# {'events': [OrderedDict([('_key', '4fa89feac1004d7cbfcb974eb79c62e9'),
('ip', 'https://ibm.biz/soarcommunity'), ('item_key',
'4fa89feac1004d7cbfcb974eb79c62e9'), ('threat_key', 'restapi'), ('time',
'1598296740.6724114')]), OrderedDict([('_key',
'9b14932c75aa4b1f909775bd10cb78d6'), ('ip',
'https://ibm.biz/soarcommunity'), ('item_key',
'9b14932c75aa4b1f909775bd10cb78d6'), ('threat_key', 'restapi'), ('time',
'1598296660.9374135')])]}

if results.get("content", None):
  for event in results.content:
    result_row = incident.addRow("splunk_intel_results")
    result_row.create_date = int(float(event.pop("time"))*1000)
    result_row.source = event.pop("threat_key")
    result_row.intel_collection = results.inputs['splunk_query_param1']
    result_row.intel_key = event.pop("_key")
    result_row.splunk_server = rule.properties.splunk_servers
    result_row.status = "Active"
    event.pop("item_key") # Not presented
    # What's left is the artifact value
    for k, v in event.items():
      result_row.intel_field = k
      result_row.intel_value = v
```

```
        break
  else:
    result_row = incident.addRow("splunk_intel_results")
    result_row.intel_value = artifact.value
    result_row.status = "Not Found"
    result_row.splunk_server = rule.properties.splunk_servers
```

Function - Splunk Update Notable Event

Update notable events according to the status of the corresponding incident. Parameters:

1. event_id: The event_id of the notable event;
2. notable_event_status: Change new status for the notable event;
3. comment: comment to be added to the notable event.



▶ Inputs:

Name	Type	Required	Example	Tooltip
`comment`	`text`	No	–	Update the notable comment using this
`event_id`	`text`	No	–	Notable event id from splunk ES
`notable_event_status`	`number`	No	–	-
`splunk_label`	`text`	No	–	Label given to each splunk server in the app.config

▶ Outputs:

> **NOTE:** This example might be in JSON format, but `results` is a Python Dictionary on the SOAR platform.

```
results = {
  "content": {
    "details": {},
    "failure_count": 0,
    "message": "1 event updated successfully",
    "success": true,
    "success_count": 1,
    "warnings": []
  },
  "inputs": {
    "comment": "SOAR incident is active",
    "event_id": "7D8101AA-B8DB-44FF-94A2-
E06831523B77@@_internal@@8bb2bdb9cfa9795e6fb4beef77440e59",
    "notable_event_status": 2,
    "splunk_label": "splunk_76"
  },
  "metrics": {
    "execution_time_ms": 5794,
    "host": "local",
    "package": "fn-splunk-integration",
    "package_version": "1.1.0",
    "timestamp": "2022-03-17 10:55:55",
    "version": "1.0"
  },
  "raw": "{\"details\": {}, \"success_count\": 1, \"failure_count\": 0,
\"warnings\": [], \"success\": true, \"message\": \"1 event updated
successfully\"}",
  "reason": null,
  "success": true,
  "version": "1.0"
}
```

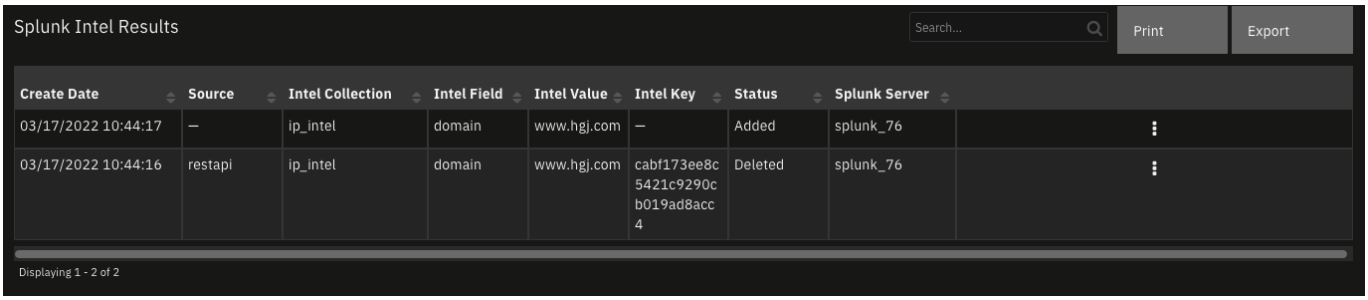

▶ Example Pre-Process Script:

```
if incident.properties.splunk_notable_event_id:
  inputs.event_id = incident.properties.splunk_notable_event_id
  if incident.plan_status == "C":
      inputs.notable_event_status = 5
      inputs.comment = "SOAR incident is closed"
  else:
      inputs.notable_event_status = 2
      inputs.comment = "SOAR incident is active"
  inputs.splunk_label = rule.properties.splunk_servers
else:
  helper.fail("Ensure that the incident custom field is set:
splunk_notable_event_id")
```

▶ Example Post-Process Script:

```
# {'status_code': 200, 'content': {'details': {}, 'success_count': 1,
'failure_count': 0, 'warnings': [], 'success': True, 'message': '1 event
updated successfully'}}

result_note = u"<b>Splunk Update notable event</b>:<br><br>"
if isinstance(results.get("content"), dict):
  result_note = result_note + u"""<b>Splunk Update Status</b>: {}<br>
<b>Message</b>: {}""".format("Successful" if results.get("content",
{}).get("success", False) else "Unsuccessful",
                             results.get("content", {}).get("message",
"None"))
else:
  result_note = result_note + results.get("content")

incident.addNote(helper.createRichText(result_note))
```

Data Table - Splunk Intel Results



API Name:

splunk_intel_results

Columns:

Column Name	API Access Name	Type	Tooltip
Create Date	create_date	datetimepicker	-
Intel Collection	intel_collection	text	-
Intel Field	intel_field	text	-
Intel Key	intel_key	text	-
Intel Value	intel_value	text	-
Source	source	text	-
Splunk Server	splunk_server	text	-
Status	status	text	-

Rules

Rule Name	Object	Workflow Triggered
Add artifact to Splunk ES	artifact	`splunk_add_new_ip_intel`
Delete an intel entry in Splunk ES	splunk_intel_results	`example_of_deleting_an_intel_entry_in_splunk_es`
Search Splunk ES for an artifact	artifact	`search_splunk_ip_intel`
Update Splunk ES notable event	incident	`splunk_update_notable`

Troubleshooting & Support

Refer to the documentation listed in the Requirements section for troubleshooting information.

For Support

This is a IBM Community provided App. Please search the Community ibm.biz/soarcommunity for assistance.