

SAS Visual Investigator 10.5 Hotfix 2 Release Notes



Document version: 1

The correct bibliographic citation for this document is as follows: SAS Institute Inc. 2019. *SAS Visual Investigator 10.5 Hotfix 2*. Cary, NC: SAS Institute Inc.

SAS Visual Investigator 10.5 Hotfix 2

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Release details

This release		
Product Name	SAS Visual Investigator 10.5 Hotfix 2	
Supported SAS software		
Facet name	DU name	Version
svi-datahub	datahub	14.0.48
elasticsearch	elasticsrch	5.2.14
searchguard	searchguard	1.2.15
svi-ai	svi-ai	4.0.86
svi-alert	svi-alert	11.3.45
svi-audit	sviaudit	3.1.100
svi-configuration	sviconfig	
svi-entity-resolution	svientity	3.1.101
svi-feature	svifeature	5.3.119
sasmobileinvestigator	svimobile	2.0.77
svi-network-analytics	svintwkanlyt	4.1.99
svi-sand	svi-sand	10.0.46
svi-vsdc-service	sviscnrioadm	10.1.88
svi-transport	svi-transport-service	4.2.99
sasvisualinvestigator	svi-visual-investigator	7.4.52
svi-importer	svi-importer	1.0.1

Updating SAS Visual Investigator Software

The following instructions describe how to update your SAS Visual Investigator Software to the correct version.

Important

You can no longer use the steps in the *Update with Yum* and *Update with Zypper* sections in the “Updating Your SAS Viya Software” section of the SAS Viya 3.4 for Linux: Deployment Guide.

Overview

An update replaces some or all of your deployed software with the latest version of the software. You perform the update with the same command that was used to install SAS Viya, and use the same software order.

- To see what updates are available for your deployed software, go to the SAS Viya Hot Fix Availability web page at http://ftp.sas.com/techsup/download/hotfix/HF2/Viya_home.html.
- Use Ansible to update your installation.
- SAS might update components of the Ansible playbook that is used to deploy your SAS software. You will need to download the current version of the SAS Orchestration CLI to generate a new Ansible playbook for your deployment, and then run the new Ansible playbook.
- SAS Data Science is deployed as programming-only. However, to obtain the visual interface for the components of SAS Data Science, different products must be licensed. The resulting order should be deployed using the instructions in Adding SAS Viya Software. Contact your SAS account representative to determine the exact products that are required.

Here are other considerations when preparing for an update:

- The update process preserves any user-modified configuration values in the **vars.yml** file, but changes made to other files in the deployment might be lost. Therefore, SAS recommends that you make changes to **vars.yml** on all tenants when possible to avoid any loss of customizations that you made to other files.
Note: If you have added or changed any Consul keys, you should add those to the **vars.yml** or make the changes again after the upgrade.
- You will need the location of the directory on each machine where you stored deployment and maintenance files. For more information about this directory, see [Store the Playbook](#).
Note: If you have added any CAS servers to your initial deployment, you must update those CAS servers as well as each machine in your initial deployment.
- If you are using a PDF version of this guide, go to the Deployment Guides web page at <https://support.sas.com/en/documentation/install-center/sas-viya/deployment-guides.html> and verify that you have the latest version of the deployment documentation before you start the update process. The release date of each document is located in the bottom right corner of the front page.
- Updating SAS Viya software requires an outage period because some SAS Viya services are stopped and restarted automatically during the update process. The update process is the same regardless of whether the deployment is single-tenant or multi-tenant.

User Requirements for Performing the Update

To perform the update process, you must have administrator privileges for the machine. In addition, your account must have superuser (sudo) access. To verify sudo user privileges, run the following command: `sudo -v` or `sudo -l`.

Synchronize the Mirror Repository

If you are using a mirror repository, perform these steps.

1. (Optional) To list the packages that are available for the update process, run the following command on the machine where the mirror repository is located:

Note: Enter the command on a single line. Multiple lines are used here to improve readability.

```
mirrormgr mirror diff --deployment-data path-to-deployment-zip-file-from-SOE
--path path-to-mirror-destination --latest
```

Note: The `mirrormgr mirror diff` command returns the available files for all supported platforms of the products in the deployment. To filter out unwanted content from the output of the command, use a pipe and the `grep` command. For example, add the following at the end of the preceding command to filter out all file names containing `suse`:

```
| grep -v "suse"
```

2. Before performing an update, you must synchronize the mirror repository with SAS. Use the same options to update the mirror repository that you used to create the mirror repository. For more information, see [SAS Mirror Manager and the Mirror Repository](#).

To synchronize, run the following command on the machine where the connected mirror repository is located:

Note: Enter the command on a single line. Multiple lines are used here to improve readability.

```
mirrormgr mirror --deployment-data path-to-deployment-zip-file-from-SOE
--path path-to-mirror-destination --latest
```

3. If you are in a deployment without internet access, move the files from the machine where the connected mirror repository is located to the machine where the unconnected mirror repository is located.

(Optional) List the Packages That Are Available for Update

To list the packages that are available for the update process, run the following command:

on Red Hat Enterprise Linux:

```
sudo yum check-update "sas-*
```

Generate a New Ansible Playbook

You will need the location of the directory on each machine where you stored deployment and maintenance files.

To generate and apply a new Ansible playbook for your deployment:

1. (Optional) Record the existing list of installed software before you begin.
 - a. On each machine in your deployment, create a file that lists the names and versions of the RPM packages of the SAS Viya software that are installed. Create this file in the directory on each machine where you stored deployment and maintenance files. For more information about this directory, see [Store the Playbook](#).

Run the following command to create a text file that lists all the RPM packages:

```
sudo rpm -qg SAS > /sas/install/viya_rpms.txt
```

- b. On each machine in your deployment, create a file that lists the yum groups or packages that are installed. Create this file in the directory on each machine where you stored deployment and maintenance files. For more information about this directory, see [Store the Playbook](#).

- Run the following command to create a text file that lists the yum groups on Red Hat Enterprise Linux:

```
sudo yum grouplist "SAS*" > /sas/install/viya_yumgroups.txt
```

- Run the following command to create a text file that lists the RPM packages on SUSE Linux:

```
sudo rpm -qa | grep "sas-" > /sas/install/viya_packages.txt
```

Note: If you receive a message such as the following, it can be ignored.

```
Repository i is listed more than once in the configuration
```

2. Use the Software Order Email (SOE) for your original deployment to download the current version of the SAS Orchestration CLI.

3. Using the SAS Orchestration CLI that you downloaded, create a new playbook using the instructions on the SAS Orchestration Command Line Interface (CLI) download site. For more information, see [Create a Playbook](#).

Note: To modify the type of deployment from programming-only to full, use the correct `--deployment-type` command line option.

4. You must extract the new playbook to a location that is different from that of your original playbook. For example, if you extracted your original playbook to `/sas/install/`, you might extract the new playbook to `/sas/upgrade/` instead. You must extract the new playbook to a location that is different from the one that you used for your deployment for these reasons:
 - a. To preserve the original `vars.yml` file and the inventory file.
 - b. To ensure that the playbook directory correctly reflects what is delivered. If a new playbook is accidentally extracted over an existing playbook, files that were removed in the newer playbook would still be available and could negatively affect the process for researching and resolving deployment issues.

To extract the new playbook, use a command that is like the following:

```
tar xf SAS_Viya_playbook.tgz -C /sas/upgrade/
```

5. Merge the `vars.yml` file and the inventory file from the previous deployment into the new playbook. If the previous inventory file contains any spaces that are used to indent machine names, do not include the extra spaces.
 - a. Compare the two `vars.yml` files and compare the two inventory files since there could be additions or changes in the newer set of files.

```
diff /sas/install/sas_viya_playbook/vars.yml
    /sas/upgrade/sas_viya_playbook/vars.yml
```

```
diff /sas/install/sas_viya_playbook/inventory-file
    /sas/upgrade/sas_viya_playbook/inventory.ini
```

- b. If the new files contain new content, then merge your customized edits from the two original files into the two new files. If a key/value pair in the original file is not included in the new file, you do not need to add the key/value pair to the new file. If you have any questions, contact SAS Technical Support.
 - c. If the original `vars.yml` file from the deployment that is being upgraded contains a value for the `casenv_tenant` variable, it must be removed. Run the following commands to remove the registered CAS service.

Note: Enter each command on a single line. Multiple lines are used here to improve readability.

```
cd /opt/sas/viya/home/bin
./sas-bootstrap-config \
--token-file
/opt/sas/viya/config/etc/SASSecurityCertificateFramework/tokens/consul/default/c
lient.token \
agent service deregister \
"cas-{casenv_tenant}-default-http"
./sas-bootstrap-config \
--token-file
/opt/sas/viya/config/etc/SASSecurityCertificateFramework/tokens/consul/default/c
lient.token \
agent service deregister \
"cas-{casenv_tenant}-default"
```

- d. If you have questions about whether to add a key/value pair from an original file to the new file, contact SAS Technical Support.
6. If you have deployed SAS Event Stream Processing or SAS Event Stream Manager, perform the following steps:

- a. Stop the SAS Event Stream Processing Studio (esvvm) service by running the following command on Red Hat Enterprise Linux 6.x:

```
sudo service sas-viya-esvvm-default stop
```

on Red Hat Enterprise Linux 7.x or SUSE Linux:

```
sudo systemctl stop sas-viya-esvvm-default
```

- b. If you installed Streamviewer, stop the Streamviewer process:

```
$DFESP_HOME/bin/dfesp_xml_client -url "http://host-name:http-port/exit"
```

Replace *host-name* with the host name of the machine where Streamviewer is running.

Replace *http-port* with the port number that you provided when you started Streamviewer with the start-up script.

For more information, see [Starting Streamviewer](#).

- c. Stop the Metering Server:

```
dfesp_xml_client -url "http://host-name:http-port/SASESP/exit"
```

Replace *host-name* with the host name of the machine where the Metering Server is running.

Replace *http-port* with the port number for the Metering Server. By default, it uses port 31001.

7. To apply the new Ansible playbook, change to the directory where the new playbook is located:

```
cd /sas/upgrade/
```

Run the following command:

```
ansible-playbook site.yml
```

8. If you removed the CAS service that is associated with a `casenv_tenant` variable (described in Step 3), update any bookmarked URLs to remove that value and use `cas-shared-default-http` instead. For example, if your original deployment contained a `casenv_tenant` value of `viya32`, you should change it from `http://host.company.com/cas-viya32-default-http` to `http://host.company.com/cas-shared-default-http`.

Note: Do not include `casenv_tenant` in your new `vars.yml`. This variable is no longer used.

9. (Optional) Record the new list of installed software.

- a. On each machine in your deployment, create a file that lists the names and versions of the RPM packages of the SAS Viya software that are installed. Create this file in the directory on each machine where you stored deployment and maintenance files. For more information about this directory, see [Store the Playbook](#).

- Run the following command to create a text file that lists the RPM packages:

```
sudo rpm -qq SAS > /sas/install/new_viya_rpms.txt
```

- b. On each machine in your deployment, create a file that lists the SAS yum groups or packages that are installed. Create this file in the directory on each machine where you stored deployment and maintenance files. For more information about this directory, see [Store the Playbook](#).

- Run the following command to create a text file that lists the yum groups on Red Hat Enterprise Linux:

```
sudo yum grouplist "SAS*" > /sas/install/new_viya_yumgroups.txt
```

- Run the following command to create a text file that lists the RPM packages on SUSE Linux:

```
sudo rpm -qa | grep "sas-" > /sas/install/new_viya_packages.txt
```

Note: If you receive a message such as the following, it can be ignored.

```
Repository repository-name is listed more than once in the configuration
```

You can see the differences between the previous and current deployments by comparing the lists of installed software that precedes the update (Step 1) and that follows the update.

Post-Update Tasks

After you complete an update, you must perform additional tasks. This section lists those updates, how to determine whether the update has been applied, and the manual steps required to finish the installation.

SAS Hadoop Plug-ins

Note: If you are not using SASHDAT on HDFS, skip this section.

If you receive an updated RPM for SAS Hadoop Plug-ins, for each Hadoop environment, you must determine whether to install it. Use the newer version of the RPM in each Hadoop environment. Install the updated RPM only if its version is newer than the one that is currently installed.

1. Install the updated RPM for SAS Hadoop Plug-ins on the CAS controller.
2. To find out the version number of the RPM that was just installed:

```
rpm --queryformat "%{VERSION}" -q sas-hdatplugins
```

The version number will be displayed in a format of three two-digit numbers separated by periods. Examples are 03.13.00 or 03.04.02. The variable *VERSION* is used to represent the actual version number in your environment.

3. On each Hadoop name node or data node, use the appropriate method to find the currently installed version:

- For SAS Hadoop Plug-ins that were installed on the Hadoop cluster with the `sashdat-install.sh` command:

```
cat /opt/sas/HDATHome/SAS_VERSION
```

The output should include a version number in the *VERSION* format that is shown in the output of Step 2.

- For SAS Hadoop Plug-ins that were installed on the Hadoop cluster with Cloudera Manager, the parcel name should be `SASHDAT-VERSION.p0.1`.
 - For SAS Hadoop Plug-ins that were installed on the Hadoop cluster with Ambari, the stack name should be `SASHDAT-VERSION.s01`.
4. If the installed version that is displayed by Step 3 is equal to or greater than the version number of the RPM displayed by the command in Step 2, then skip the rest of this task.
 5. If the installed version that is displayed by Step 3 is less than the version number of the RPM that is displayed by the command in Step 2, follow the steps described in [Deploying SAS Plug-ins for Hadoop](#) to update your Hadoop environment to the newer version of the SAS Hadoop Plug-ins.

Re-Index and Resolve Data

As a result of upgrading to Elasticsearch 5.6.12 and the changes to the index structure for child entity searching, after upgrading to SAS Visual Investigator 10.5 Hotfix 2 you must re-index and resolve all your data.

1. In the administrative application, click **Data Objects**.
2. On the **Data Objects** toolbar, click **Entities**.
3. On the toolbar, click  and select **Re-index and resolve entities** from the menu.

You are warned that re-indexing and resolving all entities might take a long time.

4. Click **Yes** to continue.

A pop-up message notifies you that the re-indexing and resolving process has started.

You can view the progress of the re-index, and whether it completes successfully by clicking **Jobs**.

Product changes

This section describes significant changes to the product in the SAS Visual Investigator 10.5 Hotfix 2 release. For information about specific issues addressed, see “*Issues addressed*” on page 12.

Search against single or multiple child objects

You can create queries that return objects where a field matches on a child object. For example, you might want to return all Person objects where an Address child object contains Cary in the **City** field and Parkway in the **Street** field.

You can also create queries that return objects where search terms match fields in the same or different child objects. For example, you might want to return all Person objects where Alias child objects contain Abel in the **Firstname** field and Meertens in the **Lastname** field, but not necessarily the same child object.

Synonym searches

Important

You must create your own solution control to make use of synonym search functionality.

You can configure synonym searches and phonetic searches for use in SAS Visual Investigator.

To configure synonym searches:

1. Export the Sand configuration using the SAS Visual Investigator administration application.
2. Edit all the JSON files to:
 - a. Add the synonym analyzer definition to the options section (See “Additional Information” on page 10).
 - b. Apply the synonym analyzer to any text fields that users will want to query specifically (See “Additional Information” on page 10).
3. Zip the files and import the configuration through the SAS Visual Investigator administration application.
4. Use the Sand API to edit the alerts configuration to:
 - a. Include the synonym analyzer.
 - b. Apply this analyzer to any fields that users might want to perform synonym searching against.
5. Update the following Consul settings to enable synonym searching for text queries that do not contain any field prefixes (See “Additional Information” on page 10):
 - Add the synonym analyzer to the list of additional analyzers for the default search field, for example:
`field.additionalSearchAnalyzers=synonym`
 - Add the synonym analyzer to the list of additional analyzers for the label field, for example:
`field.additionalLabelAnalyzers=standard,synonym`
 - Update the default text query fields to include the synonym fields, for example:
`search.textQueryFields=_default,_label.standard,_label.synonym`
6. Reindex and resolve all entities.

Note

You can remove synonym search functionality by removing the changes you made and then performing a reindex and resolve for all affected entities.

Additional Information

Steps 2b, 4b, and 5 are optional depending on the use case and available system resources because of the cost of applying additional analyzers in terms of indexing throughput and the resultant index size.

Steps 2b and 4b are required for performing synonym searching on specific fields where users enter queries like `country.synonym:(united states)`. Applying the synonym analyzer to specific fields should be done sparingly in accordance with the size of the deployment. If users mostly enter text queries without any field prefixes, then these steps can be omitted to conserve resources.

Step 5 is required to perform synonym searching for text queries that do not contain any field prefixes, for example “united states”. Whether the synonym analyzer should be applied to the default search field or the label field or

both depends on the whether users will mostly query against the content of fields included in object labels or mostly on the content of fields included in the default search field. If the former, then system resources can be conserved by only applying the synonym analyzer to the label field.

For steps 2a and 4a, the following JSON must be added to the options section for each type. For details on specifying the synonyms list, see <https://www.elastic.co/guide/en/elasticsearch/guide/2.x/synonym-formats.html>.

```
"index": {
  "analysis": {
    "filter": {
      "english_possessive_stemmer": {"type": "stemmer", "language":
"possessive_english"},
      "english_stop": {"type": "stop", "language": "_english_"},
      "english_stemmer": {"type": "stemmer", "language": "english"},
      "synonym": {
        "type": "synonym",
        "synonyms": [
          ... list of synonyms goes here ...
        ]
      }
    },
    "analyzer": {
      "synonym": {
        "tokenizer": "standard",
        "filter": ["english_possessive_stemmer", "lowercase",
"english_stop", "english_stemmer", "synonym"]
      }
    }
  }
}
```

Important

To use synonym searches for languages other than English, contact SAS Support.

For steps 2b and 4b, the following JSON needs to be added to the options section of each appropriate text field:

```
"fields": {
  "synonym": {
    "type": "text",
    "analyzer": "synonym"
  }
}
```

Phonetic searches

Important

You must create your own solution control to make use of phonetic search functionality.

To enable phonetic searches for use with SAS Visual Investigator, complete the steps above.

Note

The analysis-phonetic plugin must be installed on each Elasticsearch node before updating the Sand configuration

The following JSON defines the phonetic filter and must be added to options > index > analysis > filter for each type:

```
"phonetic": {
  "type": "phonetic",
  "encoder": "metaphone"
}
```

The following JSON defines the phonetic analyzer and must be added to options > index > analysis > analyzer for each type:

```
"phonetic": {
  "tokenizer": "standard",
  "filter": ["lowercase", "phonetic"]
}
```

The following JSON applies the phonetic analyzer to a given text field and must be added to options > fields:

```
"phonetic": {
  "type": "text",
  "analyzer": "phonetic"
}
```

The `field.additionalLabelAnalyzer` or `field.additionalSearchAnalyzer` settings are updated to include phonetic if required, for example, `field.additionalLabelAnalyzers=standard,synonym,phonetic`.

The `search.textQueryFields` setting would be updated to include the phonetic fields if appropriate e.g. `search.textQueryFields=_default,_label.standard,_label.synonym,_label.phonetic`.

Issues addressed

This section gives details of issues that were addressed in the SAS Visual Investigator 10.5 Hotfix 2 release.

Issues addressed in SAS Visual Investigator 10.5 Hotfix 2

SAS Note	Details
64061	Retrieving large numbers of groups and their entity-level security rules no longer impacts performance as calls to the feature service are now batched.
—	Search performance has been improved by restricting searches to entities relevant to the query.
—	When performing a document ID compound query, the search now uses the <code>type</code> parameter.
—	SAS Visual Investigator now uses Elasticsearch 5.6.12. You must generate and execute a new playbook to complete the upgrade.
—	The Elasticsearch health checker now only reports when all Elasticsearch servers are unavailable.
—	To improve performance when starting tenants, the rule loader has been moved to the application runner.

SAS Note	Details
—	<p>You can now choose to exclude specific entity types from network diagrams and map controls configured to show related objects. To do this, add the following setting to the <code>network-diagram-limits</code> configuration bundle:</p> <pre>"excludeFromExpansion": { "resourceLabel": "configuration.management.excludeFromExpansion.txt", "value": "" }</pre> <p>On the Properties page, on the Desktop tab, click Network Diagram to display the Network Diagram Configuration window appears. In the Exclude entities from expansion box, enter the entity types you want to exclude as a comma-separated list.</p> <p>Note: This can affect entity design decisions where projects might not model records as primary entities because they are not required to show on a graph.</p>
—	When using Advanced Search, users can now build queries to search child entities. Users can choose whether to return results for matches within a single child object or matches across multiple child objects.
—	Performance of caching in the feature service has been improved.
64080	Users can successfully insert hyperlinks into rich text controls.
64074	The drop-down list component can no longer be activated by clicking whitespace next to the component.
64075	Dates exported from SAS Visual Investigator to Microsoft Excel are now recognized as dates.
—	The performance of importing users and groups has been improved.
—	Export performance when exporting custom group hierarchies has been improved.
—	On the Properties page, on the Global tab, the Base Maps properties are now correctly applied to either the map or the tile layer as appropriate.
64076	The Maximum Zoom Level property for a map is no longer limited to a maximum of 18.
—	SAS Scenario Administrator now correctly shows in the application menu for users with the correct capabilities.
—	In SAS Scenario Administrator, performance of the column dependency check has been improved when opening a flow.
—	Datahub Server now only deletes from the system index when transitioning from system index to custom index.
—	To improve performance, data for custom relationship indices are now deleted directly on reindex.
—	<p>The following RabbitMQ property in the <code>rabbitmq.consul.ssl</code> file has been added to SAS Visual Investigator deployments:</p> <pre>cluster_partition_handling = pause_minority</pre>
—	The TDCJobTrackedMessageQueue now correctly handles exception events.
63407	Creating a database connection to an external SQL Server now correctly displays available tables.
64129	Overlapping time labels on a time slider no longer causes errors in Microsoft Internet Explorer 11.

SAS Note	Details
64077	<p>You can now paste tables into rich text fields from external applications, for example Microsoft Word. To enable rich text fields to support unsupported tags, you must edit the following Consul key to include the required tags:</p> <pre data-bbox="391 310 1105 338">/config/svi-datahub/html.sanitizer.additional.tags</pre> <p>This key should contain a semi-colon delimited list of additional tags. For example:</p> <pre data-bbox="391 394 634 422">table;img;marquee</pre>
—	Attachments are now correctly indexed after performing an upgrade to SAS Visual Investigator 10.5.
—	Postgres datasources can now use the <code>Conopts</code> parameter. For example, <code>Conopts="UseDeclareFetch=1"</code> .
—	Relationship names in scenarios and entities no longer must be the same case.
—	The Advanced Message Queuing Protocol has been upgraded.
—	SAS Scenario Administrator now displays correctly when data is not yet loaded.
64124	Print templates created on earlier versions of SAS Visual Investigator might not contain all the information required for later versions. Error messages now indicate to the user which information is missing.
—	The <code>BootstrapConfigurer</code> improves the performance when starting or restarting services which use bootstrapping.
64125	It is now possible to add repeating child objects to an Alert print template.
64124	An error message is now displayed if a print template with multiple data sources fails to access one of the data sources at print time.
—	Performing an upgrade from SAS Visual Investigator 10.3.1 to 10.5 now correctly recreates published SAS Scenario Administrator flows.
—	An issue has been addressed where search guard rules were not being saved correctly in an HA environment.
—	Caslibs are now global rather than user specific.
—	A performance improvement has been made to SAS Scenario Administrator when gathering summary stats.
64120	Spring AMQP and Spring Rabbit have been upgraded to the 1.7.12 release.
—	SAS Visual Investigator now accepts more than one record type for internal entities. In addition, the performance of loading large amounts of data has been improved.
—	Reopening a flow in SAS Scenario Administrator using Alert data now works as expected.
—	Scorecard testing now returns the correct records. Where Scenarios do not hit the record, the Scorecard is not included in testing. This does not affect published Scorecards.
64128	The performance of the rich text editor has been improved when users rapidly press keys.
—	Performing an incremental index update on many records while a delete record table exists no longer misses records.
—	An issue has been addressed where nodes and links could become separated on the network diagram.
—	Date fields in tables are now correctly handled when saving objects.

SAS Note	Details
—	Scenarios using the same actionable entity, but different join conditions can now be successfully published and run.
—	Datahub startup performance has been improved.
—	Performance of incremental deletes by query has been improved.
—	Event services now support tenant-specific queues to improve performance.
—	MetaModel performance when creating multiple threads has been improved.