Articles to write

1. How to change the replication schema in an existing channel (e.g. from transactional replication to soft-delete or timekey)?
2. How to determine which OS and DB versions are supported by HVR? (link to our documentation)
3. HVR Agent - what options should be used when setting up the Agent connection for the first time after installation?
4. Should I make an exception on HVR's installation folders (HVR_HOME, HVR_CONFIG, HVR_TMP) when I try to implement Sentinel One (or equivalent cybersecurity platform)?

1. How can I add new tables to an existing replication?

- Navigate to your channel, go to the tables screen.
- Click on Add Tables
- Search for your table. You can use the **`SCHEMANAME.TABLENAME`** format, but the table name itself is also enough.
- Once you have found your table(s), highlight the checkbox(es)
- If you want to use a specific tablegroup name, set it, otherwise leave it on GENERAL and click Save.
- Reactivate your channel:
    - Select the source location from the list of locations
    - Select option Jobs and Table Enrollment (if you do not have high latency on the Capture Job, you can include Replace all old enrollment)
    - Click on Activate Replication

The channel now captures the new table, but the table has not been created or refreshed yet. Click the Refresh Data button in your channel, and click choose the **`Create Missing Target Tables and Alter or Recreate Tables with Incorrect Layout`** option. Scroll down to the Refresh Task Name pane, and set a custom name for the Refresh Task and then Click on the Refresh Data button.

2. How can I remove tables from an existing replication?

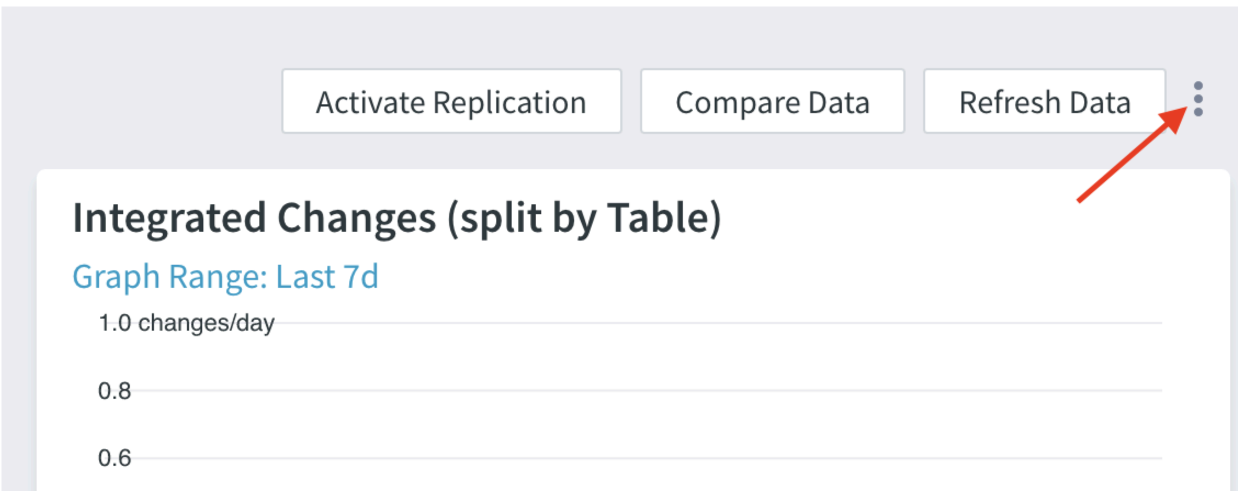
There is a trick to doing this the right way. The Capture job must be suspended, and the Integrate Job(s) “flushed” before removing the tables, otherwise one might run into an error where captured transactions for a table are no longer in the channel, and the Integrate job(s) will run into an error.

- Suspend your Capture job, and wait until your Integrate job(s) have finished integrating all the captured changes (known as flushing)
- Once the integration of all captured changes has been completed, go to your channel and click on Tables (in the top-middle of the channel summary pane)
- Highlight, then remove the unnecessary tables.
- Go back to your channel, and run an Activate:
    - Select the source location from the list of locations
    - Select components **Jobs** and **Table Enrollment,** including **Replace All Old Enrollment**
    - Click on Activate Replication
- Do not forget to drop the unnecessary table(s) from your target database(s).

3. How do I add an additional integrate location to an existing, active channel?

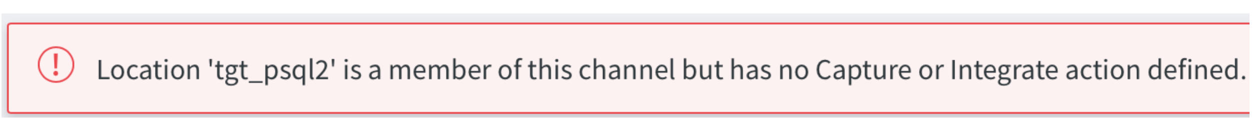
3.1 If you want to replicate the same scope of tables to the new integrate location

First off, create your new Integrate location. Then, navigate to your channel, and click on the ⋮ context menu in the top right corner, then choose the "Add Existing Locations" option.



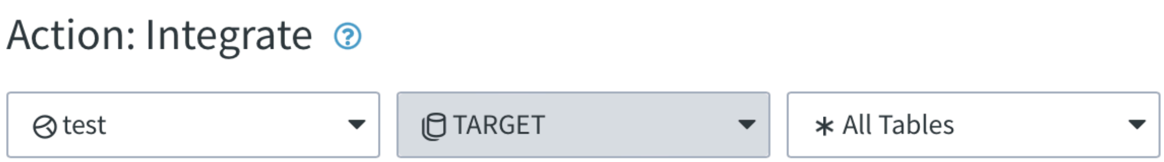
Select your location from the dropdown menu, select the "TARGET" location group, then click save.

You now have a new location added to your channel, but you might not be able to start integration just yet. The next step is to check if the existing Integrate action's scope is also true for the new location. Seeing the below error message after adding your new location is a good indicator of this not being the case.

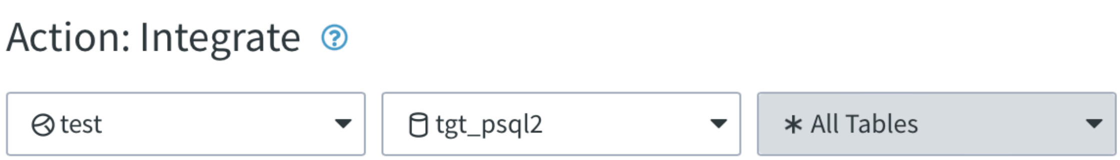


If you see this error, you have two ways to solve it

- Either change the scope of the existing Integrate action like this:



- Or create a second Integrate action on the newly added location.



The latter may be a better option in the long term, as it allows you to set parameters differently for each Integrate job.

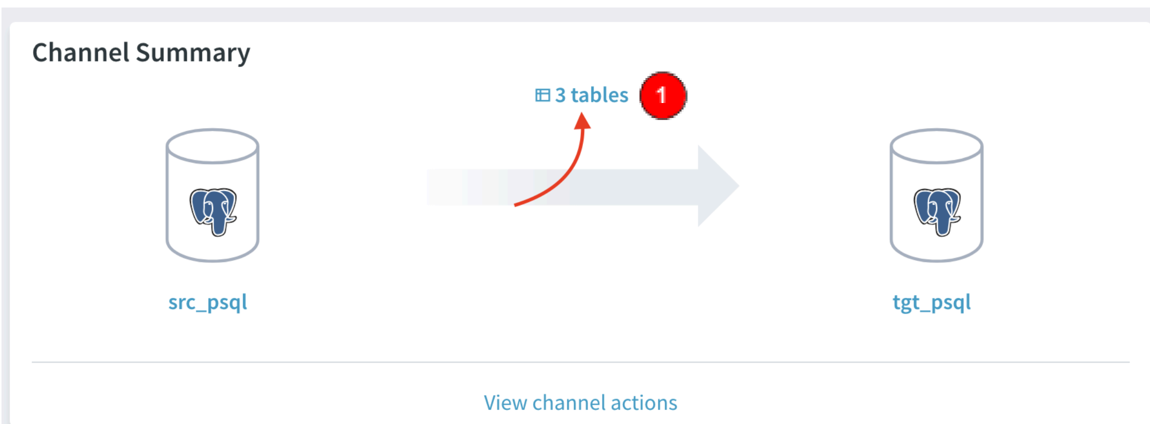
Once done, click Activate Replication, and activate the new location with the following components: Jobs, State Tables and lastly, Change Tables - only if applicable.

3.2 If you only want to replicate a subset of tables to the new integrate location

In this case, the best practice is to use Table Groups, specifically, you will need to divide the tables in your channel to two separate table groups.

Example: You would like to replicate 3 tables in your channel to two target locations. One of the target locations (tgt_psql) would receive all tables, but you would only like to replicate table “flight_crew” to location tgt_psql2.

In this case, the Table Group of the tables needs to be changed, followed by a change of the Integrate actions. We will start by navigating to the Channel, and changing the Table Group of the table that we wish to replicate to the tgt_psql2 location. Click on the tables selection in the Channel Summary pane **[1]**.



On the next screen, observe the Table Group of your existing tables. They might be set to “GENERAL”, or something else that you may have chosen. In this example, we will change table group general to “GROUP_A” and “GROUP_B” [2].

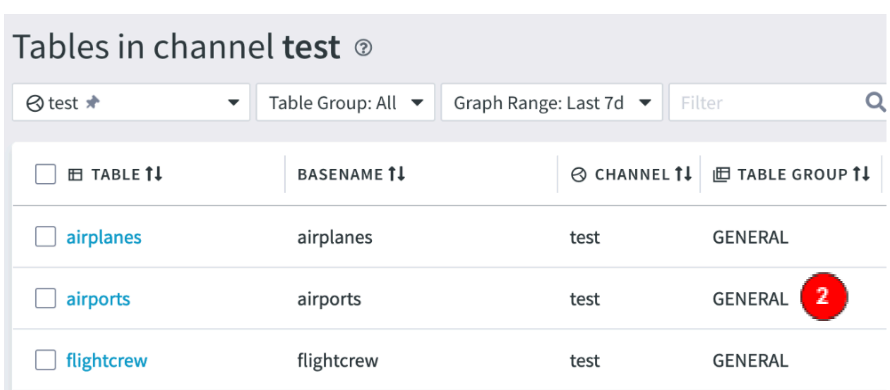
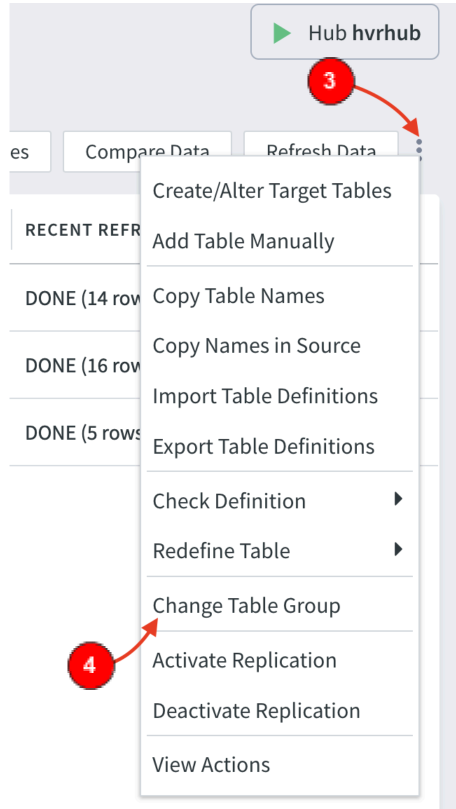


TABLE	BASENAME	CHANNEL	TABLE GROUP
airplanes	airplanes	test	GENERAL
airports	airports	test	GENERAL
flightcrew	flightcrew	test	GENERAL

Mark the checkbox next to the table, then click on the ⋮ context menu in the top right corner **[3]** and select the "Change Table Group'' option **[4]**. Set the new table group. Then perform the same change for the remaining tables and set them into another group. You should end up with no tables left in the GENERAL group, one table left in GROUP_A and the rest in GROUP_B **[5]**.



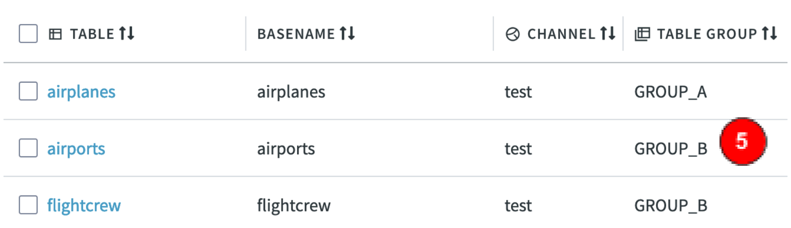
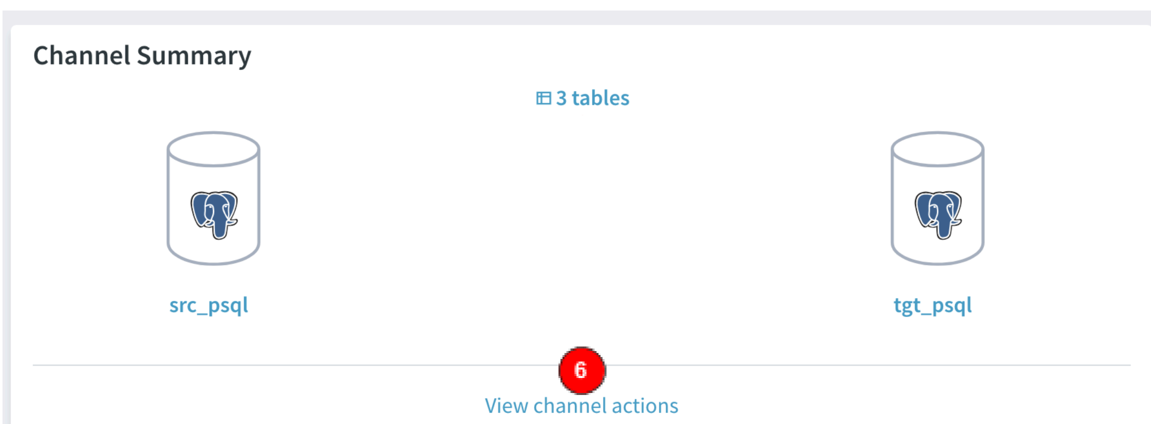
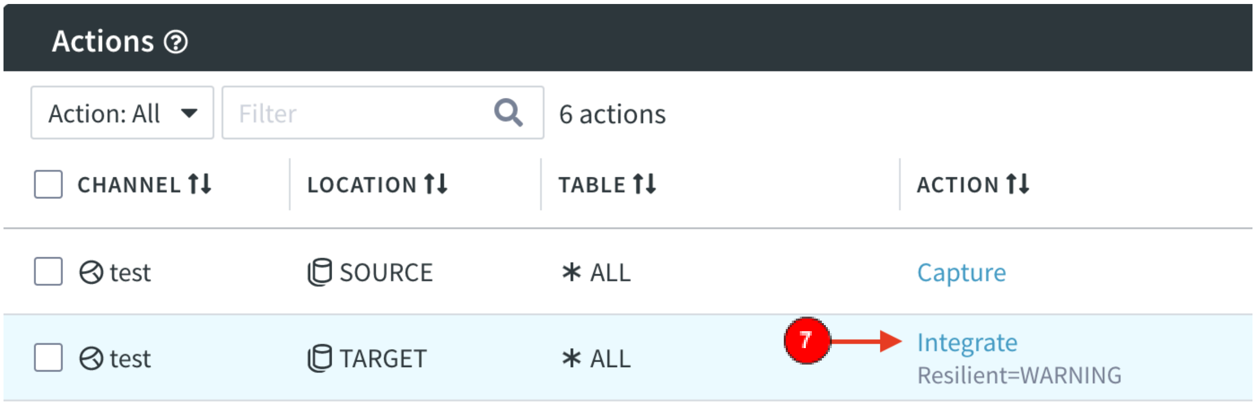


TABLE	BASENAME	CHANNEL	TABLE GROUP
airplanes	airplanes	test	GROUP_A
airports	airports	test	GROUP_B
flightcrew	flightcrew	test	GROUP_B

Now navigate back to the channel view and click "View Channel Actions" in the Channel Summary pane **[6]**.

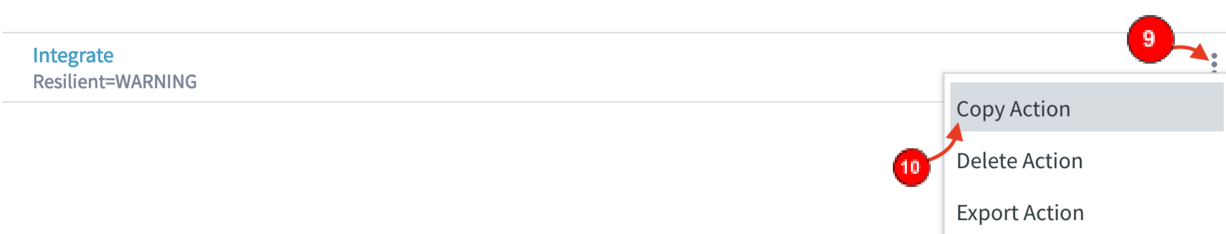


You'll need to change the scope of your existing **Integrate** action, so look it up [7].

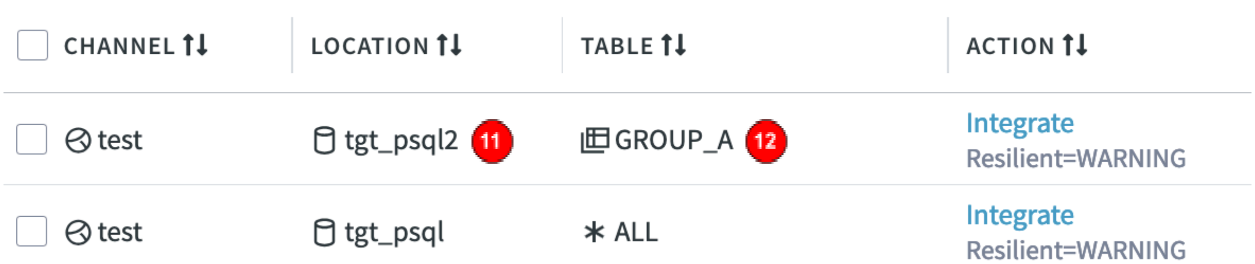


This needs to be changed. Set TARGET to the specific target location - *tgt_psql* here **[8]**.

You may copy this Action again using the ⁝ context menu **[9]**. Click Copy Action **[10]**.



Create the Integrate action for the second target location as well **[11]**. Remember to set the correct Table Group in the scope **[12]**.



Now, Activate the Channel.

Make sure that all tables and location are selected, and include the following Components: `Jobs`, `Table Enrollment`, and `State Tables`.

Your Capture and Integrate jobs will start automatically. Make sure to run a Refresh Task for the table(s) that you want replicated to the newly added location, and select the option `Only Create Target Tables that are Missing`, so that these tables get created by HVR before they are loaded.

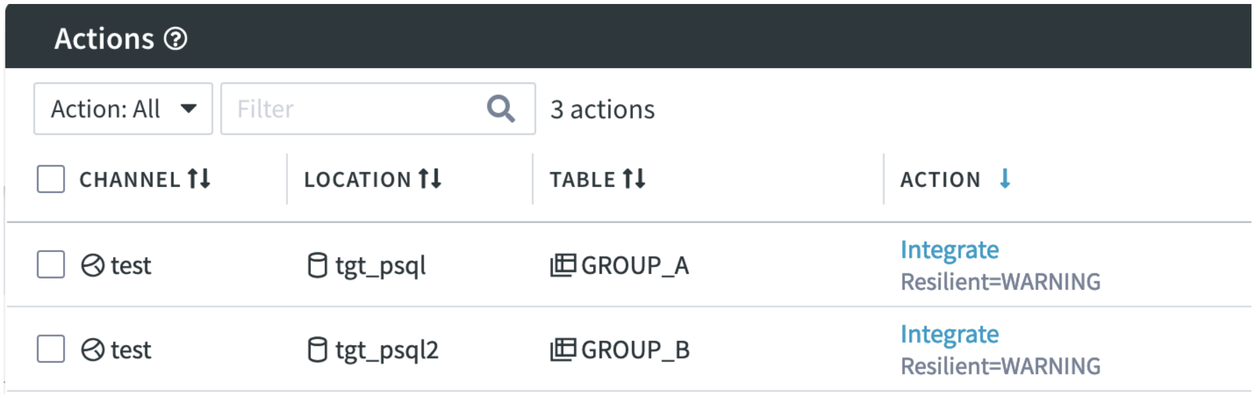
3.3 If you would like to split the replicated tables between two Integrate locations, e.g. to benefit from parallelism.

In this example, you have a channel that already exists, but you wish to split the tables between two Integrate locations. The first part of the exercise is the same as before, so you have to divide your tables into two Table Groups.

```
IMPORTANT
As this channel is already running, please stop your capture and flush your
router directories before proceeding. Failing to do so may cause your existing
HVR Integrate Job(s) to fail.
```

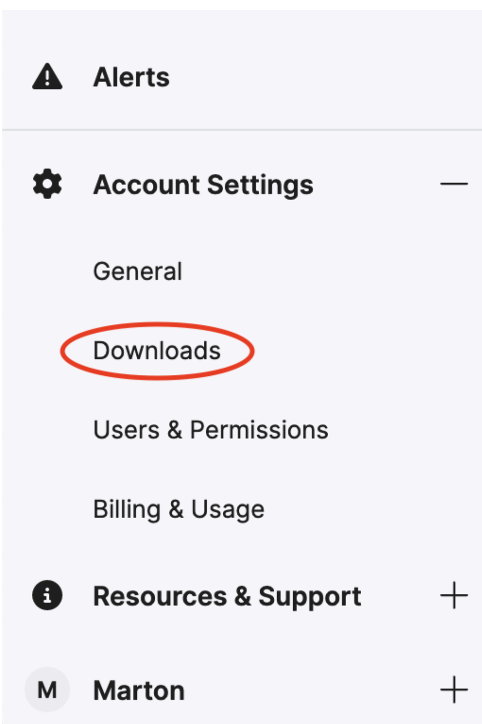
First, the channel's Integrate jobs must be flushed by suspending the Capture job, and running Integrates until no data is left to be processed.

Then, Integrate actions should be set for both the specific location and the specific Table Group as seen below:



Once done, click on the Activate Replication button, select all locations, and the following components: Jobs, Table Enrollment, Replace Old Enrollment, State Tables and optionally Change Tables, if BURST Integrate is being used. Your channel now runs with a single Capture and two Integrate jobs.

4. How do I download new HVR releases and do I determine which HVR endpoint needs to be updated (using the release notes)?



In some cases you may see an interesting new feature you would like to use. In other cases a problem you experience gets fixed with a new release. You should use the release notes file to determine which HVR endpoints need to be upgraded.

First of all, make sure you register on www.fivetran.com and that your account gets added to the right customer group. Once done, open up the Account Settings, and click on the Downloads section. In the Downloads section, you'll see a large number of releases for a wide range of platforms available for download. Next to the download links, is a link for the release notes (see image below). This file is the same across all platforms for the same release version.

Fivetran Download (HVR) Resources

Online Learning

High-Volume Agent

The Fivetran High-Volume Agent (HVA) connectors facilitate high-volume data replication across multiple database systems. Learn more
The High-Volume Agent (HVA) download contains the Fivertran Proxy agent.

Latest High-Volume Agent

Windows EXE | Windows ZIP | Linux x86 | Linux Power PC | AIX | Solaris Sparc | Solaris x86

Windows EXE Archives

6.1.0_52	fivetran-6.1.0_52-hub_and_agent-windows-x64-64bit_ga_patch-setup.exe	Release Notes	MD5: [fb4865b0ba237eee5945d1d10dc662c2] (136 MB)
6.1.0_51	fivetran-6.1.0_51-hub_and_agent-windows-x64-64bit_ga_patch-setup.exe	Release Notes	MD5: [591540106c7f31400bc1538d6d6f7ae9] (136 MB)
6.1.0_50	fivetran-6.1.0_50-hub_and_agent-windows-x64-64bit_ga_patch-setup.exe	Release Notes	MD5: [7c9788b01b28dc6f8b9e77059e4d27b0] (136 MB)

Download the release notes, and scroll to the most recent updates. Some examples:

In the below example, you'll have to upgrade HVR everywhere to take advantage of this new feature.

```
NEW FEATURES IN HVR 6.1.0/51 (2024-04-22)
-----------------------------------------

[T-199209] AUTOMATICALLY CREATE CRASH REPORT FILES ON DISK FOR F_JG200A SEGMENTATION FAULT ERRORS:
To use this feature, upgrade HVR on all machine(s).
```

In the below example, you only have to upgrade HVR on Capture Agent or source side, to take advantage of the problem fix.

```
PROBLEMS FIXED IN HVR 6.1.0/52 (2024-05-06)
-------------------------------------------

[T-655105] FIXED F_JD0F20 WHEN QUERYING ORACLE LOCATION FOR SLICE SUGGESTIONS:
To fix this bug, upgrade HVR on the capture machine(s).
```

IMPORTANT

If you want to fix a bug that only requires the upgrade on the capture machine, BUT you connect to the source system without an Agent, then the capture machine is actually your Hub. Similarly, if you connect to a target system without an Agent, the Integrate machine is your Hub. In these cases, perform the upgrade on your Hub.

5. <u>What are the general prerequisites for adding a new CDC source to HVR?</u>

- **Know the address** (host, name, port) of the database you would like to connect to
- Decide the **connection method** (Agent or Agentless).
- Make a decision on the **log read method**. This is also driven by the previous decision, because e.g. you can't use the DIRECT method without an Agent.
- Make sure that either the HVR Agent listener port (for connections with an Agent) or the database **port is opened on the network** from the Hub to the Source. The connection is always initiated from the Hub.
- Make sure that the database user receives the required **grants** (see documentation for more information) and is able to SELECT data from all of the tables that are in scope for replication.
- Make sure that the **database's archivelog retention policy** is changed to retain log files for **at least 24 hours.** In some cases the logs are stored off the server, e.g. using backint. In this case make sure that no file newer than 24 hours is ever deleted from the storage, and that HVR is able to retrieve the logs without missing log sequences in the chain.
- If you are using Archivelog-Only (ALO) capture, then make sure that the database has a "maximum time delay until a log switch" defined, otherwise you will have high latency during off-peak hours. You may also want to check the target log file size.
- **Supplemental logging** (or equivalent) must be enabled **on the instance level**, where applicable. Check the tech-specific prerequisites.
- **Supplemental logging** (or equivalent) must be enabled **on the table level** where applicable (not applicable on e.g. SAP HANA).

6. <u>How do I split an existing channel into two channels, without performing a full refresh?</u>

You may find yourself in a situation where you want to split a large channel with many tables into two channels instead. The following writeup details the process.

IMPORTANT

Since this channel is already running, please stop your capture and flush your router directories before proceeding. Failing to do so may cause your existing HVR Integrate Job(s) to fail.

- First, stop your capture job, and make sure that the router is flushed by the integrates. Integrate flushing is the process where you run your integrate jobs until no further data is left in the router directory(ies).
- Next, stop your capture job.
- Make a copy of your channel
- Delete some of the tables from the first channel
- Delete the exact opposite list of tables from the second channel
- On the second (new) channel, run Activate with the following options: Jobs, Table Enrollment, State Tables. DO NOT start the jobs just yet.
- Make a copy of the first channel's .cap_state file into the new channel's source router directory. *Note: you may have to create the new channel's router directory manually.*

```
cp
$HVR_CONFIG/hubs/hvrhub/channels/{old_chn_name}/locs/{src_location}/router/*.cap_state
$HVR_CONFIG/hubs/hvrhub/channels/{new_chn_name}/locs/{src_location}/router/
```

- You may start the second channel's capture job now.
- Next, go back to the original channel, and run Activate with options: Jobs, Table Enrollment, Replace Old Enrollment
- You may now run the capture and integrate jobs of your original channel again.

7. How do I schedule my Integrate Jobs, Refresh and Compare Tasks?

Integrate jobs are scheduled with Action: **Scheduling** and either property **IntegrateStartTimes**, or **IntegrateStartAfterCapture**.

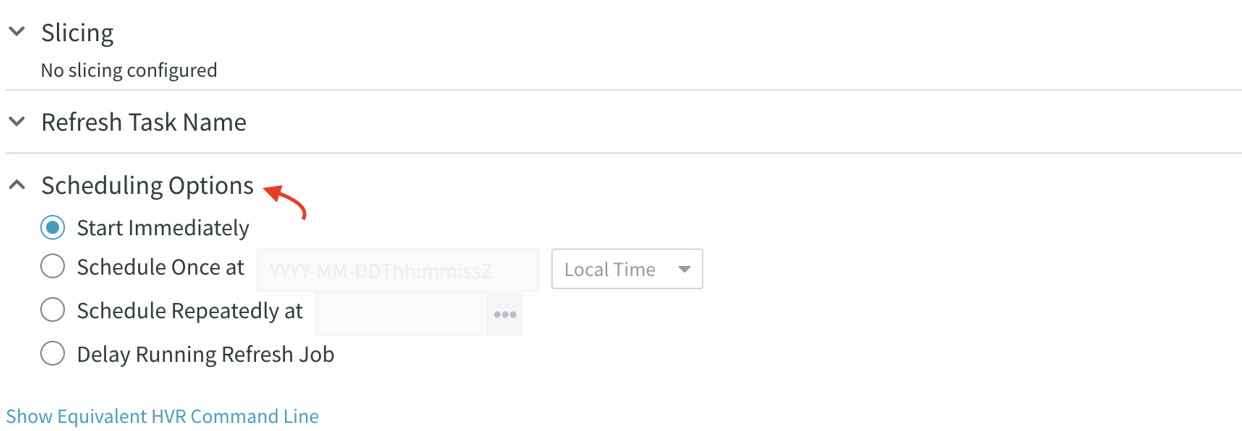
IntegrateStartTimes requires a CRON to be set e.g. 0,30 * * * * will run your integrate job twice every hour, starting in minutes 0 and 30.

IntegrateStartAfterCapture does not have any additional setting, and automatically starts your Integrate job once new change data is written to the router directory by the Capture job.

Once you have defined either of these on your channel, run Activate Replication on the Integrate location with only the "Jobs" component.

Refresh and Compare Tasks are scheduled during Task Creation.

- Go to your channel, then click "Refresh Data".
- Set the list of tables you would like to have refreshed, and navigate to the bottom of the window and expand the "Scheduling Options".
- Choose either a one time run or recurring refresh, set the cron, and click "Refresh Data".



8. How do I reconfigure an HVR Agent?

Run the following command on the CLI of the Agent machine. Make sure that you run this with the user that runs the HVR Agent, and that HVR_HOME and HVR_CONFIG are set in the process environment.

```
$HVR_HOME/bin/hvragentconfig Setup_Mode_Timed_Until=now+1h
```

Go back to the HVR Frontend, navigate to your location, and click “Test Location”. A window will appear to let you reconfigure your Agent. Make sure to enable the **Terminate agent setup mode** option.