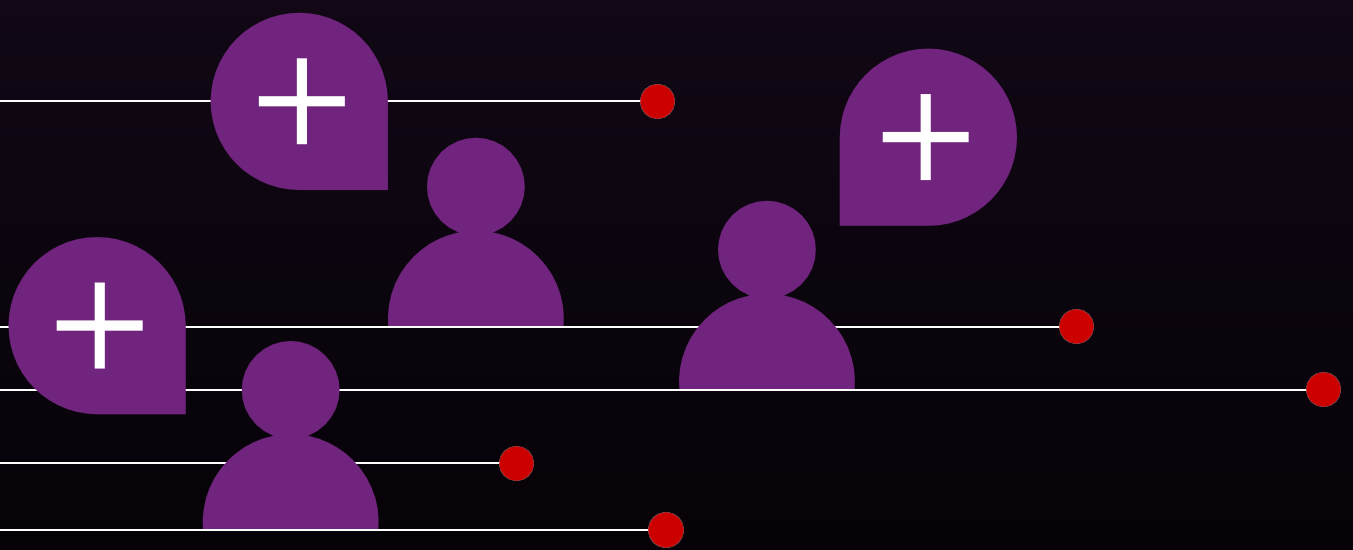# VAULTSPEED

VaultSpeed Studio

SCD2 dimension on a HUB
with a calculated Satellite

USE CASE FOR THIS TEMPLATE

This document describes how a user can configure a template in the VaultSpeed Studio to generate an SCD Type 2 dimension based on an insert only RDV on a single HUB based on the transaction timestamp and an integration of a calculated sat in the dimension.

This setup requires the implementation of the custom PIT template and the calculated SAT template like described in the other template examples.

In the setup there is the possibility to limit the fields which should show up in the dimension. The generated query will also remove unnecessary records (no changes in the combination of selected fields).

Before you explore and use this example template, ensure that you understand the example SQL attached to understand what the template does and that it covers your needs.

This template is designed for the following characteristics in the use-case:

- DIMENSION creation based on a HUB

- Slowly Changing Type 2 Dimension

- Calculated SAT is integrated in the dimension

- Versions in the dimension will be compressed

- Custom PIT table must exist on the HUB

- Dimension_hkey will be calculated based on the BK's of the MAIN_HUB in combination with the date

Example

The example that is used in this document is based on a customer.

In the Raw Data Vault model this is a HUB_CUSTOMER.

SAT_VST_CUSTOMERS

HUB_CUSTOMERS

SAT_SLS_CUSTOMERS_GDPR

SAT_SLS_CUSTOMERS_GENERAL
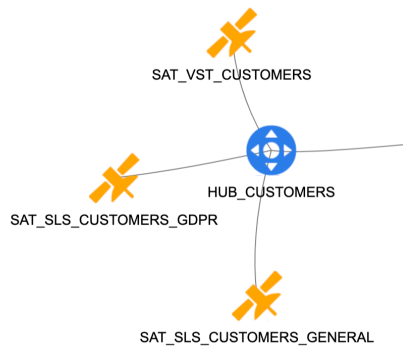
Components of the implementation

- Calculated SAT on the HUB
- Custom PIT table on the HUB of choice
- Signature objects
- Assign Signature objects to the correct tables
- Create Signature attribute type and assigned in the requested fields
- Create the Template
- Create Target definition
- Fill in the Dependency

PIT table is created on the HUB

The Dimension is a SCD2 type dimension, for this we need to have a detailed PIT implementation on the HUB based on the TRANS_TIMESTAMP.

In order to incorporate the calculated sat, we need to create the Custom PIT, following the setup like explained in the specific template example on "Custom PIT".

After that, the PIT is applied on the HUBs

☐ Object Name (Linked) ↑
☐ HUB_CUSTOMERS

Create Signature objects

No Signature Objects are needed.

Signature objects are assigned

No Signature Objects are needed.

Create Signature attribute type and flag the usage in the requested fields

Management

Search...

Signature Attribute

DIM_ATTRIBUTE

Assignment

◉ OR ○ AND Signature Attribute ▾ [Set]

	Object Name	Signature Object	Attribute Name	Signature Attribute
	Filter...	Filter...	▾ Filter...	Filter... DIM_ATTRIBUTE ▾
✅ ∧	SAT_VST_CUSTOMERS	Satellites on Hubs		
			PERSON_ID	BUSINESS_SRC_KEY, DIM_ATTRIBUTE
			CUSTOMER_MEMBER_CARD_NO	OTHER_ATTR, DIM_ATTRIBUTE
✅ ∧	SAT_SLS_CUSTOMERS_GDPR	Satellites on Hubs		
			FIRSTNAME	OTHER_ATTR, DIM_ATTRIBUTE
			LASTNAME	OTHER_ATTR, DIM_ATTRIBUTE
			BIRTHDATE	OTHER_ATTR, START_DATE, DIM_ATTRIB...
			GENDER	OTHER_ATTR, DIM_ATTRIBUTE
			FIRST_PURCHASE	OTHER_ATTR, START_DATE, DIM_ATTRIB...

Create the template

Template definition, according to the standard that you want to use. Important element here is the Signature Object naming. That name comes back in the .dvt file that contains the definition of the dimension template. If you have multiple implementations, you might want to go for a different name. But then you will need to adapt the template file accordingly and replace all the <signature object name> references with your chosen name.

In the example we use SCD2_DIM_HUBC , because this is a SCD Type 2 dimension on a HUB template

SCD2_TRANS_DIM_ON_HUB	SCD Type 2 Dimension base...	SCD2_DIM_HUB	DIM	VIEW	ALL	DATA_WAREHOUSE	Snowflake	Hubs

Ensure you have this use case's latest version from the following location: https://github.com/Vaultspeed/studio-templates .

Each of our templates has its folder where the code resides.

Take the dim_etl_template.dvt file and upload it for the ETL template of this view.

Fill in the Target Definition

The target definition is very specific to the template:

Existing Attributes		
New Attributes	Search...	
Overview		

Signature Object		Signature Attribute
SAT		DIM_ATTRIBUTE
PIT	SAT	SNAPSHOT_TIMESTAMP
HUB		CONCAT_BUSINESS_KEY
HUB		BUSINESS_KEY
HUB		OBJECT_H_KEY

You also must include a reference to the attribute that has been used in the calculated sat

Signature Object	Signature Attribute
SAT	MAX_VERWERKT

Add new attributes for the:
- calculated snapshot
- calculated end snapshot
- dim_<entity>_hkey
- the calculated value that needs to be integrated

Be careful; there are 2 _ between snapshot and timestamp.

Unique	Name	Prefix	Suffix	Signature Object	Signature Attribute	Data Type
⬤▶	snapshot__timestamp					TIMESTAMP_TZ
⬤▶	end_snapshot__timestamp					TIMESTAMP_TZ
◀⬤		DIM		HUB	OBJECT_H_KEY	VARCHAR

Also each calculated attribute from the SAT should get a new attribute

Unique	Name	Prefix ↓	Suffix	Signature Object	Signature Attribute	Data Type
◀⬤		MAX_VERWERKT		SAT	MAX_VERWERKT	INTEGER

This must match the entries of the new Attributes that were created for the Calculated SAT

Fill in the Dependency

Define on which HUB table this template must be implemented.

Example:

Generate preview to validate

Go to the template and generate a preview.

Take the select part of the query and execute on the target platform. Attention if you do this in the same motion as creating the CPIT and CSAT … they need to be deployed first.