# Helix - ITSM


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## Summary

All the job under ITSM will call the API URL https://solvay-restapi.onbmc.com/api/arsys/v1.0/entry/<interface> controlled by variable l_VAR_helix_<interface>_url

such as incident, API URL is https://solvay-restapi.onbmc.com/api/arsys/v1.0/entry/HPD:Help%20Desk controlled by variable l_VAR_helix_incidents_url

| Table | Interface | Incremental Load By | Incremental Flag | No. Fields | Talend Job | ODS Table | DM | DPL Table |
|---|---|---|---|---|---|---|---|---|
| Incident | HPD:Help% 20Desk | Last Modified Date | HELIX_INCIDENT | 1098 | F010_Helix_Incidents | ODS_HLX_0000_F001_I_H_incidents | DIM_hlx_incidents | V_DIM_hlx_incident |
| ~~Incident Worklog~~ | ~~HPD:WorkLog~~ | ~~Last Modified Date~~ | ~~HELIX_WORKLOG~~ | ~~147~~ | ~~F011_Helix_Worklog~~ | ~~ODS_HLX_0000_F001_I_H_worklog~~ | | |
| Workorder | WOI:WorkOrder | Last Modified Date | HELIX_WORKORDER | 742 | F020_Helix_WorkOrder_json | ODS_HLX_0000_F001_I_H_workorder_json | DIM_hlx_work_order | V_FACT_hlx_work_order<br>V_DIM_hlx_work_order_crisis |
| ~~Workinfo~~ | ~~WOI:WorkInfo~~ | ~~Last Modified Date~~ | ~~HELIX_WORKINFO~~ | ~~152~~ | ~~F022_Helix_WorkInfo~~ | ~~ODS_HLX_0000_F001_I_H_Workinfo~~ | | ~~V_FACT_hlx_Workinfo~~ |
| Service Request Stub | SB: ServiceRequestStub | Create Date | HELIX_SERVICE_REQ | 117 | F030_Helix_ServiceRequestStub | ODS_HLX_0000_F001_I_H_ServiceRequestStub | DIM_hlx_service_request_stub | V_FACT_hlx_service_request_stub |
| Service Request Cache | myit-sb: ServiceSearchCache | Modified Date | SERVICE_SEARCH_CACHE | 67 | F032_Helix_myit_ServiceRequestCache | ODS_HLX_0000_F001_I_H_ServiceSearchCache | | V_DIM_hlx_myit_service_search_cache |
| My Service Request | myit-sb: ServiceRequest | Created Date | SERVICE_REQUEST_NEW | 60 | F033_Helix_myit_ServiceRequest | ODS_HLX_0000_F001_I_H_ServiceRequestNew | | V_DIM_hlx_myit_service_request |
| ~~Measurement~~ | ~~SLM: Measurement~~ | ~~Modified Date~~ | ~~HELIX_MEASURE~~ | ~~230~~ | ~~F040_Helix_Measurement~~ | ~~ODS_HLX_0000_F001_I_H_Measurement~~ | | ~~V_FACT_hlx_measurement~~ |
| ~~Service Request~~ | ~~SRM:Request~~ | ~~Submit Date~~<br>~~Last Modified Date?~~ | ~~HELIX_REQUEST~~ | ~~643~~ | ~~F050_Helix_Request~~ | ~~ODS_HLX_0000_F001_I_H_ServiceRequest~~ | | ~~V_FACT_hlx_ServiceRequest~~ |
| Case | Case | modified_date | HELIX_CASE_ITSM | 105 | F061_Helix_Case_ITSM | ODS_HLX_0000_F001_I_H_Cases_ITSM | | V_FACT_hlx_case_itsm |

Since there are many fields therefore, it is loaded all fields to STG and ODS  with json content. Then, it is selected required fields on DM and View at DPL layer.

### Join Views

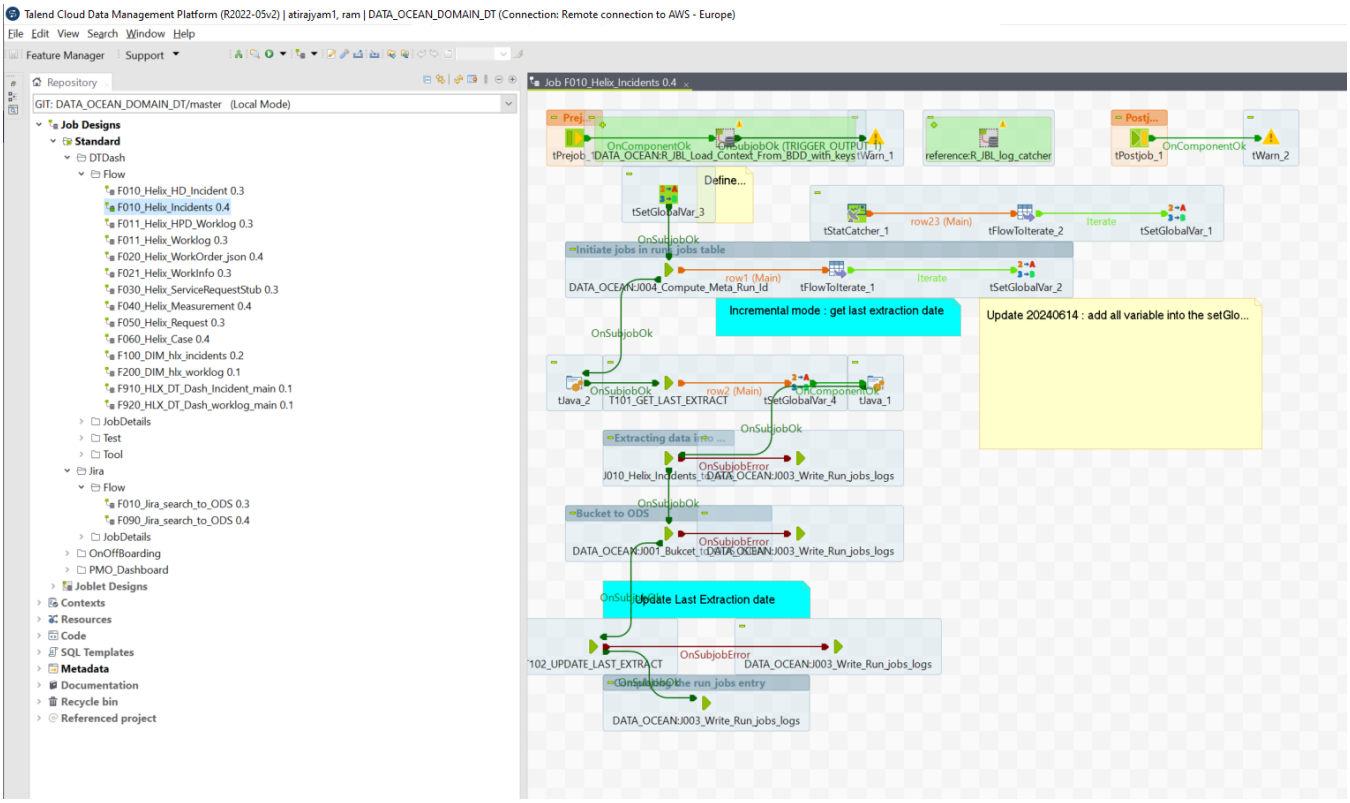
| DPL Join views | Related tables |
|---|---|
| V_DIM_hlx_ticket_type_merg | DPL.V_DIM_hlx_incident UNION ALL DPL.V_FACT_hlx_work_order |

| | |
|---|---|
| V_DIM_hlx_sr_fullfiment_type | DPL.V_DIM_hlx_myit_service_request<br>RIGHT JOIN DPL.V_FACT_hlx_work_order<br>INNER JOIN DPL.V_DIM_hlx_myit_service_search_cache |

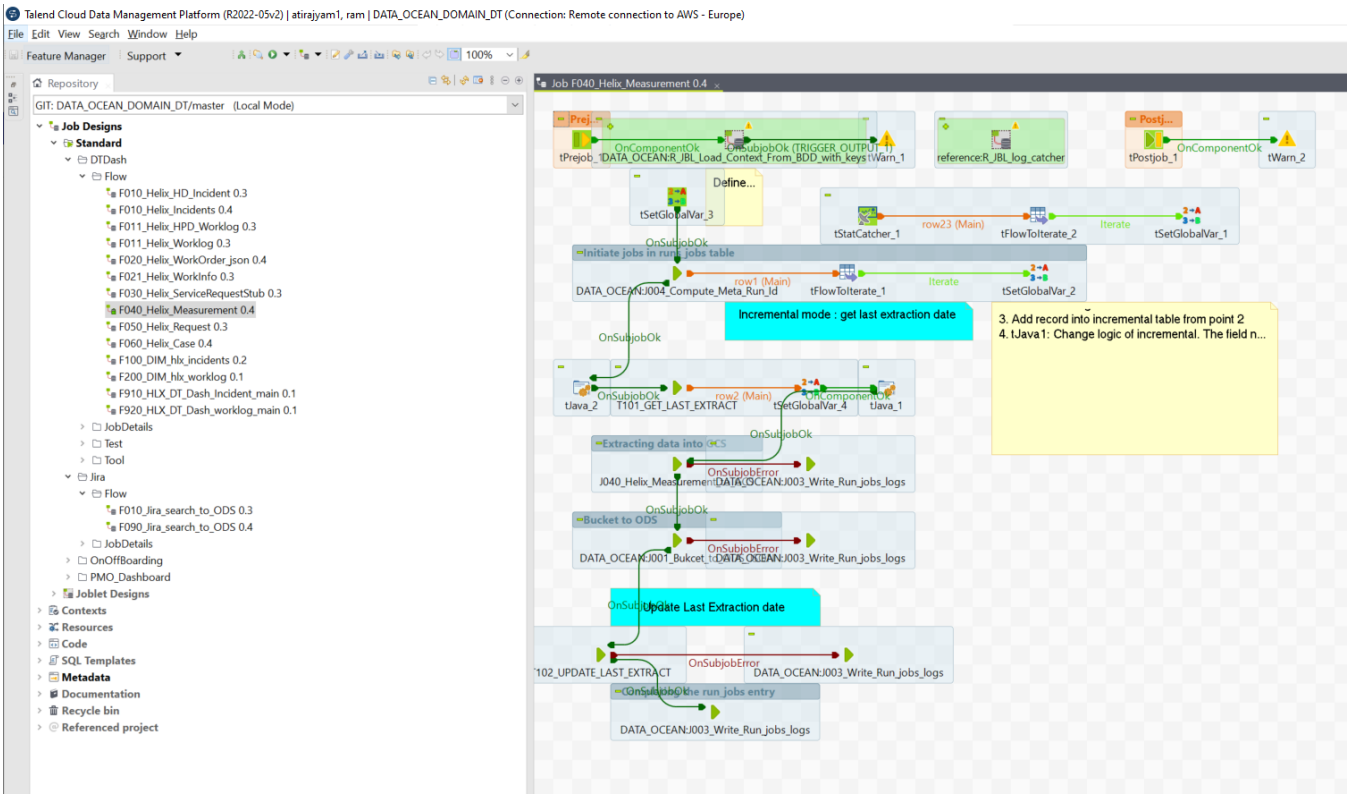
# Tools: Talend

## Detail job

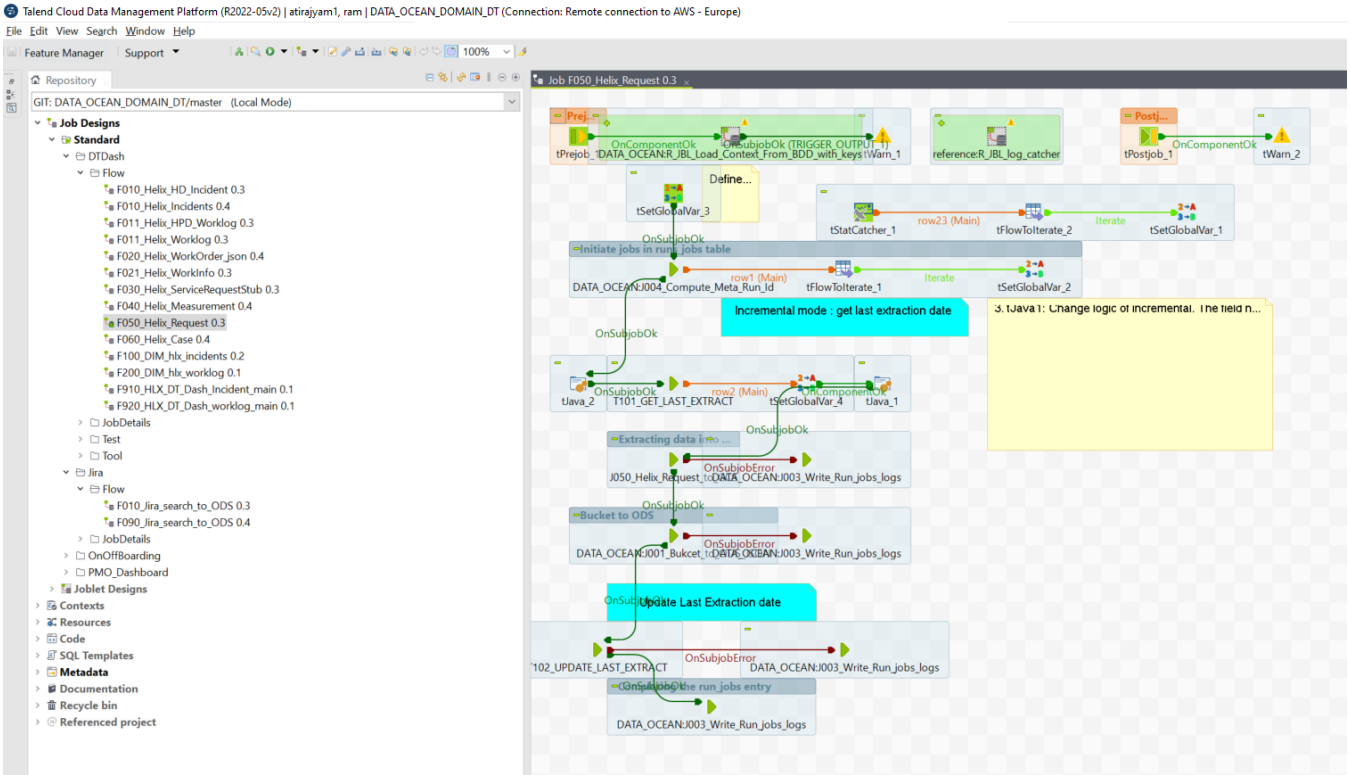
- **F010_Helix_Incidents**



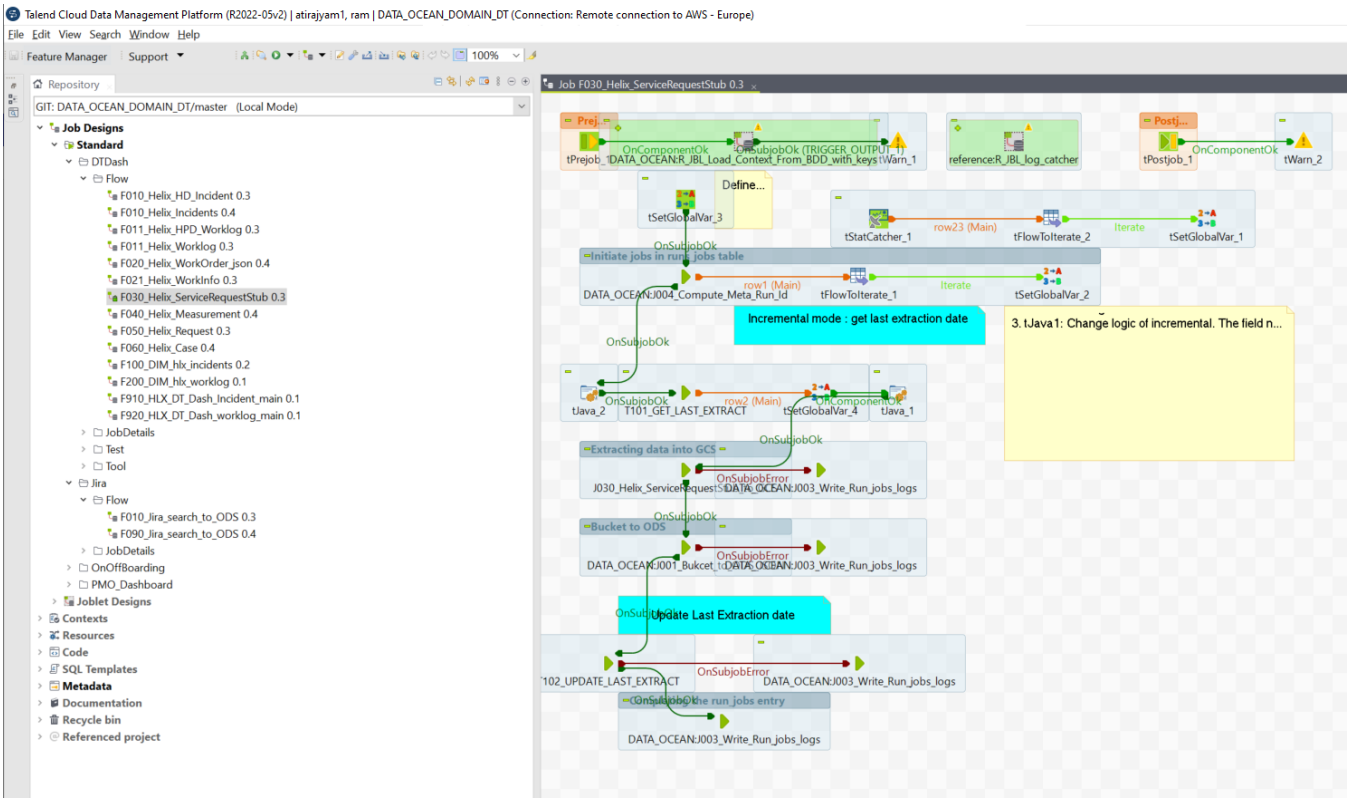

- **F040_Helix_Measurement**



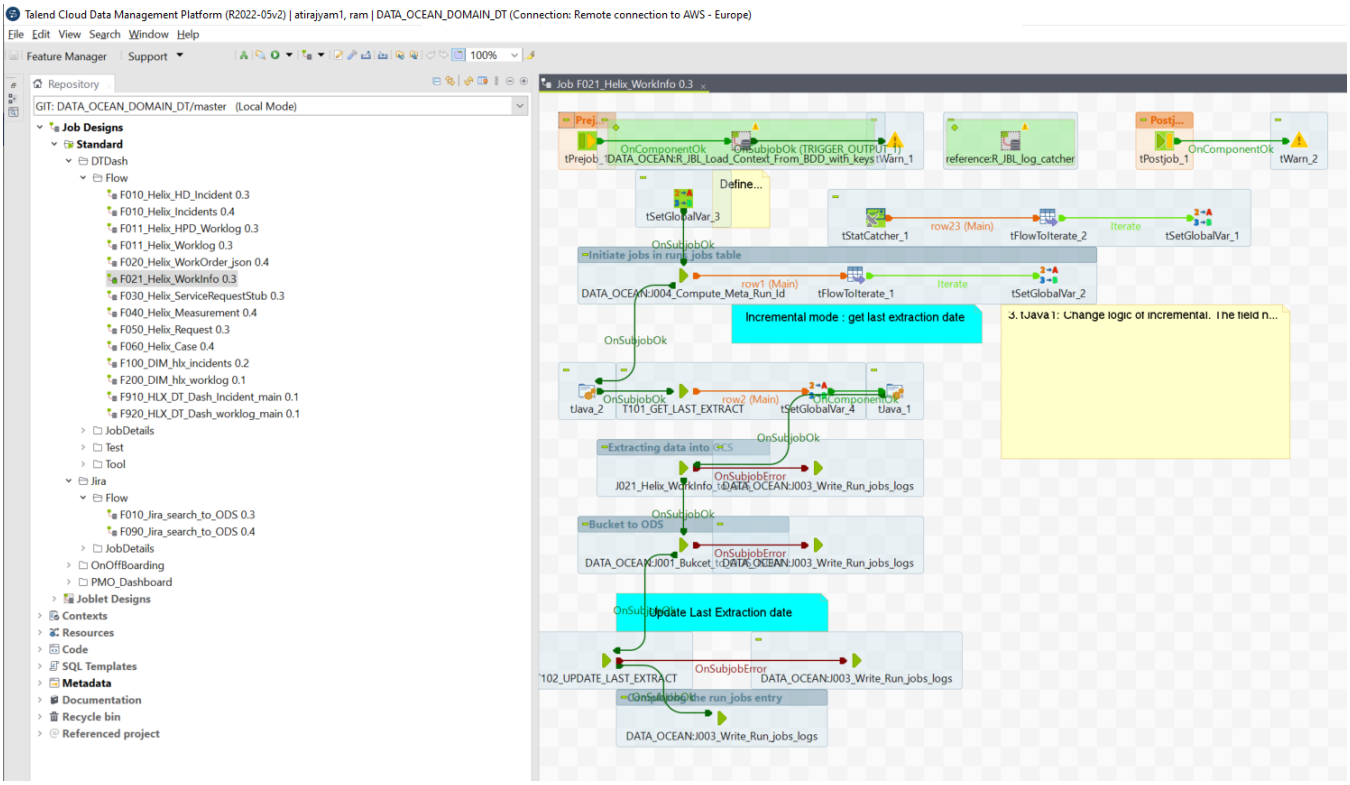

- **F050_Helix_Request**



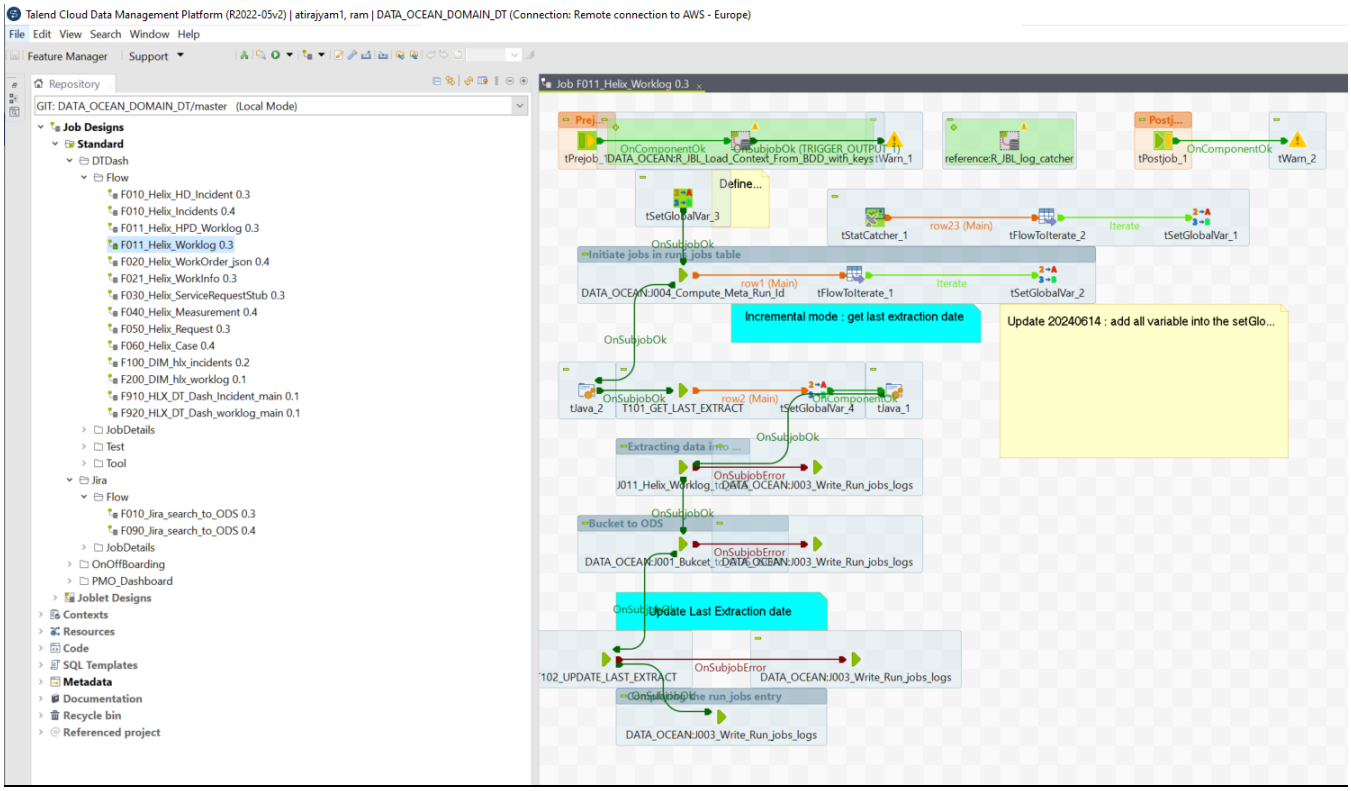

- **F030_Helix_ServiceRequestStub**



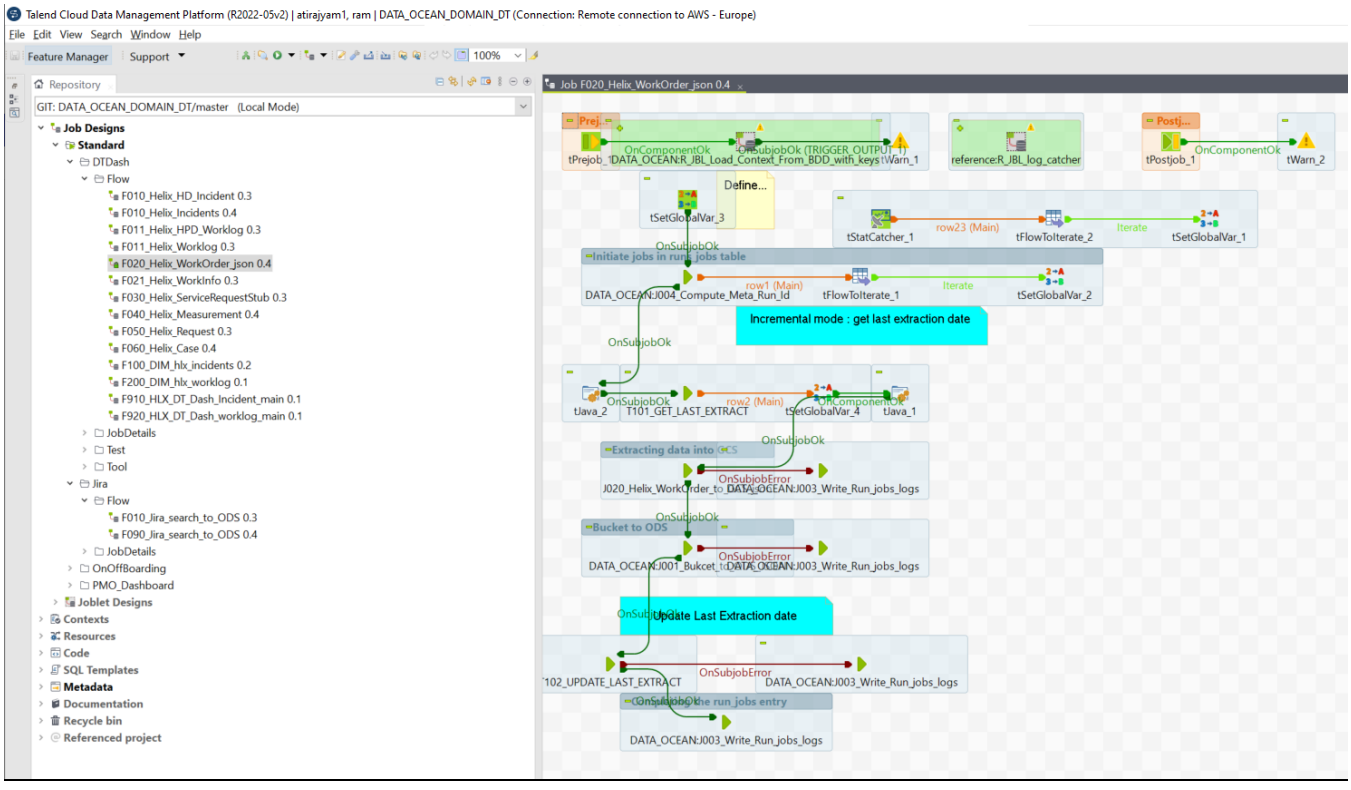

- **F021_Helix_WorkInfo**




- **F011_Helix_Worklog**




- **F020_Helix_WorkOrder_json**




1. Connect to the source system API by reading context from flow job
2. Setup loop to get the data

    a. tSetGlobalVar : to set the maximum number of records to read each time and set the variable nb to check when to exit the loop (start with 0)
    b. tLoop : setup the condition to exit the loop when variable nb < 0
    c. tJava: setup the offset of records in order to get new records of each loop
3. To get data from the source by using start row number from "nb" and max row number from "limit". It read schema from the source(meta data)
4. Generate output file and save to **DATA\DEV\DATA_OCEAN_DOMAIN_DT\Tmp**
5. Update the offset number "nb" = "nb" + "limit"
6. Update "nb" = -1 when ((Integer)globalMap.get("tReplace_1_NB_LINE"))<= 0 in order to exit the loop
7. Upload the files all the folder( **cs-ew1-prj-data-dm-dt-[dev]-staging)**
8. Delete all the files in the folder (point number 5)

## Flow job

Below are the list of plan names which are used to invoke the above mentioned Talend jobs.

- PL_DT_F020_Helix_WorkOrder_json
- PL_DT_F011_Helix_Worklog
- PL_DT_F021_Helix_WorkInfo
- PL_DT_F030_Helix_ServiceRequestStub
- PL_DT_F050_Helix_Request
- PL_DT_F040_Helix_Measurement
- PL_DT_F010_Helix_Incidents

    - Setup meta_run_id and filename of the output file
    - Get the last load from table STG.incremetnal_load, control by the variable l_VAR_eBatch_PF1_QAPP_INC_LOAD and configuration the logic of the incremental load in tJava to use the date from incremental_load to the field of create or change date in the SAP
    - Call the detail job and pass parameters such as user/password, query from point number 2 to do the incremental load and save the file to GCS
    - Call the standard job to upload the files from GCS to ODS
    - If the loading is OK and parameter l_VAR_heliux_[table_name]_reload = incremental, update the time on the table incremental_load. If the value is not incremental, it is the reloading
    - If everything is OK, update the log.

## Access rights

Request to ESM Ticketing Pool Team via ticket

Contact point: Florian.Kroell@solvay.com / toms.teteris@solvay.com

Username = DataPlatform_integration (keep in variable g_CNX_HLX_UserName)

Password =encrypt on variable context.g_CNX_HLX_Password

## Source

- https://solvay-restapi.onbmc.com/api/arsys/v1.0/entry/HPD:Help%20Desk
- https://solvay-restapi.onbmc.com/api/arsys/v1.0/entry/SLM:Measurement
- https://solvay-restapi.onbmc.com/api/arsys/v1.0/entry/SRM:Request
- https://solvay-restapi.onbmc.com/api/arsys/v1.0/entry/SB:ServiceRequestStub
- https://solvay-restapi.onbmc.com/api/arsys/v1.0/entry/WOI:WorkInfo
- https://solvay-restapi.onbmc.com/api/arsys/v1.0/entry/HPD:WorkLog
- https://solvay-restapi.onbmc.com/api/arsys/v1.0/entry/WOI:WorkOrder

## Format

- JSON

# Destination

## Location

- Bucket = cs-ew1-prj-data-dm-dt-[dev]-staging/xxx
- DataOean GCP = prj-data-dm-dt-[env]
- STG Table names =
    - prj-data-dm-dt-[env].STG.STG_HLX_0000_0000_F001_I_H_incidents
    - prj-data-dm-dt-[env].STG.STG_HLX_0000_0000_F001_I_H_Measurement
    - prj-data-dm-dt-[env].STG.STG_HLX_0000_0000_F001_I_H_ServiceRequest
    - prj-data-dm-dt-[env].STG.STG_HLX_0000_0000_F001_I_H_ServiceRequestStub
    - prj-data-dm-dt-[env].STG.STG_HLX_0000_0000_F001_I_H_Workinfo

    - prj-data-dm-dt-[env].STG.STG_HLX_0000_0000_F001_I_H_worklog
    - prj-data-dm-dt-[env].STG.STG_HLX_0000_0000_F001_I_H_workorder_json

- ODS Table names =
    - prj-data-dm-dt-dev.ODS.ODS_HLX_0000_F001_I_H_Incidents
    - prj-data-dm-dt-dev.ODS.ODS_HLX_0000_F001_I_H_Measurement
    - prj-data-dm-dt-dev.ODS.ODS_HLX_0000_F001_I_H_ServiceRequest
    - prj-data-dm-dt-dev.ODS.ODS_HLX_0000_F001_I_H_ServiceRequestStub
    - prj-data-dm-dt-dev.ODS.ODS_HLX_0000_F001_I_H_Workinfo
    - prj-data-dm-dt-dev.ODS.ODS_HLX_0000_F001_I_H_worklog
    - prj-data-dm-dt-dev.ODS.ODS_HLX_0000_F001_I_H_workorder_json

- DPL View names =
    - prj-data-dm-dt-[env].DPL.V_FACT_hlx_work_order
    - prj-data-dm-dt-[env].DPL.V_FACT_hlx_Workinfo
    - prj-data-dm-dt-[env].DPL.V_FACT_hlx_service_request_stub
    - prj-data-dm-dt-[env].DPL.V_FACT_hlx_measurement
    - prj-data-dm-dt-[env].DPL.V_DIM_hlx_incident
    - prj-data-dm-dt-[env].DPL.V_FACT_hlx_ServiceRequest
    - prj-data-dm-dt-[env].DPL.V_DIM_hlx_status

## Format

- columnar format

## Sizing

> 

## Assessment

> *How to validate that the generated output is valid:*

# Loading

## 1.1 Incremental Load

It is control by variables:

l_VAR_helix_[object]_reload:  If it is "increment", it will get the last load from table STG.incremental_loading and using meta_file_name without _RELOAD
l_VAR_helix_[object]_sort:  To sort the increment field with ascending order in order keep track the last update
l_VAR_helix_[object]_limit: The number of records to get from API each time
l_VAR_helix_[object]_nloop: the number of loop for each load.  (the number of limit x nloop will be max record on the file to load each time to BQ)
l_VAR_helix_[object]_offset: The number of record index from API. It starts with 0. Will change to another number only specific reload case

## 1.2 Full load

N/A

## 1.3. Reloading data

It is control by variables:

l_VAR_helix_[object]_reload:  If it is NOT "increment", it will the full load with condition on this parameter such as [ and 'Status'="Closed"] Need to starting with " and ..." because the first condition is fixed that incremental field >= mata_loast_process_date of meta_filename = xxx_RELOAD.  Then in this case the selection will be 'Last Modified Date'>="3/1/2022 00:00:00" and Status="Closed".

l_VAR_helix_[object]_limit: The number of records to get from API each time
l_VAR_helix_[object]_nloop: the number of loop for each load.  (the number of limit x nloop will be max record on the file to load each time to BQ)
l_VAR_helix_[object]_sort:  To sort the increment field with ascending order in order keep track the last update. In case the number of records (limit x nloop) still not get all the records, the last modified date will updated to HELIX_INCIDENT_RELOAD. Then the next load will start from this point for the reload.
l_VAR_helix_[object]_offset: The number of record index from API. It starts with 0. Will change to another number only specific reload case

**How to:**

1. Stop schedule job

2. Change the start date that is required to reload on

UPDATE STG.incremental_loading

SET meta_last_process_date = '2021-12-22 00:00:00'  --the date that want to reload

where meta_file_name = 'HELIX_INCIDENTS_RELOAD' -- identify the object that want to reload but the name to change must be _RELOAD. Without _RELOAD will use for incremental load only.

| meta_file_name | meta_source_system | meta_last_process_date |
|---|---|---|
| HELIX_INCIDENT | HLX | 2024-08-23 03:02:16 UTC |
| HELIX_INCIDENT_RELOAD | HLX | 2022-03-01 00:00:00 UTC |

3. Change context l_VAR_helix_incident_reload to the condition that want to reload.

such as %20and%20Status=%22Closed%22

4. Recheck the variables: limit, nloop, offset

5. Run the job to load until HELIX_HD_INCIDENTS_RELOAD is more than HELIX_HD_INCIDENTS. Meaning reload is up-to-date

**After loading is complete, the meta_last_process_date should be increasing. **In case, meta_last_process_date is not increase**, it means that the number of records is more than limit x nloop. There are 2 solutions:

I. increase nloop (limit is maximum at 2000 for this API). if nloop is too many, the job can be fail)

II. change offset, if the first load with 10,000 records still have the same meta_last_process_date, change l_VAR_helix_[object]_offset to 10000, this will start loading at the record 10000 to 20000. You may check the number of record in Postman program to plan how to reload it.

6. Change the context l_VAR_helix_incident_reload to be "incremental"

7. Reschedule the job

## 1.4 Plan to schedule

Every hour

## 1.5 Timing

The average time expected for loading: 5 minutes

# Criticality

Low

# Logging

1. Check the last loading

```
select * from STG.incremental_loading
where meta_file_name in ( 'HELIX_CASE_ITSM' , 'HELIX_INCIDENT' , 'HELIX_SERVICE_REQ' , 'HELIX_WORKORDER' , 'KADISKA_RUM' , 'SERVICE_SEARCH_CACHE' , 'SERVICE_REQUEST_NEW' )
order by meta_file_name
```

| meta_file_name | meta_source_system | meta_last_process_date |
|---|---|---|
| HELIX_CASE_ITSM | HLX | 2024-08-23 04:02:18 UTC |
| HELIX_INCIDENT | HLX | 2024-08-23 03:02:16 UTC |
| HELIX_SERVICE_REQ | HLX | 2024-08-23 04:00:22 UTC |
| HELIX_WORKORDER | HLX | 2024-08-23 04:03:19 UTC |
| KADISKA_RUM | KDK | 2024-08-23 03:00:00 UTC |

2. Check the loading records / error

```
select job.job_name , job.meta_start_date , logs.meta_run_id , logs.meta_source_system , logs.meta_step , logs.meta_status , logs.meta_num_lines , logs
.meta_error_lines from STG.log_tables logs join STG.run_jobs job on logs.meta_run_id = job.meta_run_id
where   logs.meta_run_id in ( SELECT meta_run_id FROM STG.run_jobs order by meta_start_date desc limit 100 )
and ( job_name like '%Helix%' or job_name like '%Kadiska%' or job_name like '%HLX%' )
and ( meta_step = 'ODS to DM' or meta_step = 'Bucket to Staging' )
and meta_start_date >   DATE_SUB ( CURRENT_TIMESTAMP () , INTERVAL 1 DAY )
order by meta_start_date desc
```

| job_name | meta_start_date | meta_run_id | meta_source_system | meta_step | meta_status | meta_num_lines | meta_error_lines |
|---|---|---|---|---|---|---|---|
| F110_DIM_HLX_incident_SCD_Type2 | 2024-08-23 04:32:23.451796 UTC | b76d0ae6-0082-4f27-920… | ODS_HLX_0000_F001_I_H_Inci… | ODS to DM | OK | 22 | 0 |
| F030_Helix_ServiceRequestStub | 2024-08-23 04:31:54.032688 UTC | c61d2bd3-b35d-4f65-bf49… | HLX_DT_0000_0000_F001_20240823043149_0001_I_D_Helix_ServiceRequestStub.csv | Bucket to Staging | OK | 19 | 0 |
| F061_Helix_Case_ITSM | 2024-08-23 04:31:53.808741 UTC | f3275be8-56f3-402c-a93b… | HLX_DT_0000_0000_F001_202… | Bucket to Staging | OK | 195 | 0 |
| F020_Helix_WorkOrder_json | 2024-08-23 04:31:52.396467 UTC | 4be700e1-c782-4b97-b65… | HLX_DT_0000_0000_F001_20240823043147_0001_I_D_Helix_HD_workorder.csv | Bucket to Staging | OK | 59 | 0 |
| F060_Helix_Case | 2024-08-23 04:31:51.894938 UTC | e7c32658-13d2-429f-ae79… | HLX_DT_0000_0000_F001_202… | Bucket to Staging | OK | 156 | 0 |
| F010_Helix_Incidents | 2024-08-23 04:31:37.361038 UTC | ddcced21-13ef-44f1-802c-… | HLX_DT_0000_0000_F001_20240823043133_0001_I_H_Incident_json.csv | Bucket to Staging | OK | 22 | 0 |
| F063_Helix_ServiceRequest_New | 2024-08-23 04:02:38.039199 UTC | c51cda35-ee9c-40cb-92d… | HLX_DT_0000_0000_F001_20240823040234_0001_I_D_Helix_servicerequest_new.csv | Bucket to Staging | OK | 40 | 0 |