

291

question comes to our mind how we can achieve or design this. But before we reach there, let's understand from the architecture of BODS how this can be achieved. To achieve HA in SAP Data Services, we need to plan for HA for database and application. In Database layer, and we have a concept of primary and secondary database. In case we have issue with the primary node we can fail over to secondary node and vice versa. This can be achieved automatically or manually using different cluster management tools. Now we will talk about the application layer failover. In SAP Data Services we can achieve high availability in application also. Important here to understand is while doing the installation of SAP Data Services it creates the SIA services and that is unique to each installation, so in HA the SIA services on each node should be pointing to CMS database. Also, with that we need to have common NFS for input and output FRS's among different servers. Create a common name for the CMC system, so that user can be able to login to any node in case of any issue and they need not to change that manually.

Load balancing as from the name it is quite easy to understand, in HA environment or in case of system availability issues, end users should not get impacted and could be able to login to high available landscape. In application layer or user interface layer, we can install a software based or hardware-based load balancer. SAP provides us with the software-based load balancer which is known as SAP Web dispatcher and the hardware-based load balance is Netscaler or F5 etc. Now how we can use that in our landscape or how we can use it on top of the HA. So, the end users will be given with an https/https URL to login which we created while installing the software or hardware load balancer based on company requirements. In case of any issues in the landscape or any node is down user will not be impacted because the other node will take the load and business or end users will not be impacted. Critical environments where 24/7 system availability is needed, this is the best solution to implement in your landscape. Hope you learnt the differences between HA and LB. Now with this this we will move to very interesting topic or we can say the heart of the SAP Data Services, which is SAP object promotion. How developers are creating the code in business requirements and how they are promoting to production.

3. SAP OBJECT PROMOTION

Now here we will learn about how we can move or promote the objects from development to production system in SAP data services, which is very important for a SAP person to understand how objects are moved from one system to another. This can be achieved using three different approaches. This tool is quite flexible and user friendly and help us in many ways for the promotion of the code.

3.1 ATL FILE TRANSFER

ATL (Advanced Transformation language) file transfer is the way with which export of job/project/workflow etc. from designer tool can be done. Step by step approach to export the object from designer tool based on the repo, you can export job/project/workflow/dataflows etc. Just an example below, we have created a test job in development and exported that job from from SAP designer tool by logged in to required repo

where that job is created. Now go to tools and select the export option and drag the job TEST123 into right window. Right click and select export to ATL and save the file with suitable name. Enter the keyphrase for the job name while taking the export. Once the export is done in development system, all the objects will be captured in ATL file, then login to production system into required repo, where you want to promote the changes or the landscape where you want to move the job which is exported. Go to the associated project with the job, import the job. Enter the same keyphrase which was used while taking the export. Goto tool option and right click on the import job option. New enhancement or objects are promoted to production from development as per the business requirements.

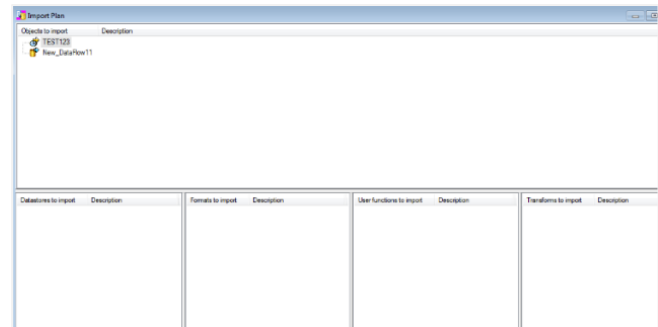


Fig. 2. Example of taking ATL export of objects

3.2 CENTRAL REPO CHECKIN/CHECKOUT

Central repository check-in and check-out is the best and safest approach in moving or promoting the objects from landscape to another. Go to SAP designer tool and go to Central Repo from tool and go to required job or dataflow or workflow and right click and "check out without replacement" or if its 1st time you are adding this object to central repo then select "add to central". Diagrammatic view for code promotion using central repo check-in and check-out to understand this better.

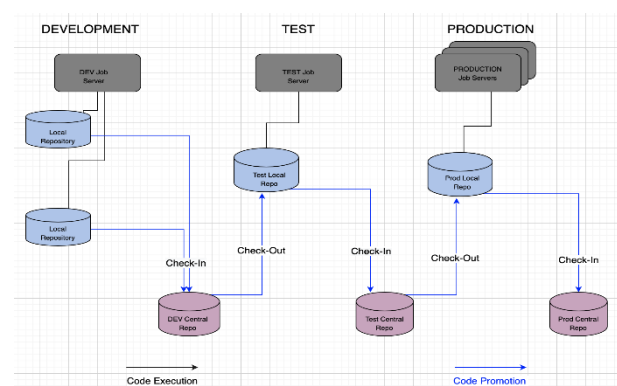


Fig. 3. Diagrammatic view of central checkin/checkout

Login to SAP designer and go to central repository and check out the central repository with replacement. Promote one of the SAP data services job using checkin/checkout methodology.

Once check out option is enabled a red tick mark will be enabled against the job which is going to be promoted from one landscape to another and now right click on the same dataflow and check in. Add the required comments to what changes you made to the Job or dataflow or workflow.

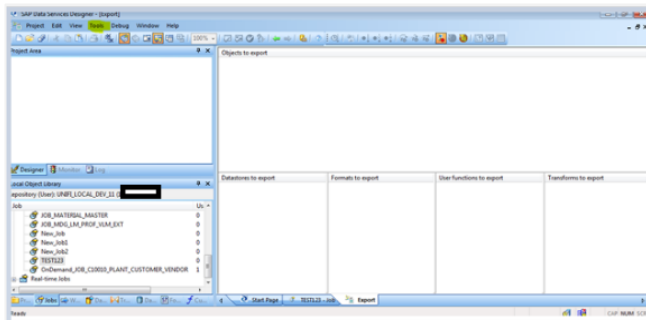


Fig. 4. CheckIn of the central object

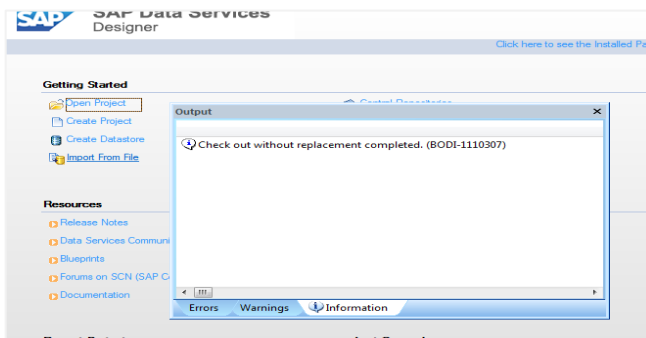


Fig. 5. CheckOut of the data service object

3.3 ENHANCED CTS PLUS OBJECT PROMOTION

The Change and Transport System (CTS+) in SAP solution manager or SAP NetWeaver is used to transport SAP Data Services objects from source system to target system like development to production. Enhanced CTS+ is the ability to transport non-ABAP objects.

So now let's understand how to configure CTS+ in the landscape. To configure CTS+ you need solution manager in your landscape. Solution manager is the ABAP system which integrates with the Java system like SAP Data Services.

To move the object from source to target, login to data services. Goto object promotions and login to central repository where the object is been checked out, capture it in the SAP transport. In SAP Solution manager you will define the TMS path of SAP Data service landscape, like development, quality and production systems. Since SAP Data Services is the non abap system we need to add a non abap system in STMS transaction. With this you can save time and be more efficient by installing the CTS+ plug-in and set your system to transport non-ABAP Data Services objects. You also must install or upgrade to Data Services 4.2 Support Package 6 patch 1 or later to use CTS+. This is a new feature which has been introduced from the above-mentioned version only. So to move the object from source to target, login to data services. Goto object promotions and login to repository where the object is been checked out, capture it in the SAP transport.

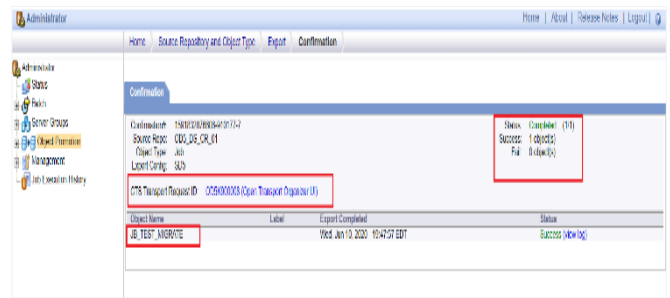


Fig. 6. Object captured in the SAP transport using CTS

Once it is captured in a transport, release the transport.

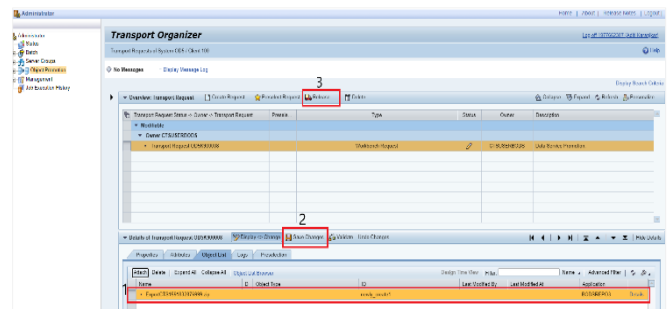


Fig. 7. Release of the modifiable object captured in the transport

Once the transport is released a lock symbol will appear which means no more changes to this object can be done in this transport. So, no modification to object can be done.

4. CONCLUSION

After going through this document, it will explain us about the overview of BODS (information platform services, data services, and information steward) and to understand the requirements of business and how those can be implemented into the landscape to integrate it with different SAP application (ECC, MDG, S4, etc.) and various databases (HANA, Oracle, MySQL, etc.) to make complex job/project/workflows into much easier and understandable format. With this article you will be able to understand the complete architecture of SAP Data Services which cover the user interface layer, database interface layer, application layer. How you can achieve the 24/7 availability of the landscape in critical business operation platforms is also covered in this document. Also the key aspect of this document is to understand the object promotion from development landscape to production. The object promotion tool in the data services administrator enables you to move one or more data services objects from a development environment to a QA environment, or directly to a production environment. To ensure security, these environments typically do not have direct access to one another. Object promotion in data services is accomplished over secure FTP or over a shared directory that only an administrator or a user with an account assigned to the data services administrator group can configure for this purpose, maintaining security in both source and target environments. Whatever the best way or optimal way where business does not allow or having budgeting issues, any of the above mentioned approach can be used to configure the object promotion. Architects or Leads can decide the best way optimal way of objects promotion.

5. REFERENCES

1. <https://help.sap.com/viewer/d6dcecbc85bc432792e87692ad5008f2/4.2.9/en-US/57913e296d6d1014b3fc9283b0e91070.html>
2. <https://help.sap.com/viewer/8df1dcdec88b4df2afc3eb1cc954b3dc/4.2.8/en-US/577d9ed66d6d1014b3fc9283b0e91070.html>
3. <https://www.sap.com/documents/2016/11/a607a3b1-947c-0010-82c7-eda71af511fa.html>
4. <https://launchpad.support.sap.com/#/notes/2056228>