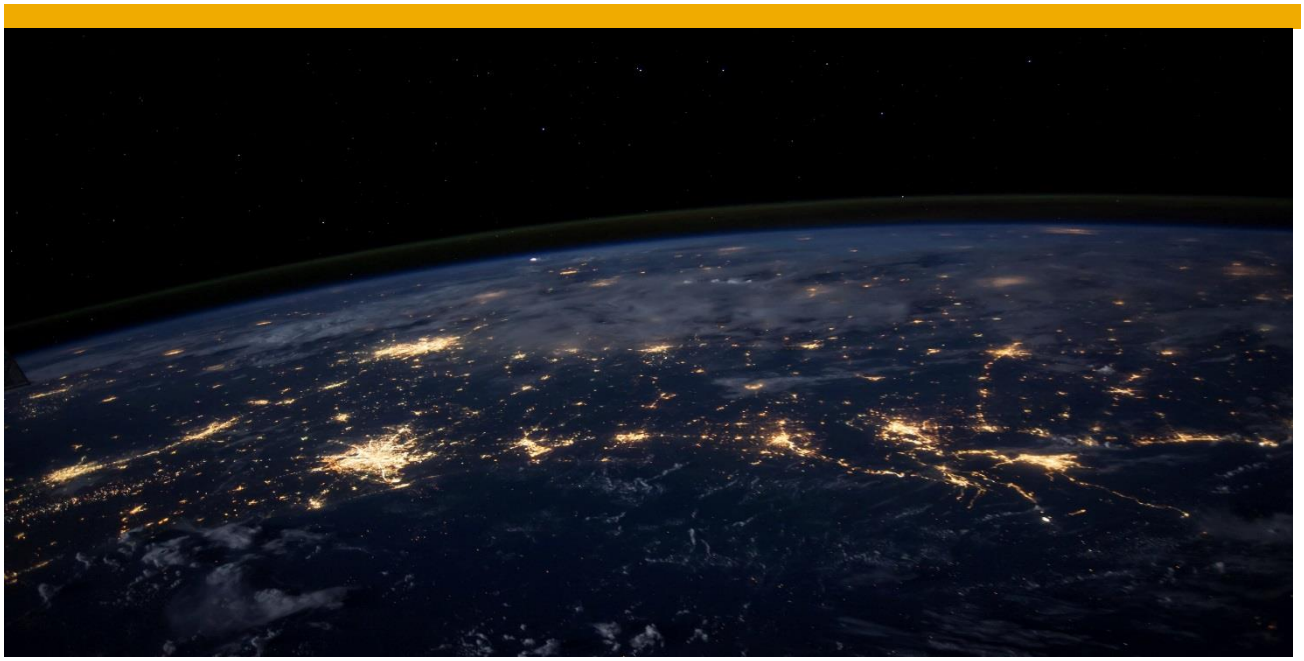

Operational Data Provisioning (ODP) FAQ

Version 1.01 / August 2017

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OVERVIEW OF OPERATIONAL DATA PROVISIONING (ODP)

1. What is ODP?

Operational Data Provisioning provides a technical infrastructure that you can use to support two different application scenarios. The first of these is Operational Analytics for decision making in operative business processes. The other is data extraction and replication.

Please note, this document primarily targets the “Data Extraction and Replication” use case for Operational Data Provisioning (ODP). For further information regarding “Operational Analytics” please refer to the Introduction to Operational Data Provisioning wiki page.

Operational data provisioning supports extraction and replication scenarios for various target applications and supports delta mechanisms in these scenarios. In case of a delta procedure, the data from a source (the so called ODP Provider) is automatically written to a delta queue using an update process or passed to the delta queue using an extractor interface. The target applications (referred to as ODQ 'subscribers' or more generally “ODP Consumers”) retrieve the data from the delta queue and continue processing the data.

Besides SAP BW/4HANA and SAP BW, Operational Data Provisioning can be used to provide data to other SAP Products such as SAP Data Services or SAP HANA Smart Data Integration.

For more information, please see the following links:

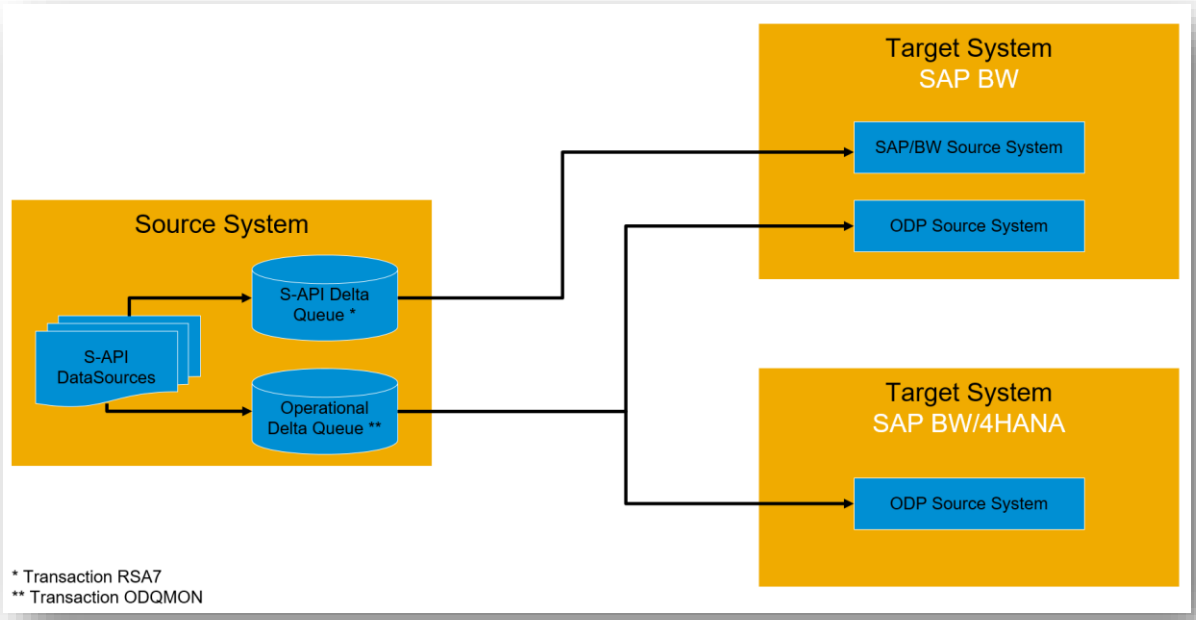
- ODP Documentation
- ODP as Source System in SAP BW
- ODP as Source System in SAP BW/4HANA

2. What are the advantages of the ODP Framework?

- If you use ODP, you can load the data directly into the BW InfoProviders, bypassing the Persistent Staging Area (PSA) layer by using a Data Transfer Processes (DTP)
- The ODP infrastructure (with delta queues) takes over important services such as monitoring data requests.
- The data is stored in a compressed state in the delta queue. A delta request transfers data records from the queue to the subscriber (target system).
- The data changes to a queue can also be requested by more than one subscriber (target system)
- The data is retained in the delta queue for a specified time period for recovery purposes.

3. Can you explain the difference between “Service API”, “ODP” and “Extractors”?

- The Service API (S-API) is the framework for DataSources (aka “Extractors”) in SAP ABAP applications. It allows the implementation, activation and enhancement of DataSources (Extractors).
- Operational Data Provisioning (ODP) is a framework in SAP ABAP applications for transferring data between systems. It allows to subscribe to (ODP Consumer) and publish various data providers (ODP Providers). From ODP Providers, data can be sent to different ODP Consumers (also several in parallel).
- The data of Service-API DataSources (Extractors) can get transferred to a target SAP BW or SAP BW/4HANA system through two different channels:
    - The SAP Source System in SAP BW. This approach involves queueing of delta records in a Delta Queue (transaction RSA7) in the sending system.
    - The **ODP Source System** in SAP BW (7.3 and higher) and SAP BW/4HANA. Therein, Service API DataSources (Extractors) are a specific (ODP Provider) context called “ODP-SAPI”.
    - For more information on other “ODP Providers” and “ODP Consumers” see the question “What are major use cases for ODP” below.



PREREQUISITES FOR ODP USAGE

4. What are the pre-requisites to use ODP for data transfer?

ODP Provider (Source System, e.g. SAP Business Suite, SLT, …)

- See the following notes regarding the correct support packages and SAP notes to be implemented on the respective SAP ABAP Application:
  - SAP_BASIS < 730 - SAP Note - 1521883 - ODP Replication API 1.0
  - SAP_BASIS >= 730 - SAP Note 1931427 - ODP Replication API 2.0
- For a functional comparison between ODP 1.0 and ODP 2.0, see SAP Note 2481315 – Operational Data Provisioning (ODP): Extracting from SAP Systems to SAP BW or SAP BW/4HANA – Availability and Limitations.
- For a list of all available ODP Providers see the next question.

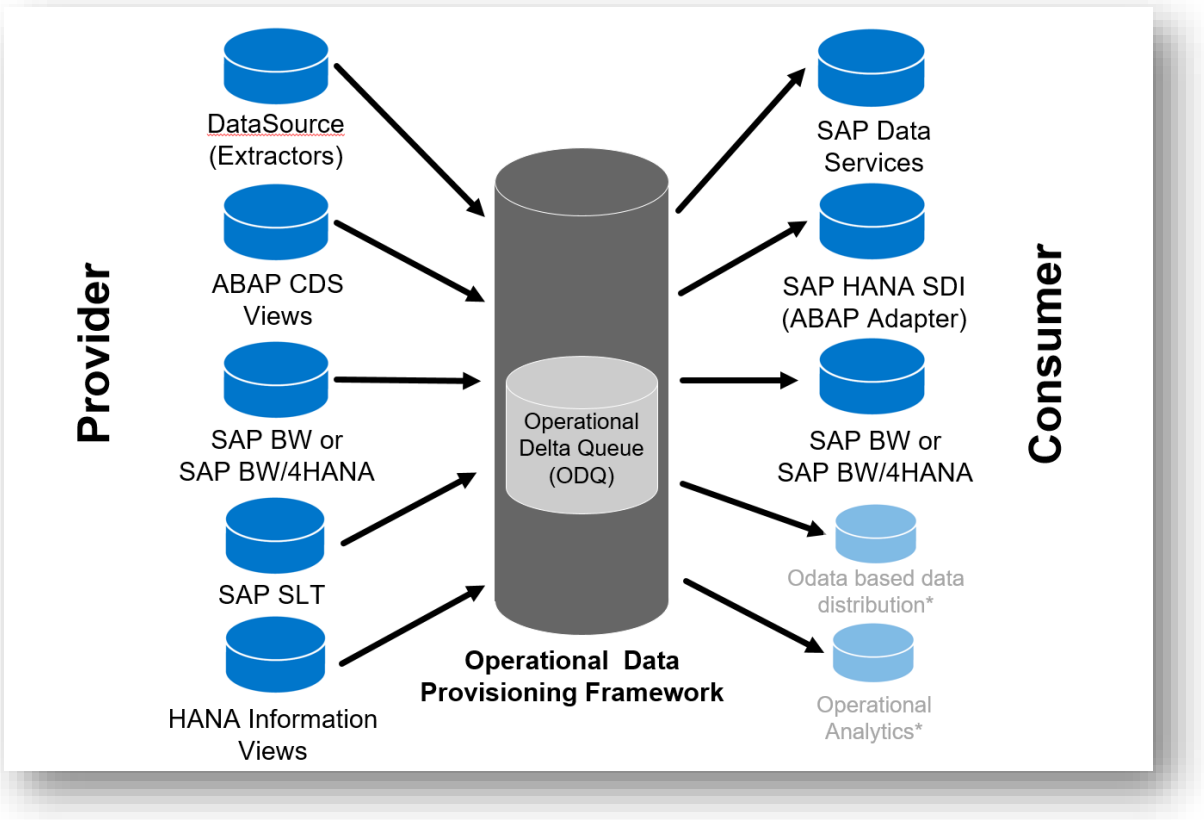
ODP Consumer (Target System, e.g. SAP BW or SAP BW/4HANA):

- Recommended starting release with BW 7.40 SP5 and supported for all databases.
- For creating and using ODP Source Systems in SAP BW 7.3x target systems, certain SAP Notes are required (please see SAP Note 1935357 – DTP With ODP Source System and SAP Note 1780912 – Creating New ODP Source System is not Available)
- For a list of all available ODP Consumers see the next question.

USE CASES FOR ODP

5. What are the major use cases for ODP?

Here is an overview of the most common ODP integration scenarios (less common scenarios are greyed out – the Operational Analytics use case is not a focus for this document):



*Not relevant in the context of this document

a. ODP Provider ("Source System")

- Data transfer from SAP DataSources (Extractors)
- Data transfer from ABAP CDS Views
- Data transfer from SAP BW or SAP BW/4HANA systems
- Real-time replication of Tables and DB-Views from SAP Source System via SAP SLT
- Data transfer SAP HANA Information Views in SAP ABAP based Sources

b. ODP Consumer ("Target Systems")

- Data transfer to SAP BW or SAP BW/4HANA
- Data transfer to SAP DataServices
- Data transfer to the "ABAP Adapter" in SAP HANA Smart Data Integration (SDI)

ODP PROVIDER CONTEXTS

ODP and Service-API DataSources (Extractors)

6. How can I enable Extractors (DataSources) for ODP?

- Please note that most Business Content DataSource (Extractors) can easily get released for Operational Data Provisioning. The same applies to generic (custom) DataSources. For more information, please see SAP Note 2232584 – Release of SAP Extractors for Operational Data Provisioning (ODP).

7. Should we change to ODP based extraction with all existing extractors?

- Since SAP BW >= 7.4, ODP is the strategic relevant source system connection to SAP Sources. With SAP BW/4HANA, only the ODP source systems are available. The former SAP source system connection type has been deprecated.
- Hence, please consider ODP as the framework for all your implementations of new data flows into your SAP BW system for extraction from SAP Source Systems.

8. Does ODP have an impact on how the extractors work?

- ODP doesn't change the implementation of application extractors, all the features and capabilities are the same.

9. Can I use generic DataSources (Extractors) in SAP BW/4HANA?

- Consumption of generic DataSources created in SAP ABAP Systems in transaction RSO2 is possible in SAP BW/4HANA using the ODP-SAP source system connection type.
- It is however not possible to create generic DataSources or activate Technical Content DataSources on SAP BW/4HANA itself (SAP BW/4HANA serving as source to itself or other systems).
- Instead, in these cases please use custom ABAP CDS Views to expose tables or DB views from your SAP BW/4HANA system to other systems (see "ODP and ABAP CDS Views")
- Technical Content DataSources will also be iteratively replaced by ABAP CDS Views (namespace RV*) for monitoring and extraction of SAP BW/4HANA statistics data. For more information see https://help.sap.com/viewer/107a6e8a38b74ede94c833ca3b7b6f51/1.0.4/en-US/1e596b288f494f5d815c86cf94c3fbbb.html

10. What to consider about Extractors (DataSources) when moving to S/4HANA?

Many SAP Business Content DataSources (Extractors) will still work with S/4HANA. Please find more detailled information in SAP Note 2500202.

ODP and SAP BW or SAP BW/4HANA Source Systems

11. How do I expose BW InfoProviders from older releases to a SAP BW4/HANA System?

Since SAP BW 7.40 SP5 its been possible to extract data from SAP BW InfoProviders using the ODP-BW Provider Context. In prior SAP BW Releases, Export DataSources in the namespace 8* were used for extracting data out of SAP BW InfoProviders. Please see comment (4) in SAP Note 2481315 - Operational Data Provisioning (ODP): Extracting from SAP Systems to SAP BW or SAP BW/4HANA – Availability and Limitations, for further information to connect these Export DataSources via the ODP-BW Provider Context to a target SAP BW 7.50 or SAP BW/4HANA System.

Creation of Export DataSources (8*) within SAP BW/4HANA is not supported. Data Transfer out of InfoProviders in SAP BW/4HANA to other ODP Consumers / Target Systems (such as SAP BW) is only possible using the ODP-BW Context.

Related Links:

- Exchanging Data Between BW Systems Using the ODP Source System
- SAP Note 2481315 - Operational Data Provisioning (ODP): Extracting from SAP Systems to SAP BW or SAP BW/4HANA – Availability and Limitations

In case you want to transfer data from Service API DataSources / Extractors out of a SAP BW or SAP BW/4HANA System (e.g. Technical Content or Generic (custom) DataSources) please refer to the ODP-SAPI Provider Context (see chapter "ODP and Service-API DataSources (Extractors") or the ODP-CDS Provider Context for SAP BW 7.50 and SAP BW/4HANA

ODP and ABAP CDS Views

12. How can we use ABAP CDS Views for delta extraction to SAP BW or SAP BW/4HANA?

- Please see How to use ABAP CDS for Data Provisioning in BW

ODP and System Landscape Transformation (SLT)

13. Does ODP work with SLT?

Starting with SAP BW 7.40 we offer a flexible and scalable way for integrating SAP BW with SLT which is based on the Operational Data Provisioning Framework. For more information see SAP NetWeaver BW 7.40 – Real-Time Replication using Operational Data Provisioning (ODP).

This document is also valid for SAP BW 7.50 and SAP BW/4HANA with the following differences:

- In SAP BW 7.40, Realtime Data Acquisition (RDA) daemons in SAP BW will be used for realtime loading of DTPs based on ODP-SLT to InfoCubes and classic DataStore Objects
- In SAP BW 7.50 and SAP BW/4HANA, Process Chains for Streaming will be used for realtime loading of DTPs based on ODP-SLT to Advanced DataStore Objects.
- For more information on Process Chains for Streaming see https://help.sap.com/viewer/2e90b26cf7484203a523bf0f4b1bc137/7.5.7/en-US/ac029de05e164a12ac1ce08d16180f05.html

There is also a system demonstration of Astrid Tschense-Oesterle available where you can see the above integration between SLT and ODP (based SAP BW 7.40) in a more detailed manner.

ODP CONSUMERS

SAP BW/4HANA AND SAP BW TARGET SYSTEMS (CONSUMER)

14. How do I connect an ABAP based SAP Source System to SAP BW or SAP BW/4HANA?

For further information see SAP Note 2481315 - Operational Data Provisioning (ODP): Extracting from SAP Systems to SAP BW or SAP BW/4HANA – Availability and Limitations

Within SAP BW/4HANA, the "SAP Source System", the "BW Source System" and the "MYSELF Source System" are no longer available.

- Connectivity to SAP Source Systems (Service API / Extractors) is now exclusively implemented using the ODP-SAP Source System type.
- Connectivity to BW Source Systems is now exclusively implemented using the ODP-BW Source System type.

All ODP 1.0 or ODP 2.0 enabled SAP Source Systems can get connected to SAP BW/4HANA (see above "ODP Provider"). Also with SAP BW/4HANA, the PSA Service has been deprecated completely and data is no longer persisted on DataSource level in PSA tables.

Conversion Support for existing SAP BW data flow scenarios using DataSources of SAP Source Systems or BW Source Systems is given with the SAP BW/4HANA Conversion Tools. Especialy the automatic conversion from SAP Source System based delta loads (using the RSA7 delta queue) to ODP Source System based delta loads (using the ODQ) is possible.

For more information see the following SAP Notes:

- SAP Note 2473145 - BW4SL - SAP and BW Source Systems
- SAP Note 2480284 - BW4SL - Hierarchy DataSources
- SAP Note 2464541 - BW4SL - Data Transfer Processes

…or find additional information in the complete SAP BW/4HANA Simplification List.

ODP and SAP Data Services as a Consumer

15. Can SAP Data Services take advantage of the ODP framework?

Extraction from ODP providers via the so called ODP-API is possible with SAP Data Services 4.2 For further information please see the following information sources:

SAP Data Services 4.2 - Reading from SAP ODP sources

- https://help.sap.com/viewer/8092b085a68941f6aaa6708685a62b0d/4.2.7/en-US/57764b2e6d6d1014b3fc9283b0e91070.html

Steps required to connect SAP Data Services 4.2 to Extractors (DataSources) to extract from ABAP based SAP Applications

- https://answers.sap.com/questions/107365/steps-required-to-connect-bods-42-to-sap-ecc-to-us.html

New Feature of SAP Data Services 4.2 and 4.1

- https://blogs.sap.com/2015/08/03/new-feature-of-bods-42-and-bods-41/

ODP AND SAP HANA SMART DATA INTEGRATION (SDI ABAP ADAPTER) AS CONSUMER

16. Can SAP HANA Smart Data Integration (SDI) take advantage of the ODP framework?

Extraction from ODP providers via the ODP-API is also possible with SAP HANA SDI. For further information please see the following information source:

SAP ABAP Adapter in HANA SDI

- https://help.sap.com/viewer/7952ef28a6914997abc01745fef1b607/2.0_SPS00/en-US/c911a7b06cf14c2999b78fe8ae2b96a8.html

ODP PERFORMANCE AND OPERATIONS

17. Can ODP be deployed in parallel with the traditional delta queue approach?

- Yes, it is possible, but it will multiply the data. ODP is a new source system for BW and would add the DataSource in a new context to the system

18. Is there a runtime advantage using ODP?

- ODP allows to skip the PSA layer and load directly with DTP from the source system into a target object in SAP BW or SAP BW/4HANA – lab results have shown a reduction in runtime by more than 40%
- Throughput of > 35 million records per hour is achieved without tuning (3 times faster than parallel processing)
- If the extractor logic is the 'bottle neck' the throughput won't change

19. How do I analyze the performance with delta extraction using ODP?

- If you experience performance issues with delta extraction of data on the basis of the Operational Delta Queue (ODQ) please review SAP Note 2300483 - ODQ fetch performance ODQDATA_V.
- Besides this, ODP doesn't change the implementation of the application extractors. Throughput of Service API DataSources / Extractors won't change when using it via an ODP Source System (instead of SAP Source Systems).

20. Do I have to consider ODQ in my source system sizing?

- ODP stores the data-to-be transferred to BW in the source system, within the ODQ. To be precise, only for the active and enabled extractors. By default, the data is stored for a retention period of 24 hours (adjustable) after all subscribers to a source system received the data. It is only focusing on the data which fits in this timeframe and is new to be loaded into BW, which in most cases is negligible.
- In case of a non-HANA ERP system, a very high compression rate storing the data in ODQ can be expected. As a rule of thumb: for the overall data growth which is loaded to BW, 10% of the size should be considered.
- In HANA based ERP systems, the data is already compressed by default, so you can take the overall data growth which should be loaded to BW 1:1.

21. How can I monitor the data exchange via the ODP framework?

- Call transaction ODQMON in the provider system. Please note, in certain cases the Provider and Consumer might be the same.

22. Do I need a PSA for ODP based extraction?

- Since BW 7.4, the DTP for ODP based source systems can write directly into the target InfoProvider without using a PSA table. This is achieved because the ODQ already provides many of the services the PSA provided.
- With SAP BW/4HANA, the PSA Service has been deprecated completely and data is no longer persisted on DataSource level in PSA tables.

23. Can I change the data in the ODQ directly?

No, this might be one use case where you would still use a PSA table in SAP BW in relation to ODP sources. As a future enhancement in SAP BW/4HANA, we plan to allow maintenance on Advanced DataStore Objects. Please see current SAP BW/4HANA roadmap, https://www.sap.com/documents/2016/08/5ccf0908-877c-0010-82c7-eda71af511fa.html

24. Can 3rd party tools use the ODP data replication API?

The ODP data replication API is restricted to SAP applications and not open to 3rd party ETL tools.

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