Oracle Data Pump
Oracle Database 21c – What’s new in Oracle Data Pump for Cloud

Bill Beauregard
Senior Principal Product Manager
Oracle New England Development Center
Why Data Pump Important for Autonomous Database?
It’s the recommended way to migrate to ADW and ATP

What’s New in Data Pump 21c?

• Export dumpfiles into an object store for ADB
• Network Mode import into ATP Dedicated using DB Links
• Validate a dumpfile by checksum before using it
• Include and exclude objects in the same export or import operation
• Control index compression during import
Export Cloud Dumpfiles to Object Store
Export into object store from Autonomous Database & on-premises databases

- Export `CREDENTIAL` parameter specifies your object store authentication
- Export `DUMPFILE` parameter specifies the URL path to dumpfiles in the object store
- Example:

  ```bash
  expdp hr DEFAULT_DIRECTORY=dir1 DUMPFILE= https://objectstorage.us-ashburn-1.oraclecloud.com/n/namespace-string/b/bucketname/o/exp%u.dmp
  CREDENTIAL=user-credential schemas=schema_name, exclude=cluster, db_link parallel=# encryption_pwd_prompt=yes
  ```

- Details:
  - `CREDENTIAL` expects `DUMPFILE` list of URIs as a comma-delimited string
  - `DEFAULT_DIRECTORY` parameter specifies the location of the local log files
  - `LOGFILE` allows directory object names as part of the file names
- Documentation: Utilities Guide > [Export CLI](#) > `CREDENTIAL` & `DUMPFILE`
Import from OOS Dumpfiles to ADW, ATP-Shared, ATP-Dedicated

Differences in recommended parameters for ADB Services

Red text = ADW, ATP-Shared only parameters, Blue text = ATP-Dedicated only

- impdp admin/password@ADWC1_high
directory=data_pump_dir
credential=def_cred_name
dumpfile=https://objectstorage.us-ashburn-1.oraclecloud.com/n/namespace-string/b/bucketname/o/export%u.dmp
parallel=16
encryption_pwd_prompt=yes
transform=segment_attributes:n
transform=dwcs_cvt_iots:y
transform=constraint_use_default_index:y
exclude=cluster,indextype,db_link
nologfile=yes

Documentation ADW, ATP-Shared, ATP-Dedicated
DEMO: Export to the Oracle Object Store
Import into ATP-Dedicated using Network Mode import
Oracle Database 19c capability

- Export and import in one step w/o referencing the object store and dumpfiles
- Format:

  impdp user/pwd@host_name:port_#/service_name
  schema=schema_name
  network_link=link_name
  parallel=#
  transform=segment_attributes:n
  exclude=cluster
  nologfile=yes

Documentation ATP-Dedicated
DEMO: Network Mode import into Oracle ATP-D
21c Validate a Dumpfile with a Checksum

Confirm dumpfile is valid after a object store transfer and has no malicious changes

- **Export** `CHECKSUM` & `CHECKSUM_ALGORITHM` parameters generate SHA or CRC
- **Import** `VERIFY_CHECKSUM` parameter uses the checksum to validate dumpfile(s)
- **Example:**
  ```
  expdp hr DIRECTORY=dpump_dir1 DUMPFILE=hr.dmp CHECKSUM_ALGORITHM=SHA384
  impdp hr DIRECTORY=dpump_dir1 DUMPFILE=hr.dmp VERIFY_CHECKSUM=YES
  ```
- **Details:**
  - `CHECKSUM_ALGORITHM` = [CRC32|SHA256|SHA384|SHA512]
  - If only `CHECKSUM=YES` is specified then `CHECKSUM_ALGORITHM = SHA256`
  - Must have `COMPATIBLE = 21.0` or higher
  - `VERIFY_CHECKSUM` and `VERIFY_ONLY` parameters are mutually exclusive
- **Documentation:** Utilities Guide > Export / Import CLI >
21c Include & Exclude objects in Same Job
Easier to migrate to Oracle Cloud / on-premises by being more specific

- Include and exclude objects within the same export or import job
- Example:

  expdp hr DIRECTORY=dpump_dir1 DUMPFILE=exp%u.dmp SCHEMAS=hr,oe
  include=table exclude=statistics

- Details:
  - **INCLUDE** parameter processed first, include all objects identified by the parameter
  - **EXCLUDE** parameter(s) processed next. It removes any objects in the list of include objects

- Documentation: Utilities Guide > Import CLI >
21c Control Import Index Compression

Take control of index compression on import and specify index compression for ADB

• Compress indexes during import with `INDEX_COMPRESSION_CLAUSE` transform

Example:

```shell
impdp hr DIRECTORY=dpump_dir1 DUMPFILE=hr.dmp SCHEMAS=hr
TRANSFORM=INDEX_COMPRESSION_CLAUSE:COMPRESS ADVANCED LOW;
```

• Details:
  • `INDEX_COMPRESSION_CLAUSE [NONE | compression_clause]`

• Documentation: Utilities Guide > Import CLI >
What’s New in Oracle Data Pump 21c for Enterprise DBs?
More performance and ease of use

- Parallelize TTS metadata operations for VLDB
- Resume stopped transportable tablespace jobs
- Export and import native JSON datatype
What’s New in Oracle SQL*Loader 21c
More performance and ease of use

- Load JSON data into the native datatype in Oracle Database
- Load from the object store with user-defined credentials
Review: What’s New in Data Pump 19c?

- Suppress Encrypted Columns Clause
- Set Max Data Pump Jobs & Parallelism
- Explicitly Enable Authenticated Roles
- Use Any Object Store Credentials
- Wildcards in Object Store Dumpfile Name
- Transportable Tablespaces Test Mode
- Transportable Tablespaces Import Read-Only Tablespaces
Thank you!

Visit Oracle LiveLabs (https://livelabs.oracle.com) for hands-on workshops to learn more about Oracle Database 21c