129
DBMS_METADATA_DIFF

The `DBMS_METADATA_DIFF` package contains the interfaces for comparing two metadata documents in SXML format.

This chapter contains the following topics:

- Overview
- Security Model
- Browsing APIs for Fetching and Comparing Objects
- Summary of DBMS_METADATA_DIFF Subprograms

> **See Also:**
>
> *Oracle Database Utilities* for more information and for examples of using the `DBMS_METADATA_DIFF` package.

DBMS_METADATA_DIFF Overview

You can use the interfaces contained in the `DBMS_METADATA_DIFF` package to compare two metadata documents in SXML format.

The result of the comparison is an SXML difference document. This document can be converted to other formats using the `DBMS_METADATA` submit interface and the `CONVERT` API.

DBMS_METADATA_DIFF Security Model

The browsing interface of the `DBMS_METADATA_DIFF` package actually uses the `DBMS_METADATA` package to fetch the metadata to be compared. Therefore, the security model used for `DBMS_METADATA` also applies to `DBMS_METADATA_DIFF`. (Note, however, that `DBMS_METADATA_DIFF` does not support all object types.)

> **See Also:**
>
> DBMS_METADATA for information about the DBMS_METADATA security model

DBMS_METADATA_DIFF — Browsing APIs for Fetching and Comparing Objects

These functions allow you to compare the metadata for two objects with a single call.

Syntax

```
DBMS_METADATA_DIFF.COMPARE_SXML(
object_type   IN VARCHAR2,
name1         IN VARCHAR2,
name2         IN VARCHAR2,
schema1       IN VARCHAR2 DEFAULT NULL,
schema2       IN VARCHAR2 DEFAULT NULL,
network_link1 IN VARCHAR2 DEFAULT NULL,
network_link2 IN VARCHAR2 DEFAULT NULL)
RETURN CLOB;

DBMS_METADATA_DIFF.COMPARE_ALTER(
object_type   IN VARCHAR2,
name1         IN VARCHAR2,
name2         IN VARCHAR2,
schema1       IN VARCHAR2 DEFAULT NULL,
schema2       IN VARCHAR2 DEFAULT NULL,
network_link1 IN VARCHAR2 DEFAULT NULL,
network_link2 IN VARCHAR2 DEFAULT NULL)
RETURN CLOB;

DBMS_METADATA_DIFF.COMPARE_ALTER_XML(
object_type   IN VARCHAR2,
name1         IN VARCHAR2,
name2         IN VARCHAR2,
schema1       IN VARCHAR2 DEFAULT NULL,
schema2       IN VARCHAR2 DEFAULT NULL,
network_link1 IN VARCHAR2 DEFAULT NULL,
network_link2 IN VARCHAR2 DEFAULT NULL)
RETURN CLOB;
```

Parameters

Table 129-1 COMPARE_xxx Function Parameters

Parameters	Description
object_type	The type of object to be compared. Valid type names are CLUSTER, CONTEXT, DB_LINK, FGA_POLICY, INDEX, MATERIALIZED_VIEW, MATERIALIZED_VIEW_LOG, QUEUE, QUEUE_TABLE, RLS_CONTEXT, RLS_GROUP, RLS_POLICY, ROLE, SEQUENCE, SYNONYM, TABLE, TABLESPACE, TRIGGER, TYPE, TYPE_SPEC, TYPE_BODY, USER, and VIEW.
name1	The name of the first object in the comparison.
name2	The name of the second object in the comparison.
schema1	The schema of the first object in the comparison. The default is the current user.
schema2	The schema of the second object in the comparison. The default is the value of schema1.

Table 129-1 (Cont.) COMPARE_xxx Function Parameters

Parameters	Description
network_link1	The name of a database link to the database on which the first object resides. If NULL (the default), then the object is assumed to be in the database on which the caller is running.
network_link2	The name of a database link to the database on which the second object resides. The default is the value of network_link1.

Return Values

DBMS_METADATA_DIFF.COMPARE_xxx returns the differences between two objects.

Exceptions

- INVALID_ARGVAL

  A NULL or invalid value was supplied for an input parameter. The error message text identifies the parameter.

- OBJECT_NOT_FOUND

  The specified object was not found in the database.

Usage Notes

These functions encapsulate calls to both DBMS_METADATA and DBMS_METADATA_DIFF functions and procedures to fetch the metadata for each of the two objects and compare them.

Which function you use depends on the comparison format you want:

- COMPARE_SXML returns an SXML difference document.
- COMPARE_ALTER returns a set of ALTER statements for making the first object like the second object.
- COMPARE_ALTER_XML returns an ALTER_XML document.

Summary of DBMS_METADATA_DIFF Subprograms

The DBMS_METADATA_DIFF subprograms provide comparison functionality for different object types.

These subprograms are used to:

- Specify the type of objects to be compared
- Specify the SXML documents to be compared
- Show the differences between the compared documents
- Clean up after the comparison

Table 129-2 provides a summary of DBMS_METADATA_DIFF subprograms.

Table 129-2 DBMS_METADATA_DIFF Package Subprograms

Subprogram	Description
OPENC Function	Specifies the type of objects to be compared
ADD_DOCUMENT Procedure	Specifies an SXML document to be compared
FETCH_CLOB Functions and Procedures	Returns a CLOB showing the differences between the two documents specified by `ADD_DOCUMENT`
CLOSE Procedure	Invalidates the handle returned by `OPENC` and cleans up associated state

OPENC Function

This function specifies the type of objects to be compared. The return value is an opaque context handle.

Syntax

```
DBMS_METADATA_DIFF.OPENC (
object_type  IN VARCHAR2)
RETURN NUMBER;
```

Parameters

Table 129-3 OPENC Function Parameters

Parameters	Description
`object_type`	The type of object to be compared. Valid type names are `CLUSTER`, `CONTEXT`, `DB_LINK`, `FGA_POLICY`, `INDEX`, `MATERIALIZED_VIEW`, `MATERIALIZED_VIEW_LOG`, `QUEUE`, `QUEUE_TABLE`, `RLS_CONTEXT`, `RLS_GROUP`, `RLS_POLICY`, `ROLE`, `SEQUENCE`, `SYNONYM`, `TABLE`, `TABLESPACE`, `TRIGGER`, `TYPE`, `TYPE_SPEC`, `TYPE_BODY`, `USER`, and `VIEW`.

Return Values

The opaque handle that is returned is used as input to `ADD_DOCUMENT`, `FETCH_xxx` and `CLOSE`.

Exceptions

- `INVALID_ARGVAL`

  A `NULL` or invalid value was supplied for an input parameter. The error message text identifies the parameter.

ADD_DOCUMENT Procedure

This procedure specifies an SXML document that is to be compared.

Syntax

```
DBMS_METADATA_DIFF.ADD_DOCUMENT(
handle IN NUMBER, document IN sys.XMLType);
```

```
DBMS_METADATA_DIFF.ADD_DOCUMENT(
handle IN NUMBER, document IN CLOB);
```

Parameters

Table 129-4 ADD_DOCUMENT Procedure Parameters

Parameter	Description
handle	The handle returned from OPENC
document	A document to be compared. The document must be of the type specified in OPENC.

Usage Notes

Because the comparison interface allows you to compare exactly two SXML documents, a program must call ADD_DOCUMENT exactly twice for each OPENC handle. In the comparison result, the document specified by the first call is document 1, and the document specified by the second call is document 2.

Exceptions

- INVALID_ARGVAL

  A NULL or invalid value was supplied for an input parameter. The error message text identifies the parameter.

FETCH_CLOB Functions and Procedures

The FETCH_CLOB functions and procedures return a CLOB showing the differences between the two documents specified by ADD_DOCUMENT.

Syntax

```
DBMS_METADATA_DIFF.FETCH_CLOB(
handle IN NUMBER)
RETURN CLOB;

DBMS_METADATA_DIFF.FETCH_CLOB(

handle IN  NUMBER,
doc    IN  OUT NOCOPY CLOB);

DBMS_METADATA_DIFF.FETCH_CLOB(
handle IN  NUMBER,
doc    IN  OUT NOCOPY CLOB
diffs  OUT BOOLEAN);
```

Parameters

Table 129-5 FETCH_CLOB Subprogram Parameters

Parameter	Description
handle	The handle returned from OPENC.
doc	A CLOB containing the differences between documents 1 and 2.
diffs	TRUE if the documents are different or FALSE if they are identical.

Return Values

The differences between documents 1 and 2.

Exceptions

- `INVALID_ARGVAL`

  A `NULL` or invalid value was supplied for an input parameter. The error message text identifies the parameter.

CLOSE Procedure

This procedure invalidates the handle returned by `OPENC` and cleans up associated state.

Syntax

```
DBMS_METADATA_DIFF.CLOSE(
handle IN NUMBER);
```

Parameters

Table 129-6 CLOSE Function Parameters

Parameters	Description
`handle`	The handle returned from `OPENC`

Exceptions

- `INVALID_ARGVAL`

  A `NULL` or invalid value was supplied for an input parameter. The error message text identifies the parameter.