137
DBMS_NETWORK_ACL_ADMIN

The `DBMS_NETWORK_ACL_ADMIN` package provides the interface to administer the network Access Control List (ACL).

The chapter contains the following topics:

- Overview
- Deprecated Subprograms
- Security Model
- Constants
- Exceptions
- Examples
- Summary of DBMS_NETWORK_ACL_ADMIN Subprograms

> **See Also:**
>
> For more information, see "Managing Fine-grained Access to External Network Services" in *Oracle Database Security Guide*

DBMS_NETWORK_ACL_ADMIN Overview

The `DBMS_NETWORK_ACL_ADMIN` package provides the interface to administer the network access control lists (ACL).

ACLs are used to control access by users to external network services and resources from the database through PL/SQL network utility packages including UTL_TCP , UTL_HTTP , UTL_SMTP and UTL_INADDR .

DBMS_NETWORK_ACL_ADMIN Deprecated Subprograms

Oracle recommends that you do not use deprecated subprograms in new applications. Support for deprecated features is for backward compatibility only

The following subprograms are deprecated with release Oracle Database 12*c*:

- ADD_PRIVILEGE Procedure
- ASSIGN_ACL Procedure
- ASSIGN_WALLET_ACL Procedure
- CHECK_PRIVILEGE Function
- CHECK_PRIVILEGE_ACLID Function
- CREATE_ACL Procedure

- DELETE_PRIVILEGE Procedure
- DROP_ACL Procedure
- UNASSIGN_ACL Procedure
- UNASSIGN_WALLET_ACL Procedure

DBMS_NETWORK_ACL_ADMIN Security Model

The `EXECUTE` privilege on the `DBMS_NETWORK_ACL_ADMIN` package is granted to the `DBA` role and to the `EXECUTE_CATALOG_ROLE` by default.

DBMS_NETWORK_ACL_ADMIN Constants

The `DBMS_NETWORK_ACL_ADMIN` package defines constants to use specifying parameter values.

These are shown in the following table.

Table 137-1 DBMS_NETWORK_ACL_ADMIN Constants

Constant	Type	Value	Description
IP_ADDR_MASK	VARCHAR2(80)	'([[:digit:]]+\.){3}[[:digit:]]+'	IP address mask: xxx.xxx.xxx.xxx
IP_SUBNET_MASK	VARCHAR2(80)	'([[:digit:]]+\.){0,3}*'	IP subnet mask: xxx.xxx...*
HOSTNAME_MASK	VARCHAR2(80)	'[^\.\:\/*]+(\.[^\.\:\/*]+)*'	Hostname mask: ???.???.???...???
DOMAIN_MASK	VARCHAR2(80)	'*(\.[^\.\:\/*]+)*'	Domain mask: *.???.???...???

DBMS_NETWORK_ACL_ADMIN Exceptions

The following table lists the exceptions raised by the `DBMS_NETWORK_ACL_ADMIN` package.

Table 137-2 DBMS_NETWORK_ACL_ADMIN Exceptions

Exception	Error Code	Description
ACE_ALREADY_EXISTS	24243	ACE already exists
EMPTY_ACL	24246	Empty ACL
ACL_NOT_FOUND	46114	ACL not found
ACL_ALREADY_EXISTS	46212	ACL already exists
INVALID_ACL_PATH	46059	Invalid ACL path
INVALID_HOST	24244	Invalid host
INVALID_PRIVILEGE	24245	Invalid privilege
INVALID_WALLET_PATH	29248	Invalid wallet path
BAD_ARGUMENT	29261	Bad argument
UNRESOLVED_PRINCIPAL	46238	Unresolved principal

Table 137-2 (Cont.) DBMS_NETWORK_ACL_ADMIN Exceptions

Exception	Error Code	Description
PRIVILEGE_NOT_GRANTED	01927	Privilege not granted

DBMS_NETWORK_ACL_ADMIN Examples

Grant the `connect` and `resolve` privileges for host `www.us.example.com` to `SCOTT`.

Example1

```
DBMS_NETWORK_ACL_ADMIN.APPEND_HOST_ACE(
  host => 'www.us.example.com',
  ace  =>  xs$ace_type(privilege_list => xs$name_list('connect', 'resolve'),
                       principal_name => 'scott',
                       principal_type => xs_acl.ptype_db));
```

Example 2

Revoke the `resolve` privilege for host `www.us.example.com` from `SCOTT`.

```
dbms_network_acl_admin.remove_host_ace(
  host => 'www.us.example.com',
  ace  =>  xs$ace_type(privilege_list => xs$name_list('resolve'),
                       principal_name => 'scott',
                       principal_type => xs_acl.ptype_db));
```

Example 3

Grant the `use_client_certificates` and `use_passwords` privileges for wallet `file:/example/wallets/hr_wallet` to `SCOTT`.

```
dbms_network_acl_admin.append_wallet_ace(
  wallet_path => 'file:/example/wallets/hr_wallet',
  ace         =>  xs$ace_type(privilege_list => xs$name_list('use_client_certificates',
'use_passwords'),
                              principal_name => 'scott',
                              principal_type => xs_acl.ptype_db));
```

Example 4

Revoke the `use_passwords` privilege for wallet `file:/example/wallets/hr_wallet` from `SCOTT`.

```
dbms_network_acl_admin.remove_wallet_ace(
  wallet_path => 'file:/example/wallets/hr_wallet',
  ace         =>  xs$ace_type(privilege_list => xs$name_list('use_passwords'),
                              principal_name => 'scott',
                              principal_type => xs_acl.ptype_db));
```

Example 5

The `CONTAINS_HOST` in the `DBMS_NETWORK_ACL_UTLILITY` package determines if a host is contained in a domain. It can be used in conjunction with the `DBA_HOST_ACE` view to determine the users and their privilege assignments to access a network host.For example, for access to `www.us.example.com`:

```
SELECT HOST, LOWER_PORT, UPPER_PORT,
       ACE_ORDER, PRINCIPAL, PRINCIPAL_TYPE,
```

```
      GRANT_TYPE, INVERTED_PRINCIPAL, PRIVILEGE,
      START_DATE, END_DATE
  FROM (SELECT ACES.*,
DBMS_NETWORK_ACL_UTILITY.CONTAINS_HOST('www.us.example.com',
                                                    HOST) PRECEDENCE
         FROM DBA_HOST_ACES ACES)
 WHERE PRECEDENCE IS NOT NULL
 ORDER BY PRECEDENCE DESC,
         LOWER_PORT NULLS LAST,
         UPPER_PORT NULLS LAST,
         ACE_ORDER;

HOST               LOWER_PORT UPPER_PORT ACE_ORDER PRINCIPAL PRINCIPAL_TYPE   GRANT_TYPE
INVERTED_PRINCIPAL PRIVILEGE START_DATE END_DATE
------------------ ---------- ---------- --------- --------- ---------------- ----------
------------------ ---------- ---------- --------
www.us.example.com         80         80         1 SCOTT     DATABASE USER    GRANT
NO                 HTTP
www.us.example.com         80         80         2 ADAMS     DATABASE USER    GRANT
NO                 HTTP
*                                                 1 HQ_DBA    DATABASE USER    GRANT
NO                 CONNECT
*                                                 1 HQ_DBA    DATABASE USER    GRANT
NO                 RESOLVE
```

Example 6

For example, for `HQ_DBA`'s own permission to access to `www.us.example.com`:

```
SELECT HOST, LOWER_PORT, UPPER_PORT, PRIVILEGE, STATUS
  FROM (SELECT ACES.*,
DBMS_NETWORK_ACL_UTILITY.CONTAINS_HOST('www.us.example.com',
                                                    HOST) PRECEDENCE
         FROM USER_HOST_ACES ACES)
 WHERE PRECEDENCE IS NOT NULL
 ORDER BY PRECEDENCE DESC,
         LOWER_PORT NULLS LAST,
         UPPER_PORT NULLS LAST;


HOST               LOWER_PORT UPPER_PORT PRIVILEGE STATUS
------------------ ---------- ---------- --------- -------
*                                        CONNECT   GRANTED
*                                        RESOLVE   GRANTED
```

Summary of DBMS_NETWORK_ACL_ADMIN Subprograms

This table lists and briefly describes the `DBMS_NETWORK_ACL_ADMIN` package subprograms.

Table 137-3 DBMS_NETWORK_ACL_ADMIN Package Subprograms

Subprogram	Description
ADD_PRIVILEGE Procedure	[DEPRECATED] Adds a privilege to grant or deny the network access to the user in an access control list (ACL)
APPEND_HOST_ACE Procedure	Appends an access control entry (ACE) to the access control list (ACL) of a network host.
APPEND_HOST_ACL Procedure	Appends access control entries (ACE) of an access control list (ACL) to the ACL of a network host

Table 137-3 (Cont.) DBMS_NETWORK_ACL_ADMIN Package Subprograms

Subprogram	Description
APPEND_WALLET_ACE Procedure	Appends an access control entry (ACE) to the access control list (ACL) of a wallet
APPEND_WALLET_ACL Procedure	Appends access control entries (ACE) of an access control list (ACL) to the ACL of a wallet
ASSIGN_ACL Procedure	[DEPRECATED] Assigns an access control list (ACL) to a host computer, domain, or IP subnet, and if specified, the TCP port range.
ASSIGN_WALLET_ACL Procedure	[DEPRECATED] Assigns an access control list (ACL) to a wallet
CHECK_PRIVILEGE Function	[DEPRECATED] Checks if a privilege is granted or denied the user in an access control list (ACL)
CHECK_PRIVILEGE_ACLID Function	[DEPRECATED] Checks if a privilege is granted to or denied from the user in an ACL by specifying the object ID of the access control list
CREATE_ACL Procedure	[DEPRECATED] Creates an access control list (ACL) with an initial privilege setting
DELETE_PRIVILEGE Procedure	[DEPRECATED] Deletes a privilege in an access control list (ACL)
DROP_ACL Procedure	[DEPRECATED] Drops an access control list (ACL)
REMOVE_HOST_ACE Procedure	Removes privileges from access control entries (ACE) in the access control list (ACL) of a network host matching the given ACE
REMOVE_WALLET_ACE Procedure	Removes privileges from access control entries (ACE) in the access control list (ACL) of a wallet matching the given ACE
SET_HOST_ACL Procedure	Sets the access control list (ACL) of a network host which controls access to the host from the database
SET_WALLET_ACL Procedure	Sets the access control list (ACL) of a wallet which controls access to the wallet from the database
UNASSIGN_ACL Procedure	[DEPRECATED] Unassigns the access control list (ACL) currently assigned to a network host
UNASSIGN_WALLET_ACL Procedure	[DEPRECATED] Unassigns the access control list (ACL) currently assigned to a wallet

ADD_PRIVILEGE Procedure

This procedure adds a privilege to grant or deny the network access to the user. The access control entry (ACE) is created if it does not exist.

> **Note:**
>
> This procedure is deprecated in Oracle Database 12*c*. While the procedure remains available in the package for reasons of backward compatibility, Oracle recommends using the APPEND_HOST_ACE Procedure and the APPEND_WALLET_ACE Procedure.

Syntax

```
DBMS_NETWORK_ACL_ADMIN.ADD_PRIVILEGE (
   acl             IN VARCHAR2,
   principal       IN VARCHAR2,
   is_grant        IN BOOLEAN,
   privilege       IN VARCHAR2,
   position        IN PLS_INTEGER DEFAULT NULL,
   start_date      IN TIMESTAMP WITH TIMESTAMP DEFAULT NULL,
   end_date        IN TIMESTAMP WITH TIMESTAMP DEFAULT NULL );
```

Parameters

Table 137-4 ADD_PRIVILEGE Function Parameters

Parameter	Description
`acl`	Name of the ACL. Relative path will be relative to "/sys/acls"
`principal`	Principal (database user or role) to whom the privilege is granted or denied. Case sensitive.
`is_grant`	Privilege is granted or denied.
`privilege`	Network privilege to be granted or denied
`position`	Position (1-based) of the ACE. If a non-`NULL` value is given, the privilege will be added in a new ACE at the given position and there should not be another ACE for the principal with the same `is_grant` (grant or deny). If a `NULL` value is given, the privilege will be added to the ACE matching the principal and the `is_grant` if one exists, or to the end of the ACL if the matching ACE does not exist.
`start_date`	Start date of the access control entry (ACE). When specified, the ACE will be valid only on and after the specified date. The `start_date` will be ignored if the privilege is added to an existing ACE.
`end_date`	End date of the access control entry (ACE). When specified, the ACE expires after the specified date. The `end_date` must be greater than or equal to the `start_date`. The `end_date` will be ignored if the privilege is added to an existing ACE.

Usage Notes

To remove the permission, use the DELETE_PRIVILEGE Procedure.

Examples

```
BEGIN
  DBMS_NETWORK_ACL_ADMIN.ADD_PRIVILEGE(
        acl         => 'us-example-com-permissions.xml',
        principal   => 'ST_USERS',
        is_grant    =>  TRUE,
        privilege   => 'connect')
END;
```

APPEND_HOST_ACE Procedure

This procedure appends an access control entry (ACE) to the access control list (ACL) of a network host. The ACL controls access to the given host from the database and the ACE specifies the privileges granted to or denied from the specified principal.

Syntax

```
DBMS_NETWORK_ACL_ADMIN.APPEND_HOST_ACE (
   host         IN VARCHAR2,
   lower_port   IN PLS_INTEGER DEFAULT NULL,
   upper_port   IN PLS_INTEGER DEFAULT NULL,
   ace          IN XS$ACE_TYPE);
```

Parameters

Table 137-5 APPEND_HOST_ACE Function Parameters

Parameter	Description
`host`	The host, which can be the name or the IP address of the host. You can use a wildcard to specify a domain or a IP subnet. The host or domain name is case-insensitive.
`lower_port`	Lower bound of an optional TCP port range
`upper_port`	Upper bound of an optional TCP port range. If `NULL`, `lower_port` is assumed.
`ace`	The ACE

Usage Notes

- Duplicate privileges in the matching ACE in the host ACL will be skipped.
- To remove the ACE, use the REMOVE_HOST_ACE Procedure.
- A host's ACL takes precedence over its domains' ACLs. For a given host, say `www.us.example.com`, the following domains are listed in decreasing precedence:
  - `www.us.example.com`
  - `*.us.example.com`
  - `*.example.com`
  - `*.com`
  - `*`
- An IP address' ACL takes precedence over its subnets' ACLs. For a given IP address, say `192.168.0.100`, the following subnets are listed in decreasing precedence:
  - `192.168.0.100`
  - `192.168.0.*`
  - `192.168.*`
  - `192.*`
  - `*`

- An ACE with a "resolve" privilege can be appended only to a host's ACL without a port range.
- When ACEs with "connect" privileges are appended to a host's ACLs with and without a port range, the one appended to the host with a port range takes precedence.
- When specifying a TCP port range of a host, it cannot overlap with other existing port ranges of the host.
- If the ACL is shared with another host or wallet, a copy of the ACL will be made before the ACL is modified.

> **See Also:**
>
> *Oracle Database Real Application Security Administrator's and Developer's Guide* for more information about the `XS$ACE_TYPE` object type

APPEND_HOST_ACL Procedure

This procedure appends access control entries (ACE) of an access control list (ACL) to the ACL of a network host.

Syntax

```
DBMS_NETWORK_ACL_ADMIN.APPEND_HOST_ACL (
   host         IN VARCHAR2,
   lower_port   IN PLS_INTEGER DEFAULT NULL,
   upper_port   IN PLS_INTEGER DEFAULT NULL,
   acl          IN VARCHAR2);
```

Parameters

Table 137-6 APPEND_HOST_ACL Function Parameters

Parameter	Description
`host`	The host, which can be the name or the IP address of the host. You can use a wildcard to specify a domain or a IP subnet. The host or domain name is case-insensitive.
`lower_port`	Lower bound of an optional TCP port range
`upper_port`	Upper bound of an optional TCP port range. If `NULL`, `lower_port` is assumed.
`acl`	The ACL from which to append

Usage Notes

- Duplicate privileges in the matching ACE in the host ACL will be skipped.
- To remove the ACE, use the REMOVE_HOST_ACE Procedure.
- A host's ACL takes precedence over its domains' ACLs. For a given host, say `www.us.example.com`, the following domains are listed in decreasing precedence:
  - `www.us.example.com`
  - `*.us.example.com`

  - `*.example.com`
  - `*.com`
  - `*`
- An IP address' ACL takes precedence over its subnets' ACLs. For a given IP address, say `192.168.0.100`, the following subnets are listed in decreasing precedence:
  - `192.168.0.100`
  - `192.168.0.*`
  - `192.168.*`
  - `192.*`
  - `*`
- An ACE with a "resolve" privilege can be appended only to a host's ACL without a port range.
- When ACEs with "connect" privileges are appended to a host's ACLs with and without a port range, the one appended to the host with a port range takes precedence.
- When specifying a TCP port range of a host, it cannot overlap with other existing port ranges of the host.- If the ACL is shared with another host or wallet, a copy of the ACL will be made before the ACL is modified.

APPEND_WALLET_ACE Procedure

This procedure appends an access control entry (ACE) to the access control list (ACL) of a wallet. The ACL controls access to the given wallet from the database and the ACE specifies the privileges granted to or denied from the specified principal.

Syntax

```
DBMS_NETWORK_ACL_ADMIN.APPEND_WALLET_ACE (
   wallet_path     IN VARCHAR2,
   ace             IN XS$ACE_TYPE);
```

Parameters

Table 137-7 APPEND_WALLET_ACE Function Parameters

Parameter	Description
`wallet_path`	Directory path of the wallet. The path is case-sensitive of the format `file:`*`directory-path`*.
`ace`	The ACE

Usage Notes

- Duplicate privileges in the matching ACE in the host ACL will be skipped.
- To remove the ACE, use the REMOVE_WALLET_ACE Procedure.
- If the ACL is shared with another host or wallet, a copy of the ACL is made before the ACL is modified.

> **See Also:**
>
> *Oracle Database Real Application Security Administrator's and Developer's Guide* for more information about the `XS$ACE_TYPE` object type

APPEND_WALLET_ACL Procedure

This procedure appends access control entries (ACE) of an access control list (ACL) to the ACL of a wallet.

Syntax

```
DBMS_NETWORK_ACL_ADMIN.APPEND_WALLET_ACL (
   wallet_path    IN VARCHAR2,
   acl            IN VARCHAR2);
```

Parameters

Table 137-8 APPEND_WALLET_ACL Function Parameters

Parameter	Description
`wallet_path`	Directory path of the wallet. The path is case-sensitive of the format `file:`*`directory-path`*.
`ace`	The ACL from which to append

Usage Notes

- Duplicate privileges in the matching ACE in the host ACL will be skipped.
- To remove the ACE, use REMOVE_WALLET_ACE.
- If the ACL is shared with another host or wallet, a copy of the ACL is made before the ACL is modified.

ASSIGN_ACL Procedure

This procedure assigns an access control list (ACL) to a host computer, domain, or IP subnet, and if specified, the TCP port range.

> **Note:**
>
> This procedure is deprecated in Oracle Database 12*c*. While the procedure remains available in the package for reasons of backward compatibility, Oracle recommends using the APPEND_HOST_ACE Procedure and the APPEND_WALLET_ACE Procedure.

Syntax

```
DBMS_NETWORK_ACL_ADMIN.ASSIGN_ACL (
   acl         IN VARCHAR2,
   host        IN VARCHAR2,
```

```
  lower_port  IN PLS_INTEGER DEFAULT NULL,
  upper_port  IN PLS_INTEGER DEFAULT NULL);
```

Parameters

Table 137-9 ASSIGN_ACL Function Parameters

Parameter	Description
`acl`	Name of the ACL. Relative path will be relative to "`/sys/acls`".
`host`	Host to which the ACL is to be assigned. The host can be the name or the IP address of the host. A wildcard can be used to specify a domain or a IP subnet. The host or domain name is case-insensitive.
`lower_port`	Lower bound of a TCP port range if not `NULL`
`upper_port`	Upper bound of a TCP port range. If `NULL`, `lower_port` is assumed.

Usage Notes

- Only one ACL can be assigned to any host computer, domain, or IP subnet, and if specified, the TCP port range. When you assign a new access control list to a network target, Oracle Database unassigns the previous access control list that was assigned to the same target. However, Oracle Database does not drop the access control list. You can drop the access control list by using the DROP_ACL Procedure. To remove an access control list assignment, use the UNASSIGN_ACL Procedure.
- The ACL assigned to a domain takes a lower precedence than the other ACLs assigned sub-domains, which take a lower precedence than the ACLs assigned to the individual hosts. So for a given host, for example, "www.us.example.com", the following domains are listed in decreasing precedences:

  - www.us.example.com

  - *.us.example.com

  - *.example.com

  - *.com

  - *

  In the same way, the ACL assigned to an subnet takes a lower precedence than the other ACLs assigned smaller subnets, which take a lower precedence than the ACLs assigned to the individual IP addresses. So for a given IP address, for example, "192.168.0.100", the following subnets are listed in decreasing precedences:

  - 192.168.0.100

  - 192.168.0.*

  - 192.168.*

  - 192.*

  - *

- The port range is applicable only to the "connect" privilege assignments in the ACL. The "resolve" privilege assignments in an ACL have effects only when the ACL is assigned to a host without a port range.

  For the "connect" privilege assignments, an ACL assigned to the host without a port range takes a lower precedence than other ACLs assigned to the same host with a port range.

- When specifying a TCP port range, both `lower_port` and `upper_port` must not be `NULL` and `upper_port` must be greater than or equal to `lower_port`. The port range must not overlap with any other port ranges for the same host assigned already.
- To remove the assignment, use UNASSIGN_ACL Procedure.

Examples

```
BEGIN
   DBMS_NETWORK_ACL_ADMIN.ASSIGN_ACL(
     acl         => 'us-example-com-permissions.xml',
     host        => '*.us.example.com',
     lower_port  => 80);
END;
```

ASSIGN_WALLET_ACL Procedure

This procedure assigns an access control list (ACL) to a wallet.

> **Note:**
>
> This procedure is deprecated in Oracle Database 12*c*. While the procedure remains available in the package for reasons of backward compatibility, Oracle recommends using the APPEND_HOST_ACE Procedure and the APPEND_WALLET_ACE Procedure.

Syntax

```
UTL_HTTP.ASSIGN_WALLET_ACL (
   acl          IN  VARCHAR2,
   wallet_path  IN  VARCHAR2);
```

Parameters

Table 137-10 ASSIGN_WALLET_ACL Procedure Parameters

Parameter	Description
`acl`	Name of the ACL. Relative path will be relative to "`/sys/acls`"
`wallet_path`	Directory path of the wallet to which the ACL is to be assigned. The path is case-sensitive and of the format `file:`*`directory-path`*.

Usage Notes

To remove the assignment, use the UNASSIGN_WALLET_ACL Procedure.

Examples

```
BEGIN
  DBMS_NETWORK_ACL_ADMIN.CREATE_ACL(
    acl         => 'wallet-acl.xml',
    description => 'Wallet ACL',
    principal   => 'SCOTT',
    is_grant    => TRUE,
    privilege   => 'use-client-certificates');
```

```
  DBMS_NETWORK_ACL_ADMIN.ADD_PRIVILEGE(
    acl         => 'wallet-acl.xml',
    principal   => 'SCOTT',
    is_grant    => TRUE,
    privilege   => 'use-passwords');

  DBMS_NETWORK_ACL_ADMIN.ASSIGN_WALLET_ACL(
    acl         => 'wallet-acl.xml',
    wallet_path => 'file:/example/wallets/test_wallet');
END;
```

CHECK_PRIVILEGE Function

This function checks if a privilege is granted or denied the user in an ACL.

> **Note:**
>
> This procedure is deprecated in Oracle Database 12*c*. The procedure remains available in the package only for reasons of backward compatibility.

Syntax

```
DBMS_NETWORK_ACL_ADMIN.CHECK_PRIVILEGE (
   acl             IN VARCHAR2,
   user            IN VARCHAR2,
   privilege       IN VARCHAR2)
  RETURN NUMBER;
```

Parameters

Table 137-11 CHECK_PRIVILEGE Function Parameters

Parameter	Description
`acl`	Name of the ACL. Relative path will be relative to "/sys/acls".
`user`	User to check against. If the user is `NULL`, the invoker is assumed. The username is case-sensitive as in the `USERNAME` column of the `ALL_USERS` view.
`privilege`	Network privilege to check

Return Values

Returns 1 when the privilege is granted; 0 when the privilege is denied; `NULL` when the privilege is neither granted or denied.

Examples

```
SELECT DECODE(
  DBMS_NETWORK_ACL_ADMIN.CHECK_PRIVILEGE(
       'us-example-com-permissions.xml', 'SCOTT', 'resolve'),
  1, 'GRANTED', 0, 'DENIED', NULL) PRIVILEGE
FROM DUAL;
```

CHECK_PRIVILEGE_ACLID Function

This function checks if a privilege is granted to or denied from the user in an ACL by specifying the object ID of the access control list.

> **Note:**
>
> This procedure is deprecated in Oracle Database 12*c*. The procedure remains available in the package only for reasons of backward compatibility.

Syntax

```
DBMS_NETWORK_ACL_ADMIN.CHECK_PRIVILEGE_ACLID (
   aclid           IN RAW,
   user            IN VARCHAR2 DEFAULT NULL)
   privilege       IN VARCHAR2,
 RETURN NUMBER;
```

Parameters

Table 137-12 CHECK_PRIVILEGE_ACLID Function Parameters

Parameter	Description
`aclid`	Object ID of the ACL
`user`	User to check against. If the user is `NULL`, the invoker is assumed. The username is case-sensitive as in the `USERNAME` column of the `ALL_USERS` view.
`privilege`	Network privilege to check

Return Values

Returns 1 when the privilege is granted; 0 when the privilege is denied; `NULL` when the privilege is neither granted or denied.

CREATE_ACL Procedure

This deprecated procedure creates an access control list (ACL) with an initial privilege setting. An ACL must have at least one privilege setting. The ACL has no access control effect unless it is assigned to the network target.

> **Note:**
>
> This procedure is deprecated in Oracle Database 12*c*. While the procedure remains available in the package for reasons of backward compatibility, Oracle recommends using the APPEND_HOST_ACE Procedure and the APPEND_WALLET_ACE Procedure.

Syntax

```
DBMS_NETWORK_ACL_ADMIN.CREATE_ACL (
   acl             IN VARCHAR2,
   description     IN VARCHAR2,
   principal       IN VARCHAR2,
   is_grant        IN BOOLEAN,
   privilege       IN VARCHAR2,
   start_date      IN TIMESTAMP WITH TIMEZONE DEFAULT NULL,
   end_date        IN TIMESTAMP WITH TIMEZONE DEFAULT NULL );
```

Parameters

Table 137-13 CREATE_ACL Procedure Parameters

Parameter	Description
`acl`	Name of the ACL. Relative path will be relative to "/sys/acls".
`description`	Description attribute in the ACL
`principal`	Principal (database user or role) to whom the privilege is granted or denied. Case sensitive.
`is_grant`	Privilege is granted or not (denied)
`privilege`	Network privilege to be granted or denied - `'connect | resolve'` (case sensitive). A database user needs the `connect` privilege to an external network host computer if he or she is connecting using the `UTL_TCP`, `UTL_HTTP`, `UTL_SMTP`, and `UTL_MAIL` utility packages. To resolve a host name that was given a host IP address, or the IP address that was given a host name, with the `UTL_INADDR` package, grant the database user the `resolve` privilege.
`start_date`	Start date of the access control entry (ACE). When specified, the ACE is valid only on and after the specified date.
`end_date`	End date of the access control entry (ACE). When specified, the ACE expires after the specified date. The `end_date` must be greater than or equal to the `start_date`.

Usage Notes

To drop the access control list, use the DROP_ACL Procedure.

Examples

```
BEGIN
  DBMS_NETWORK_ACL_ADMIN.CREATE_ACL(
     acl          => 'us-example-com-permissions.xml',
     description  => 'Network permissions for *.us.example.com',
     principal    => 'SCOTT',
     is_grant     => TRUE,
     privilege    => 'connect');
END;
```

DELETE_PRIVILEGE Procedure

This deprecated procedure deletes a privilege in an access control list.

> **Note:**
>
> This procedure is deprecated in Oracle Database 12*c*. While the procedure remains available in the package for reasons of backward compatibility, Oracle recommends using the REMOVE_HOST_ACE Procedure and the REMOVE_WALLET_ACE Procedure.

Syntax

```
DBMS_NETWORK_ACL_ADMIN.DELETE_PRIVILEGE (
   acl           IN VARCHAR2,
   principal     IN VARCHAR2,
   is_grant      IN BOOLEAN DEFAULT NULL,
   privilege     IN VARCHAR2 DEFAULT NULL);
```

Parameters

Table 137-14 DELETE_PRIVILEGE Function Parameters

Parameter	Description
`acl`	Name of the ACL. Relative path will be relative to "/sys/acls".
`principal`	Principal (database user or role) for whom all the ACE will be deleted
`is_grant`	Privilege is granted or not (denied). If a `NULL` value is given, the deletion is applicable to both granted or denied privileges.
`privilege`	Network privilege to be deleted. If a `NULL` value is given, the deletion is applicable to all privileges.

Examples

```
BEGIN
  DBMS_NETWORK_ACL_ADMIN.DELETE_PRIVILEGE(
        acl         => 'us-example-com-permissions.xml',
        principal   => 'ST_USERS')
END;
```

DROP_ACL Procedure

This **deprecated procedure** drops an access control list (ACL).

> **Note:**
>
> This procedure is deprecated in Oracle Database 12*c*. The procedure remains available in the package only for reasons of backward compatibility.

Syntax

```
DBMS_NETWORK_ACL_ADMIN.DROP_ACL (
   acl            IN VARCHAR2);
```

Parameters

Table 137-15 DROP_ACL Procedure Parameters

Parameter	Description
acl	Name of the ACL. Relative path will be relative to "/sys/acls".

Examples

```
BEGIN
   DBMS_NETWORK_ACL_ADMIN.DROP_ACL(
      acl => 'us-example-com-permissions.xml');
END;
```

REMOVE_HOST_ACE Procedure

This procedure removes privileges from access control entries (ACE) in the access control list (ACL) of a network host matching the given ACE.

Syntax

```
DBMS_NETWORK_ACL_ADMIN.REMOVE_HOST_ACE (
   host               IN VARCHAR2,
   lower_port         IN PLS_INTEGER DEFAULT NULL,
   upper_port         IN PLS_INTEGER DEFAULT NULL,
   ace                IN XS$ACE_TYPE,
   remove_empty_acl   IN BOOLEAN DEFAULT FALSE);
```

Parameters

Table 137-16 REMOVE_HOST_ACE Function Parameters

Parameter	Description
host	The host, which can be the name or the IP address of the host. You can use a wildcard to specify a domain or a IP subnet. The host or domain name is case-insensitive.
lower_port	Lower bound of an optional TCP port range
upper_port	Upper bound of an optional TCP port range. If NULL, lower_port is assumed.
ace	The ACE
remove_empty_acl	Whether to remove the ACL when it becomes empty when the ACE is removed

Usage Notes

If the ACL is shared with another host or wallet, a copy of the ACL is made before the ACL is modified.

REMOVE_WALLET_ACE Procedure

This procedure removes privileges from access control entries (ACE) in the access control list (ACL) of a wallet matching the given ACE.

Syntax

```
DBMS_NETWORK_ACL_ADMIN.REMOVE_WALLET_ACE (
   wallet_path        IN VARCHAR2,
   ace                IN XS$ACE_TYPE,
   remove_empty_acl   IN BOOLEAN DEFAULT FALSE);
```

Parameters

Table 137-17 REMOVE_WALLET_ACE Function Parameters

Parameter	Description
`wallet_path`	Directory path of the wallet. The path is case-sensitive of the format `file:`*`directory-path`*.
`ace`	The ACE
`remove_empty_acl`	Whether to remove the ACL when it becomes empty when the ACE is removed

Usage Notes

If the ACL is shared with another host or wallet, a copy of the ACL is made before the ACL is modified.

SET_HOST_ACL Procedure

This procedure sets the access control list (ACL) of a network host which controls access to the host from the database.

Syntax

```
DBMS_NETWORK_ACL_ADMIN.SET_HOST_ACL (
   host         IN VARCHAR2,
   lower_port   IN PLS_INTEGER DEFAULT NULL,
   upper_port   IN PLS_INTEGER DEFAULT NULL,
   acl          IN VARCHAR2);
```

Parameters

Table 137-18 SET_HOST_ACL Function Parameters

Parameter	Description
`host`	The host, which can be the name or the IP address of the host. You can use a wildcard to specify a domain or a IP subnet. The host or domain name is case-insensitive.
`lower_port`	Lower bound of an optional TCP port range
`upper_port`	Upper bound of an optional TCP port range. If `NULL`, `lower_port` is assumed.

Table 137-18 (Cont.) SET_HOST_ACL Function Parameters

Parameter	Description
acl	The ACL. NULL to unset the host's ACL.

Usage Notes

A host's ACL is created and set on-demand when an access control entry (ACE) is appended to the host's ACL. Users are discouraged from setting a host's ACL manually.

SET_WALLET_ACL Procedure

This procedure sets the access control list (ACL) of a wallet which controls access to the wallet from the database.

Syntax

```
DBMS_NETWORK_ACL_ADMIN.SET_WALLET_ACL (
   wallet_path    IN VARCHAR2,
   acl            IN VARCHAR2);
```

Parameters

Table 137-19 SET_WALLET_ACL Function Parameters

Parameter	Description
wallet_path	Directory path of the wallet. The path is case-sensitive of the format file:*directory-path*.
acl	The ACL. NULL to unset the host's ACL.

Usage Notes

A wallet's ACL is created and set on-demand when an access control entry (ACE) is appended to the wallet's ACL. Users are discouraged from setting a wallet's ACL manually.

UNASSIGN_ACL Procedure

This deprecated procedure unassigns the access control list (ACL) currently assigned to a network host.

> **Note:**
>
> This procedure is deprecated in Oracle Database 12*c*. While the procedure remains available in the package for reasons of backward compatibility, Oracle recommends using the REMOVE_HOST_ACE Procedure and the REMOVE_WALLET_ACE Procedure.

Syntax

```
DBMS_NETWORK_ACL_ADMIN.UNASSIGN_ACL (
   acl         IN VARCHAR2 DEFAULT NULL,
   host        IN VARCHAR2 DEFAULT NULL,
   lower_port  IN PLS_INTEGER DEFAULT NULL,
   upper_port  IN PLS_INTEGER DEFAULT NULL);
```

Parameters

Table 137-20 UNASSIGN_ACL Function Parameters

Parameter	Description
`acl`	Name of the ACL. Relative path will be relative to "/sys/acls". If ACL is `NULL`, any ACL assigned to the host is unassigned.
`host`	Host from which the ACL is to be removed. The host can be the name or the IP address of the host. A wildcard can be used to specify a domain or a IP subnet. The host or domain name is case-insensitive. If host is `NULL`, the ACL will be unassigned from any host. If both `host` and `acl` are `NULL`, all ACLs assigned to any hosts are unassigned.
`lower_port`	Lower bound of a TCP port range if not `NULL`
`upper_port`	Upper bound of a TCP port range. If `NULL`, `lower_port` is assumed.

Examples

```
BEGIN
   DBMS_NETWORK_ACL_ADMIN.UNASSIGN_ACL(
     host        => '*.us.example.com',
     lower_port  => 80);
END;
```

UNASSIGN_WALLET_ACL Procedure

This deprecated procedure unassigns the access control list (ACL) currently assigned to a wallet.

> **Note:**
>
> This procedure is deprecated in Oracle Database 12*c*. While the procedure remains available in the package for reasons of backward compatibility, Oracle recommends using the REMOVE_HOST_ACE Procedure and the REMOVE_WALLET_ACE Procedure.

Syntax

```
UTL_HTTP.UNASSIGN_WALLET_ACL (
   acl          IN  VARCHAR2 DEFAULT NULL,
   wallet_path  IN  VARCHAR2 DEFAULT NULL);
```

Parameters

Table 137-21 UNASSIGN_WALLET_ACL Procedure Parameters

Parameter	Description
`acl`	Name of the ACL. Relative path will be relative to "`/sys/acls`". If `acl` is `NULL`, any ACL assigned to the wallet is unassigned
`wallet_path`	Directory path of the wallet to which the ACL is assigned. The path is case-sensitive and of the format `file:`*`directory-path`*. If both `acl` and `wallet_path` are `NULL`, all ACLs assigned to any wallets are unassigned.

Examples

```
BEGIN
  DBMS_NETWORK_ACL_ADMIN.UNASSIGN_WALLET_ACL(
    acl         => 'wallet-acl.xml',
    wallet_path => 'file:/example/wallets/test_wallet');
END;
```