Authorization

Authorization is the function of specifying access rights to resources and operations. In Jethro, once a user is properly authenticated and granted an access to the system, defined ROLES and OWNERSHIP will control which content and objects will the user be able to access, and which actions a user, or group of users, would be able to perform on that content.

*While authorization and authentication are closely connected, it is important not to confuse between them, as they are distinct from one another. Authentication verifies the identity of a client, while Authorization determines its operations and access policies. To learn more about Authentication, visit its documentation page.

The following subjects will be covered under this section:

Ownership Permissions Model

- The user that creates a TABLE, VIEW or SCHEMA, becomes its OWNER.
- The object OWNER gets all the PERMISSIONS for the object.
- Object ownership can be altered via ALTER TABLE command.

As a result:

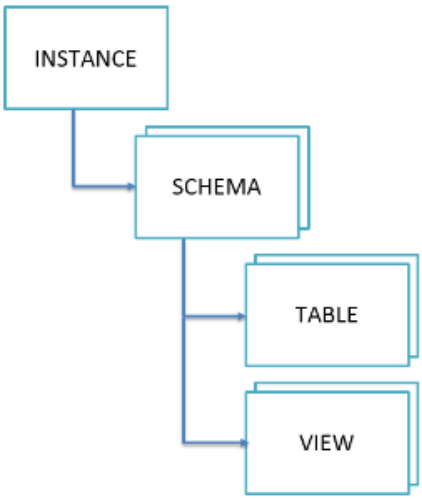
- A User that creates a table/view will have full access to it.
- Any other user can gain access to this object, if he/she are granted a permission, via **ROLES** that are granted to his/her group.

Roles Permissions Model

Objects Hierarchy

Permissions are managed according to a parent/child hierarchy.

Any permission granted to an object, applies also to its descendant objects.



Permissions for objects

Permission	Objects	Description
ALL	INSTANCE, SCHEMA, TABLE	Lets you create or modify an object. Required to run DDL statements.
INSERT	INSTANCE, SCHEMA, TABLE	Lets you write data to a table.
SELECT	INSTANCE, SCHEMA, TABLE	Lets you read data from a table or view.

Permissions for operations

Operation	Scope	Required Permission
Schemas		
CREATE SCHEMA	INSTANCE	ALL
DROP SCHEMA	SCHEMA	ALL
ALTER SCHEMA … RENAME TO	INSTANCE	ALL
ALTER SCHEMA … OWNER TO	INSTANCE	ALL
SHOW SCHEMAS		The output includes only the accessible schemas: - Of which the user holds SELECT/INSERT/ALL permissions to - Which contains objects (table/view) he is authorized for (SELE CT/INSERT/ALL)
Tables		
CREATE TABLE	SCHEMA	ALL
DROP TABLE	TABLE	ALL
TRUNCATE TABLE	TABLE	ALL
DESCRIBE TABLE	TABLE	SELECT/INSERT
ALTER TABLE … ADD COLUMNS	SCHEMA	ALL
ALTER TABLE … DROP COLUMN	SCHEMA	ALL
ALTER TABLE … DROP PARTITION	TABLE	ALL
ALTER TABLE … ADD PRIMARY KEY	SCHEMA	ALL
ALTER TABLE … DROP PRIMARY KEY	SCHEMA	ALL
ALTER TABLE … OWNER TO	SCHEMA	ALL
CREATE EXTERNAL TABLE	SCHEMA	ALL

SHOW TABLE COLUMNS	TABLE	SELECT/INSERT
SHOW TABLE PARTITIONS	TABLE	SELECT/INSERT
SHOW TABLES MAINT		The output includes only accessible tables (has SELECT /INSERT/ALL)
SHOW TABLES EXTENDED		The output includes only accessible tables (has SELECT /INSERT/ALL)
SHOW TABLES		The output includes only accessible tables (has SELECT /INSERT/ALL)
SHOW ALL TABLES		The output includes only accessible tables (has SELECT /INSERT/ALL)
SHOW FULL TABLES		The output includes only accessible tables (has SELECT /INSERT/ALL)
SHOW FULL COLUMNS		The output includes only accessible tables (has SELECT /INSERT/ALL)
Views		
DROP VIEW	VIEW	ALL
SHOW VIEWS		The output includes only accessible views (has SELECT /INSERT/ALL)
Special Indexes		
CREATE JOIN INDEX	TABLES	ALL
DROP JOIN INDEX	TABLES	ALL
SHOW JOIN INDEXES		Join indexes on tables that are accessible (has SELECT /INSERT)
CREATE RANGE INDEX	TABLE	ALL
DROP RANGE INDEX	TABLE	ALL
SHOW RANGE INDEXES		Range indexes on tables that are accessible (has SELECT /INSERT)
Cubes		
GENERATE CUBES	TABLES	ALL
SHOW CUBES		Cubes that the tables in their select statement are accessible (has SELECT access to)
DROP CUBES	INSTANCE	ALL
Select		
SELECT	TABLE/VIEW	SELECT
Parameters		
SET	Any	
SET/UNSET GLOBAL	INSTANCE	ALL
SHOW PARAM	Any	
SHOW PARAM EXTENDED	INSTANCE	ALL
Admin		
SHOW ADAPTIVE CACHE	INSTANCE	ALL
DROP ADAPTIVE CACHE	INSTANCE	ALL
DROP ADAPTIVE STORAGE	INSTANCE	ALL
SHOW LOCAL CACHE EXTENDED	INSTANCE	ALL
SHOW ACTIVE QUERIES	INSTANCE	ALL

CREATE SCHEDULED LOAD	TABLE	INSERT
SHOW SCHEDULED LOADS	INSTANCE	ALL
DROP SCHEDULED LOADS	TABLE	INSERT
DROP ALL SCHEDULED LOADS	INSTANCE	ALL
External Data Source		
CREATE EXTERNAL DATA SOURCE	INSTANCE	ALL
CREATE EXTERNAL TABLE	SCHEMA	ALL
Authorizations		
CREATE ROLE	INSTANCE	ALL
DROP ROLE	INSTANCE	ALL
GRANT ROLE	INSTANCE	ALL
REVOKE ROLE	INSTANCE	ALL
GRANT PERMISSION .. TO ROLE	INSTANCE	ALL
REVOKE PERMISSION .. TO ROLE	INSTANCE	ALL
SHOW GRANT ON [ALL | TABLE ...| VIEW ...| SCHEMA...]	INSTANCE	ALL
SHOW ROLES	INSTANCE	ALL
SHOW CURRENT ROLE	Any	
SHOW ROLES GRANT GROUP	INSTANCE or group members	ALL
SHOW ROLES GRANT GROUPS	INSTANCE	ALL
SHOW GRANT ROLE	INSTANCE + users that had been granted this role	ALL
SHOW LDAP GROUPS	INSTANCE	ALL

Commands Syntax

Roles

CREATE ROLE

Create a role to which permissions are granted

```
CREATE ROLE [role-name]
```

DROP ROLE

Remove an existing role. Once role is drop the role will be revoked from all users to whom it was previously assigned

```
DROP ROLE [role-name]
```

GRANT ROLE

Grant role to group(s).

```
GRANT ROLE role-name [, role-name] TO GROUP group-name [, GROUP group-name]
```

REVOKE ROLE

Revoke role from group

```
REVOKE ROLE role-name [, role-name] FROM GROUP group-name [, GROUP group-name]
```

SET ROLE

Enable specific role for the current session. Only granted roles can be enabled. When setting specific roles, any other roles that not set at session level are disabled. By default all roles for user are enabled (SET ROLE ALL).

Enable a specific role:

```
SET ROLE <role-name>
```

Enable all roles:

```
SET ROLE ALL
```

Disable all roles:

```
SET ROLE NONE
```

SHOW ROLES

List all the roles in the system:

```
SHOW ROLES
```

List all roles in effect for the current user session:

```
SHOW CURRENT ROLES
```

List all roles assigned to a given group:

```
SHOW ROLES GRANT GROUP <group-name>
```

List all roles granted to all groups.

```
SHOW ROLES GRANT GROUPS
```

SHOW GRANT ROLES

List all permissions granted to a role:

```
SHOW GRANT ROLE <role-name>
```

List all permissions granted to a role on a give object

```
SHOW GRANT ROLE <role-name> on object <object-name>
```

PERMISSIONS

GRANT <PERMISSION>

Grant a permission on an object to a role.

```
GRANT <PERMISSION> [, <PERMISSION> ] ON <OBJECT_TYPE> <object-name> TO ROLE <role-name> [, ROLE <role-name>]
```

<OBJECT_TYPE> - type of object INSTANCE, SCHEMA, TABLE or VIEW

<object-name> - instance name, schema name, table name or view name.

REVOKE <PERMISSION>

Revoke a permission on an object from a role

```
REVOKE <PERMISSION> [, <PERMISSION> ] ON <OBJECT_TYPE> <object-name> FROM ROLE <role-name> [, ROLE <role-name>]
```

SHOW GRANT

Show granted permissions, roles and ownership on objects

```
SHOW GRANT ON (ALL | (SCHEMA schema-name | TABLE table-name | VIEW view-name)
```

ALTER

ALTER SCHEMA … OWNER TO

Change the owner of a schema. The new owner must be an existing user (if the user is an LDAP user, it must be found in the LDAP directory)

```
ALTER SCHEMA <schema-name> OWNER TO <new_owner>
```

ALTER TABLE … OWNER TO

Change the owner of a table. The new owner must be an existing user (if the user is an LDAP user, it must be found in the LDAP directory)

```
ALTER TABLE <table-name> OWNER TO <new_owner>
```

SHOW

SHOW LDAP GROUPS

List all LDAP groups relevant for the instance found using ldap config/filter rules

```
SHOW LDAP GROUP
```

SHOW SCHEMAS

List all schemas for which the current user has schema or table level access.

```
SHOW SCHEMAS
```

SHOW TABLES

List all tables for which the current user has table level access:

```
SHOW TABLES [EXTENDED]
```

List all columns for all tables for which the current user has table level access:

```
SHOW ALL TABLES [...]
```

Command Line Operations

The following Jethro operations are executed via the command line:

- Create/Attach/Detach/Remove/list Jethro Instances via JethroAdmin
- Start/stop services
- Load data via JethroLoader

The security for those operations is based on a Jethro Linux user (by default it is user 'jethro').

See also

Authentication

Auditing

Show