**FSMO ROLES:**

**Flexible Single Master Operation Roles (FSMO)**

* Any domain environment has five special roles which are vital for the smooth running of AD.
* Some functions of AD require an authoritative master to which all Domain Controllers can refer to.
* These roles are installed automatically and are called FSMO roles.
* There are 2 Forest wide roles and 3 Domain wide roles.

Let us see the different roles.

**Forest Wide Roles:**

* **The schema master**

1. The schema master FSMO role holder is the DC responsible for performing updates to the directory schema.
2. This DC is the only one that can process updates to the directory schema.
3. Once the Schema update is complete, it is replicated from the schema master to all other DCs in the directory.

* **The domain naming master**

1. The domain naming master FSMO role holder is the DC responsible for making changes to the forest-wide domain name space of the directory.
2. This DC is the only one that can add or remove a domain from the directory. It can also add or remove cross references to domains in external directories.

# Domain Wide Roles

* **The RID master**

1. This FSMO role holder is the single DC responsible for processing RID Pool requests from all DCs within a given domain.
2. It is also responsible for removing an object from its domain and putting it in another domain during an object movement.

* **The PDC emulator**

1. The PDC Emulator FSMO role owner performs the following functions:
2. Password changes performed by other DCs in the domain are replicated preferentially to the PDC emulator.
3. If a logon authentication fails at a given DC in a domain due to a bad password, the DC will forward the authentication request to the PDC emulator to validate the request against the most current password. If the PDC reports an invalid password to the DC, the DC will send back a bad password failure message to the user. Account lockout is processed on the PDC emulator.
4. The PDC Emulator takes care of time synchronization in the domain environment.

* **Infrastructure master:**

1. The Infrastructure FSMO role holder is the DC responsible for updating an object's SID and distinguished name in a cross-domain object reference.
2. The Infrastructure Master role translates Globally Unique Identifiers (GUID), SIDs, and Distinguished Names (DN) between domains.
3. When an object in one domain is referenced by another object in another domain, it represents the reference by the GUID, the SID (for references to security principals), and the Distinguished Names of the object being referenced
4. The Infrastructure Master (IM) role should be held by a domain controller that is not a Global Catalog server(GC).
5. If the Infrastructure Master runs on a Global Catalog server, it will stop updating object information because it does not contain any references to objects that it does not hold. This is because a Global Catalog server holds a partial replica of every object in the forest. As a result, cross-domain object references in that domain will not be updated.

FSMO makes sure that your domain will be able to perform the primary function of authenticating users and permissions without interruption.

# Transferring the FSMO roles

Transfer FSMO roles in the following scenarios:

* + The current role holder is operational and can be accessed on the network by the new FSMO owner.
  + You are gracefully demoting a domain controller that currently owns FSMO roles
  + The domain controller that currently owns FSMO roles is being taken offline for scheduled maintenance and you need specific FSMO roles to be assigned to a "live" domain controller.

# Seize the FSMO roles

Seize FSMO roles in the following scenarios:

* + The current role holder is experiencing an operational error that prevents an FSMO-dependent operation from completing successfully and that role cannot be transferred.
  + The operating system on the computer that originally owned a specific role no longer exists or has been reinstalled.