

# Grouper provisioning framework recalc logic

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This wiki shows various conditions and the expected behavior of the provisioner to handle situations

See these other wikis for more context:

- [Provisioning glossary](#)
- [Full sync provisioning workflow](#)
- [Incremental provisioning workflow](#)

## Definitions

- Grouper data - Groups in Grouper
- Target data - Users / Groups / Memberships in the target that is being provisioned to
- Full sync - The daily (configurable) sync that takes all or most data from Grouper and the Target and compares and makes it right
- Group sync - In an incremental sync, instead of dealing with individual memberships, take all the memberships of a group (generally in a recalc) and fix the whole group
- Incremental sync - The process that runs every minute to take Grouper change log events and messages and process them
- Sync table - Cache data from target and keep state
- Event - CLC and messaging has events for adding/removing data or checking state
- Recalc - If recalc, then check state on Grouper and Target side and treat message as stateless and make the target correct and update sync tables
- Send a message - If the provisioner needs to start over (e.g. action occurred, and error was thrown), then send a message to itself (incremental provisioner that runs a minute later), to check something again

Full sync or Incremental	Event	Group or Entity in sync table	Membership in sync table	Membership type	Supported behavior by target	Error	Expected outcome regarding recalc	Status
Full sync	N/A	Retrieve all groups and entities regardless of sync table values	Retrieve all memberships regardless of sync table values		CRUD supported	N/A	Everything is a recalc.	Done
Full sync	N/A	Retrieve all groups but not all entities (configuration to not retrieve all entities in full sync) if the entity is in the sync table	Retrieve all memberships regardless of sync table values		CRUD supported	False	Use the sync entity. groups and memberships are recalcs and entities are not.	To be done
Full sync	N/A	Retrieve all groups and entities	Retrieve all memberships regardless of sync table values		CRUD supported	True for a membership change	Recalc the error group, error entity, and error memberships.	
Full sync	N/A	Retrieve all groups but not all entities (configuration to not retrieve all entities in full sync) if the entity is not in the sync table	Retrieve all memberships regardless of sync table values		CRUD supported	N/A	Recalc missing entities	To be done
Full sync	N/A	Retrieve all groups and entities regardless of sync table values	Retrieve all memberships regardless of sync table values		Doesn't select from target	N/A	Throw an exception if no object types select. If an object type does select from the target, sync only the object types that can select. e.g. group is selected, entity and membership are not. Only sync group with target and ignore entity and membership during full sync run.	To be done
Incremental sync	Membership add /remove	Group and entity are in the sync table	A membership add corresponds to a missing sync table entry, or a remove corresponds to an existing sync table entry		N/A	False	Nothing is a recalc	
Incremental sync	Membership add /remove	Group and entity are in the sync table	A membership add corresponds to an existing sync table entry, or a remove corresponds to a missing sync table entry		Does select from target	False	Convert to a recalc membership	

Incremental sync	Members hip add /remove	Group and entity are in the sync table	A membership add corresponds to an existing sync table entry, or a remove corresponds to a missing sync table entry		Doesn't select from target	False	Don't convert to a recalc membership	
Incremental sync	Members hip add /remove	Group and entity are in the sync table	A membership add corresponds to a missing sync table entry, or a remove corresponds to an existing sync table entry		Does select from target	True	Send a message to recalc the group only and recalc the entity only (if there are groups and entities in the target), update the sync table with an error message	
Incremental sync	Members hip add /remove	Group and entity are in the sync table	A membership add corresponds to a missing sync table entry, or a remove corresponds to an existing sync table entry		Doesn't select from target	True	Put the error in the sync row (every error whether it sends a message or not, should still update the sync table).  A subsequent incremental provisioner will retry the actions.	
Incremental sync	Members hip add /remove	Group is not in the sync table	N/A		Does select from target	False	Group recalc with memberships (group attribute membership type or membership object type) - e.g. ldap has attributes on a group that represent memberships  Group recalc only (if entity attribute membership type ) - only sync group like name, description, etc. No memberships are synced with the target.	
Incremental sync	Members hip add /remove	Group is not in the sync table	N/A		Doesn't select from target	False	Proceed with the membership add or remove. Can't recalc because can't select from the target. The sync group row will be added to the table.	
Incremental sync	Members hip add /remove	Group is not in the sync table	N/A			True	Put the error in the sync group row (every error whether it sends a message or not, should still update the sync table)	
Incremental sync	Members hip add /remove	Entity is not in the sync table	N/A			False	Entity recalc with memberships (if entity attribute type )  Entity recalc only (if group attribute type )	
Incremental sync	Members hip add /remove	Entity is not in the sync table	N/A			True	Put the error in the sync member row (every error whether it sends a message or not, should still update the sync table)	
Incremental sync	Group add /remove	N/A	N/A	group attribute membership type or membership objects	Does select groups and memberships for a group from target	False	Group recalc with memberships (if group attribute membership type or membership objects)  Each entity in the group should not be recalc if in the sync table. This is applicable only for group attribute membership type or membership objects	
Incremental sync	Group add /remove	N/A	N/A	entity attribute membership type	Does select groups from target	False	Group recalc only (if entity attribute type )	
Incremental sync	Group add /remove	N/A	N/A	group attribute membership type or membership objects	If either group or group memberships or both can't be selected from the target, the logic of this row is applied.	False	Proceed with the group add or remove without Recalc.	
Incremental sync	Group add /remove	N/A	N/A	entity attribute membership type	Doesn't select groups from the target	False	Proceed with the group add or remove without Recalc.	
Incremental sync	Group add /remove	N/A	N/A		N/A	True	Put the error in the sync group row	
Incremental sync	Entity add /remove	N/A	N/A	entity attribute membership type or membership objects	Does select entities and memberships for an entity from the target	False	Entity recalc with memberships (if entity attribute membership type or membership objects)  Each group associated with the entity should not be recalc if in the sync table. This is applicable only for entity attribute membership type or membership objects	
Incremental sync	Entity add /remove	N/A	N/A	group attribute membership type	Does select entities from the target	False	Entity recalc only	
Incremental sync	Entity add /remove	N/A	N/A	entity attribute membership type or membership objects	If either entity or entity memberships or both can't be selected from the target, the logic of this row is applied.	False	Proceed with the entity add or remove without Recalc.	

Incremental sync	Entity add /remove	N/A	N/A	group attribute membership type	Doesn't select entities from the target	False	Proceed with the entity add or remove without Recalc.	
Incremental sync	Entity add /remove	N/A	N/A		N/A	True	Put the error in the sync entity row	

- "Not in sync table" means either missing from sync table or in\_target = F or null
- Never do a group with memberships recalc if provisioning type is entity attributes
- Never do an entity with memberships recalc if provisioning type is group attributes
- Never do the recalc if the object is not provisioned in the target (might need to do add to behavior)
- The capabilities of the dao can restrict the outcomes, e.g. if you can't select you can't recalc