HPE NFV Director

On-Boarding Guide Operations: **Deploy of an Organization**
Release 4.1

Second Edition

Hewlett Packard Enterprise

Notices

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Preface

About this guide

This Guide is intended to explain and guide the user through the deployment of an Organization

Audience

This document is targeting any user level of NFV Director: Domain users, Organization Users, Tenant Users, Group Users and Datacenter users.

For On boarding VNFs please refer to VNF On-Boarding Guide

Document history

Table 1: Document history

Edition	Date	Description
2.0	30 August 2016	Second Edition

Chapter 1 Deploy of an Organization.

From now on, and to make easier the understanding of the TLDs, we are going to explain the functionality of each set of TASK_LIST_DEFINITION:GENERIC, and the number of TASK_DEFINITION:GENERIC children of the previously mentioned TASK_LIST_DEFINITION:GENERIC.

Basically, the TASK_LIST_DEFINITION:GENERIC connect what we can consider "units of execution", those are the TASK_DEFINITION:GENERIC, that have a WORKFLOW assigned to be executed when the execution of the TLD reach them.

If you like to have a more deep knowledge about the workflows mentioned through this document please refer to the specific document.

** If in the category FIND, the attribute Path is present, the attribute FIND.ArtifactType will be the starting artifact for the Path, but the FIND.Status attribute refers to the last artifact on the Path.

FIND.ArtifactType ==   VIRTUAL_MACHINE.
FIND.Status==   INSTANTIATED.
FIND.Path==

VIRTUAL_MACHINE>**VIRTUAL_CORE<CORE<CPU<SERVER<AVAILABILITY_ZONE<REGION**

>**COMPUTE>**FLAVOR

In this example, we are looking for a FLAVOR in status INSTANTIATED, we do not expect to get a VIRTUAL_MACHINE, in status INSTANTIATED.

**If during the use of the TLDs, the "Regenerate UUIDs" option is used, the user should check the Id of the tree that brings all the elements of the TLD, this "id" is specific and it will be the same for all the tree groups in all the TLDs.

** The two modes available are "Default" and "Simulated", the second one is only available if it is configured previously, by defect, and the mode that will be used is "Default".

Chapter 2 Specific Elements of the TLD Deploy Organization

In this chapter the different elements of the specific TLD will be explained conscientiously.

2.1 TLD INVENTORY ORGANIZATION: Provision Enterprise.

Figure 1: Provision Enterprise TLD.

The TDs that have present in the their names "Provision", are Task Definitions responsible of the creation and store of an artifact in DDBB, in this case, the artifact that it is going to be provisioned it is an "Enterprise", this means, when this workflow finish, we will have a new artifact "Enterprise" in our DDBB.

Targets of the TASK DEFINITION: STATUS of the TD: ENABLED

GENERAL.Name ==   Provision Enterprise
FIND.Condition ==   **status==constant:INSTANTIATED**
EXECUTE.Workflow ==
    "WF_TS_PROVISION_SDN_ENTERPRISE"
EXECUTE.Inactive==   false
ROLLBACK.Behaviour_on_error ==   ROLLBACK
ROLLBACK.Number_of_retries ==   0
ROLLBACK.Workflow ==
    "WF_TS_DEPROVISION_SDN_ENTERPRISE"
DATA.Lock ==   true

The WorkFlow present in EXECUTE.Workflow it is going to seek an ORGANIZATION in Status INSTANTIATED in the DDBB, when the WF find it, it will start. This workflow create an artifact "Enterprise" and an "Enterprise_Profile" related between them, taking an Organization already present in the DDBB, as a template.

The WorkFlow also create all the relationship needed for the correct behavior of the recently created artifact.

In case of error during the execution, the workflow jump to the ROLLBACK category. If the "Behaviour_on_error" attribute its set on "ROLLBACK" the WF will start the execution of the Workflow present in the attribute with the same name in the category ROLLBACK, the attribute "number_of_retries" set the number of rollback attempts. In this case, the TLD has assigned a rollback workflow, **"WF_TS_DEPROVISION_SDN_ENTERPRISE"**, so in case of error the rollback workflow will be triggered.

Due to that the value of the attribute DATA.Lock is true, when the Task Definition has finished the artifact that was used in the workflow executed will be set as "Locked".
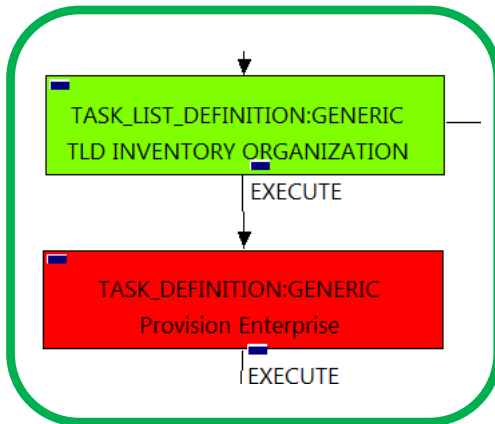
2.2 TLD INVENTORY ORGANIZATION: Provision Macronet.
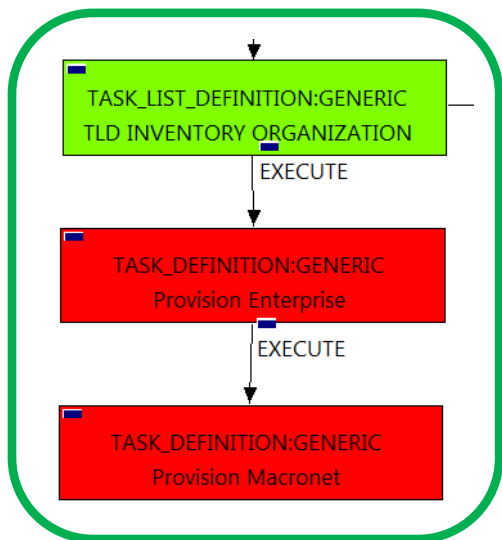
Figure 2: Provision of a Macronet.

The TDs that have present in the their names "Provision", are Task Definitions responsible of the creation and store of an artifact in DDBB, in this case, the artifact that it is going to be provisioned it is an "Enterprise", this means, when this workflow finish, we will have a new artifact "Enterprise" in our DDBB.

Targets of the TASK DEFINITION: STATUS of the TD: ENABLED

GENERAL.Name ==   Provision Macronet
FIND.Condition ==   **status==constant:INSTANTIATED**
EXECUTE.Workflow ==
   "WF_TS_PROVISION_SDN_ENTERPRISE"
EXECUTE.Inactive==   false
ROLLBACK.Behaviour_on_error ==   ROLLBACK
ROLLBACK.Number_of_retries ==   0
ROLLBACK.Workflow ==
   "WF_TS_DEPROVISION_SDN_MACRONET"
DATA.Lock ==   false

The WorkFlow present in EXECUTE.Workflow it is going to seek an ORGANIZATION in Status INSTANTIATED in the DDBB, when the WF find it, it will start. This workflow it is going to create the exact number of Macronets present in our ENTERPRISE:MANAGEMENT, with same attributes and status INSTANTIATED. Also related with the Enterprise that have been provisioned in the previous WF.

In case of error during the execution, the workflow jump to the ROLLBACK category. If the "Behaviour_on_error" attribute its set on "ROLLBACK" the WF will start the execution of the Workflow present in the attribute with the same name in the category ROLLBACK, the attribute "number_of_retries" set the number of rollback attempts. In this case, the TLD has assigned a rollback workflow, **"WF_TS_DEPROVISION_SDN_MACRONET"**, so in case of error the rollback workflow will be triggered.

Due to that the value of the attribute DATA.Lock is false, the artifact will be left without be blocked.

2.3 TLD ACTIVE OO: Activate OO.
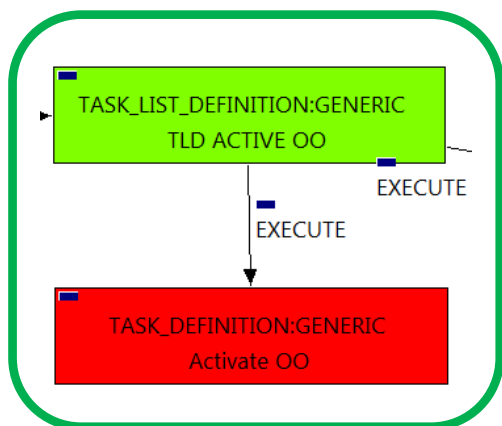
Figure 3 : Activation of OO.

The TDs that have present in the their names "Activate", are Task Definitions responsible of the activation in the platform targeted and the updating of the status in the platform and the DDBB, in this case, we are not going to activate any artifact, this TD associates the entity given with the LDAP group that it is corresponded to, to make the user's reference clear between entities.

Targets of the TASK DEFINITION: STATUS of the TD: ENABLED

GENERAL.Name ==	Activate OO
FIND.Condition ==	**status==constant:INSTANTIATED**
EXECUTE.Workflow ==	**"WF_TS_ACTIVATE_OO_ORGANIZATION"**
EXECUTE.Inactive==	false
ROLLBACK.Behaviour_on_error ==	STOP
ROLLBACK.Number_of_retries ==	0
DATA.Lock ==	true

The WorkFlow present in EXECUTE.Workflow it is going to seek an ORGANIZATION in Status INSTANTIATED in the DDBB, when the WF find it, it will start.

This workflow it is going to query and update the entity given, in this case, Organization, with the values needed for the correct behavior of the users with the specific entity.

In case of error during the execution, the workflow jump to the ROLLBACK category, If the "Behaviour_on_error" attribute its set on "ROLLBACK" the WF will start the execution of the Workflow present in the attribute with the same name in the category ROLLBACK, but in this case, we have a "STOP" set as behavior, so no Rollback it is going to be initiated, so the execution it is going to end here in case of error.

Due to that the value of the attribute DATA.Lock is true, when the Task Definition has finished the artifact that was used in the workflow executed will be set as "Locked".

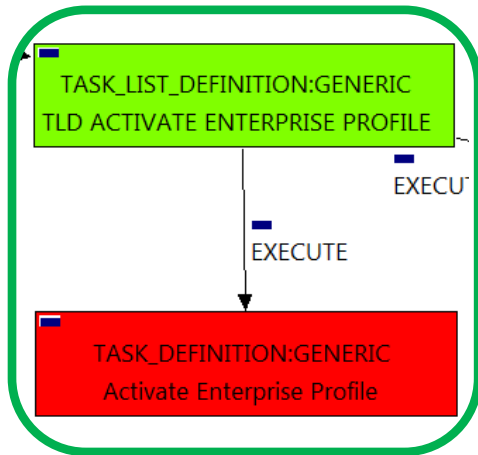2.4 TLD ACTIVATE ENTERPRISE PROFILE: Activate Enterprise Profile.

The TDs that have present in the their names "Connect", are Task Definitions responsible of the connection between artifacts, this means, this TDs will create relationship of specific kind between concrete artifacts, in this case, it will create relationships of type USES and status ENABLED between a specific VIRTUAL_PORT, and the SUBNETWORKS (or the subnetworks's IPADDRESS:GENERIC) related as children of our VIRTUAL_LINK:MANAGEMENT that we are using.

Once finished, we should have all SUBNETWORKs related as children of our VL:MANAGEMENT bonded with a relationship of type USES and status ENABLED with the VIRTUAL_PORT found by the conditions of the TD.

Figure 4: Activation of an Enterprise Profile.

Targets of the TASK DEFINITION: STATUS of the TD:
ENABLED

GENERAL.Name ==   Activate Enterprise Profile
FIND.Condition ==   **GENERAL.Name==%GENERAL.Name%_Profile**
FIND.Path==

ORGANIZATION>RESOURCE_POOL>VIM>AUTHENTICATION>REGION>NETWORKING <SDN_CONTROLLER>ENTERPRISE:PROFILE:DCN@status=INSTANTIATED, ORGANIZATION>RESOURCE_POOL>LOCATION>VIM>AUTHENTICATION>REGION>NETWORKING <SDN_CONTROLLER>ENTERPRISE:PROFILE:DCN@status=INSTANTIATED, ORGANIZATION>RESOURCE_POOL>DATACENTER>VIM>AUTHENTICATION>REGION>NETWORKING <SDN_CONTROLLER>ENTERPRISE:PROFILE:DCN@status=INSTANTIATED, ORGANIZATION>RESOURCE_POOL>SERVER<HYPERVISOR<VIM>AUTHENTICATION>REGION >NETWORKING<SDN_CONTROLLER>ENTERPRISE:PROFILE:DCN@status=INSTANTIATED

SET.Running_Status ==   INSTANTIATED.
SET.Status ==   ACTIVE.
EXECUTE.Workflow ==
                    "WF_TS_ACTIVATE_SDN_PROFILE"
EXECUTE.Inactive==   false
EXECUTE.OrderBy ==
ROLLBACK.Behaviour_on_error ==   STOP
ROLLBACK.Number_of_retries ==   0
DATA.Lock ==   true

The WorkFlow present in EXECUTE.Workflow attribute it is going to seek an ORGANIZATION:GENERIC in Status INSTANTIATED in the DDBB, this ORGANIZATION must have as GENERAL.Name, the Organization's name concatenated with the string "_Profile", means we are seeking the Enterprise_Profile of the Enterprise that we have been provisioned previously. The query it is going to use the Path present in the category FIND.Path (this path it is what we called a MultiPath, cover not only one path for the query) Once found , the WF will start the activation, if the activation it is successful we set the status of the artifact as the SET.Status attribute dictates. The attribute SET.Running_Status concern about the temporal status that the artifact it is going to maintain until the final change of status that comes from SET.Status.

In case of error during the execution, the workflow jump to the ROLLBACK category, If the "Behaviour_on_error" attribute its set on "ROLLBACK" the WF will start the execution of the Workflow present in the attribute with the same name in the category ROLLBACK, but in this case, we have a "STOP" set as behavior, so no Rollback it is going to be initiated, due to that the value of the attribute DATA.Lock is true, when the Task Definition has finished the artifact that was used in the workflow executed will be set as "Locked".
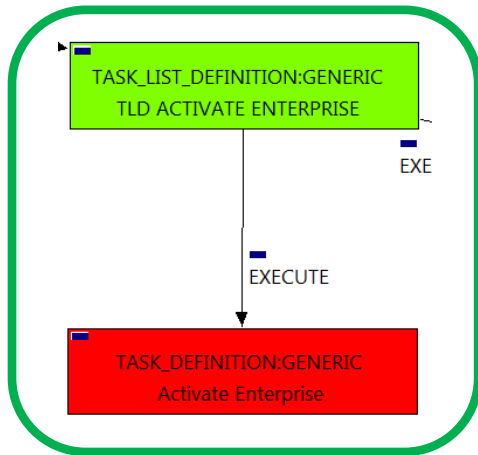
.

2.5 TLD ACTIVATE ENTERPRISE: Activate Profile.

The TDs that have present in the their names "Connect", are Task Definitions responsible of the connection between artifacts, this means, this TDs will create relationship of specific kind between concrete artifacts, in this case, it will create relationships of type USES and status ENABLED between a specific VIRTUAL_PORT, and the SUBNETWORKS (or the subnetworks's IPADDRESS:GENERIC) related as children of our VIRTUAL_LINK:MANAGEMENT that we are using.

Once finished, we should have all SUBNETWORKs related as children of our VL:MANAGEMENT bonded with a relationship of type USES and status ENABLED with the VIRTUAL_PORT found by the conditions of the TD.

Figure 5: Activation of an Enterprise.

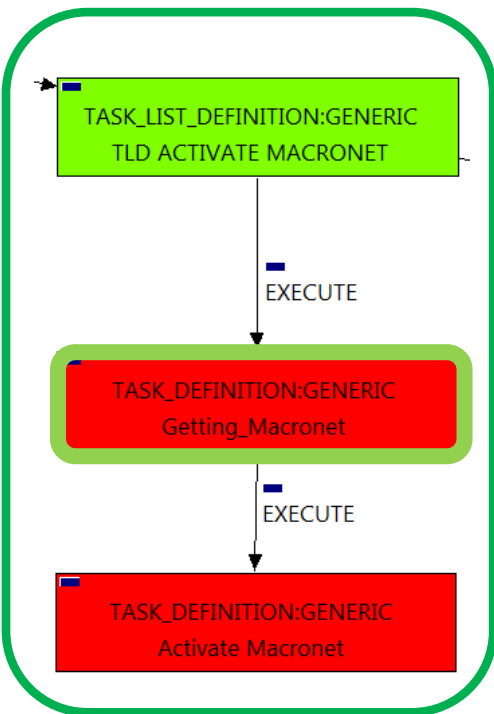| Targets of the TASK DEFINITION:	STATUS of the TD: ENABLED
GENERAL.Name ==	Activate Enterprise
FIND.Condition ==	**GENERAL.Name==%GENERAL.Name%_Profile**
FIND.Path==	

ORGANIZATION>RESOURCE_POOL>VIM>AUTHENTICATION>REGION>NETWORKING<SDN_CONTROLLER>ENTERPRISE:DCN@status=INSTANTIATED,
ORGANIZATION>RESOURCE_POOL>LOCATION>VIM>AUTHENTICATION>REGION>NETWORKING<SDN_CONTROLLER>ENTERPRISE:DCN@status=INSTANTIATED,
ORGANIZATION>RESOURCE_POOL>DATACENTER>VIM>AUTHENTICATION>REGION>NETWORKING<SDN_CONTROLLER>ENTERPRISE:DCN@status=INSTANTIATED,
ORGANIZATION>RESOURCE_POOL>SERVER<HYPERVISOR<VIM>AUTHENTICATION>REGION>NETWORKING<SDN_CONTROLLER>ENTERPRISE:DCN@status=INSTANTIATED

SET.Running_Status ==	INSTANTIATED.
SET.Status ==	ACTIVE.
EXECUTE.Workflow ==	
	"WF_TS_ACTIVATE_SDN_ENTERPRISE"
EXECUTE.Inactive==	false
EXECUTE.OrderBy ==	
ROLLBACK.Behaviour_on_error ==	STOP
ROLLBACK.Number_of_retries ==	0
DATA.Lock ==	true

The WorkFlow present in EXECUTE.Workflow attribute it is going to seek an ORGANIZATION:GENERIC in Status INSTANTIATED in the DDBB, this ORGANIZATION must have as GENERAL.Name the same name of the ORGANIZATION sought, means we are seeking for the Enterprise that we have been provisioned previously. The query it is going to use the Path present in the category FIND.Path.(this path it is what we called a MultiPath, cover not only one path for the query) Once found , the WF will start the activation, if the activation it is successful we set the status of the artifact as the SET.Status attribute dictates.

In case of error during the execution, the workflow jump to the ROLLBACK category, If the "Behaviour_on_error" attribute its set on "ROLLBACK" the WF will start the execution of the Workflow present in the attribute with the same name in the category ROLLBACK, but in this case, we have a "STOP" set as behavior, so no Rollback it is going to be initiated, due to that the value of the attribute DATA.Lock is true, when the Task Definition has finished the artifact that was used in the workflow executed will be set as "Locked".

2.6 TLD ACTIVATE MACRONET: Getting_Macronet.

This TD assures that the activation of the MACRONETS it will be adjusted only to the ENTERPRISE that is parent of the MACRONETS, this means, the activation it will activated only the MACRONETS related to a specific ENTERPRISE, this specific ENTERPRISE it is going to be one whose GENERAL.Name matched with the "%GENERAL.Name%" present in the TD.

Targets of the TASK DEFINITION: STATUS of the TD: ENABLED

GENERAL.Name ==   Activate Enterprise
FIND.Condition ==   **GENERAL.Name==%GENERAL.Name%_Profile**
FIND.Path==

Figure 6: Getting only Macronet
artifacts.

ORGANIZATION>RESOURCE_POOL>VIM>AUTHENTICATION>REGION>NETWORKING<SDN_CONTROLLER >ENTERPRISE@status=ACTIVE,
ORGANIZATION>RESOURCE_POOL>LOCATION>VIM>AUTHENTICATION>REGION>NETWORKING<SDN_C ONTROLLER>ENTERPRISE@status=ACTIVE,
ORGANIZATION>RESOURCE_POOL>DATACENTER>VIM>AUTHENTICATION>REGION>NETWORKING<SDN _CONTROLLER>ENTERPRISE@status=ACTIVE,
ORGANIZATION>RESOURCE_POOL>SERVER<HYPERVISOR<VIM>AUTHENTICATION>REGION>NETWORKI NG<SDN_CONTROLLER>ENTERPRISE@status=ACTIVE

SET.Running_Status ==   INSTANTIATED.
SET.Status ==   ACTIVE.
EXECUTE.Inactive==   false
EXECUTE.OrderBy ==
ROLLBACK.Behaviour_on_error ==   STOP
ROLLBACK.Number_of_retries ==   0
DATA.Lock ==   true

The WorkFlow present in EXECUTE.Workflow attribute it is going to seek an ORGANIZATION:GENERIC in Status INSTANTIATED in the DDBB, this ORGANIZATION must have as GENERAL.Name the value of the attribute FIND.Condition. The query it is going to use the Path present in the category FIND.Path.(this path it is what we called a MultiPath, cover not only one path for the query) Once found , the WF will start the activation, if the activation it is successful we set the status of the artifact as the SET.Status attribute dictates. The attribute SET.Running_Status concern about the temporal status that the artifact it is going to maintain until the final change of status that comes from SET.Status.

In case of error during the execution, the workflow jump to the ROLLBACK category, If the "Behaviour_on_error" attribute its set on "ROLLBACK" the WF will start the execution of the Workflow present in the attribute with the same name in the category ROLLBACK, but in this case, we have a "STOP" set as behavior, so no Rollback it is going to be initiated, due to that the value of the attribute DATA.Lock is true,

when the Task Definition has finished the artifact that was used in the workflow executed will be set as "Locked".
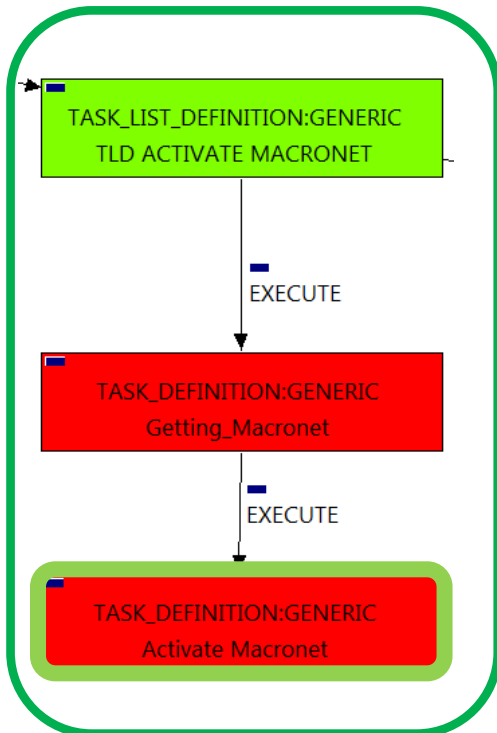
.

Figure 7:Activation of a Macronet.

2.7 TLD ACTIVATE MACRONET: Activate_Macronet.

The TDs that have present in the their names "Activate", are Task Definitions responsible of the activation in the platform targeted and the updating of the status in the platform and the DDBB , in this case, the artifact that is going to be activated is a "Macronet", this means, when this workflow finish, we will have a "Macronet" with status ACTIVE , this macronet will be the one of the previously provisioned, this Macronet will be related with previously activate d Enterprise.

We will have one execution of this workflow per each Macronet provisioned for the previous Enterprise.

Targets of the TASK DEFINITION:	STATUS of the TD: ENABLED
GENERAL.Name ==	Activate Enterprise
FIND.MainArtifact ==	
ENTERPRISE:DCN>MACRONET:DCN@status=INSTANTIATED	
SET.Running_Status ==	INSTANTIATED.
SET.Status ==	ACTIVE.
EXECUTE.Workflow ==	
"WF_TS_ACTIVATE_SDN_MACRONET"	
EXECUTE.Inactive==	false
EXECUTE.OrderBy ==	
ROLLBACK.Behaviour_on_error ==	STOP
ROLLBACK.Number_of_retries ==	0
DATA.Lock ==	false

The WorkFlow present in EXECUTE.Workflow attribute it is going to seek an ORGANIZATION:GENERIC in Status INSTANTIATED in the DDBB, this ORGANIZATION must have as GENERAL.Name the same name of the ORGANIZATION seeked, means we are seeking for the Enterprise that we have been provisioned previously. The query it is going to use the Path present in the category FIND(this path it is what we called a MultiPath, cover not only one path for the query). Once found, the WF will start the activation, if the activation it is successful we set the status of the artifact as the SET.Status attribute dictates. The attribute SET.Running_Status concern about the temporal status that the artifact it is going to maintain until the final change of status that comes from SET.Status.

In case of error during the execution, the workflow jump to the ROLLBACK category, If the "Behaviour_on_error" attribute its set on "ROLLBACK" the WF will start the execution of the Workflow present in the attribute with the same name in the category ROLLBACK, but in this case, we have a "STOP" set as behavior, so no Rollback it is going to be initiated, due to that the value of the attribute DATA.Lock is false, so the artifact which is being used in the execution will be left unblocked.

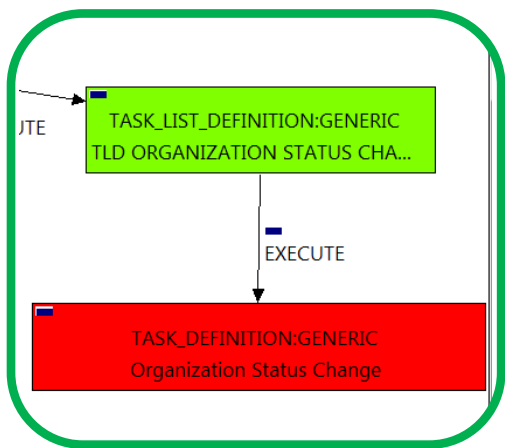## 2.8 TLD ORGANIZATION STATUS CHANGE: Organization Status Change.

The TDs that have present in the their names "Status Change", are Task Definitions responsible of the change in the status of the entity associated, in this case an ORGANIZATION. When the WF has finished we will have an ORGANIZATION with status ACTIVE in case of successful execution, or status ERROR in case of error, or simply not any change in the status because a ROLLBACK during the execution.

Figure 8: Change Organization Status.

Targets of the TASK DEFINITION: ENABLED	STATUS of the TD:
GENERAL.Name ==	Activate Enterprise
FIND.Condition ==	**status==constant:INSTANTIATED**
SET.Running_Status ==	INSTANTIATED.
SET.Status ==	ACTIVE.
EXECUTE.Inactive==	false
ROLLBACK.Behaviour_on_error ==	STOP
ROLLBACK.Number_of_retries ==	0
DATA.Lock ==	true

The TASK_DEFINITION do not execute any workflow, with the attributes present in the categories it is enough to change the status of the entity.

In case of error during the execution, the workflow jump to the ROLLBACK category, If the "Behaviour_on_error" attribute its set on "ROLLBACK" the WF will start the execution of the Workflow present in the attribute with the same name in the category ROLLBACK, but in this case, we have a "STOP" set as behavior, so no Rollback it is going to be initiated, due to that the value of the attribute DATA.Lock is true, when the Task Definition has finished the artifact that was used in the workflow executed will be set as "Locked".