Telemetry-Traffic Collector (TM-TC) Troubleshooting Procedures

This section explains the troubleshooting scenarios encountered for the Telemetry-Traffic Collector (TM-TC) service.

Handling Zombies

Telemetry – Traffic Collector (TM-TC) service is implemented using a nano-services and Reactive FASTMAP (RFM) design pattern.

There are two nano-plans in TM-TC:

- **External user facing plan:** This plan provides an interface for tracking the configuration status of each node.

- **Internal hidden plan:** This plan applies TM-TC service configuration to a node. The internal service is created for each device by a stacked service.

Zombies are the internal operational data model in NSO to store deleted service data. Zombies are helpful when performing staged deletions and RFM (RFM is the NSO version of eventual consistency). When a service deletion is triggered, NSO maintains references of the deleted services (zombies) in operational data. The zombies are deleted in the configuration database (CDB) when all the configurations for the service are removed in the devices. Zombies inform the data interface the progress of a service deletion. It also informs the stage that it is waiting on, which helps to point to the problematic area. For more information, see NSO documentation in Cisco DevNet.

On Cisco Crosswork Change Automation and Health Insights, when you trigger a deletion to clean up the configuration on a device (DLM ADMIN_DOWN / UNMANAGED / DELETION), depending on the connectivity of the device, deleting the configuration at once may lock down the database until the time the last configuration is removed. Once the configuration is successfully removed from the device, the TM-TC service updates the nano-plan state to communicate the deletion progress to the data interface. After the deletion process is completed, TM-TC service removes the nano-plan, zombies, and all the service-related operational data from the CDB.

In some scenarios, as mentioned below, the zombies may not be deleted even after deleting the device configuration and may require manual intervention to delete the configuration references from the devices.

In such cases, run the cleanup action on the device/service. Device and service are interusable terms in this context as Cisco Crosswork Change Automation and Health Insights creates services per device.

1. Device is not reachable during deletion.

2. Device is reachable, but the configuration removal fails on the device for other reasons.

If a device/service goes into the zombie state, user should delete the existing plan to enable any new telemetry collection on the device. If the data interface (Crosswork) or a CLI/NETCONF user tries to recreate the service instance before the zombie/delete is fully processed, the following error is displayed, which indicates that the deletion process is still in progress.

```
Aborted: Operation failed because: Service still in zombie state: 'YYY'
```

Note TM-TC Funtion Pack does not support zombie resurrect and redeploy options.
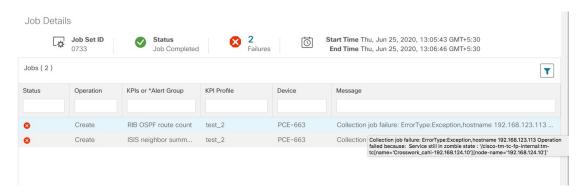
The below image shows how to check if a service is in zombie state on NSO.

Figure 1: Checking if a service is in zombie state on NSO

```
admin@ncs# show zombies service
zombies service /cisco-tm-tc-fp-internal:tm-tc[name='Crosswork_cahi-192.168.124.10'][node-name='192.168.124.10']
 delete-path /cisco-tm-tc-fp-internal:tm-tc[name='Crosswork_cahi-192.168.124.10'][node-name='192.168.124.10']
                                                                                       POST
           BACK                                                                        ACTION
TYPE  NAME TRACK GOAL  STATE                                      STATUS       WHEN ref STATUS
-----------------------------------------------------------------------------------------------
self  self true  -     init                                       reached      -    -   -
                       cisco-tm-tc-fp-nano-services:config-apply  reached      -    -   -
                       ready                                      not-reached  -    -   -

admin@ncs#
admin@ncs#
admin@ncs#
```

The below image shows the message that is displayed when you try to create a new configuration on a service that is in zombie state (viewed in the **Performance Alerts** > **KPI Job History** window).

Figure 2: Zombie state error message

The following image shows the NSO cleanup command to remove the plan in zombie state.
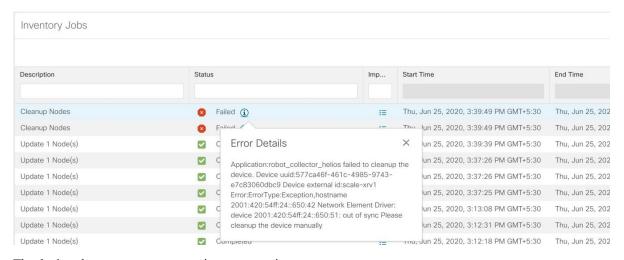
Figure 3: NSO cleanup command

```
admin@ncs# tm-tc-actions cleanup service Crosswork_cahi-192.168.124.10 no-networking false
success true
detail
Cleaning up TMTC service: Crosswork_cahi-192.168.124.10
 Removed all plan components
 Removing service /cisco-tm-tc-fp:tm-tc{Crosswork_cahi-192.168.124.10}
 Removed service /cisco-tm-tc-fp:tm-tc{Crosswork_cahi-192.168.124.10}
 Removing service oper: /cisco-tm-tc-fp-internal:tm-tc-internal/tm-tc-oper-data{Crosswork_cahi-192.168.124.10 192.168.124.10}
 Removed service oper
 Removed side-effects
 Removed side-effects
 Removed kickers
 Removing kicker: /kickers/data-kicker{"pre-condition: /cisco-tm-tc-fp-internal:tm-tc-internal/tm-tc-plan{Crosswork_cahi-192.168.124.10 192.168.124.10}/plan/componen
t{ncs:self self}/state{cisco-tm-tc-fp-nano-services:config-apply}"}
 Removed kickers
 Cleanup Successful for Crosswork_cahi-192.168.124.10
admin@ncs#
admin@ncs#
admin@ncs# show zombies service
% No entries found.
admin@ncs#
```

Handling Device Cleanup Errors

The deletion of telemetry configuration may fail at times, and you will be notified about it in the **Inventory Jobs** window page.

Figure 4: Telemetry configuration deletion error

The device cleanup error can occur in two scenarios:

- **Failure in deleting a specific telemetry configuration on the device**

  In this scenario, user is expected to clear the failed configuration from telemetry service manually. This automatically removes the configuration from device. If the configuration is removed in the device, function pack restores the configuration, hence you should also remove it in the function pack service model.

  Follow these steps to remove the subscription manually from NSO CLI:

  1. Browse through the Telemetry – Traffic Collector (TM-TC) configuration to find out the subscription is to be deleted.

  2. Delete the subscription node that is found above using delete command on NSO CLI.

```
[nso@localhost ~]$ ncs_cli -u admin

admin connected from 2001:420:54ff:24::650:40 using ssh on localhost.localdomain
admin@ncs> configure
Entering configuration mode private
[ok][2020-06-25 06:15:59]

[edit]
admin@ncs% show cisco-tm-tc-fp:tm-tc Crosswork_cahi-2001:420:54ff:24::650:51 node 2001:420:54ff:24::650:51 telemetry-model-driven-subscription subscription
subscription CW_198a375c-f3f4-407e-8663-ae67868be7cd_8ba94cfeeb43d659ec25944fe54bcb646ccc58dc {
    sensor-group CW_198a375c-f3f4-407e-8663-ae67868be7cd_8ba94cfeeb43d659ec25944fe54bcb646ccc58dc {
        sample-interval 300000;
    }
    destination-group CW_198a375c-f3f4-407e-8663-ae67868be7cd_8ba94cfeeb43d659ec25944fe54bcb646ccc58dc;
}
subscription CW_198a375c-f3f4-407e-8663-ae67868be7cd_bdb2b80d0b89e063d68643982cf8d96103c119d6 {
    sensor-group CW_198a375c-f3f4-407e-8663-ae67868be7cd_bdb2b80d0b89e063d68643982cf8d96103c119d6 {
        sample-interval 300000;
    }
    destination-group CW_198a375c-f3f4-407e-8663-ae67868be7cd_bdb2b80d0b89e063d68643982cf8d96103c119d6;
}
[ok][2020-06-25 06:16:14]

[edit]
admin@ncs% delete tm-tc Crosswork_cahi-2001:420:54ff:24::650:51 node 2001:420:54ff:24::650:51 telemetry-model-driven-subscription subscription CW_198a375c-f3f4-407e-
8663-ae67868be7cd_bdb2b80d0b89e063d68643982cf8d96103c119d6
[ok][2020-06-25 06:16:56]

[edit]
admin@ncs% commit
Commit complete.
[ok][2020-06-25 06:17:07]

[edit]
admin@ncs%
System message at 2020-06-25 06:17:08...
Commit performed by admin via ssh using cli.
admin@ncs%
System message at 2020-06-25 06:17:09...
Commit performed by admin via ssh using cli.
admin@ncs%
System message at 2020-06-25 06:17:09...
Commit performed by admin via ssh using cli.
```

- **Failure in deleting the telemetry service on NSO for a device**

    When ADMIN_DOWN/UNMANAGED is set on a device in DLM, or if device is removed from DLM,
    Cisco Crosswork Change Automation and Health Insights removes the telemetry service that is associated
    with that device on NSO. If this fails, it would be reported as device cleanup failure. In this case, user is
    expected to run the cleanup command on NSO CLI. The cleanup command has a "match" option using
    which all the services whose name is matching with a particular string can be removed at one go.

    Following are some examples:

    The name of a service for a specific device would be *Crosswork_cahi-<node key in NSO>*

    To remove one service: **request tm-tc-actions cleanup service <service-name> no-networking false**

```
admin@ncs>
admin@ncs>
admin@ncs> request tm-tc-actions cleanup service Crosswork_cahi-2001:420:54ff:24::650:51 no-networking false
success true
detail
Cleaning up TMTC service: Crosswork_cahi-2001:420:54ff:24::650:51
 Removed all plan components
 Removing service /cisco-tm-tc-fp:tm-tc{Crosswork_cahi-2001:420:54ff:24::650:51}
 Removed service /cisco-tm-tc-fp:tm-tc{Crosswork_cahi-2001:420:54ff:24::650:51}
 Removing service oper: /cisco-tm-tc-fp-internal:tm-tc-internal/tm-tc-oper-data{Crosswork_cahi-2001:420:54ff:24::650:51 2001:420:54ff:24::650:51}
 Removed service oper
 Removed side-effects
 Removed side-effects
 Removed kickers
 Removed kickers
 Cleanup Successful for Crosswork_cahi-2001:420:54ff:24::650:51
[ok][2020-06-25 06:31:00]
admin@ncs>
admin@ncs>
```

    To remove all services whose name matches with the string "Crosswork": **request tm-tc-actions cleanup
    service Crosswork match true no-networking false**

```
admin@ncs>
admin@ncs> request tm-tc-actions cleanup service Crosswork match true no-networking false
success true
detail
Cleaning up TMTC service: Crosswork_cahi-2001:420:54ff:24::650:51
 Removed all plan components
 Removing service /cisco-tm-tc-fp:tm-tc{Crosswork_cahi-2001:420:54ff:24::650:51}
 Removed service /cisco-tm-tc-fp:tm-tc{Crosswork_cahi-2001:420:54ff:24::650:51}
 Removing service oper: /cisco-tm-tc-fp-internal:tm-tc-internal/tm-tc-oper-data{Crosswork_cahi-2001:420:54ff:24::650:51 2001:420:54ff:24::650:51}
 Removed service oper
 Removed side-effects
 Removed side-effects
 Removed kickers
 Removed kickers
 Cleanup Successful for Crosswork_cahi-2001:420:54ff:24::650:51
Cleaning up TMTC service: Crosswork_cahi-2001:420:54ff:24::650:52
 Removed all plan components
 Removing service /cisco-tm-tc-fp:tm-tc{Crosswork_cahi-2001:420:54ff:24::650:52}
 Removed service /cisco-tm-tc-fp:tm-tc{Crosswork_cahi-2001:420:54ff:24::650:52}
 Removing service oper: /cisco-tm-tc-fp-internal:tm-tc-internal/tm-tc-oper-data{Crosswork_cahi-2001:420:54ff:24::650:52 2001:420:54ff:24::650:52}
 Removed service oper
 Removed side-effects
 Removed side-effects
 Removed kickers
 Removed kickers
 Cleanup Successful for Crosswork_cahi-2001:420:54ff:24::650:52
[ok][2020-06-25 06:24:44]
admin@ncs>
```