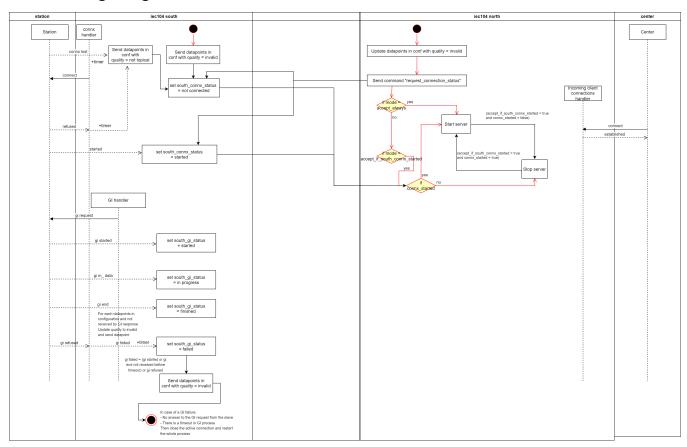# Connx loss and GI failure handling

Feature abstract

In some cases of malfunctions, the iec104 slave will not respond to the connection establishment request or will not respond to the general interrogation request from the iec104 master. In this case, the iec104 gateway is expected to inform the centre about the data quality and/or close the connection with the centre if this mode has been activated.

Processing diagram

Configuration

IEC104 south plugin

gi_time: time to wait for General Interrogation (GI) completion (time between each consecutive step of the GI fail handling process)

south_monitoring.asset: asset name used to send the connection and gi status information to the north

Structure of the south event readings:

```
{
    "south_event": {
        "connx_status": "not connected",
        "gi_status": "idle"
    }
}
```

Trigger GI request from center

In the case of connection loss with the RTU, the idea is to inform the Center that the the connection has been lost.

And we also inform the Center once the connection is established again with the RTU.

The iec104 south plugin should create and send a specific single point to the north which would forward it to the Center. This single point should be present in the exchanged data configuration based on the iec104 address using the protocol_stack south_monitoring.cnx_loss_status_id attribute.

If protocol_stack south_monitoring.cnx_loss_status_id is empty or if the data is missing in exchanged data then ignore.

Once received, for example the Center could automatically send a GI request and inform other peers on the loss of the connection, if supported.

The right time to send this single point after GI is finished on the south.

The value for connection lost is "do_value": 1 and when the connection is back "do_value": 0

Datapoint to be created:

```
{
    "data_object":{
        "do_type":<from exchanged data conf>,
        "do_ca":<from exchanged data conf>,
        "do_oa":0,
        "do_cot":3,
        "do_test":false,
        "do_negative":false,
        "do_ioa":<from exchanged data conf>,
        "do_value":1,
        "do_quality_iv":false,
        "do_quality_bl":false,
        "do_quality_ov":false,
        "do_quality_sb":false,
        "do_quality_nt":false,
        "do_ts":<gateway timestamp>,
        "do_ts_iv":false,
        "do_ts_su":false,
        "do_ts_sub":false
    }
}
```

IEC104 north plugin

"mode":

- **"accept_always":** accept connection or maintain connection with center independently from the south asset connection status
- **"accept_if_south_connx_started":** accept connection or maintain connection with center only if south connection is established and running

south_monitoring.asset[]: array of assets name used to monitor the connection and gi status information from the south

Structure of the south event operation to request latest status:

```
"request_connection_status"
```