LONMARK®

Functional Profile: Entry/Exit Device

SFPTentryExit
Overview

This document describes the Functional Profile of a LONMARK Entry/Exit function. Use of the standard Node Object is implied.

![Figure 1 Entry/Exit node concept](image)

An Entry/Exit device is a door, lock, sluice, turnstile, or something that allows and prohibits entry/exit of a physical unit in-to, or out-of, an area. It can also be a winch or any kind of mechanical equipment for which movement can be prevented by locking the Entry/Exit device, and thus enabled by unlocking the Entry/Exit device.

This kind of profile applies also to other devices in fields like Transportation, Elevators, etc.

An Entry/Exit device…

- can be locked or unlocked,
- can be opened or closed,
- may need service,
- may need to be stopped and thereafter started again, and
- may be requested to temporarily open, or open/close until the next close request arrives.

If the Entry/Exit device loses contact with the controlling device, and after reset, it must have a default behavior.

The mandatory network variables deal with the desired state of the Entry/Exit device (SNVT_ent_state) and the status of the Entry/Exit device (SNVT_ent_status).

There are optional network variables and configuration parameters that can be used to specify the Entry/Exit device’s behavior when the mechanical equipment leaves and arrives to lockable position. There are also optional network variables that can be used for sending alarm messages under certain circumstances, e.g. “Device is/was forced to go to an open position.”

Typically, a simple device like a turnstile will only support nviEntryState and nvoEntryStatus, and it will not support any of the modes supported in nviEntryOpmode. In this case, the “mode feedback” will be set to EM_UNDEFINED and unsupported states will respond with unknown_state.
Example Usage

The following example shows how the Entry/Exit Device functional block can interoperate with other devices or functional blocks in a security scenario.

![Diagram showing the interoperation between Access Manager and Entry device]

**Figure 3** Example Usage of the Object.

The door is controlled by the nviEntryState, and it should respond in a unique way, depending on the mode selected in nviEntryOpMode. The Enumerated list for SNVT_ent_state is ent_cmd_t:

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES_NUL = -1</td>
<td>Invalid/unknown command.</td>
</tr>
<tr>
<td>ES_UNDEFINED = 0</td>
<td>State is not yet defined.</td>
</tr>
<tr>
<td>ES_OPEN_PULS = 1</td>
<td>Open the device and close the device when back in normal position if mode is not in EM_BLOCKED, EM_CLOSE_LOCK, or EM_NIGHT_LOCKING mode.</td>
</tr>
<tr>
<td>ES_OPEN = 2</td>
<td>Open the device if mode is not in EM_BLOCKED or EM_CLOSE_LOCK or EM_NIGHT_LOCKING mode.</td>
</tr>
<tr>
<td>ES_CLOSE = 3</td>
<td>Close the device if mode is not in EM_BLOCKED mode.</td>
</tr>
<tr>
<td>ES_STOP = 4</td>
<td>Stop the device from moving.</td>
</tr>
<tr>
<td>ES_STOP_RESUME = 5</td>
<td>Continue after ES_STOP or other “stop” command.</td>
</tr>
<tr>
<td>ES_ENTRY_REQ = 6</td>
<td>Opens device if in mode EM_AUTO, EM_AUTO_RED, EM_UNKNOWN or EM_OPEN_ONCE mode.</td>
</tr>
<tr>
<td>ES_EXIT_REQ = 7</td>
<td>Opens device if in mode EM_AUTO, EM_AUTO_RED, EM_UNKNOWN, EM_EXIT_ONLY, or EM_OPEN_ONCE mode.</td>
</tr>
<tr>
<td>ES_KEY_REQ = 8</td>
<td>Always opens the device, except in case of EM_BLOCKED and EM_MANUAL, where the device will only be unlocked.</td>
</tr>
<tr>
<td>ES_SAFETY_EXT_REQ = 9</td>
<td>External safety function is activated. This may cause the device to open, or to close and lock, depending on the configuration (like in case of burglary). If optional mode setting is not present on a device, this command is not supported.</td>
</tr>
<tr>
<td>Function Code</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>ES_EMERGENCY_REQ = 10</td>
<td>External emergency function is activated. This may cause the device to open, or to close and unlock, depending on the configuration (like in case of fire). If optional mode setting is not present on a device, this command is not supported.</td>
</tr>
<tr>
<td>ES_UPDATE_STATE = 11</td>
<td>Updates the current state and mode on the output network variable nvoEntryStatus.</td>
</tr>
<tr>
<td>ES_SAF_EXT_RESUME = 12</td>
<td>Resume after “safety” functions.</td>
</tr>
<tr>
<td>ES_EMERG_RESUME = 13</td>
<td>Resume after “emergency” functions.</td>
</tr>
</tbody>
</table>

If the device does not support an optional mode, mode defaults to EM_UNDEFINED.
Object Details

![Diagram of object details with mandatory and optional network variables, configuration properties, and an object state transition diagram.]

**Figure 3** Object Details
Table 1 SNVT Details

<table>
<thead>
<tr>
<th>NV # (M/O)*</th>
<th>Variable Name</th>
<th>SNVT Name</th>
<th>SNVT Index</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (M)</td>
<td>nviEntryState</td>
<td>SNVT_ent_state</td>
<td>69</td>
<td>Desired state of the Entry/Exit device (command)</td>
</tr>
<tr>
<td>2 (M)</td>
<td>nvoEntryStatus</td>
<td>SNVT_ent_status</td>
<td>70</td>
<td>Current entry/exit state and mode</td>
</tr>
<tr>
<td>3 (O)</td>
<td>nviEntryOpMode</td>
<td>SNVT_ent_opmode</td>
<td>168</td>
<td>Entry/Exit Operation mode</td>
</tr>
<tr>
<td>4 (O)</td>
<td>nvoPreAlarm</td>
<td>SNVT_switch</td>
<td>95</td>
<td>Pre warning alarm</td>
</tr>
<tr>
<td>5 (O)</td>
<td>nviPositioned</td>
<td>SNVT_switch</td>
<td>95</td>
<td>In lockable position</td>
</tr>
<tr>
<td>6 (O)</td>
<td>nvoAftAlarm</td>
<td>SNVT_switch</td>
<td>95</td>
<td>After warning alarm</td>
</tr>
<tr>
<td>7 (O)</td>
<td>nviOpen</td>
<td>SNVT_switch</td>
<td>95</td>
<td>Open the device</td>
</tr>
<tr>
<td>8 (O)</td>
<td>nvoOpenFb</td>
<td>SNVT_switch</td>
<td>95</td>
<td>Feed back of nviOpen</td>
</tr>
<tr>
<td>9 (O)</td>
<td>nviDirection</td>
<td>SNVT_flow_dir</td>
<td>171</td>
<td>Control the direction through the device</td>
</tr>
<tr>
<td>10 (O)</td>
<td>nvoDirectionFb</td>
<td>SNVT_flow_dir</td>
<td>171</td>
<td>Feed back of nviDirection</td>
</tr>
<tr>
<td>11 (O)</td>
<td>nviUpdateServ</td>
<td>SNVT_switch</td>
<td>95</td>
<td>Update the nvoServiceMsg</td>
</tr>
<tr>
<td>12 (O)</td>
<td>nvoServiceMsg</td>
<td>SNVT_str_asc</td>
<td>36</td>
<td>Current Service Message information</td>
</tr>
<tr>
<td>13 (O)</td>
<td>nviSluiceLock</td>
<td>SNVT_switch</td>
<td>95</td>
<td>Sluice-Lock Token</td>
</tr>
<tr>
<td>14 (O)</td>
<td>nvoSluiceLock</td>
<td>SNVT_switch</td>
<td>95</td>
<td>Sluice-Lock Token blocking</td>
</tr>
</tbody>
</table>

* M = mandatory, O = optional

Table 2 SCPT Details

<table>
<thead>
<tr>
<th>Man. Opt. *</th>
<th>SCPT Name NV Name Type or SNVT</th>
<th>SCPT Index</th>
<th>Associated NVs **</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>SCPTmaxRcvTime nciMaxRcvTime SNVT_time_sec (107)</td>
<td>48</td>
<td>nv1(M), nv3(M)</td>
<td>This configuration property is used to control the maximum time that elapses after the last update to bound network input before the Object takes a pre-defined state.</td>
</tr>
<tr>
<td>M</td>
<td>SCPTmaxSendTime nciMaxSendTime SNVT_time_sec (107)</td>
<td>49</td>
<td>nv2(M)</td>
<td>This configuration property is used to control maximum period of time that expires before the Object will automatically update NVs</td>
</tr>
<tr>
<td>M</td>
<td>SCPTminSendTime nciMinSendTime SNVT_time_sec (107)</td>
<td>52</td>
<td>nv2(M)</td>
<td>This configuration property is used to control minimum period of time that expires before the Object can update NVs with a new value</td>
</tr>
<tr>
<td>O</td>
<td>SCPTholdTime nciOpenTime SNVT_time_sec</td>
<td>91</td>
<td>Entire Object</td>
<td>This configuration property is used to control the time of the device’s requested state, before it returns to its previous state (in pulse-like situations)</td>
</tr>
<tr>
<td>O</td>
<td>SCPTdefOutput nciDefaultCmd SNVT_ent_state</td>
<td>7</td>
<td>nv1(O)</td>
<td>This configuration property is used to control reset state of the device.</td>
</tr>
<tr>
<td>O</td>
<td>SCPTdefOutput nciDefaultMode SNVT_ent_opmode</td>
<td>7</td>
<td>nv2(O)</td>
<td>This configuration property is used to control reset mode of the device.</td>
</tr>
<tr>
<td></td>
<td>Configuration Property</td>
<td>Value</td>
<td>Data Type</td>
<td>Description</td>
</tr>
<tr>
<td>---</td>
<td>---------------------------------</td>
<td>-------</td>
<td>-------------</td>
<td>----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>O</td>
<td>SCPTdelayTime</td>
<td>96</td>
<td>nv4(O)</td>
<td>This configuration property is used to control the delay time before a pre alarm is sent out.</td>
</tr>
<tr>
<td></td>
<td>nciPreAlarm</td>
<td></td>
<td>SNVT_time_sec</td>
<td></td>
</tr>
<tr>
<td>O</td>
<td>SCPTdelayTime</td>
<td>96</td>
<td>nv6(O)</td>
<td>This configuration property is used to control the delay time before an alarm is sent out.</td>
</tr>
<tr>
<td></td>
<td>nciAftAlarm</td>
<td></td>
<td>SNVT_time_sec</td>
<td></td>
</tr>
<tr>
<td>O</td>
<td>SCPTsluiceCnfg</td>
<td>259</td>
<td>Entire Object</td>
<td>Defines Master / Slave or none for sluice operation mode</td>
</tr>
<tr>
<td></td>
<td>nciSluiceCnfg</td>
<td></td>
<td>master_slave_t</td>
<td></td>
</tr>
<tr>
<td>O</td>
<td>SCPTsafExtCnfg</td>
<td>257</td>
<td>nv3(O)</td>
<td>This configuration property is used to define the door mode in case of ES_SAFETY_EXT_REQ.</td>
</tr>
<tr>
<td></td>
<td>nciSafExtCnfg</td>
<td></td>
<td>SNVT_ent_opmode</td>
<td></td>
</tr>
<tr>
<td>O</td>
<td>SCPTemergCnfg</td>
<td>258</td>
<td>nv3(O)</td>
<td>This configuration property is used to define the door mode in case of ES_EMERGENCY_REQ.</td>
</tr>
<tr>
<td></td>
<td>nciEmergCnfg</td>
<td></td>
<td>SNVT_ent_opmode</td>
<td></td>
</tr>
<tr>
<td>O</td>
<td>SCPTlocation</td>
<td>17</td>
<td>Entire Object</td>
<td>Used to provide physical location of the device</td>
</tr>
<tr>
<td></td>
<td>nciLocation</td>
<td></td>
<td>SNVT_str_asc</td>
<td></td>
</tr>
<tr>
<td>O</td>
<td>SCPTobjMajVer</td>
<td>167</td>
<td>Entire Object</td>
<td>Defines the major version number of the Object</td>
</tr>
<tr>
<td></td>
<td>nciObjMajVer</td>
<td></td>
<td>unsigned short</td>
<td></td>
</tr>
<tr>
<td>O</td>
<td>SCPTobjMinVer</td>
<td>168</td>
<td>Entire Object</td>
<td>Defines the minor version number of the Object</td>
</tr>
<tr>
<td></td>
<td>nciObjMinVer</td>
<td></td>
<td>unsigned short</td>
<td></td>
</tr>
<tr>
<td>O</td>
<td>SCPTnwrkCnfg</td>
<td>25</td>
<td>Entire Object</td>
<td>Network configuration source</td>
</tr>
<tr>
<td></td>
<td>nciNwrkCnfg</td>
<td></td>
<td>SNVT_config_src</td>
<td></td>
</tr>
</tbody>
</table>

* M = mandatory, O = optional

** List of NVs to which this configuration property applies.
Mandatory Network Variables

**Entry/Exit Command Input (Mandatory)**

```c
network input sd_string("@p|1") SNVT_ent_state
bind_info(auth) nviEntryState;
```

This input network variable gives the desired state for the Entry/Exit device.

**Valid Range**

Valid range of SNVT_ent_state.

**Default Value**

The default value is the CP, `nciDefaultCmd`, if present, else some explicit data.

**Configuration Considerations**

This configuration property `nciMaxRcvTime` controls the maximum time that elapses after the last update to this network variable before the object adopts the default value.

**Default Service Type**

The default service type is acknowledged for general-purpose applications and authenticated for security applications.
Entry/Exit Status Output (Mandatory)

network output sd_string("@p2") SNVT_ent_status
bind_info(auth) nvoEntryStatus;

This output network variable holds the current Entry/Exit device status.

Valid Range
Valid range of SNVT_ent_status.

Default Value
The default value is Closed and with the mode EM_AUTO.

Configuration Considerations
The transmission of this NV is regulated by the time specified in the nciMaxSendTime CP, unless the nciMaxSendTime CP has a value of 0.0, or other invalid value; in which case, the NV is not regulated by the nciMaxSendTime value.

When Transmitted
This variable is transmitting immediately when the Entry/Exit device state or mode changes.
The current value is regularly transmitted at the interval defined by the configuration variable nciMaxSendTime.

Default Service Type
The default service type is acknowledged for general-purpose applications and authenticated for security applications.
Optional Network Variables

Entry/Exit Operation Mode Input (Optional)

```
network input sd_string("@P|3") SNVT_ent_opmode
bind_info(auth) nviEntryOpMode;
```

This input network variable is used to control the mode of the Entry/Exit device.

Valid Range
Valid range of SNVT_ent_opmode.

Default Value
The default value is the CP, `nciDefaultMode`.

Configuration Considerations
This configuration property `nciMaxRcvTime` controls the maximum time that elapses after the last update to this network variable before the object adopts the default value.

Default Service Type
The default service type is acknowledged for general-purpose applications and authenticated for security applications.
Pre-Alarm Output (Optional)

network output sd_string("@p|4") SNVT_switch
nvoPreAlarm;

This output network variable is used for warning purposes. When the device has been unable to perform a requested command longer than the \texttt{nciPreAlarmDly}, but not as long as the \texttt{nciAftAlarmDly}, this variable sends State = 1 (TRUE) and Value > 0, otherwise State = 0 (FALSE) and Value = 0.

**Valid Range**

Values in the range of SNVT_switch below.

State = 0 (FALSE) and Value = 0; no pre-alarm condition

State = 1 (TRUE) and Value = 100.0%; pre-alarm condition

(State = 1 and any Value >0 from this output should be interpreted as “pre-alarm condition”)

**Default Value**

State = 0 (FALSE) and Value = 0; no pre-alarm condition

**Configuration Considerations**

None.

**When Transmitted**

When the device has been unable to perform a requested command for more than the \texttt{nciPreAlarmDly} time, State = 1 (TRUE) and Value > 0 is sent. State = 0 (FALSE) and Value = 0 is sent when the device has been unable to perform a requested command for more than the \texttt{nciAftAlarmDly} time.

**Default Service Type**

The default service type is acknowledged.
**Positioned Input (Optional)**

```plaintext
network input sd_string("@p5") SNVT_switch
bind_info(auth) nviPositioned;
```

This optional input network variable is used to inform the device whether the mechanical equipment being subject to locking is in lockable position or not. Typically, this can be an open or closed door.

**Valid Range**

Below values in the range of SNVT_switch.

State = 0 (FALSE) and Value = 0; mechanical equipment not in lockable position
State = 1 (TRUE) and Value > 0; mechanical equipment is in lockable position

**Default Value**

State = 1 (TRUE) and Value = 100.0%; mechanical equipment is in lockable position

**Configuration Considerations**

None.

**Default Service Type**

The default service type is authentication.
Aft Alarm Output (Optional)

network output sd_string("@6") SNVT_switch nvoAftAlarm;

This output network variable sends State = 1 (TRUE) and Value > 0 when the device has been unable to perform a requested command for more than the nciAftAlarmDly time. The alarm delay starts counting when the device tries to perform a requested action. If the device status changes without a preceding action request being received, the nciPreAlarmDly and nciAftAlarmDly is bypassed and a device alarm is sent immediately.

Valid Range
State = 0 (FALSE) and Value = 0; no alarm condition
State = 1 (TRUE) and Value = 100.0%; condition
(State = 1 and any Value >0 from this output should be interpreted as “alarm condition”)

Default Value
State = 0 (FALSE) and Value = 0; no alarm

Configuration Considerations
None.

When Transmitted
When the device has been unable to perform a requested command for more than the nciPreAlarmDly, State = 1 (TRUE) and Value > 0 is sent. State = 0 (FALSE) and Value = 0 is sent when an alarm condition is no longer present, i.e. the device has been able to perform the last requested action successfully. If the device status changes without a preceding action request being received, the nciPreAlarmDly and nciAftAlarmDly is bypassed and a device alarm is sent immediately.

Default Service Type
The default service type is acknowledged.
Open Command (Optional)

```
network input sd_string("p|7") SNVT_switch
bind_info(auth) nviOpen;
```

This optional input network variable is used to open and close the device from other devices using the general SNVT_switch network variable.

Valid Range

Below values in the range of SNVT_switch.
State = 0 (FALSE) and Value = 0; The device should close/lock
State = 1 (TRUE) and Value > 0; The device should open/unlock
In entries/exits that are designed for varying degrees of open/closed (sluices and other similar gates), the percentage represents a percentage of full open (i.e., 100.0% is full open).
In two-state devices, “State = 1 and any Value >0” represents “full open.”

Default Value

State = 0 (FALSE) and Value = 0; The device should close/lock

Configuration Considerations

None.

Default Service Type

The default service type is acknowledged for general-purpose applications and authenticated for security applications.
Open Command Feedback (Optional)

network output sd_string(" opioids") SNVT_switch
nvoOpenFb;

This output network variable is the feedback of the nviOpen network variable.

Valid Range

Values in the range of SNVT_switch below.
State = 0 (FALSE) and Value = 0; The device is closed/locked
State = 1 (TRUE) and Value > 0; The device is opened/unlocked
State and Value should represent the actual state of the door/gate.

Default Value

State = 0 (FALSE) and Value = 0; The device is closed/locked

Configuration Considerations

None.

When Transmitted

When the device has been able to perform a requested command on the nviOpen network variable.

Default Service Type

The default service type is acknowledged for general-purpose applications and authenticated for security applications.
**Direction Command (Optional)**

```c
network input sd_string("@p|9") SNVT_flow_dir
bind_info(auth) nviDirection;
```

This optional input network variable is used to define in which direction an access is permitted.

**Valid Range**

Below values in the range of SNVT_flow_dir.

- **FD_NONE (0)**: no movement allowed
- **FD_OUT (1)**: exit-direction only
- **FD_IN (2)**: entry-direction only
- **FD_ANY (3)**: no restrictions from movement

**Default Value**

Default value is FD_ANY.

**Configuration Considerations**

None.

**Default Service Type**

The default service type is authentication.
Direction Command Feedback (Optional)

network output sd_string("@p|10") SNVT_flow_dir
nvoDirectionFb;

This output network variable is the feedback of the nviDirection network variable.

Valid Range
Below values in the range of SNVT_flow_dir.
FD_NUL (-1) invalid value (unable to perform)
FD_NONE (0) no movement allowed
FD_OUT (1) exit-direction only
FD_IN (2) entry-direction only
FD_ANY (3) no restrictions from movement

Default Value
Default value is FD_ANY. FD_ANY might not be supported by the passageway (such as in the case of a unidirectional turnstile), but this value should not report FD_NUL if the passageway can accommodate one of FD_OUT or FD_IN. If the passageway knows its limitations, then it can report the FD_OUT or FD_IN upon receiving an FD_ANY from nviDirection; however, if it does not know its limitations, then it can report FD_ANY.

Configuration Considerations
None.

When Transmitted
When the device has been able to perform a requested command on the nviDirect network variable.

Default Service Type
The default service type is acknowledged.
**Update Service-Message Command (Optional)**

```plaintext
network input sd_string("@|11") SNVT_switch
nviUpdateServ;
```

This optional input network variable is used to request an update of an optional service-message output.

**Valid Range**

Below values in the range of SNVT_switch.
State = 0 (FALSE) and Value = 0; No update requested.
State = 1 (TRUE) and Value > 0; Update requested.

**Default Value**

State = 0 (FALSE) and Value = 0; No update requested.

**Configuration Considerations**

None.

**Default Service Type**

The default service type is acknowledged.
Service-Message Output (Optional)

network output sd_string("@p|12") SNVT_str_asc
nvoServiceMsg;

This output network variable updates with the latest service message if a request comes from the nviUpdateServ network variable. The service message is a means to have instructions for maintenance action available as a short message. Its definition, configuration, and use are completely left open to the manufacturer.

Valid Range
Values in the range of SNVT_str_asc.

Default Value
Text = “NO SERVICE MESSAGE PENDING”. This message can be translated as required by law or necessity.

Configuration Considerations
None.

When Transmitted
When the device has received a request from the nviUpdateServ network variable.

Default Service Type
The default service type is acknowledged.
Sluice-Lock Token (optional)

network input sd_string("@p13") SNVT_switch
bind_info(auth) nviSluiceLock;

The Sluice-Lock Token is used for an airlock or water-canal locking system where there is a set of two more doors/gates (often by way of a sluice) that ensure that only one door/gate can be opened at a given time. In this application case, a door/gate is only allowed to open if it owns the Token, or if nciSluiceCnfg is set to MSC_UNKNOWN (0).

Figure 4 Sluice-Lock Operation
This optional input network variable is used to check a Token output of a neighbor device or a sluice manager:

**Master operation:** the slave requests a TOKEN and gets the TOKEN on nvoSluiceLock. If the master is in a state to disable opening requests, nvoSluiceLock is set to TOKEN available.

**Slave Operation:** if nviSluiceLock is set, an opening cycle is allowed to occur.

In case of a timing conflict in having both units requesting the TOKEN, the master units always wins. The slave’s request TOKEN procedure must give TOKEN to the master in this case. A master must give the TOKEN to the slave once its own opening cycle ends.

**Valid Range**

Below values in the range of SNVT_switch.

State = 0 (FALSE) and Value = 0;

- TOKEN requested (master), no TOKEN made available (slave)

State = 1 (TRUE) and Value > 0;

- TOKEN released (master), TOKEN made available (slave)

**Default Value**

State = 0 (FALSE) and Value = 0; No TOKEN requested / available.

**Configuration Considerations**

SCPTsluiceCnfg nciSluiceCnfg defines Master / Slave or none for operation mode

**Default Service Type**

The default service type is acknowledged for general-purpose applications and authenticated for security applications.
Sluice-Lock Token (optional)

network output sd_string("@p|14") SNVT_switch
bind_info(auth) nvoSluiceLock;

This optional input network variable is used to give Token output. Check figure 4 and related description for further information on sluice-lock operation.

Master operation: the slave requests a TOKEN and gets the TOKEN on nvoSluiceLock. If the master is in a state to disable opening requests, nvoSluiceLock is set to TOKEN available.

Slave Operation: nvoSluiceLock is set to TOKEN if a cycle is completed

Valid Range
Below values in the range of SNVT_switch.
State = 0 (FALSE) and Value = 0;
   TOKEN requested (slave), no TOKEN made available (master)
State = 1 (TRUE) and Value > 0;
   no TOKEN requested (slave), TOKEN made available (master)

Default Value
State = 0 (FALSE) and Value = 0; No TOKEN requested / available.

Configuration Considerations
SCPTsluiceCnfg nciSluiceCnfg defines Master / Slave or none for operation mode

Default Service Type
The default service type is acknowledged for general-purpose applications and authenticated for security applications.
Configuration Properties

Receive Heartbeat (Mandatory)

network input config sd_string("&2,i,0\x80,48")
SNVT_time_sec nciMaxRcvTime;

or the following may be substituted, if the same value is used for both NVs:

network input config sd_string("&1,p,0\x80,48")
SNVT_time_sec nciMaxRcvTime;

This configuration property is used to control the maximum time that elapses after the last update to a bound network input before the object adopts a default value for the following:

nv1 – nviEntryState (Mandatory for nv1)
nv3 – nviEntryOpMode (Mandatory for nv3, if nv3 is implemented)

If desired, more than one Receive Heartbeat can be used (if desired to have a separate value for each NV).

Valid Range

The valid range is 1.0 to 3600.0 seconds.

Values outside this range are invalid and they will disable the automatic default value mechanism. A value of zero (0) will be used for the internal timer in cases where configured values are above 3600.0 seconds.

Default Value

The default value is 0.0 (no automatic default value).

Configuration Requirements/Restrictions

This CP has no modification restrictions (no_restrictions). It can be modified at any time.

SCPT Reference

SCPTmaxRcvTime (48)
Send Heartbeat Maximum (Mandatory)

network input config sd_string("&2,i,0\x80,49")
SNVT_time_sec nciMaxSendTime;

This input configuration property sets the maximum period of time that can expire before the Object will automatically update the following network variables:

nv2 – nvoEntryStatus (Mandatory for nv2)

Valid Range

The valid range is 1.0 to 3600.0 seconds.
Values outside this range are invalid and they will disable the automatic update mechanism. A value of zero (0) will be used for the internal timer in cases where configured values are above 3600.0 seconds.

Default Value

The default value is 0.0 (no automatic update).

Configuration Requirements/Restrictions

This CP has no modification restrictions (no_restrictions). It can be modified at any time.

SCPT Reference

SCPTmaxSendTime (49)
Send Heartbeat Minimum (Mandatory)

network input config sd_string("&2,\textit{i},0\backslash x80,52")
SNVT\_time\_sec nciMinSendTime;

This input configuration property sets the minimum period of time that must expire before the Object can update the following network variables with a new value:

nv2 – nvoEntryStatus (Mandatory for nv2)

Valid Range

The valid range is 1.0 to 3600.0 seconds.

Values outside this range are invalid and they will disable the automatic update mechanism. A value of zero (0) will be used for the internal timer in cases where configured values are above 3600.0 seconds.

Default Value

The default value is 0.0 (no automatic update).

Configuration Requirements/Restrictions

This CP has no modification restrictions (no\_restrictions). It can be modified at any time.

SCPT Reference

SCPT\_minSendTime (52)
Open Time (Optional)

network input config sd_string("&1,p,0\x80,91")
SNVT_time_sec nciOpenTime;

This configuration property is used to control the time the device should be open/unlocked in pulse situations.

Valid Range

The valid range is 1.0 to 3600.0 seconds.
Values outside this range are invalid and they will disable the automatic default value mechanism. A value of zero (0) will be used for the internal timer in cases where configured values are above 3600.0 seconds.

Default Value

The default value is 0.0 (no automatic default value).

Configuration Requirements/Restrictions

This CP has no modification restrictions (no_restrictions). It can be modified at any time.

SCPT Reference

SCPTholdTime (91)
Safety External Mode  (optional)

network input config sd_string("&2,i,0\x80,257")
SNVT_ent_opmode nciSafExtCnfg;

This configuration property is used to control mode the door goes to after getting an ES_SAFETY_EXT_REQ input.

nv3 – nviEntryOpMode (Optional for nv3)

Valid Range

EM_UNDEFINED (0), EM_CLOSE_LOCK (3), EM_CLOSE_UNLOCK (4), EM_OPEN (6), and EM_MANUAL (8).

Default Value

EM_CLOSE_LOCK (3).

Configuration Requirements/Restrictions

This CP has no modification restrictions (no_restrictions). It can be modified at any time.

SCPT Reference

SCPTsafExtCnfg (257)
Emergency Mode (optional)

network input config sd_string("&2,i,0\x80,258")
SNVT_ent_opmode nciEmergCnfg;

This configuration property is used to control mode the door goes to after getting an ES_EMERGENCY_REQ input.

nv3 – nviEntryOpMode (Optional for nv3)

Valid Range

EM_UNDEFINED (0), EM_CLOSE_LOCK (3), EM_CLOSE_UNLOCK (4), EM_OPEN (6), and EM_MANUAL (8).

Default Value

EM_CLOSE_UNLOCK (4).

Configuration Requirements/Restrictions

This CP has no modification restrictions (no_restrictions). It can be modified at any time.

SCPT Reference

SCPTemergCnfg (258)
**Default Command (Optional)**

```c
network input config sd_string("&2,\,0\x80,7")
SNVT_ent_state nciDefaultCmd;
```

When network communication fails and at reset, the Device needs to have default behavior.

nv1 – nviEntryState (Optional for nv1)

**Valid Range**

Values in the range of SNVT_ent_state.

**Default Value**

Application specific.

**Configuration Requirements/Restrictions**

This CP has no modification restrictions (no_restrictions). It can be modified at any time.

**SCPT Reference**

SCPTdefOutput (7)
**Default Mode (Optional)**

network input config sd_string("&2,i,0\x80,7")
SNVT_ent_opmode nciDefaultMode;

When network communication fails and at reset, the Device needs to have default mode.

nv2 – nvoEntryStatus (Optional for nv2)

**Valid Range**

Values in the range of SNVT_ent_opmode.

**Default Value**

Application specific.

**Configuration Requirements/Restrictions**

This CP has no modification restrictions (no_restrictions). It can be modified at any time.

**SCPT Reference**

SCPTdefOutput (7)
Pre-Alarm Delay (Optional)

network input config sd_string("&2,i,0\x80,96")
SNVT_time_sec nciPreAlarmDly;

This delay determines the time until a pre alarm is activated. The time starts counting when a device action command is received, and is reset when the received command is performed successfully. If the requested command could not be performed within the time specified by nciPreAlarmDly, a pre-alarm is sent out via nvoPreAlarm.

nv4 – nvoPreAlarm (Optional for nv4)

Valid Range
The valid range is 1.0 to 3600.0 seconds.
Values outside this range are invalid and will disable the pre-alarm.

Default Value
0 (zero)

Configuration Requirements/Restrictions
This CP must be shorter than nciAftAlarmDly.
This CP has no modification restrictions (no_restrictions). It can be modified at any time.

SCPT Reference
SCPTdelayTime (96)
Aft-Alarm Delay (Optional)

network input config sd_string("&2, i, 0\x80, 96")
SNVT_time_sec nciAftAlarmDly;

This delay determines the time until a device alarm is activated. The time starts counting when a device action command is received, and counter is reset when the received command is performed successfully. If the requested command could not be performed within the time specified by $nciAftAlarmDly$, a Device alarm is sent out via $nvoAftAlarm$.

nv6 – nvoAftAlarm (Optional for nv6)

Valid Range

The valid range is 1.0 to 3600.0 seconds.
Values outside this range are invalid and will disable the Device alarm.

Default Value

0 (zero)

Configuration Requirements/Restrictions

This CP must be longer than $nciPreAlarmDly$.
This CP has no modification restrictions (no_restrictions). It can be modified at any time.

SCPT Reference

SCPTdelayTime (96)
Sluice Configuration (optional)

network input config sd_string("&1,P,0\x88,259")
master_slave_t nciSluiceCnfg;

Defines the sluice-lock operation mode. It is used for an airlock or water-canal locking system where there is a set of two more doors/gates (often by way of a sluice) that ensure that only one door/gate can be opened at a given time. In this application case, a door/gate is only allowed to open if it owns the Token. Check figure 4 and related description for further information on sluice-lock operation.

Valid Range
The valid range:

<table>
<thead>
<tr>
<th>MSC_NUL (0xFF; -1)</th>
<th>no Sluice-lock function</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSC_UNKNOWN (0)</td>
<td>no sluice-lock</td>
</tr>
<tr>
<td>MSC_SLAVE (1)</td>
<td>Starts on requesting Token: the door acts as Token slave releasing the Token after operation</td>
</tr>
<tr>
<td>MSC_MASTER (2)</td>
<td>Starts on owning Token: the door acts as Token master keeping the Token after operation</td>
</tr>
</tbody>
</table>

Default Value
Default value is MSC_NUL.

Configuration Requirements/Restrictions
none

SCPT Reference
SCPTsluiceCnfg (259)
**Location Label (Optional)**

```
network input config sd_string("&1,p,0\x80,17")
SNVT_str_asc nciLocation;
```

This configuration property can be used to provide the location of the Object/node, where \( p \) is the Object index. The above code declaration is for providing the location of the Object. If it is preferred, the location of the node can be represented with the following code declaration:

```
network input config sd_string("&0,,0\x80,17")
SNVT_str_asc nciLocation;
```

**Valid Range**

Any NULL-terminated ASCII string up to 31 bytes of total length (including NULL). The string must be truncated if the length does not allow the 31\(^{st}\) character to be the NULL (0x00).

**Default Value**

The default value is an ASCII string containing 31 NULLs (0x00).

**Configuration Requirements/Restrictions**

This CP has no modification restrictions (no_restrictions). It can be modified at any time.

**SCPT Reference**

SCPTLocation (17)
Object Major Version (Optional)

network input config sd_string("&1,p,0\x84,167")
unsigned short nciObjMajVer;

This configuration property can be used to provide the major version number of
the Object when implemented on a device.

Valid Range
Any integer number from 1 to 255. Only one byte of information is accepted.

Default Value
The default value is one (1).

Configuration Requirements/Restrictions
This CP is a constant (const_flg). It is not to be modified except that it is
allowable to modify the value in a download of new code to the device.

SCPT Reference
SCPTobjMajVer (167)
Object Minor Version (Optional)

network input config sd_string("&1,0\xA4,168")
unsigned short nciObjMinVer;

This configuration property can be used to provide the minor version number of the Object when implemented on a device.

Valid Range
Any integer number from 1 to 255. Only one byte of information is accepted.

Default Value
The default value is zero (0).

Configuration Requirements/Restrictions
This CP is device specific (device_specific). It is not to be modified except that it is allowable to modify the value in a download of new code to the device.

SCPT Reference
SCPTobjMinVer (168)
Network Configuration Source (Optional)

network input config sd_string("&1,p,0\x88,25")
SNVT_config_src nciNwrkConfig;

All nodes that support self-installation must provide this CP to allow a network tool to also install the node.

Valid Range
The valid range defined for SNVT_config_src.

Default Value
For a self-installed node the default value is CFG_LOCAL.

Configuration Requirements/Restrictions
This CP as a “reset after modifying” modification flag (reset_flg).

SCPT Reference
SCPTnwrkCnfg (25)
Key for Unresolved References

\(i, j, k\) are the indices of the CP-associated NVs in relation to their declaration order within the node, when implemented.

\(p\) is this Object’s index relative to the node sd_string declaration, when implemented.

Data Transfer

None specified.

Power-up State

There is no immediate network action on Power-up State.

Boundary and Error Conditions

None specified.

Additional Considerations

None specified.