BNCS Alarm System

Atos IT Services

Alarm System

Configuration File Description

Process Module

proc_def.cfg

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BNCS

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1 Introduction

This document describes the BNCS alarm system configuration file proc_def.cfg.

The intended audience for the document is system developers and system maintainers.

The file proc_def.cfg is a configuration file that stores the configuration settings for the alarm system processes.

Note that this file should only be edited using the configuration tools.

2 Location

The proc_def.cfg file is located at:

`%CC_ROOT%\%CC_SYSTEM%\config\alarms\x\proc_def.cfg`

where "x" is the alarm system name.

3 File Contents

The file is in the standard Windows ini file format, with a ".cfg" extension.

Each process is represented by one section, named by the process name.

Within each section the following may be specified.

Name	Required	Details
Rule	Yes	The function of the process, valid entries are AND, OR, NOT, TRUTH, INPUT, TIME, HOLDOFF
Mask	No	The name of another process that masks this one.
Latch	No	If set to 1 the output is latched until overridden.
AckOnce	No	If set and the process is a latch during a cycle from OK to fail to OK you only acknowledge once

Name	Required	Details
Inputs	Not required if Rule="TIME". Required for all others.	For a process that is an "INPUT" this is xxx,yyy where xxx is the acquisition module number and yyy is the input number on that module. For most other process this is either a single process name or comma-separated list of names of the processes used by this process. Not needed for "Time" processes.
Retrigger	Only used if Rule="OR", where it is optional. Not used otherwise.	Only used on "OR" processes. When this has been acknowledged any inputs going to alarm will retrigger this to alarm, otherwise they stay at acknowledge.
Table_nnnn	Required if Rule="TRUTH". Not used otherwise.	A list of truth table entries. If the inputs match the output is on. * is a wildcard. for example : Table_0001=00011*1 Table_0002=1001111
Days	Required if Rule= "TIME". Not used otherwise.	Comma-separated list of days that the output will be true. 0=Sunday, 6=Saturday
Start	Required if Rule= "TIME". Not used otherwise.	Start time for output to be true. Time should use 24-hour clock, with hours and minutes separated by colon.
End	Required if Rule= "TIME". Not used otherwise.	End time for output to be true. Time should use 24-hour clock, with hours and minutes separated by colon.
Holdoff	Required if Rule="HOLDOFF". Not used otherwise.	Time in seconds that the input must be on before the output is on. Decimal fractions of a second are allowed.
IgnoreIntermediateStates	Only used if Rule="OR", where it is optional. Not used otherwise.	Only used on "OR" processes. If this is set the process will ignore intermediate states such as latched.

Using the configuration tool is the safest way of creating this configuration.

The configuration of each type of process has two compulsory entries, the unique name for the process and the rule. The rule must be one of the following: INPUT, OR, AND, NOT, TRUTH, HOLDOFF or TIME. In addition there are other entries which depend on the rule specified:

3.1 INPUT

This requires one entry - 'Inputs'.

The value should be the acquisition module number and the input number separated by a comma.

For example:

[SatRx1_Lock]

Rule=Input

Input=342,7

This means acquisition module 342's input 7 is the input process 'SatRx1_Lock'.

3.2 OR

This requires one entry 'Inputs'.

It should be a comma separated list of the process names to be 'ORed'.

For example

[PSUs1-3]

Rule=OR

Inputs= PSU1, PSU2, PSU3

An optional setting 'IgnoreIntermediateStates' may be used.

3.3 AND

This requires one entry 'Inputs'.

It should be a comma separated list of the process names to be 'ANDed'.

For example

[SatRx1_lost_signal]

Rule=AND

Inputs=SatRx1_OnAir,SatRx1_Lock

3.4 TRUTH

This requires one entry 'Inputs', and a number of 'Table' entries.

The Inputs entry should be a comma separated list of the names of the processes to be considered in the TRUTH TABLE. These are the Truth table 'rows'.

There should also be a number of 'Table' entries for the Truth Table 'columns' which indicate the required states of the inputs to make a TRUE (i.e. Fail, or Alarm) output.

For example the following TRUTH TABLE

Inputs \Outputs	Table_0001	Table_0002

Proc1	TRUE (1)	Not Interested (?)
Proc2	Not interested (?)	TRUE (1)
Proc3	FALSE(0)	TRUE(1)

Is represented as

[Truth1]

Rule=TRUTH

Inputs=Proc1, Proc2, Proc3

Table_0001=1*0

Table_0002=*11

The 'Table_nnnn' entries are the outputs of the truth table. If any of these is TRUE, the output of the process will be true (Alarm). In this example if both Proc1 is true and Proc3 is false or both Proc2 and Proc3 are true then the output will be true (Alarm).

3.5 NOT

This requires one entry 'Inputs' which contains the input (one only) to be inverted.

For example:

[NOT_Proc1]

Rule=NOT

Inputs=Proc1

This means that whenever 'Proc1' is in the Fail state 'NOT_Proc1' will be OK and vice versa.

3.6 HOLDOFF

The output is on once the input has been on for the designated number of seconds. Fractions of a second are allowed, expressed to two decimal places. This can be used when you don't want to see any failure lasting less than a particular time period.

If possible it is suggested that the holdoff is done in the Acquisition module to avoid unnecessary processing.

For example:

[Holdoff_Proc1]

Rule=HOLDOFF

Inputs=Proc1

Holdoff=1.5

This means that whenever 'Proc1' is in the Fail state for longer than 1.5 seconds 'Holdoff _Proc1' will also be FAIL.

3.7 TIME

This has the entries Days, Start and End.

If the day matches (0=Sunday,1=Monday etc.) and the time is between Start and End the output will be TRUE (Fail).

For example:

```
[time1]
Rule=TIME
Days=0,4
Start=07:30
End=16:05
```

This process will be in the Fail state each Monday and Friday between 0730 and 1605.

In addition there two optional entries for each process, Latch and Mask.

3.8 Latch

Latch means that a process will go from Ok to Fail instantly but will not go from Fail to OK unless it has been acknowledged.

For example:

```
[PSUs1-3]
Rule=OR
Inputs= PSU1, PSU2, PSU3
Latch=1
```

3.9 Mask

Mask means that the process will not fail unless the masking process has failed too (it is very similar to AND).

For example:

```
[Proc_video]
Rule=Input
Inputs=12,3
Mask=time1
```

This process will only fail when the input has failed and it is within the time specified by the time1 process (see above).

4 Example of Configuration file details

The following table lists some typical entries in the configuration file (proc_def.cfg). The examples below are for reference only - the BNCS V4.5 configuration tool should always be used to configure the system, as it ensures all the entries are written correctly.

Examples	Notes
[BNCS1_PSU1]	Process's unique name
Rule=Input	This is an Input process
Inputs=1,8	Acquisition module 1, input 8
[BNCS1_Proc1_video_Input]	Process's unique name
Rule=Input	This is an Input process
Inputs=1,19	Acquisition module 1, input 19
[Device_PSU_agg]	Name
Rule=OR	This is an OR process
Inputs=PSU1,PSU2,PSU3	The processes that are used separated by commas
[time1]	Name
Rule=Time	This is a time of day process
Days=0,1,2,3,4,5	Sunday – Friday. Sunday is 0, Saturday is 6.
Start=09:30	Start time
End=22:30	End time
[Proc_video]	Name
Rule=AND	This is an AND process
Inputs= BNCS1_Proc1_video_Input, BNCS1_Proc1_video_Input	The inputs used
Mask=time1	The mask used is process time1
[Chain1]	Name
Rule=TRUTH	This is a TRUTH TABLE process

Examples	Notes
Inputs=Proc1,Proc2,Proc3,Proc4	The inputs list
Table_0001=01*1	Which inputs are OK or Fail cause the output to be true * means this input can be either Ok or Fail. This is Proc1 is OK AND Proc2 is Fail AND Proc4 is Fail. We are not interested in Proc3.
Table_0002=111*	If the above condition OR this condition are Fail then the output is Fail
[Not_Chain1]	Name
Rule=NOT	This is a NOT process
Inputs=Chain1	The input is process Chain1
[Chain1 Holdoff]	Name
Rule=HOLDOFF	This is a holdoff process
Inputs=Chain1	The input is process Chain1
Holdoff=1.5	Holdoff period in seconds

```
[AXON_1_PSU_Bottom]
Rule=Input
Group=Axon_PSU
Latch=1
AckOnce=1
Mask=AXON_1_comms
Inputs=1,1
[AXON_1_PSU_Top]
Rule=INPUT
Group=Axon_PSU
Latch=1
AckOnce=1
Mask=AXON_1_comms
Inputs=1,2
```

```
[AXON_1_comms]
Rule=Input
Group=Axon_comms
Latch=1
AckOnce=1
Inputs=1,53 [Axon_PSU_Overall]
Rule=OR
Retrigger=1
Inputs=AXON_1_comms,AXON_1_PSU_Bottom,AXON_1_PSU_Top
```

5 Version History

Version numbers shown here may not be seen within the software itself. The implementation date is a more reliable way of determining whether a particular issue is present in any particular instance of the software.

Version	Date	State / Changes	Author
0.1	09/11/2006	Initial document created	Mark Baldry
	02/02/2015	Document revised to current conventions and template.	Richard Kerry

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