BNCS Alarm System (Custom Controls)

Atos IT Services

BNCS

Log/Database Controls
bncs_log.dll

Written by: Mark Baldry, Richard Kerry

BNCS

Contents

BNCS

1   Log Controls

1.1   Overview

This document describes 3 controls for use on Colledia Control user interfaces, these are:

1.1.1   Log Control

A relatively complex component specifically designed to display log information written to a database by the Alarms Databse output module.

This is not a general purpose database display component.

1.1.2   Database Table Viewer

A general purpose component to display and edit an SQL database table.

1.1.3   Database Form Control

A general purpose component to get data from an SQL database and display it in other controls.

1.2   Description

All of these controls obtain data from an SQL database via the Qt SQL database components. At the time of writing the following drivers have been confirmed to work (there is some driver-specific handling present, so other drivers may not work): -

•   QODBC3 – ODBC driver, including Microsoft SQL Server

•   QMYSQL3 – MySQL driver

2   Log Client

Date & Time	Device	State	Level	Text
Tue Apr 6 2004 10:44:57	logic demo	Latched	Minor Alarm	
Tue Apr 6 2004 10:48:37	**logic demo**	**Fail**	**Minor Alarm**	**NOT AND fail**
Tue Apr 6 2004 10:48:37	logic demo	Fail	Minor Alarm	Or logic fail
Tue Apr 6 2004 10:49:09	logic demo	Force Ol	Minor Alarm	NOT AND OK
Tue Apr 6 2004 10:49:09	logic demo	Latched	Minor Alarm	
Tue Apr 6 2004 11:01:04	logic demo	Fail	Minor Alarm	NOT AND fail
Tue Apr 6 2004 11:01:04	logic demo	Fail	Minor Alarm	Or logic fail

2.1   Description

This control provides a display of items logged to an alarms log database, along with dynamic updates communicated using the alarms database module's infodriver interface.

The control may be configured to only show a single message for each process, thus showing only the current state rather than the history.

Various filters can also be applied to the data to restrict what is shown.

2.2   Configuring the Control

The control can be configured entirely at panel design time using the BNCS Visual Editor, or at run-time, by setting parameters from a BNCS client.

Changing the settings at run time, for instance changing the filtering, may be done by sending the relevant command from a script.

The following table lists the commands that may be sent to the control using the textPut function in a script.

Name	Values	Description	
Database Settings			**database**
dbDriver	QMYSQL3 QODBC3 Default is blank	Database Driver type QMYSQL3 – for MySql QODBC3 – for ODBC	main
Host	192.168.0.1 (example) Default is blank	Name or address of the computer running the database server	
Database	bncs_alm (example) Default is blank	Database name	
User	Bncs (example) Default is blank	User name to access the database	

Name	Values	Description	
Password	Bncs (example) Default is blank	Password used to access the database	
dbEnable	true (default) false	Whether to use the main database.	
dbDriver_reserve	QMYSQL3 QODBC3 Default is blank	Database Driver type QMYSQL3 – for MySql QODBC3 – for ODBC	reserve
Host_reserve	192.168.0.1 (example) Default is blank	Name or address of the computer running the database	
Database_reserve	bncs_alm (example) Default is blank	Database name	
User_reserve	Bncs (example) Default is blank	User name to access the database	
Password_reserve	Bncs (example) Default is blank	Password used to access the database	
dbEnable_reserve	true (default) false	Whether to use the reserve database.	
Display Settings			
ShowDateTime	true (default) false	Display the date & time column	
ShowMsec	true (default) false	Display milliseconds with time	
ShowGroup	true (default) false	Display the group column	
ShowDevice	true (default) false	Display the device column	
ShowLocation	true false (default)	Display the location column Data for this is retrieved from instances.xml using the device field value as the instance name.	

Name	Values	Description	
ShowProcess	true (default) false	Display the process column	
ShowState	true (default) false	Display the state column	
ShowLevel	true (default) false	Display the level column	
ShowText	true (default) false	Display the text column	
ShowSingleInstance	true (default) false	Selects which table is displayed. True for process_data. False for historical_log.	
MaxShow	500	Maximum number of lines to be shown	
scrollMode	Auto (default) Never Always	Sets the scroll mode, options are Sets the scroll mode, options are Auto - when a user selects an entry, stops scrolling for 30 seconds. Never - doesn't scroll. Always - always scrolls so that new log items are visible.	
SortAscending	true (default) false	Sets the display order True – ascending False - descedning	
OrderBy	Date & Time (default) Group Device Process State Level Text	Sets the column to order by.	
notify.pressed	true (default) false	Enables notify messages to be sent when the control is pressed.	

BNCS

Name	Values	Description	
notify.changed	true (default) false	Enables notify messages when the current selected item changes. This may be because of user action, or an item added to the log.	
width.dateTime	Integer (default is 200)	The width of the Date & Time column	Widths are in pixels
width.group	Integer (default is 100)	The width of the group column	
width.device	Integer (default is 100)	The width of the device column	
width.location	Integer (default is 100)	The width of the device column	
width.process	Integer (default is 100)	The width of the process column	
width.state	Integer (default is 50)	The width of the state column	
width.level	Integer (default is 100)	The width of the level column	
Filter commands		All filter commands should start with Filter, which is not shown here. Examples: Filter.Level.Info=true Filter=Clear Filter.Devices.set=a;b;c	
=Clear		Clear the filter	
.Devices .Groups .Processes .Text		The following three commands apply to these four fields	
set	set=a;b;c (example)	Clears the current filter and sets the filter string list to only display a or b or c	

Name	Values	Description	
add	add=d (example)	Adds d to the current filter list	
subtract	subtract=c (example)	Removes c from the current filter list	
.Level.All	true (default) false	Show entries with this level. All means show all levels.	
.Level.Info	true (default) false	All other values means show the stated value. These may be mixed in any combination.	
.Level.Minor.Warning	true (default) false	Setting All to true will set all the individual level filter values to true.	
.Level.Major.Warning	true (default) false	Setting All to false will not change the individual level filter values.	
.Level.Minor.Alarm	true (default) false		
.Level.Major.Alarm	true (default) false		
.State.All	true (default) false	Show entries with this state. All means show all states.	
.State.On	true (default) false	All other values means show the stated value. These may be mixed in any combination.	
.State.ForceOn	true (default) false	Setting All to true will set all the individual state filter values to true.	
.State.Off	true (default) false	Setting All to false will not change the individual state filter values.	
.State.ForceOff	true (default) false		
.State.Ack	true (default) false		

BNCS

Name	Values	Description	
.State.Ignore	true (default) false		
.State.Latched	true (default) false		
.State.Unknown	true (default) false		
.Date=Clear		Clear the date filter	
.Date.Before= yyyy-MM-dd	A date	Show items before this date	
.Date.After=yyyy-MM-dd	A date	Show items after this date	
.Date.Between=yyyy-MM-dd + yyyy-MM-dd	Two dates	Show items between the two given dates. '+' should be used to separate the two dates.	
.Date.DaysBack=n	Integer	Show items up-to n days back	
.Date.CompareMode	Inclusive Exclusive (default)	Selects whether date comparisons (before, after, between, days-back) are inclusive or exclusive. Inclusive means use <= and >=. In this case "After" a date means "on or after" the date, etc. Exclusive means use < and >. In this case "after" a date means strictly after it, ie a time on the specified date will be rejected by the filter.	
.DateTime=Clear		Clear the date/time filter	
.DateTime.Before=yyyy-MM-dd hh:mm:ss	A date and time	Show items before this date/time	
.DateTime.After=yyyy-MM-dd hh:mm:ss	A date and time	Show items after this date/time	
.DateTime.Between=yyyy-MM-dd hh:mm:ss + yyyy-MM-dd hh:mm:ss	Two dates and times	Show items between the two given date/times. '+' should be used to separate the two date/times.	

Name	Values	Description	
.DateTime.CompareMode	Inclusive Exclusive (default)	Selects whether date/time comparisons (before, after, between) are inclusive or exclusive. Inclusive means use <= and >=. In this case "After" a date/time means "on or after" the date/time, etc. Exclusive means use < and >. In this case "after" a date/time means strictly after it, ie a date/time the same as the specified date/time will be rejected by the filter.	
Miscellaneous			
reset		Resets all settings to the default	
BncsDriver	Integer, or comma-separated list of integers.	BNCS Driver, or drivers, from which dynamic updates will be received.	
stylesheet.style	A style name. Default is blank – no style specified.	Sets the style sheet for fonts etc., these need setting in stylesheet.xml, if not found the default will be used.	
stylesheet.states	A style name. Default is blank – no style specified.	Sets the style sheet for colours, these need setting in stylesheet.xml, if not found the default will be used.	
Slave.Navigate	A button name. Default is blank – no button specified.	Slave button for navigation. When a line this control is selected, if slave.navigate is set to the name of another control that other control will have its "navigatedest" parameter set to the device name field of the newly selected line.	
Slave.Form.Device=form1	A button name. Default is blank – no button specified.	Database form to show device details When a line this control is selected, if slave.form.device is set to the name of another control that other control will have its "Filter.Set=device_name" parameter set to the device name field of the newly selected line.	
PrintAll		Prints all of the log table	

Name	Values	Description	
Print=+-10		The currently selected item +- 10, options are +-n, +n or −n.	
Returns			
return=<setting>		Returns the setting, i.e. return=BncsDriver will return the BNCS driver number. This may be used with any of the settings listed above.	
Return=all		Returns all non-default settings in a single string with the settings each terminated by a new-line character.	
return=Log.Device		Returns the device field of the currently selected line.	
return=Log.Process		Returns the process field of the currently selected line.	
return=Log.Group		Returns the group field of the currently selected line.	
return=Log.All		Returns the entire currently selected line item in the form : Date/time,millisecond time,process ID, Device name,group,level,state,text	

2.2.1 Style Settings

The following settings may also be used to set colours and fonts, but their intended use is by the stylesheet. The colours may be expressed as RGB levels (#RRGGBB) or colour names recognised by Qt.

```
colour.info.background=#00ffff

colour.info.text=#cccccc

colour.ok.minor.warning.background=#cccccc

colour.ok.minor.warning.text=#448844

colour.ok.major.warning.background=#ddccdd

colour.ok.major.warning.text=#44ff44

colour.ok.minor.alarm.background=darkGreen

colour.ok.minor.alarm.text=blue

colour.ok.major.alarm.background=#ff88dd
```

```
colour.ok.major.alarm.text=#yellow
colour.fail.minor.warning.background=#ffff8
colour.fail.minor.warning.text=#880080
colour.fail.major.warning.background=#80fff
colour.fail.major.warning.text=#ff0080
colour.fail.minor.alarm.background=darkBlue
colour.fail.minor.alarm.text=dddddd
colour.fail.major.alarm.background=#ff0f00
colour.fail.major.alarm.text=#ff80ff
colour.latched.alarm.text=#ffffff
colour.latched.alarm.background=#808000
colour.latched.warning.text=#808000
colour.latched.warning.background=#ffffff
colour.ack.alarm.text=#ffffff
colour.ack.alarm.background=#ff8000
colour.ack.warning.text=#ff8000
colour.ack.warning.background=#ffffff
colour.other.background=#cccccc
colour.other.text=#000000
font=arial
fontsize=12 (or relative e.g. –2)
```

2.2.2 Defaults and Returning All

Where a setting is set to its default value a subsequent call to read all values (ie "return=all") will not return any data for that setting.

The following will always be returned, even if not set: dbEnable, dbDriver, Database, Host, User, Password, dbEnable_reserve, dbDriver_reserve, Database_reserve, Host_reserve, User_reserve, Password_reserve.

2.3 Examples

The following examples show setting the control to show a limited set of information.

Show all items from the database.

textPut("Filter","Clear",1,5);

Show only active alarms, i.e. those with state equal to On.

textPut("Filter","Clear",1,5);

textPut("Filter.State.On","true",1,5);

Show only alarms in the 'Network' group.

textPut("Filter","Clear",1,5);

textPut("Filter.Groups.set","Network",1,5);

Show alarms from any ARC device.

textPut("Filter","Clear",1,5);

textPut("Filter.Device.set","ARC%",1,5);

Using a regular expression to select specific ARCs, in tnis case 1-5

textPut("Filter.Device.set","ARC[1-5]",1,5);

2.4 Notifications

The following notification messages are emitted if the control is configured to do so.

Parameter	
button.<name>=pressed	The control has been pressed. <name> is the name of the log control.
button.<name>=logItemChanged	The current log item has changed, this may be because the user has changed the selection, or an item has been added to the log. <name> is the name of the log control.

2.5 Enabling use in the BNCS Visual Editor

In order that controls of this type may be created in the Visual Editor, an element must be present in config/vised/buttons.xml with the "class" attribute set to "bncs_log".

The "name" attribute selects the name that will appear in the Buttons tab.

For example:

<control class="bncs_log" name="Log" />

BNCS

3　　Data Form (db Form)

|<	<	>	>|

3.1　Description

This control allows a user to traverse a database table showing only the required fields in a single entry. This is done by using other standard buttons to display/edit the data.

3.2　Configuring the Control

The control can be configured entirely at panel design time using the BNCS Visual Editor.

Changing the settings at run time, for instance changing the filtering, may be done by sending the relevant command from a script.

The following table lists the commands that may be sent to the control using the textPut function in a script.

Name	Values	Description
Database Settings		
dbDriver	QMYSQL3 QODBC3 Default is blank	Database Driver type QMYSQL3 – for MySql QODBC3 – for ODBC
Host	192.168.0.1 (example) Default is blank	Name or address of the computer running the database server
Database	bncs_alm (example) Default is blank	Database name
User	Bncs (example) Default is blank	User name to access the database
Password	Bncs (example) Default is blank	Password used to access the database

Name	Values	Description
Table	Names (example) Default is blank	Database table to display
reset		Resets all settings to the default
Slave Settings		
Slave.Field.Add	\<field>,\<button>	Display database field \<field> in button \<button>.
Slave.Field.Clear	true	Clear all fields.
Filter commands		
Filter=Clear		Clear the filter
Filter.Set="device_name='SAT1'"		Sets the filter only to show what is entered. This accepts standard SQL query conditions that may be entered in a WHERE clause, i.e device_name LIKE 'SAT%'. Note that % is used as the multiple character wild card (zero or more characters) and '_' is the single character wildcard.

3.3   Enabling use in the BNCS Visual Editor

In order that controls of this type may be created in the Visual Editor, an element must be present in config/vised/buttons.xml with the "class" attribute set to "bncs_data_form".

The "name" attribute selects the name that will appear in the Buttons tab.

For example:

```
<control class="bncs_data_form" name="db Form" />
```

![BNCS]

4   Data Table (db Table)

	id	type	device	offset
1	PROC2	V1642	201	200
2	PROC3	V1642	201	300
3	ARC1	V1647	201	400
4	ARC2	V1647	201	500
5	ARC3	V1647	201	600
6	MOD1	TAN_E5740	204	0
7	PROCBBC1	V1642	351	100
8	PROCBBC2	V1642	351	200
9	SAT1	NDS3000	211	0
10	SAT2	NDS3000	212	0
11	SAT3	NDS3000	213	0
12	SAT4	NDS3000	214	0
13	SAT5	ALTEIA	215	0
14	SAT6	ALTEIA	216	0
15	SAT7	ALTEIA	217	0
16	SAT8	ALTEIA	218	0
17	BBC1_Alarm	BBC1	350	100
18	BBC2_Alarm	BBC2	350	200
19	DISH1	RC2500	221	0
20	DISH2	APC300	222	0

4.1   Description

This control shows the entire contents of a database table in a table view, and can allow the user to edit the table.

This control displays a column for every field defined in the table.

4.2   Configuring the Control

The control can be configured entirely at panel design time using using the BNCS Visual Editor.

Changing the settings at run time, for instance changing the filtering, may be done by sending the relevant command from a script.

The following table lists the commands that may be sent to the control using the textPut function in a script.

Name	Values	Description
Database Settings		
dbDriver	QMYSQL3 QODBC3 Default is blank	Database Driver type QMYSQL3 – for MySql QODBC3 – for ODBC
Host	192.168.0.1 (example) Default is blank	Name or address of the computer running the database server
Database	bncs_alm (example) Default is blank	Database name
User	Bncs (example) Default is blank	User name to access the database
Password	Bncs (example) Default is blank	Password used to access the database
Table	Names (example) Default is blank	Database table to display
reset		Resets all settings to the default
ReadOnly	true (default) false	Sets the table to read only.

4.3   Enabling use in the BNCS Visual Editor

In order that controls of this type may be created in the Visual Editor, an element must be present in config/vised/buttons.xml with the "class" attribute set to "bncs_data_Table". The "name" attribute selects the name that will appear in the Buttons tab.

For example:

<control class="bncs_data_Table" name="db Table" />

BNCS

5   Developer Notes

There are now a number of test applications associated with this control, existing in subprojects. Two of these – TestApp and TestApp4 –are focussed on testing the filtering aspect of the library.

TestApp – tests include:

      caption setting and getting

      "update" filter logic

      Sql query statement generation

      (confirms operation of decodecaptionstring – not of continued usefulness)

TestApp4 – tests include:

      Actual SQL queries on a real database. This uses the same test data as TestApp so will confirm that the two achieve the same results.

These two should be used to confirm that existing behaviour is not affected by any further development of filtering. They should be updated to cover any new functionality in any further development of filtering.

The other projects – TestApp2 and TestApp3 – are not of continued usefulness.

TestApp2 does the minimum to create a Log Control and display it.

TestApp3 was used to confirm how to programatically access the Sql database.

6   Version history

6.1   Software Version

Version	Date	State / Changes	Author
1.0.0.8	22/9/2004	Set not to get blank entries from the database, these would are not displayed anyway!	
4.5.0.1	4/10/2004	Temporary version to stop crashing when there are slow database connections, this does not allow the database to be changed once set!!!!! Use only in W12	
4.5.0.2	12/10/2004	Fixed fault known in 4.5.0.1. Displays detail about the host while attempting connection.	
4.5.2.0	23/10/2007	Fixed SQL statement error for MS SQL server.	
4.5.3.0	24/10/2007	Removes old database connection when changing types.	
4.5.4.0	08/11/2007	Fixes sorting issues.	
4.5.5.0	19/02/2008	Horizontal scroll bar inhibited in the log. Regular expression filtering added to the log.	
???	Dunno	No record	
4.5.11.0	27/10/2008	Rebuilt using new shim (based on ccClient)	
	02/07/2013	Corrections to document.	
4.5.18	10/06/2015	Log Control will now show data from the Database Output module that arrives from the InfoDriver without the database itself needing to be connected. This may arise when there are problems with connectivity, or a fault in the configuration meaning the database can't be opened.	Richard Kerry

BNCS

4.5.19	01/09/2015	Date/Time filtering added.	Richard Kerry
		Between added for dates or date/times.	
		Mode added for dates or date/times – search may be inclusiove or exculsive.	
		(Tests added to confirm expected behaviour)	

6.2 Document Version

Version	Date	State / Changes	Author
		Document style changed to current standard.	Richard Kerry
		Updated with latest changes.	

Atos IT Services Limited
4 Triton Square
Regent's Place
London NW1 3HG, UK
http://uk.atos.net/

BNCS
4 Triton Square
Regent's Place
London NW1 3HG, UK
collediacontrol.it-solutions.gb@atos.net