BNCS Utility

Atos IT Services

Workstation Tracker

WSTracker.exe

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1   Introduction

Workstation Tracker (or WSTracker) allows a workstation on a BNCS system to monitor and control all the others running Workstation Manager.

The status of each Workstation Manager client is shown on the screen, and WSTracker also allows you to remotely stop or start any instance. This provides the ability to remotely resynchronise BNCS control workstations – individually or all in the system.

Workstation Tracker may also hook in to an Infodriver to reflect workstation settings to the network. This allows the possibility of monitoring the status in an alarm system. It also allows some external control of workstations using this infodriver.

The status information may also be configured to be written to the BNCS network using an IW command. This allows the Alarm System Database output module to write the information into its database.

Note: This application has been written for BNCS test systems, virtualised and widely dispersed systems. This is important to note as it is powerful and potentially quite harmful in its effect due to the ability to restart individual and **all** the workstations on the system.

WSTracker.exe should be run on the file server, and reserve server if running, within your system. Each of the workstations runs Workstation Manager which communicates with the tracker application.

2   Configuration Settings

Workstation Tracker gets its configurations settings from the instances file and from a .ini file. If an infodriver is to be used to make the status data available to the BNCS network, then a workstation tracker instance needs to be set up, for id ="workstation_tracker". This must include the device number in the "ref" attribute. For example:

```
<instance composite="no" id="workstation_tracker"
type="workstation_tracker" location="none" ref="device=997,offset=0"
alt_id="Workstation Tracker" />
```

This configures WSTracker to use InfoDriver 997, and further configuration information will be found in dev_997.ini, in the config/system folder.

If this instance is not provided then no infodriver will be configured and the default values will be used for all the parameters.

2.1   [WSTracker] Section

The following settings should be entered in the [WSTracker] section in the ini file.

Item	Default Value	Comment
port	65508	UDP port number to be used for communication with the Workstation Managers.

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databaseDriver	0	If this is non-zero WSTracker will use an IW command to write any state changes to the BNCS network.
		This value will be the driver number used for this write.
		The slot number used for this will be one.
		See section 4 Client Reporting for full details.
updateperiod	15 (seconds)	This gives the time after which a workstation Manager or InfoDriver will be updated.
TimeoutLimitSecs	60 (seconds)	Time after which any disconnected workstation will be considered as Unknown status.
EnableRestartAllButton	0	If this is set to 1 the "Restart All Workstations" button will be enabled.
		Restart All Workstations is a somewhat drastic action which can take many minutes to complete. It is therefore very important not to use it by accident.
		This setting is required to enable the button.
		See section 6.1 Restart All.
WS_Man_Text	Blank. No value written to the ini file by default.	This string will be displayed in the "Server WS Text" field in the program GUI.

2.2 Example

The following is an example of the contents of this file.

Note that the same file is also used by Workstation Manager, which references some different parameters (eg main_server, reserve_server). These parameters are ignored by Workstation Tracker.

```
[WSTracker]
port=65508
databaseDriver=996
updateperiod=15
TimeoutLimitSecs=60
```

```
EnableRestartAllButton=0
main_server=nn.nnn.80.1
reserve_server=nn.nnn.80.2
WS_Man_Text=Tracker Release 2015-08-24
```

Workstation tracker also reads in a list of all workstations from workstations.xml. This is used to set the workstation names in the list-view which shows all the workstations.

3   Infodriver Reporting

Workstation Tracker can connect to an external infodriver in which it will write the status for each workstation. This can also be used to remotely request that a workstation be restarted.

3.1 Infodriver Slot Usage

The usage of the infodriver slots is as follows:

Slot	Use	Notes
1-999	Workstation Status / Command	The values are: 0=Unknown 1=Updating 2=Starting 3=Running 4=Errors 5=Stopping 6=Stopped 7=Rebooting The workstation may be restarted by writing the following *two* commands to the slot in this order within the timeout period (500ms) restart workstation See section 6 Remote Restarts.
1001-1999 (1000 + workstation number)	Time when the workstation reports that it was last restarted.	In ISO date format: YYYY-MM-DD**T**HH:MM:SS

Slot	Use	Notes
4001	Status	Whether any data has been received from any workstation manager within the timeout period. The timeout is 2.1 times the value of the updateperiod parameter, being 31 seconds for the default updateperiod of 15 seconds. This interval is set so that two complete cycles of messages may be missed, but missing more will be reported as a fault. The values are: 0=data valid 1=data not valid

4 Client Reporting

Workstation Tracker may be configured to register as a BNCS client and write out logs of state changes using Infodriver Write (IW) commands.

This mechanism may be used to allow an external logging application to note the changes and store them as required, and to request the Alarm System Database Output Module to store them in the database.

This is enabled by setting the databaseDriver parameter to a non-zero positive integer value. The format of the string written is as follows:

IW <driver> 'workstation <ws >,workstations,1,<state>,<text> - <state name>' 1 <this-ws>

<driver> is the driver number as configured by databaseDriver.

<ws> is the workstation whose state is changing.

<state> is 0 for Running, 1 for all other states.

<text> is the WS_man_text setting.

<state name> is the common name of the state.

These correspond to the string expected by the "slot one" mechanism implemented by the BNCS Alarm System Database Output Module, where a string in the following format will cause a log message to be written to the historical log table:

Device-name, group, level, state, text

So in this case we will have:

Device-name = workstation <ws>

Group = workstations

Level = 1   (Information)

State = 0 (OK) if the workstation is running, 1 (Alarm) for all other states.

Text = combination of WS_man_text for the workstation with the common name of the actual state.

5   Timeouts

5.1 "updatePeriod" Timeouts

The "updateperiod " setting is used to set various timeouts within the program. They are typically set to 2.1 times the given UpdatePeriod. This will be approximately 31 seconds if the setting is 15 (the default).

One timeout is a time after which, if no updates have been received from any of the expected workstations, WS Tracker is marked as unknown/offline.

Another timeout applies to each workstation. It is a time after which if no input has been received from that workstation its status is considered unknown/offline.

5.2 "TimeoutLimitSecs" Timeout

The "TimeoutLimitSecs" setting is used to set the time after which any workstation is set to Unknown status if no message has been received from it.

6   Remote Restarts

Workstation Tracker is capable of requesting the Workstation Managers to stop or start.

This may be done from the GUI or using the Infodriver.

To restart any workstation using the infodriver, set the corresponding slot's text to "restart" and then to "workstation" within half a second.

6.1 Restart All

Workstation Tracker is capable of requesting all the Workstation Managers in the system to re-start. This may only be done from the GUI (it is not available using the infodriver)

A time interval may be set between the restarts. Note that all the Workstations will be stopped immediately and the restart scheduled to happen after the specified delay.

There is an option to select whether the local Workstation Manager will also be restarted.

Note that if this is run on a large system the total time for all the restarts to be completed may be quite long, and as all the stops are done immediately part of the system may be down for an appreciable (or inconvenient) period of time.

In order to reduce the possibility of this being done accidentally there are two confirmation button presses required. To reduce the possibility of this being done accidentally the Re-Start All button is not enabled by default. In order to enable it the EnableRestartAllButton parameter should be set to '1'.

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7 Firewalls and Routing

It may be necessary to configure firewall ports to be open to ensure the UDP messages can travel successfully between the Workstation Manager and Tracker.

It may be necessary to change Windows' IP routing to ensure the UDP messages can travel successfully between the Workstation Manager and Tracker.

In particular, if WS Manager is configured with the Tracker/server at 255.255.255.255 (ie broadcast to all) it may be necessary to ensure that 255.255.255.255 is routed via the correct interfacce so that messages reach the Tracker.

The following has been used successfully, although parameters may need changing depending on a specific instance.

>route CHANGE 255.255.255.255 MASK 255.255.255.255 192.168.1.80 METRIC 200 IF 10

8 Utility GUI

8.1 GUI

8.1.1 Column headings

Column	Description
WS	Workstation Number
WS Name	Name associated with this Workstation ID in workstations.xml
	If a status message is received from a workstation that is not listed in workstations.xml this column will show '?'.

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Status	The current status reported to the server by the client workstations
	Status:-
	OK (Running), Errors, Unknown, Stopping, Stopped, Starting, Updating, Rebooting
Start time	The last time that the workstation reported having been restarted
Last Rx	The time of the last message received by workstation tracker from the client
IP Address	IP address of the workstation
WS Man Text	An unofficial "release" note that is entered into the appropriate section of the workstation device. There is a facility to enter this form the workstation tracker GUI see below.
OS	The OS of the client workstation
User Name	The name of the currently logged on user. Normally bncs_runtime or in the case of the server bncs_admin

8.1.2 GUI controls

| Stop | Start | Re-Start | Remote | | Re-Start All |

Server WS Text [2-14 Christmas Change Freeze] [Set]

Control	Action
Stop	Stop the selected (highlighted) workstation
Start	Start the selected (highlighted) workstation (without resynchronizing)
	This will be enabled if the workstation is stopped
Re-Start	Stop and resynchronise the selected client with its server, and then restart it.
Remote	Start a remote desktop session with the client. You will be prompted for the user name and password
Set	Will set the workstation tracker text

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Control	Action
Re-Start All	Restart all workstations on the system. You will be asked for a delay between each workstation starting up and an "are you sure" prompt. All workstations will be stopped before any attempt is made to restart one. See section 6.1 Restart All

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9   Version history

For quite a long period of time this application didn't have its changes recorded.

9.1   Software Version

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
	12/2/2014	Added configuration of enable of Restart All button.	Richard Kerry
4.5.2.0	060115	No version history exists before now. This version adds ability to sort on date/time columns sorting by datetime rather than the representation of datetime	Dave Yates

9.2   Document Version

Version	Date	State / Changes	Author
0.1	May 2007		
0.2	20/12/2011	Updated template and configuration information	Andrew Prince
0.3	17/08/2015	Adds infodriver usage info	Dave Yates
0.4	01/09/2015	Updated template to current convention. Various corrections and clarifications throughout the document. Includes full details of InfoDriver interface (Bug 2706)	Richard Kerry