

How to Distribute Alarm On Redundant Systems.doc

This example is being made available as a service to you. It is intended for educational purposes only. Any methods or techniques shown in this example should be fully tested by the developer before being used in a production environment. This example is being made available **AS IS WITH NO WARRANTY OF ANY KIND.**

Note: All the tags and node numbers referenced below are suggestions and are what was used in our testing environment.

1. System Configuration Information Table Changes

Note: The start order needs to be changed even if you are only configuring an app for standard redundancy (one pair of matched apps)

- Change the Start Order of VRN to 1
- Change the Start Order of AL_LOG to 2
- Change the Start Order of AlarmServer to 3
- Set runmgr program argument to -m5000:3500
- Set al_log program arguments to -w -Lan=1000:5
- Set vrn program arguments to {FLAPP}\vrn_para.run

	Display Name	Display Description	Start Order	Priority	Executable File	Application Directory	Program Directory	Program Arguments
1	TASKNAME1	TASKDESC_0	0	201	bin/runmgr			-m2500:1500
2	TASKNAME2	TASKDESC_4	4	201	bin/persist			
3	TASKNAME3	TASKDESC_2	2	201	bin/scale			
4	TASKNAME4	TASKDESC_1	1	201	bin/ftimer			
5	TASKNAME5	TASKDESC_3	3	201	bin/iml			
6	TASKNAME6	TASKDESC_2	2	201	bin/al_log			-w -Lan=1000:5
7	TASKNAME7	TASKDESC_3	3	201	bin/alarmsrv			
8	TASKNAME8	TASKDESC_1	1	201	bin/opc_server			/OperEvent=SECURITYMBX,SECURITY_OPERLO
9	TASKNAME9	TASKDESC_3	3	201	bin/rpt			
10	TASKNAME10	TASKDESC_3	3	201	bin/recipe			
11	TASKNAME11	TASKDESC_3	3	201	bin/counter			-t
12	TASKNAME12	TASKDESC_1	1	201	bin/edi.exe			
13	TASKNAME13	TASKDESC_1	1	201	bin/ioxlator			
14	TASKNAME14	TASKDESC_4	4	201	bin/opc_client			
15	TASKNAME15	TASKDESC_1	1	201	bin/db4_hist			-dbase -m
16	TASKNAME16	TASKDESC_1	1	201	bin/odbchist			
17	TASKNAME17	TASKDESC_2	2	201	bin/dblog			-l
18	TASKNAME18	TASKDESC_2	2	201	bin/dplogger			-l
19	TASKNAME19	TASKDESC_1	1	201	bin/vrn			{FLAPP}\vrn_para.run
20	TASKNAME20	TASKDESC_2	2	201	bin/ffm			

2. The following information is the recommended suggestions for the VRN_PARA.Run file. The proper location for this file should be in the {FLAPP}\VRN_Para.run

The vrn_para.run file contains the following parameters.....

VRN_para.run Program Argument File

This is a sample file showing valid program arguments for VRN.

If you want VRN to read this file, insert the file's name

together with its path to the Program Argument column of the

System Configuration table. Please note that lines beginning

with a number sign (#), an asterisk (*) or a space () are

considered comments while arguments must begin with a dash (-)

and may not have spaces. You can enable the desired arguments by

removing the characters indicating a comment line.

#

Arguments for General Purpose and Debugging

=====

Log job information to task window or file, default=none

Note, logging may reduce performance due to disk access.

Log to console task window:

-L

Log to specified file:

-L{FLAPP}\{FLNAME}\{FLDOMAIN}\{FLUSER}\LOG\VRN.LOG

#

Verbose level V\$ (\$=0..4) for console output. The greater the number,

the more information is displayed, default=1 (medium sensitive):

-V4

#

Verbose level to be logged to file (if file logging enabled).

-LogFileVerbose=1

#

Force VRN_init to create all data at start-up, default=none

(Complete initialization at start-up):

-C

#

If VRN is the first task that writes to a message tag without a

configured length, it sets the max length to 80 char (default):

-DefaultMsgLength=80

#

This is only a logging argument and is not needed after the development phase of the application is complete.

```
# WindowsNT Thread and Task Priority Arguments
# =====
# Warning! these arguments may cause undesired results
# and should only be adjusted by WindowsNT experts !!!
#
# The Thread Priority may be adjusted to withstand CPU load
# problems. You may run VRN threads at higher priority in order
# to react on network calls even at high CPU load (default=0):
# 3 = base priority level of 15 for IDLE, NORMAL,
#    or HIGH_PRIORITY_CLASS, and base priority level
#    of 31 for REALTIME_PRIORITY_CLASS processes
# 2 = 2 points above normal priority for the priority class
# 1 = 1 point above normal priority for the priority class
# 0 = Normal Process Priority (default)
# -1 = 1 point below normal priority for the priority class
# -2 = 2 points below normal priority for the priority class
# -3 = base priority level of 1 for IDLE, NORMAL
#     or HIGH_PRIORITY_CLASS and base priority level
#     of 16 for REALTIME_PRIORITY_CLASS processes
# -ThreadPriority=0
#
# Priority Class (undocumented) -1..2 for VRN Task (default=0):
# 2 = process that has the highest possible priority.
#    The threads of the process preempt the threads of all
#    other processes, including operating system processes
#    performing important tasks. For example, a real-time
#    process that executes for more than a very brief
#    interval can cause disk caches not to flush or cause
#    the mouse to be unresponsive.
# 1 = process that performs time-critical tasks that must
#    be executed immediately. The threads preempt the
#    threads of normal or idle priority class processes.
#    An example is Windows Task List, which must respond
#    quickly when called by the user, regardless of the
#    load on the operating system. Use extreme care when
#    using the high-priority class, because the application
#    can use nearly all available CPU time.
# 0 = process with no special scheduling needs (default)
# -1 = process whose threads run only when the system is idle.
#     The threads are preempted by the threads of any process
#     running a higher priority. An example is a screen saver.
```

```

# The idle-priority class is inherited by child processes.
# -PriorityClass=0
#
# Program Arguments for Tuning and Performance
# =====
# Caution! these arguments - if wrongly adjusted -
# may cause undesirable results.
#
# Adjust process speed/CPU load by suspending program
# every scan, default=100 [ms]:
# -SleepTime=100
#
# Adjust global alive check timeout, minimum = twice SleepTime,
# default=60 [sec] (sends a signal every 30 sec):
# -Alive=60
#
# Time allowed for first connect when starting in Tandem Mode,
# default=30 [sec] (may take longer if no network socket response):
-FirstConnect=20
#
# Multiple simultaneous connects can be staggered at the rate
# given by ConnDelay, default=3 [sec] connects every 3 sec max:
# -ConnDelay=3
#
# Limits the number of messages sent from a single mailbox tag
# within a single update interval. If set to 0 (zero), there is
# no limit and the messages are sent as fast as possible until the
# mailbox tag is exhausted (to the possible detriment of processing
# other tags/connections).
# Default=10 (send 10 messages per mailbox tag per update interval)
-MailboxUpdateIntervalLimit=10
#
# Specify size (in megabytes) of each socket's read and write buffer.
# Value should be larger than: (MailboxUpdateIntervalLimit X 65535) + 1 / 1048576
# Default=1 [MB]
-SocketBufferSize=1
#
# Specify number of seconds to wait for an expected reply on the network.
# When the network is busy, increasing this value can reduce the number
# of dropped connections due to insufficient waiting for delayed replies.
# Default=10 [secs]

```

Changed from the default for this specific application. For most redundant applications, this value is set to 5

This value will need to be modified to fit your application's specific requirements.

This value will need to be modified to fit your application's specific requirements.

```

# -SocketReadTimeOut=10
#
# Specify number of seconds to wait to begin writing to the network.
# When the network is busy, increasing this value can reduce the number
# of dropped connections due to timed out failures to send data to peers.
# Default=5 [secs]
# -SocketWriteTimeOut=5
#
# Throttle data transmission generally if the internal buffer
# of 64 kB is full, default=0 [ms].
# A value of 300 limits the network load to about 64KByte/300ms or 1.6 Mbit/sec.
# A value of 250 limits the network load to about 64KByte/250ms or 2 Mbit/sec.
# A value of 83 limits the network load to about 64KByte/ 83ms or 6 Mbit/sec.
# A value of 25 limits the network load to about 64KByte/ 25ms or 20 Mbit/sec.
# Note: The old "-Throttle=" parameter is no longer used.
# -Throttle2=25
#
# Send at most 64K from a single mailbox tag's message[s] content during an
# update interval. Default=0 (send as fast as possible)
# -MailboxDefer=1
#
# During an update interval, process a single mailbox tag's messages until
# one of the messages' contents exceeds the MailboxThrottleSize. Then, send
# that one large message and move onto the next's tag value changes.
# Processing of the remaining messages held within that mailbox tag continues
# at the next update interval. Earlier VRN versions had a fixed value of 32768.
# Default=999999 [bytes] (disabled / process all)
# -MailboxThrottleSize=999999
#
# Data synchronization on the Slave of a TANDEM system
# can be delayed in order to prevent possible overwriting
# of synchronized data due to a still active but stopped
# driver at Master->Slave changeover, default=3 [sec]:
# -SlaveSyncDelay=3
#
# Distributed Alarm Logger start delay for Function Alog[...] in
# a redundant system, this may be useful to unburden the system at
# TANDEM changeover, default=5 or 1 [sec] for client or server:
-AlogClientDelay=5
-AlogServerDelay=1
#

```

This value will need to be modified to fit your application's specific requirements.

Environment Variables and System Tags set at VRN Startup

=====

Similar to the systems environment variables (e.g. set by
->Start->Settings->Control Panel->System->Environment),
VRN can set multiple tags at startup. In contrast to
Math&Logic constants or tag default values, these so called
"System Variables" are not saved and restored with the
application but specified at system setup and can be
used in Wildcards and Host Names etc. in order to identify
different systems running identical applications.

The -SetTag argument can be used to set any shared tag(s) to a
Constant or Environment Variable (include braces) as follows:
-SetTag(TagName=Constant)
-SetTag(VRN_PEER_CONTROL={TID})

This sets the tag
"VRN_PEER_CONTROL = to
the value of the system
environment variable {TID}
All NodeA TID= 1
All NodeB TID= 2
Note: (The tag
VRN_PEER_CONTROL) is only
a recommended tag name.)

.....
The {TID} environment variable is explained in section 6 "Computer System Environment Variables"

3. VRN Connect Control table

- For the Node1 app AlogX241 and TCP_NoDelay are used in the function and Arguments column for the RedundServer Connection. The slave ALOG lan ID used in this example is 241 but can be any number greater than 0 but less than 255 but it must not match any other ALOG lan ID used in any other redundant pair applications such as Node2 or Node3 as in this example. The slave ALOG lan ID for that tandem (Redundant), which like the master's lan id must be unique for the entire distribution network. 255 is the default slave lan ID when not specified. The tag currently configured in the Local Control Tag column for all Client connections must be changed to VRN_PEER_CONTROL or what ever tag was defined in the VRN_PARA.RUN file This tag must be defined as an analog tag type.
- For the Listener table entry, in the Function and Arguments column set the function Max=20. If there are Control, Status or Message tags defined for the Listener (Service) connection, then the array elements for those tags would need to be increased to match the Max= function.
- All Client connections must have the Mux>0 TCP_NoDelay in the Function and Arguments column.

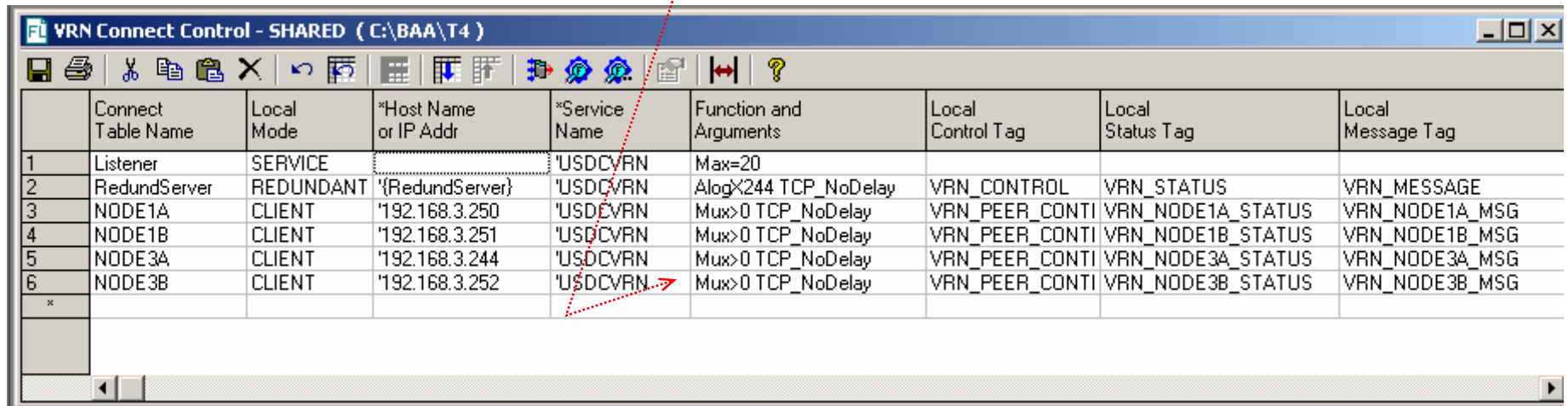
VRN Connect Control - SHARED (C:\multi_red_app\Node1)						
	Connect Table Name	Local Mode	*Host Name or IP Addr	*Service Name	Function and Arguments	Local Control Tag
1	Listener	SERVICE		'USDCVRN	Max=20	
2	RedundServer	REDUNDANT	{RedundServer}	'USDCVRN	AlogX241 TCP_NoDelay	VRN_CONTROL
3	NODE2a	CLIENT	'Node2A	'USDCVRN	Mux>0 TCP_NoDelay	VRN_PEER_CONTROL
4	NODE2b	CLIENT	'Node2B	'USDCVRN	Mux>0 TCP_NoDelay	VRN_PEER_CONTROL
5	NODE3a	CLIENT	'Node3a	'USDCVRN	Mux>0 TCP_NoDelay	VRN_PEER_CONTROL
6	NODE3b	CLIENT	'Node3b	'USDCVRN	Mux>0 TCP_NoDelay	VRN_PEER_CONTROL
*						

-
- For the Node2 app AlogX242 and TCP_NoDelay are used in the function and Arguments column for the RedundServer Connection. The slave ALOG lan ID used in this example is 242 but can be any number greater than 0 but less than 255 but it must not match any other ALOG lan ID used in any other redundant pair applications such as Node1 and Node3 as in this example. The slave ALOG lan ID for that tandem (Redundant), which like the master's lan id must be unique for the entire distribution network. 255 is the default slave lan ID when not specified. The tag currently configured in the Local Control Tag column for all Client connections must be changed to VRN_PEER_CONTROL or what ever tag was defined in the VRN_PARA.RUN file This tag must be defined as an analog tag type.
- For the Listener table entry, in the Function and Arguments column set the function Max=20. If there are Control, Status or Message tags defined for the Listener (Service) connection, then the array elements for those tags would need to be increased to match the Max= function.
- All Client connections must have the Mux>0 TCP_NoDelay in the Function and Arguments column.

	Connect Table Name	Local Mode	*Host Name or IP Addr	*Service Name	Function and Arguments	Local Control Tag
1	Listener	SERVICE		'USDCVRN	Max=20	
2	RedundServer	REDUNDANT	'RedundServer}	'USDCVRN	AlogX242 TCP_NoDelay	VRN_CONTROL
3	NODE1a	CLIENT	'Node1a	'USDCVRN	Mux>0 TCP_NoDelay	VRN_PEER_CONTROL
4	NODE1b	CLIENT	'Node1b	'USDCVRN	Mux>0 TCP_NoDelay	VRN_PEER_CONTROL
5	NODE3a	CLIENT	'Node3a	'USDCVRN	Mux>0 TCP_NoDelay	VRN_PEER_CONTROL
6	NODE3b	CLIENT	'Node3b	'USDCVRN	Mux>0 TCP_NoDelay	VRN_PEER_CONTROL
*						

-
- For the Node3 app AlogX243 and TCP_NoDelay are used in the function and Arguments column for the RedundServer Connection. The slave ALOG lan ID used in this example is 243 but can be any number greater than 0 but less than 255 but it must not match any other ALOG lan ID used in any other redundant pair applications such as Node1 and Node2 as in this example. The slave ALOG lan ID for that tandem (Redundant), which like the master's lan id must be unique for the entire distribution network. 255 is the default slave lan ID when not specified. The tag currently configured in the Local Control Tag column for all Client connections must be changed to VRN_PEER_CONTROL or what ever tag was defined in the VRN_PARA.RUN file This tag must be defined as an analog tag type.
- For the Listener table entry, in the Function and Arguments column set the function Max=20. If there are Control, Status or Message tags defined for the Listener (Service) connection, then the array elements for those tags would need to be increased to match the Max= function.

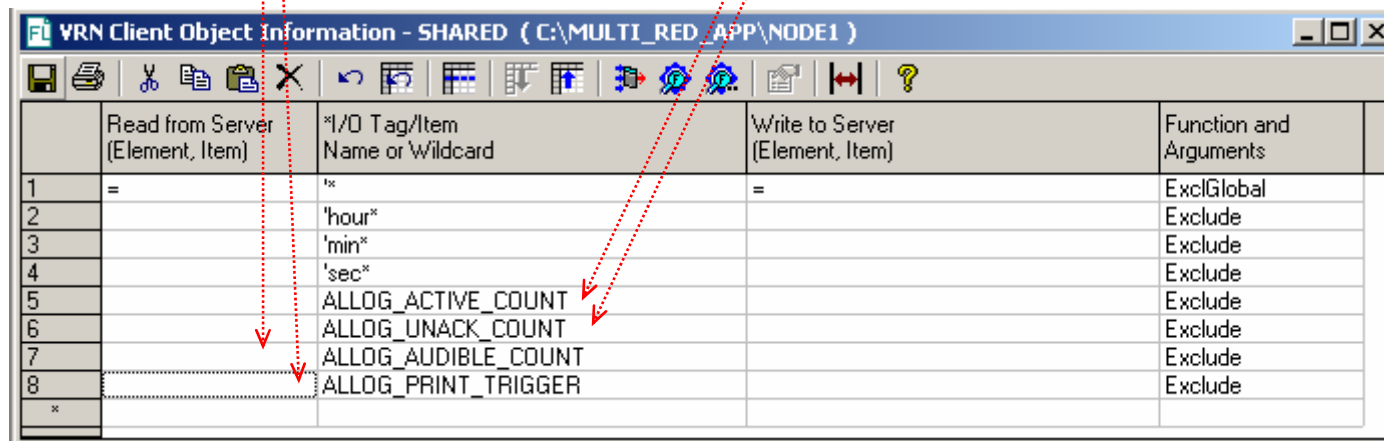
- All Client connections must have the Mux>0 TCP_NoDelay in the Function and Arguments column.



	Connect Table Name	Local Mode	*Host Name or IP Addr	*Service Name	Function and Arguments	Local Control Tag	Local Status Tag	Local Message Tag
1	Listener	SERVICE		'USDCVRN	Max=20			
2	RedundServer	REDUNDANT	'(RedundServer)	'USDCVRN	AlogX244 TCP_NoDelay	VRN_CONTROL	VRN_STATUS	VRN_MESSAGE
3	NODE1A	CLIENT	'192.168.3.250	'USDCVRN	Mux>0 TCP_NoDelay	VRN_PEER_CONTI	VRN_NODE1A_STATUS	VRN_NODE1A_MSG
4	NODE1B	CLIENT	'192.168.3.251	'USDCVRN	Mux>0 TCP_NoDelay	VRN_PEER_CONTI	VRN_NODE1B_STATUS	VRN_NODE1B_MSG
5	NODE3A	CLIENT	'192.168.3.244	'USDCVRN	Mux>0 TCP_NoDelay	VRN_PEER_CONTI	VRN_NODE3A_STATUS	VRN_NODE3A_MSG
6	NODE3B	CLIENT	'192.168.3.252	'USDCVRN	Mux>0 TCP_NoDelay	VRN_PEER_CONTI	VRN_NODE3B_STATUS	VRN_NODE3B_MSG
*								

4. VRN Client Object Information table for RedundServer Connect Table for the Node1 application:

- For Node1 app make sure it has the following if you are sharing all tags using the wildcard = '*':
 - = ALLOG_ACTIVE_COUNT = Exclude
 - = ALLOG_UNACK_COUNT = Exclude
 - = ALLOG_AUDIBLE_COUNT = Exclude
 - = ALLOG_PRINT_TRIGGER = Exclude



	Read from Server (Element, Item)	*I/O Tag/Item Name or Wildcard	Write to Server (Element, Item)	Function and Arguments
1	=	*	=	ExclGlobal
2		'hour'		Exclude
3		'min'		Exclude
4		'sec'		Exclude
5		ALLOG_ACTIVE_COUNT		Exclude
6		ALLOG_UNACK_COUNT		Exclude
7		ALLOG_AUDIBLE_COUNT		Exclude
8		ALLOG_PRINT_TRIGGER		Exclude
*				

- VRN Client Object Information table for NODE2A of the Node1 app

VRN Client Object Information - SHARED (C:\MULTI_RED_APP\NODE1)				
	Read from Server (Element, Item)	*I/O Tag/Item Name or Wildcard	Write to Server (Element, Item)	Function and Arguments
1		ALLOG_SNDMBX_NODE2A	ALLOG_RCVMBX_NODE1A	Mux=1
2		ALLOG_SNDMBX_NODE2A	ALLOG_RCVMBX_NODE1B	Mux=2
*				

- VRN Client Object Information table for NODE2B of the Node1 app

VRN Client Object Information - SHARED (C:\MULTI_RED_APP\NODE1)				
	Read from Server (Element, Item)	*I/O Tag/Item Name or Wildcard	Write to Server (Element, Item)	Function and Arguments
1		ALLOG_SNDMBX_NODE2B	ALLOG_RCVMBX_NODE1A	Mux=1
2		ALLOG_SNDMBX_NODE2B	ALLOG_RCVMBX_NODE1B	Mux=2
*				

- VRN Client Object Information table for NODE3A of the Node1 app

VRN Client Object Information - SHARED (C:\MULTI_RED_APP\NODE1)				
	Read from Server (Element, Item)	*I/O Tag/Item Name or Wildcard	Write to (Element, Item)	Function and Arguments
1		ALLOG_SNDMBX_NODE3A	ALLOG_RCVMBX_NODE1A	Mux=1
2		ALLOG_SNDMBX_NODE3A	ALLOG_RCVMBX_NODE1B	Mux=2
*				

- VRN Client Object Information table for NODE3B of the Node1 app

VRN Client Object Information - SHARED (C:\MULTI_RED_APP\NODE1)				
	Read from Server (Element, Item)	*I/O Tag/Item Name or Wildcard	Write to Server (Element, Item)	Function and Arguments
1		ALLOG_SNDMBX_NODE3B	ALLOG_RCVMBX_NODE1A	Mux=1
2		ALLOG_SNDMBX_NODE3B	ALLOG_RCVMBX_NODE1B	Mux=2
*				

VRN Client Object Information table for RedundServer Connect Table for the Node2 application:

- For Node2 app make sure it has the following if you are sharing all tags using the wildcard = '*':
 - = ALLOG_ACTIVE_COUNT = Exclude
 - = ALLOG_UNACK_COUNT = Exclude
 - = ALLOG_AUDIBLE_COUNT = Exclude
 - = ALLOG_PRINT_TRIGGER = Exclude

VRN Client Object Information - SHARED (C:\MULTI_RED_APP\NODE2)				
	Read from Server (Element, Item)	*I/O Tag/Item Name or Wildcard	Write to Server (Element, Item)	Function and Arguments
1	=	*	=	ExclGlobal
2		'hour'		Exclude
3		'min'		Exclude
4		'sec'		Exclude
5		ALLOG_ACTIVE_COUNT		Exclude
6		ALLOG_UNACK_COUNT		Exclude
7		ALLOG_AUDIBLE_COUNT		Exclude
8		ALLOG_PRINT_TRIGGER		Exclude
*				

- VRN Client Object Information table for NODE1A of the Node2 app

VRN Client Object Information - SHARED (C:\MULTI_RED_APP\NODE2)				
	Read from Server (Element, Item)	*I/O Tag/Item Name or Wildcard	Write to Server (Element, Item)	Function and Arguments
1		ALLOG_RCVMBX_NODE1A	ALLOG_SNDMBX_NODE2A	Mux=1
2		ALLOG_RCVMBX_NODE1A	ALLOG_SNDMBX_NODE2B	Mux=2
*				

- VRN Client Object Information table for NODE1B of the Node2 app

VRN Client Object Information - SHARED (C:\MULTI_RED_APP\NODE2)				
	Read from Server (Element, Item)	*I/O Tag/Item Name or Wildcard	Write to Server (Element, Item)	Function and Arguments
1		ALLOG_RCVMBX_NODE1B	ALLOG_SNDMBX_NODE2A	Mux=1
2		ALLOG_RCVMBX_NODE1B	ALLOG_SNDMBX_NODE2B	Mux=2
*				

- VRN Client Object Information table for NODE3A of the Node2 app

VRN Client Object Information - SHARED (C:\MULTI_RED_APP\NODE2)				
	Read from Server (Element, Item)	*I/O Tag/Item Name or Wildcard	Write to Server (Element, Item)	Function and Arguments
1		ALLOG_RCVMBX_NODE3A	ALLOG_SNDMBX_NODE2A	Mux=1
2		ALLOG_RCVMBX_NODE3A	ALLOG_SNDMBX_NODE2B	Mux=2
*				

- VRN Client Object Information table for NODE3B of the Node2 app

VRN Client Object Information - SHARED (C:\MULTI_RED_APP\NODE2)				
	Read from Server (Element, Item)	*I/O Tag/Item Name or Wildcard	Write to Server (Element, Item)	Function and Arguments
1		ALLOG_RCVMBX_NODE3B	ALLOG_SNDMBX_NODE2A	Mux=1
2		ALLOG_RCVMBX_NODE3B	ALLOG_SNDMBX_NODE2B	Mux=2
*				

VRN Client Object Information table for RedundServer Connect Table for the Node3 application:

- For Node3 app make sure it has the following if you are sharing all tags using the wildcard = '*':
 - = ALLOG_ACTIVE_COUNT = Exclude
 - = ALLOG_UNACK_COUNT = Exclude
 - = ALLOG_AUDIBLE_COUNT = Exclude
 - = ALLOG_PRINT_TRIGGER = Exclude

VRN Client Object Information - SHARED (C:\MULTI_RED_APP\NODE3)				
	Read from Server (Element, Item)	*I/O Tag/Item Name or Wildcard	Write to Server (Element, Item)	Function and Arguments
1	=	*	=	ExclGlobal
2		'hour'		Exclude
3		'min'		Exclude
4		'sec'		Exclude
5		ALLOG_ACTIVE_COUNT		Exclude
6		ALLOG_UNACK_COUNT		Exclude
7		ALLOG_AUDIBLE_COUNT		Exclude
8		ALLOG_PRINT_TRIGGER		Exclude
*				

- VRN Client Object Information table for NODE1A of the Node3 app

VRN Client Object Information - SHARED (C:\MULTI_RED_APP\NODE3)				
	Read from Server (Element, Item)	*I/O Tag/Item Name or Wildcard	Write to Server (Element, Item)	Function and Arguments
1		ALLOG_RCVMBX_NODE1A	ALLOG_SNDMBX_NODE3A	Mux=1
2		ALLOG_RCVMBX_NODE1A	ALLOG_SNDMBX_NODE3B	Mux=2
*				

- VRN Client Object Information table for NODE1B of the Node3 app

VRN Client Object Information - SHARED (C:\MULTI_RED_APP\NODE3)				
	Read from Server (Element, Item)	*I/O Tag/Item Name or Wildcard	Write to Server (Element, Item)	Function and Arguments
1		ALLOG_RCVMBX_NODE1B	ALLOG_SNDMBX_NODE3A	Mux=1
2		ALLOG_RCVMBX_NODE1B	ALLOG_SNDMBX_NODE3B	Mux=2
*				

- VRN Client Object Information table for NODE2A of the Node3 app

VRN Client Object Information - SHARED (C:\MULTI_RED_APP\NODE3)				
	Read from Server (Element, Item)	*I/O Tag/Item Name or Wildcard	Write to Server (Element, Item)	Function and Arguments
1		ALLOG_SNDMBX_NODE2A	ALLOG_RCVMBX_NODE3A	Mux=1
2		ALLOG_SNDMBX_NODE2A	ALLOG_RCVMBX_NODE3B	Mux=2
*				

- VRN Client Object Information table for NODE2B of the Node3 app

VRN Client Object Information - SHARED (C:\MULTI_RED_APP\NODE3)				
	Read from Server (Element, Item)	*I/O Tag/Item Name or Wildcard	Write to Server (Element, Item)	Function and Arguments
1		ALLOG_SNDMBX_NODE2B	ALLOG_RCVMBX_NODE3A	Mux=1
2		ALLOG_SNDMBX_NODE2B	ALLOG_RCVMBX_NODE3B	Mux=2
*				

5 - Remote Alarm Groups Control table configuration for all applications...

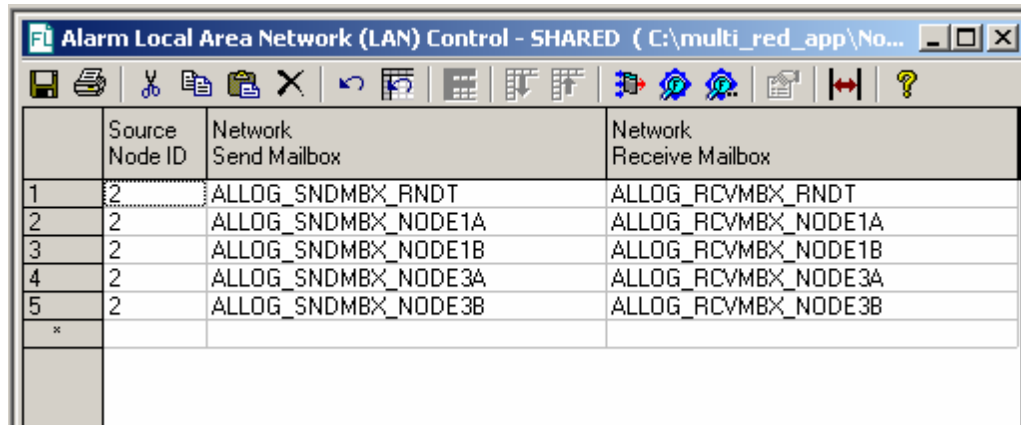
Remote Alarm Groups Control - SHARED (C:\multi_red_app\Node1)			
	Remote Node ID	*Remote Groups	Connection Status
1	1	'ALL	ALLOG_Node1_Status
2	2	'ALL	ALLOG_Node2_Status
3	3	'ALL	ALLOG_Node3_Status
4	241	'ALL	ALLOG_Node241_Status
5	242	'ALL	ALLOG_Node242_Status
6	243	'ALL	ALLOG_Node243_Status
*			

Alarm Local Area Network (LAN) Control table configuration

Node1 Configuration Alarm Local Area Network (LAN) Control table configuration

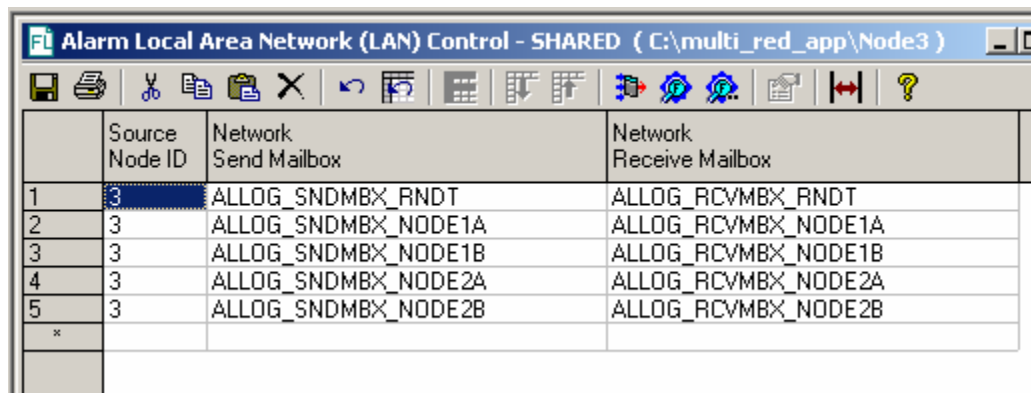
Alarm Local Area Network (LAN) Control - SHARED (C:\multi_red_app\Node1)			
	Source Node ID	Network Send Mailbox	Network Receive Mailbox
1	1	ALLOG_SNDMBX_RNDT	ALLOG_RCVMBX_RNDT
2	1	ALLOG_SNDMBX_NODE2A	ALLOG_RCVMBX_NODE2A
3	1	ALLOG_SNDMBX_NODE2B	ALLOG_RCVMBX_NODE2B
4	1	ALLOG_SNDMBX_NODE3A	ALLOG_RCVMBX_NODE3A
5	1	ALLOG_SNDMBX_NODE3B	ALLOG_RCVMBX_NODE3B
*			

Node2 Configuration Alarm Local Area Network (LAN) Control table configuration



	Source Node ID	Network Send Mailbox	Network Receive Mailbox
1	2	ALLOG_SNDMBX_RNDT	ALLOG_RCVMBX_RNDT
2	2	ALLOG_SNDMBX_NODE1A	ALLOG_RCVMBX_NODE1A
3	2	ALLOG_SNDMBX_NODE1B	ALLOG_RCVMBX_NODE1B
4	2	ALLOG_SNDMBX_NODE3A	ALLOG_RCVMBX_NODE3A
5	2	ALLOG_SNDMBX_NODE3B	ALLOG_RCVMBX_NODE3B
*			

Node3 Configuration Alarm Local Area Network (LAN) Control table configuration



	Source Node ID	Network Send Mailbox	Network Receive Mailbox
1	3	ALLOG_SNDMBX_RNDT	ALLOG_RCVMBX_RNDT
2	3	ALLOG_SNDMBX_NODE1A	ALLOG_RCVMBX_NODE1A
3	3	ALLOG_SNDMBX_NODE1B	ALLOG_RCVMBX_NODE1B
4	3	ALLOG_SNDMBX_NODE2A	ALLOG_RCVMBX_NODE2A
5	3	ALLOG_SNDMBX_NODE2B	ALLOG_RCVMBX_NODE2B
*			

6. Computer System Environment settings.

Each node must have two environment variables defined...

- The RedundServer (used for the RedundServer connection)
- The TID (node id number used for identifying the client nodes of each pair)

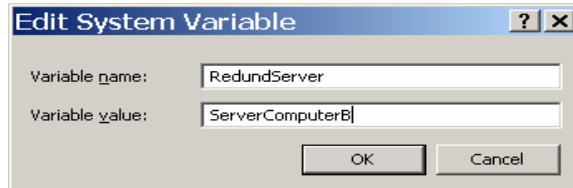
- RedundServer is set to the computer name of the redundant partner

For Example:

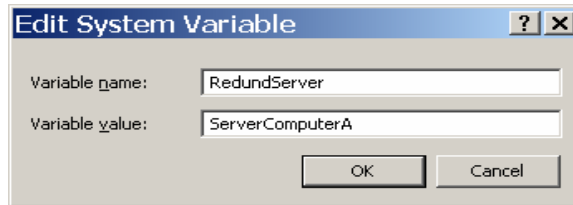
The computer name for Node1A is ServerComputerA

The computer name for Node1B is ServerComputerB

The RedundServer environment variable for computer Node1A_Computer = ServerComputerB

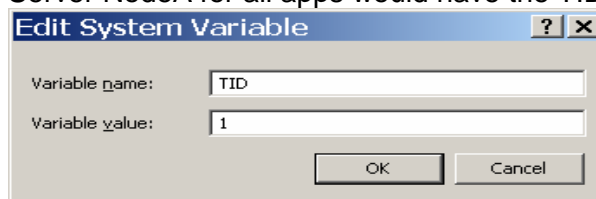


The RedundServer environment variable for computer Node1B_Computer = ServerComputerA

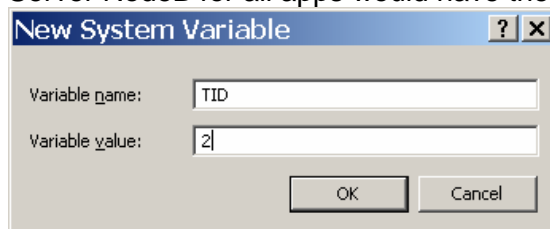


- Each server node must have the TID environment variable defined.

Server NodeA for all apps would have the TID environment variable = 1



Server NodeB for all apps would have the TID environment variable = 2



*** Important Note: Since CE starts FL via a service, a reboot is required to ensure that FLAPPs started with CE have the TID system environment variable available.

7. Updates needed to be installed...

- FL75 SP2
- Alarming_W_Vrn752.153a.exe (or higher if available)
- ConfigExplorer752.57.exe

8. Alarm Group Definition: For everything to work correctly, the alarm groups on each system Node1, Node2, and Node3 should all match. In the Alarm Definition Information table only the alarms for that server should be in this table for each group. Alarms from the other systems should not be in the Alarm Definition table. If an alarm group is only for another system, then its Alarm Definition table would be blank.

For Example: Looking at the Node1 application all the Node1 alarm groups should have alarms configured in their Alarm Definition table. The Node1 application also needs to have all of Node2 and Node3 alarm groups configured in its Alarm Group Control table. The Alarm Definition Tables for any of the Node2 and Node3 alarm groups should be empty. If Node1 uses the same alarm group as Node2 and/or Node3 then that alarm group would have the Node1 alarms in its Alarm Definition Table but not the alarms from Node2 and/or Node3. If the same Alarm group exists on more multiple nodes, then those alarm groups need to have the ACK and AUD columns marked the same.

For Example: Looking at the Node1 application, it has an alarm group called "CRITICAL" with the ACK and AUD columns settings to "Y" (yes). In the Node2 and/or Node3 applications, this same Alarm group is defined, but the AUD column is marked "N" (no). This would be incorrect. The Node1 application for the "CRITICAL" group would need to be changed from "Y" to "N" or the Node2 and/or Node3 applications, would need the "CRITICAL" group would need to have this column set to "Y". Either way, they need to match.