Commissioning Overview
Use with Viessmann Vitotronic NR2
controls with Tridium® based BMS

KWE
Technologies
Group

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Commissioning Information

Vitotronic—Guidelines for Tridium Commissioning

By default Viessmann Vitotronic controls work in self-binding mode in domain 0x07.
Subnet number is 01 and with the following node numbers:

- Node numbers 1 to 4 are reserved for the boiler controls (Vitotronic 100, 200,300)
- Node number 5 is assigned to the Vitotronic 333 (Vitocontrol-S/C) cascade control.
- Nodes number 10 and up are reserved for Vitotronic 050 control line.

Vitotronic controls generally have two LON communication cards, one is a generic boiler/zone control card and the second one is for a master cascade controller:

- Boiler/Zone controllers are Vitotronic 100,200,300,050
- Master control is Vitotronic 333 or 300-K

Tridium may recognize the Vitotronic 100 as a Vitotronic 200, which is fine due to the fact they use the same communication card.

If you are already using assigned node ID numbers in your network or your subnet number is different, you will have to assign new numbers to the Vitotronic controls.

You can change that in coding 2 on the respective controls. Subsequently, the following addresses need to be changed:

- Coding 0x77 determines Node ID for each control.
- Coding 0x98 is the Subnet ID number.

In our test we changed Node IDs to 3 and 4 for boiler controls Vitotronic 100, GC1 and on the Cascade Vitotronic 333 we setup Node ID as 10.

Tridium does not appear to strictly follow necessary steps to change the device from self-binding to tool-binding, so the following commissioning steps was generated.

The first hurdle is if you try to change Node IDs and Subnet IDs to ones not configured in controls, Tridium will not be able to address Vitotronic controls properly to change the "nciNetConfig" variable. The "nciNetConfig" variable has to be changed to "external" value from "local" value, if this variable has "local" value Vitotronic control will initiate self-binding procedure on power up.

If you are using LNS (LONworks Networks Services) based tools such as "LonMaker" to configure and bind the network the following is done by the LonMaker tool.

LON Coding for Vitotronic 100 GC1 Controls

CA (hex)	Description: Function	Value	Adjustment necessary?
01	**Single/ Multiple boiler system:** determines whether it is dealing with a single or multiple boiler system	1 2	*Only for a multiple boiler system:* Single boiler system Multiple boiler system with Vitotronic 333 MW1
07	**Boiler number:** determines the boiler number of a boiler in a multiple boiler system	1 … 4	*Only for a multiple boiler system* Boiler number 1 … 4
77	**Participant number:** determines node address via selfbinding	1 … 99	*Only if participant number "1" is already taken by an other participant:* Participant number 1 ... 99
98	**System number:** determines subnet number via selfbinding	1 ... 5	*Only if several independent heating systems are in one network:* System number 1 ... 5
79	**System fault manager:** determines whether device is to record all fault messages of the heating system, checks participants for failure and generate a compiled fault message	0 1	*Only if device is to check other devices for fault/failure (please note: only one control unit per heating system must be fault manager):* Device is not fault manager Device is the fault manager

CA = Coding Address

Procedure A: Commissioning Procedure Niagara Framework® R2

NOTE: This commissioning procedure should be used only with systems that have only Viessmann controls on the LON bus, for mixed systems try to use procedure "B".

1. Change Node ID numbers if necessary and make sure that the Vitotronic controls communicate in self-binding mode.
2. Temporarily change the system domain ID to 0x07 to match default domain.
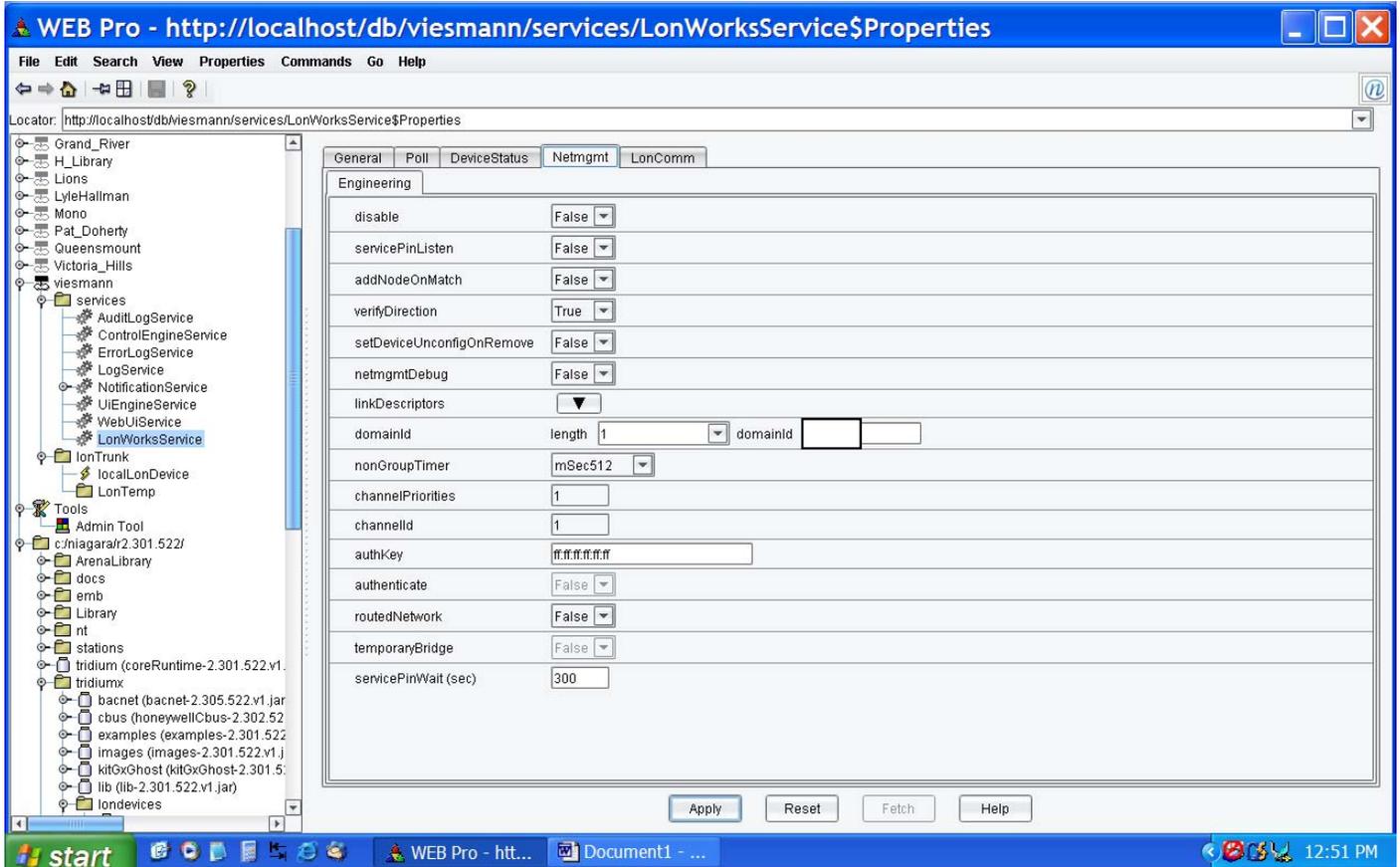
Procedure A Continued: Niagara Framework® R2

3. Learn devices from network.
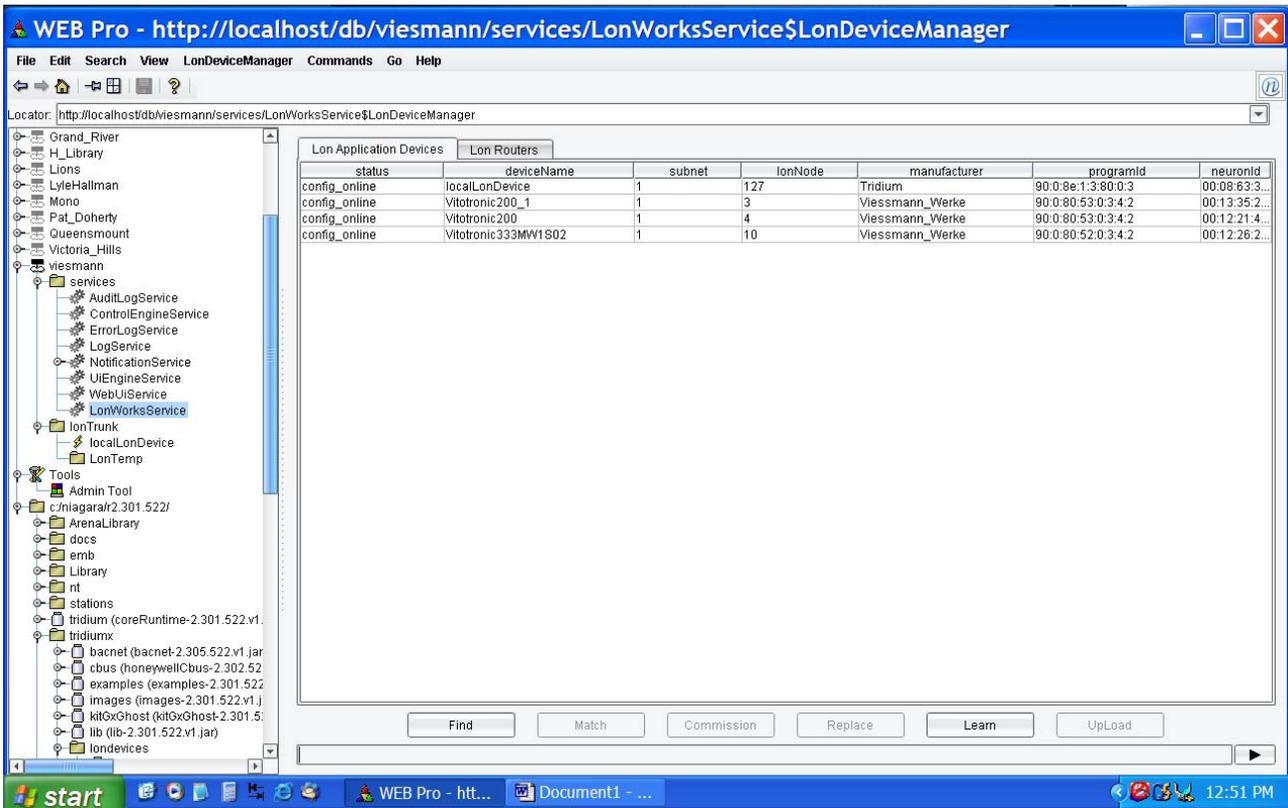
4. Upload binding information and configuration data.
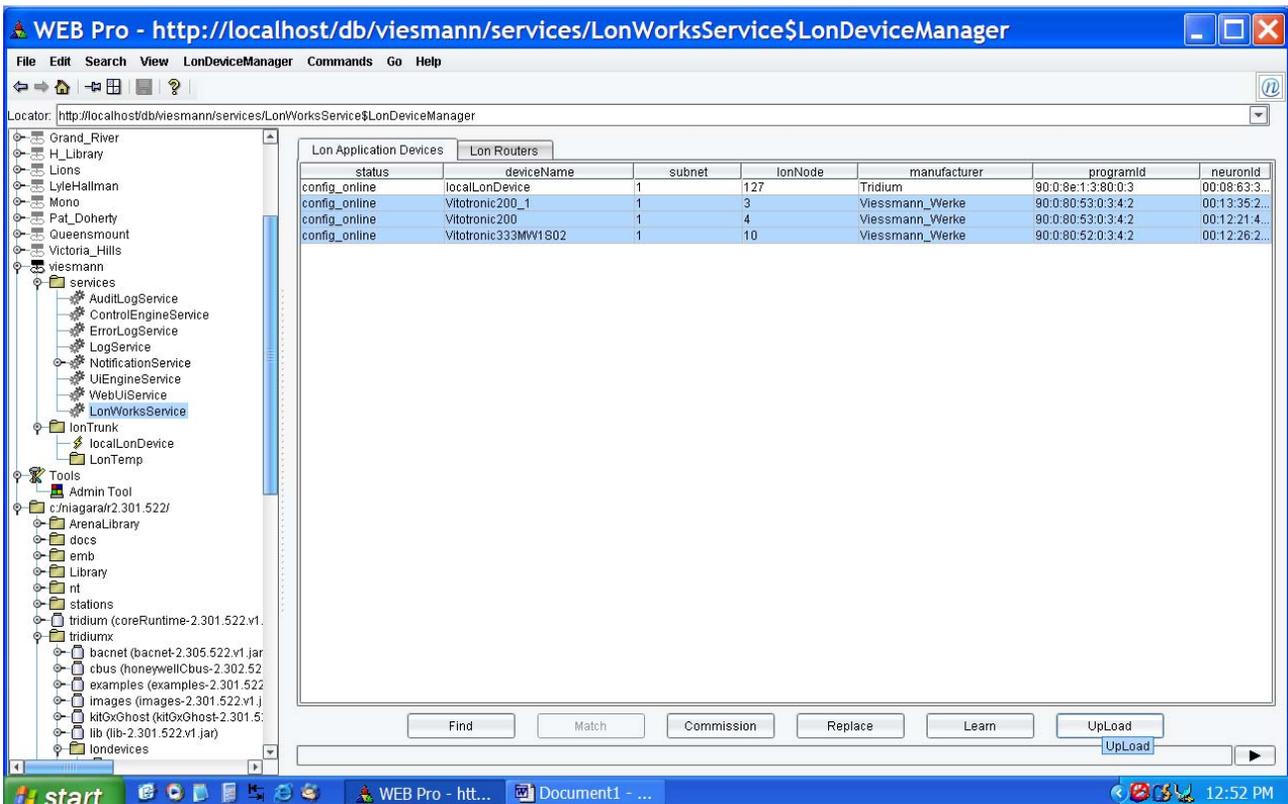
Procedure A Continued: Niagara Framework® R2

5. Change nciNetConfig on all controls from local to external.
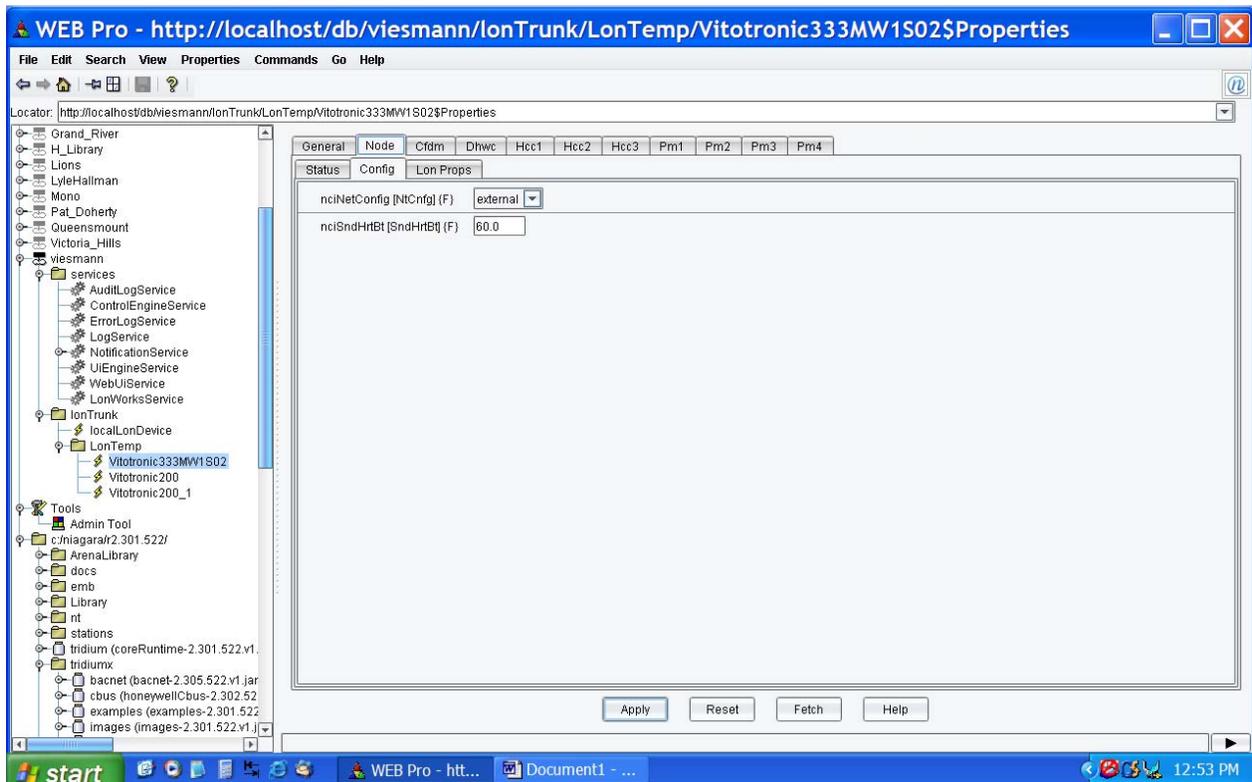
6. Cycle power to all Vitotronic controls to make sure the controls go out of self-binding mode. This can be checked on the control diagnosis screens. Read the appropriate control manual on how to enter the diagnosis screen. Controls should be in Tool mode and Node IDs and Subnet IDs according your setup. Scan information screens:

   Vitotronic 100 – Scan 0 and Scan 1
   Vitotronic 333 – Scan 5 and Scan 6

7. Change back system domain ID from 0x07 to your chosen domain ID.

8. Commission all devices.

9. Cycle control power off and back on.

10. Bind all links

WEB Pro - http://localhost/db/viesmann/services/LonWorksService$LonLinkManager

File   Edit   Search   View   LonLinkManager   Commands   Go   Help

Locator: http://localhost/db/viesmann/services/LonWorksService$LonLinkManager

Network Variable links | Message Tag links

sel	status	hubNode	hubNv	targetNode	targetNv	service
1	bound	Vitotronic333MW1S02	nvoNodeTimeSet (6)	Vitotronic200_1	nviNodeTimeSet (1)	standard
1	bound	Vitotronic333MW1S02	nvoNodeTimeSet (6)	Vitotronic200	nviNodeTimeSet (1)	standard
2	bound	Vitotronic200_1	nvoNodeAlarm (5)	Vitotronic333MW1S02	nviNodeAlarm (2)	standard
2	bound	Vitotronic200	nvoNodeAlarm (5)	Vitotronic333MW1S02	nviNodeAlarm (2)	standard
2	bound	Vitotronic333MW1S02	nvoNodeAlarm (5)	Vitotronic333MW1S02	nviNodeAlarm (2)	standard
3	bound	Vitotronic200_1	nvoBoCBlrState (41)	Vitotronic333MW1S02	nviPM1BlrState (38)	standard
4	bound	Vitotronic200_1	nvoBoCSupplyT (43)	Vitotronic333MW1S02	nviPM1SupplyT (39)	standard
5	bound	Vitotronic200_1	nvoBoCBoCState (44)	Vitotronic333MW1S02	nviPM1BoCState (40)	standard
6	bound	Vitotronic333MW1S02	nvoPM1BoilerCmd (41)	Vitotronic200_1	nviBoCBoilerCmd (38)	standard
7	bound	Vitotronic333MW1S02	nvoPM1ApplicMd (42)	Vitotronic200_1	nviBoCApplicMd (39)	standard
8	bound	Vitotronic333MW1S02	nvoPM1Setpoint (43)	Vitotronic200_1	nviBoCSetpoint (40)	standard
9	bound	Vitotronic200	nvoBoCBlrState (41)	Vitotronic333MW1S02	nviPM2BlrState (44)	standard
10	bound	Vitotronic200	nvoBoCSupplyT (43)	Vitotronic333MW1S02	nviPM2SupplyT (45)	standard
11	bound	Vitotronic200	nvoBoCBoCState (44)	Vitotronic333MW1S02	nviPM2BoCState (46)	standard
12	bound	Vitotronic333MW1S02	nvoPM2BoilerCmd (47)	Vitotronic200	nviBoCBoilerCmd (38)	standard
13	bound	Vitotronic333MW1S02	nvoPM2ApplicMd (48)	Vitotronic200	nviBoCApplicMd (39)	standard
14	bound	Vitotronic333MW1S02	nvoPM2Setpoint (49)	Vitotronic200	nviBoCSetpoint (40)	standard

[Refresh]   [Bind]

start   WEB Pro - htt...   Document1 - ...   12:54 PM

11. If the control block is shown in yellow you may "Download" configurations to controller
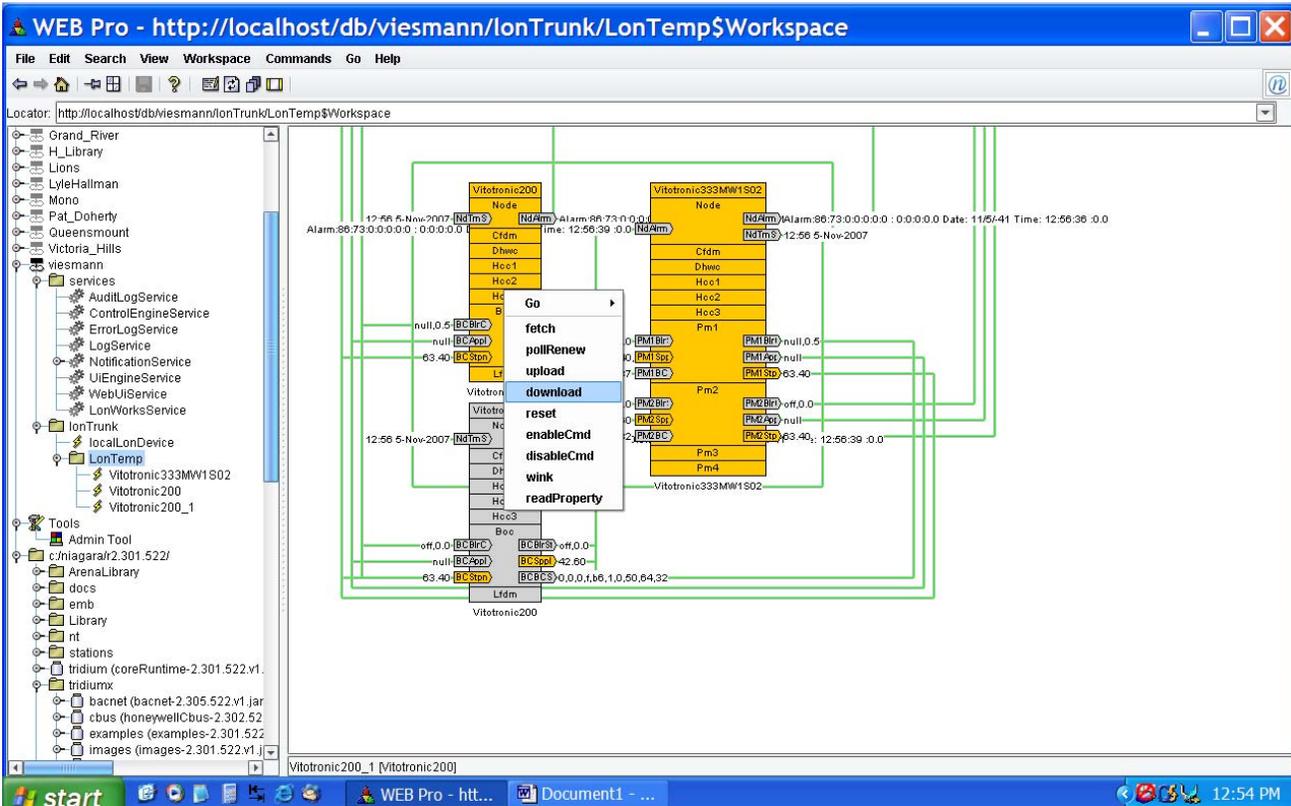
WEB Pro - http://localhost/db/viesmann/lonTrunk/LonTemp$Workspace

File   Edit   Search   View   Workspace   Commands   Go   Help

Locator: http://localhost/db/viesmann/lonTrunk/LonTemp$Workspace

Go
fetch
pollRenew
upload
download
reset
enableCmd
disableCmd
wink
readProperty

start   WEB Pro - htt...   Document1 - ...   12:54 PM

Procedure B: Commissioning Procedure with Shadow Objects

1. Change Node ID numbers if necessary and make sure that the Vitotronic controls communicate in self-binding mode.

2. Commission device using shadow objects from Tridium, use Vitotronic 200 object for Vitotronic 100/300 and Vitotronic 333 object for Vitotronic -S/C. Service pin is released by pressing "+" and "-" together.

3. Change nciNetConfig on all controls from local to external.

4. Cycle power to all Vitotronic controls to make sure the controls go out of self-binding mode. This can be checked on the control diagnosis screens. Read the appropriate control manual on how to enter the diagnosis screen. Controls should be in Tool mode and Node IDs and Subnet IDs according to your setup.
   Scan information screens:
   Vitotronic 100 – Scan 0 and Scan 1
   Vitotronic 333 – Scan 5 and Scan 6

5. Bind the Boiler controls and cascade according to the information found in the Viessmann NR2 LON Handbook on pages 58 to 64.

Procedure C: Commissioning Niagara Framework® AX

1. Change the Node ID numbers of all controls, if necessary, and make sure that the Vitotronic controls communicate in self-binding mode.

2. Temporarily change the system domain ID to 0x07 to match the Vitotronic's default domain.
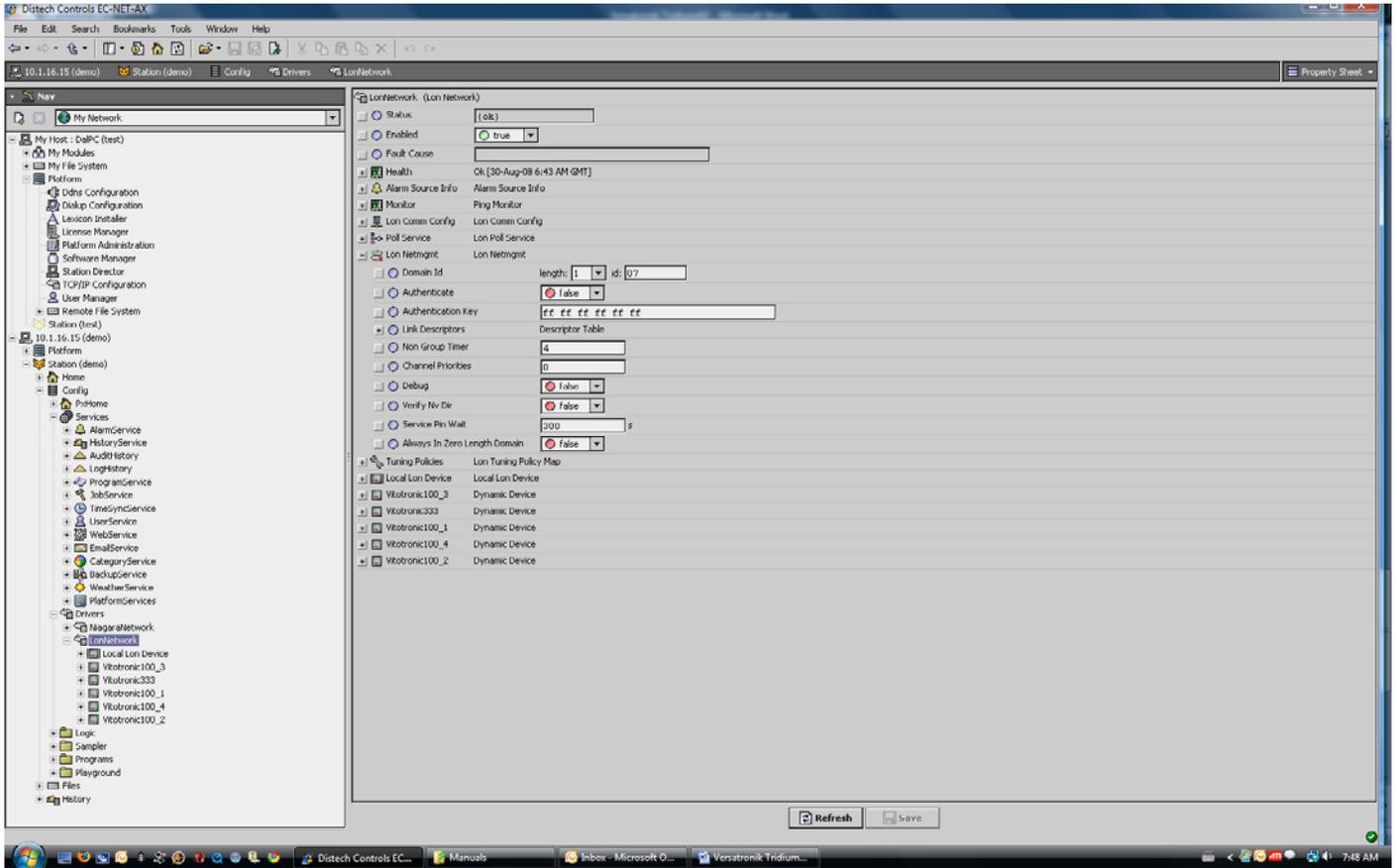
Procedure C Continued: Commissioning Niagara Framework® AX

3. Discover the devices and press the ADD button to move them to the database. Change the names of the controls to reflect Node IDs and boiler numbers (a Vitotronic100 may be recognized as a Vitotronic200 which is ok since they use the same LON card.)
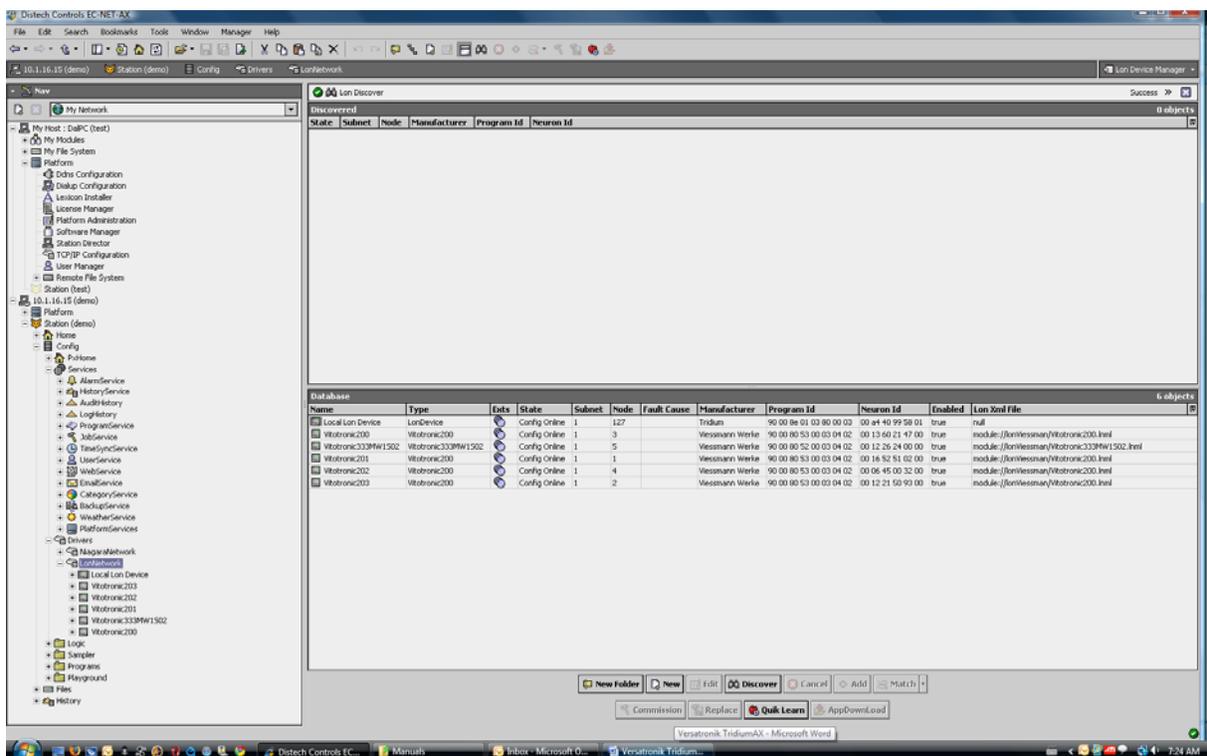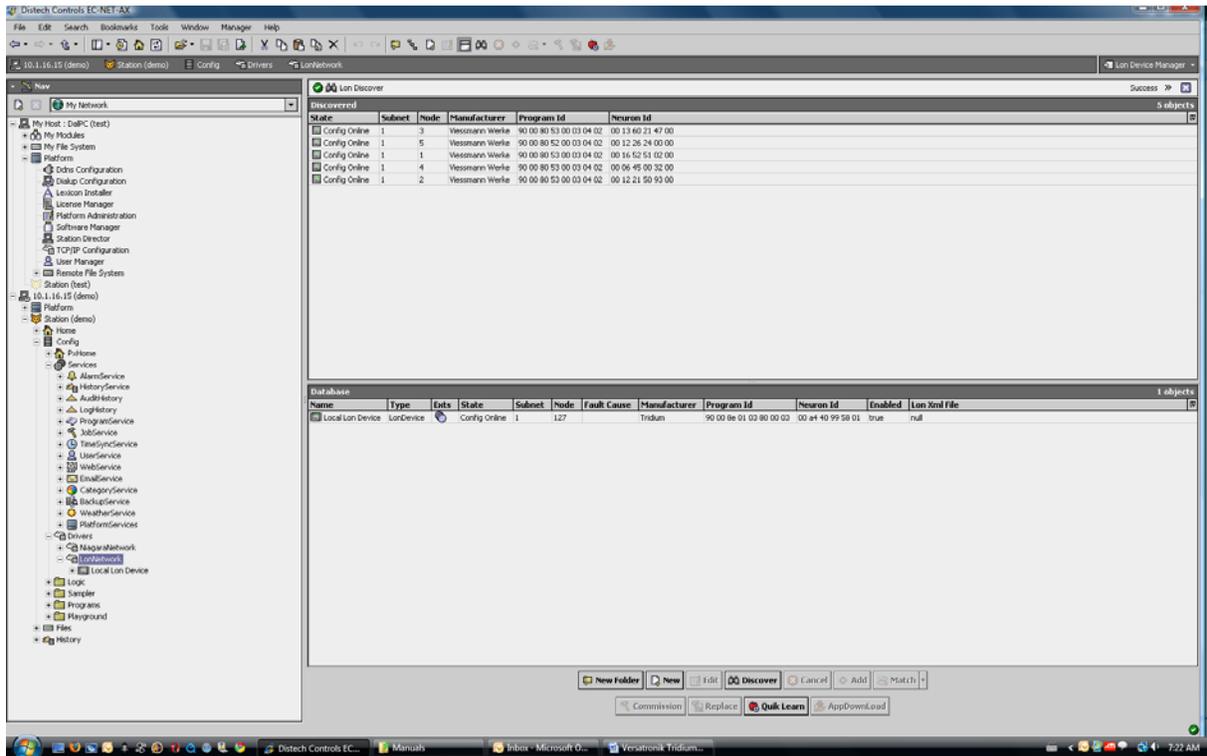
Procedure C Continued: Commissioning Niagara Framework® AX

4. Highlight all controls, then commission them.
   NOTE: The controls are still not part of the BMS system!

   Commission

5. Highlight all controls and click on "Quick Learn" to learn the existing links created in self-binding mode.
   NOTE: Looking at Links Manager will show no links until "Quick Learn" process is completed.

   Quik Learn

6. Check whether the connections were learned using "Lon Link Manager"
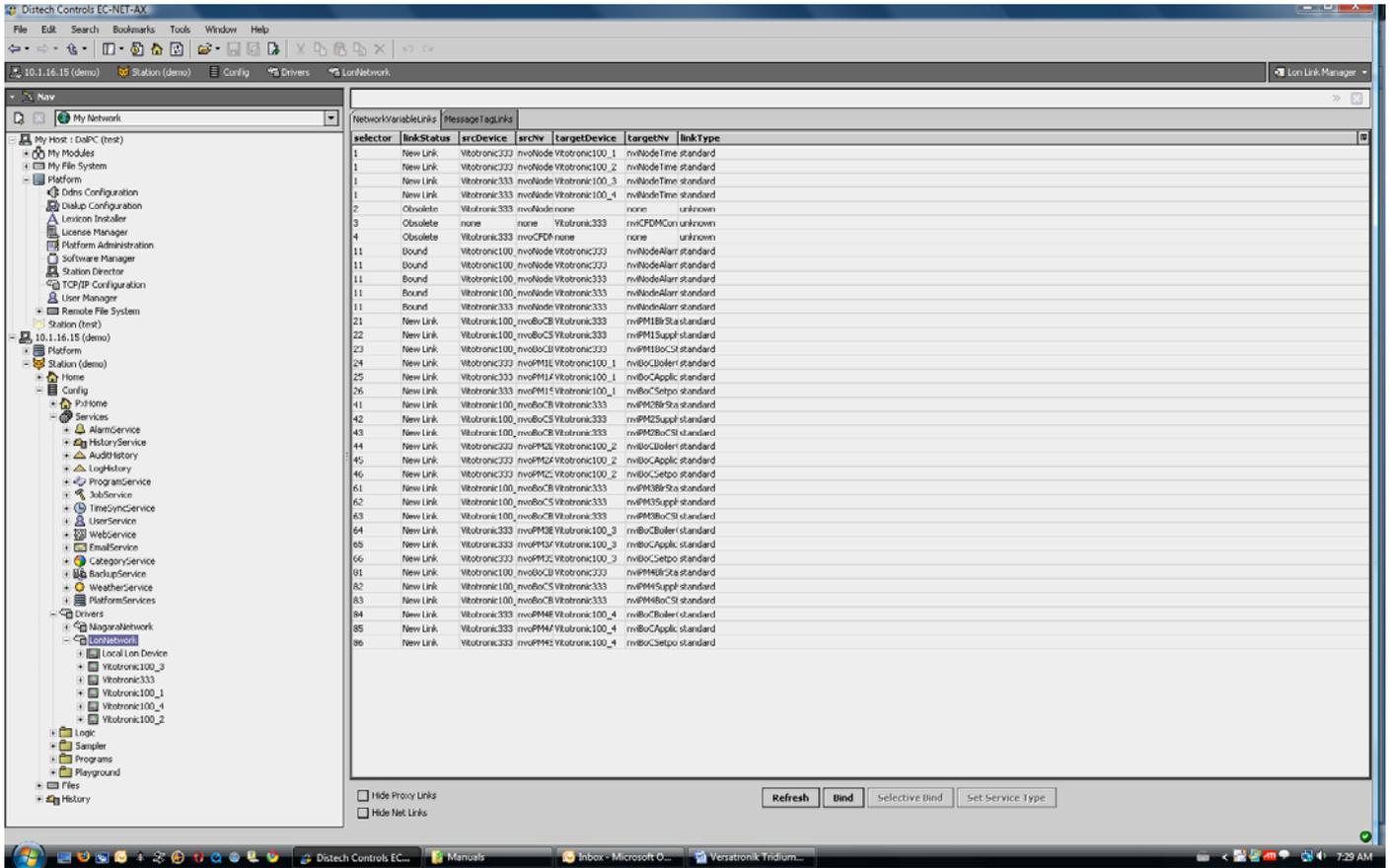
You can also check the LonNetwork Wire Sheet to see the connections
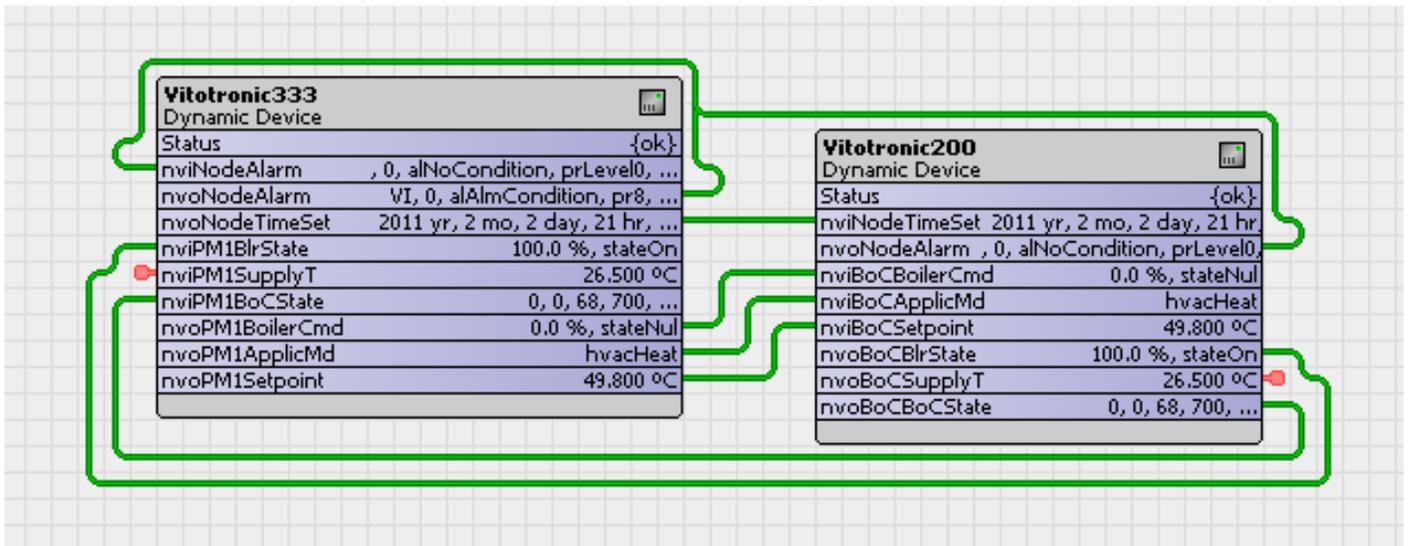
7. Under the "Property Sheet" of each control; change nciNetConfig from local to external.

Important Note: Even if nciNetConfig is already showing "Cfg External" re-select "Cfg External" and hit save. (Right click -> Force read to verify).

⊟ nciNetConfig	Cfg External	
⊞ ⚫ Nc Props	nv:9,snvt:69,cfgNdx:25,mod:readWrite,scope:Ol...	
⊞ ⚫ Nv Config Data	sel:0x3ff6,Acked,adr:-1,in	
☐ ⚫ configSrc	Cfg External ▼	
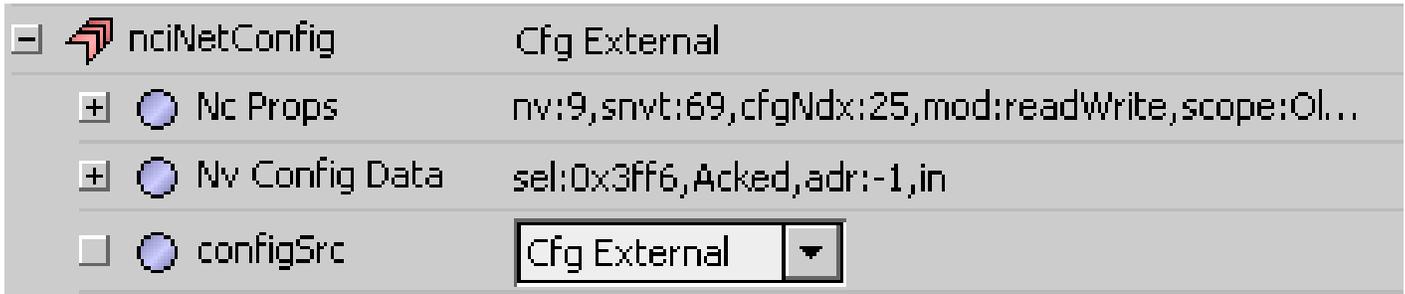
Final Steps
Cycle power to all the Vitotronic controls to make sure the controls go out of self-binding mode. This can be verified by looking at the scan codes on the control.

Read the appropriate control manual on how to enter the diagnostics screen. Controls should be in Tool mode and Node IDs and Subnet IDs should be set according to your setup. Scan information screens:

     Vitotronic 100 – Scan 0 and Scan 1
     Vitotronic 333 – Scan 5 and Scan 6

After communication is successfully established and verified, you can change the control domain ID to the intended system Domain ID (Step 2.). **NOTE:** As soon as the control Domain ID is changed, communication will be interrupted until re-commissioning is completed.

If a change of Domain ID is made, you will need to re-commission all Vitotronic controls (Step 4).

After re-commissioning, cycle the power on each control in order to re-establish communications.

The complete integration of the controls should finish off with clicking on the Bind button for all of the Viessmann controls.

Notes

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