90-30 DeviceNet configuration
Training Course

Presented by GE Fanuc

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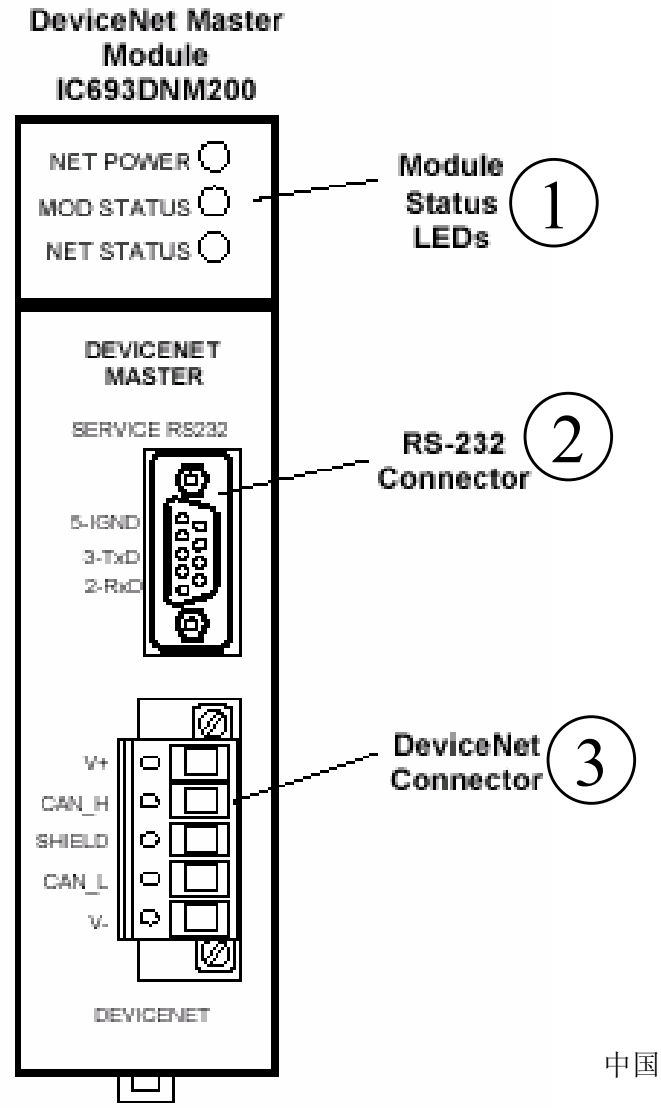
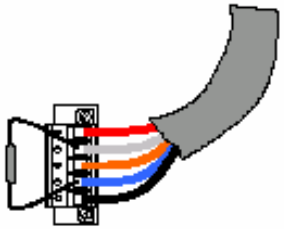
DeviceNet Master --- DNM200



1. Bus power, Module status and Network status indicators

2. RS232, Firmware download port

3. DeviceNet bus connector



Resistors shall be on both ends of bus

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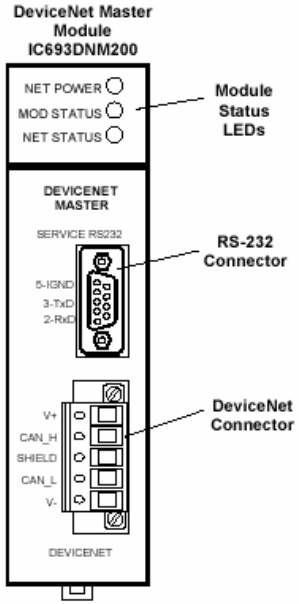
DNM200 Specification

- Support all standard DeviceNet data rates (125K, 250K, 500K)
- Up to 255 bytes input data and 255 bytes output data per slave
- Up to 3972 bytes of input data and 3972 bytes of output per master
- Support UCMM
- Support explicit message and I/O connections: polling, strobe, Change of state, Cyclic I/O



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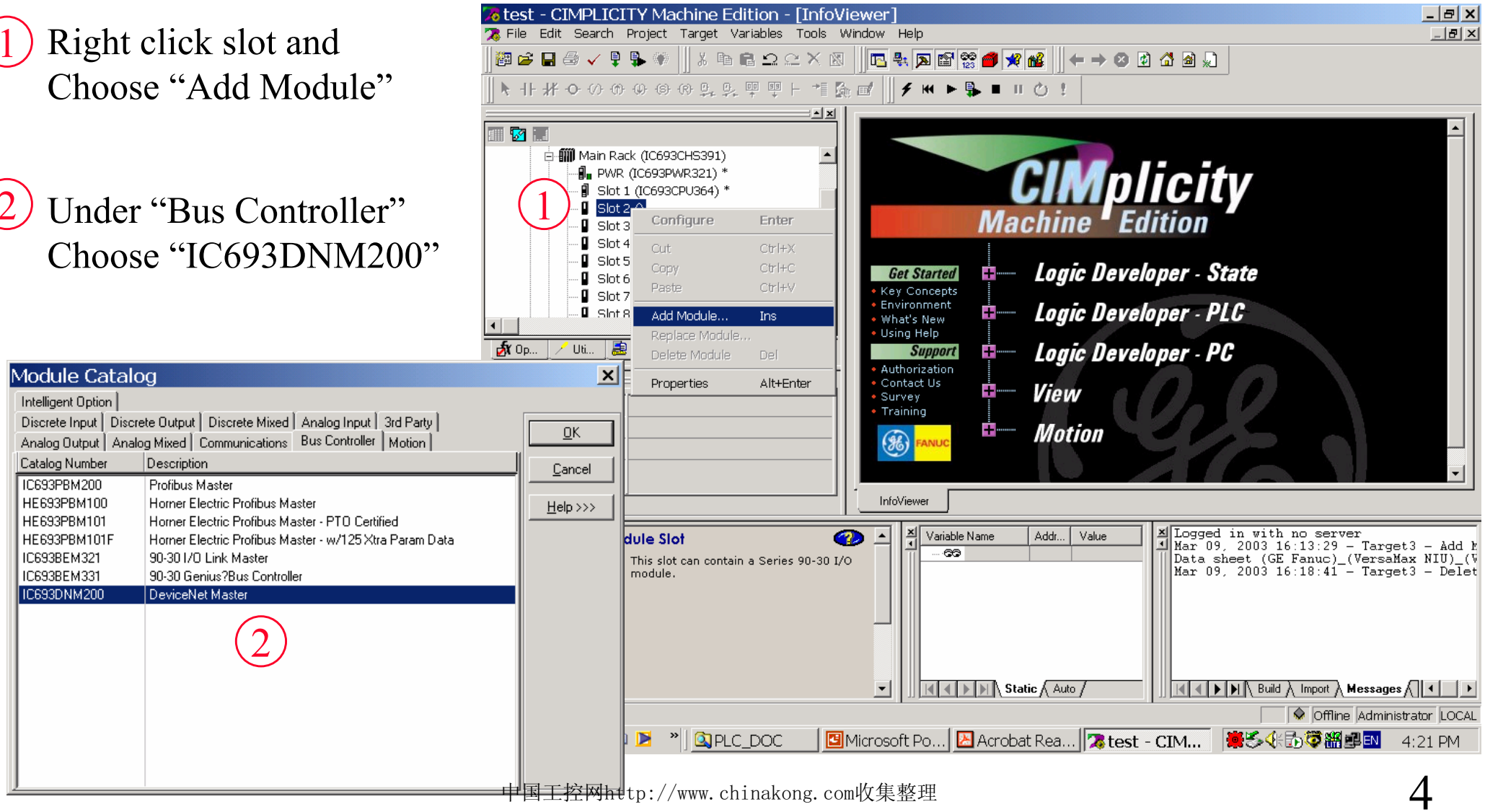
Add DNM200 Module

① Right click slot and
Choose “Add Module”

② Under “Bus Controller”
Choose “IC693DNM200”



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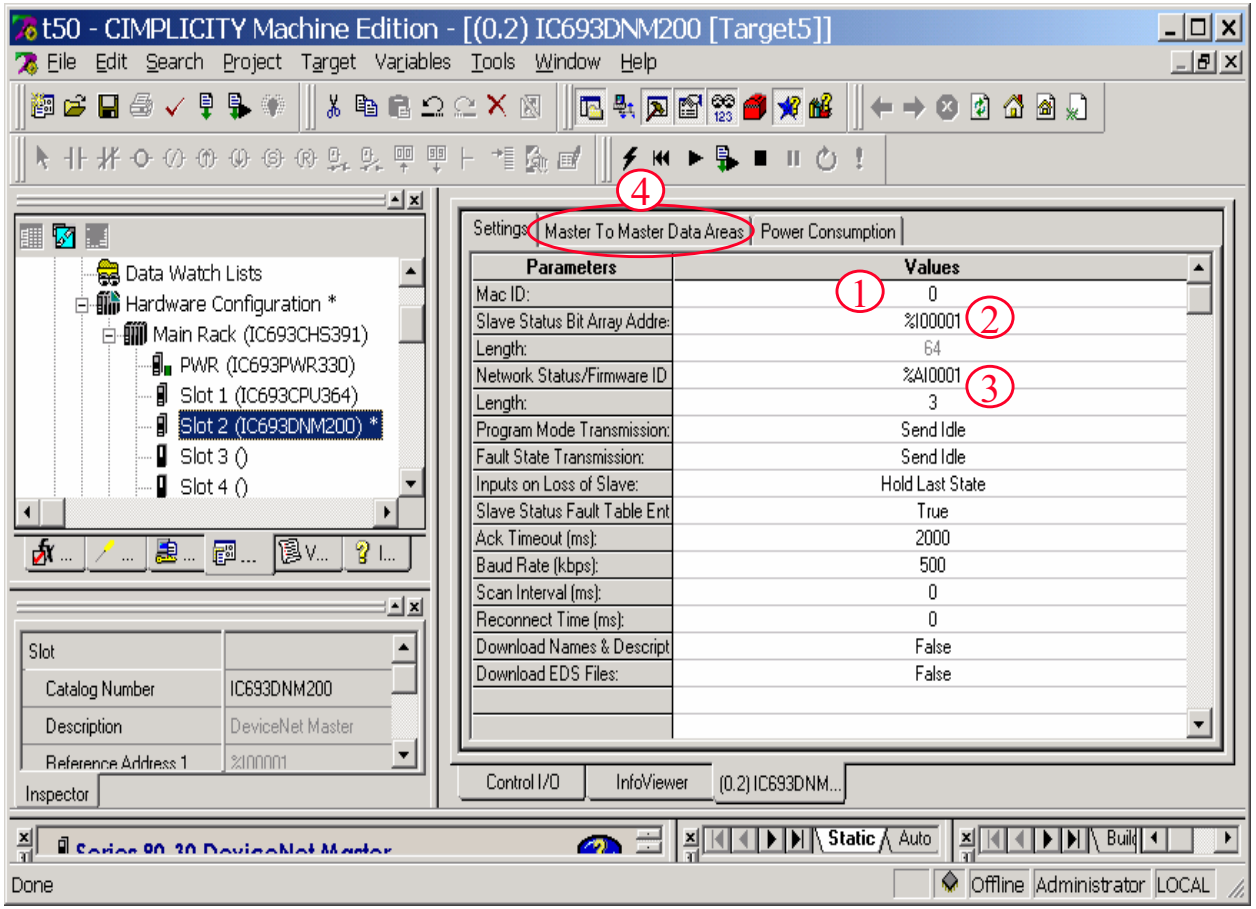
Configure DNM200

① *Mac ID*: station address, valid value 0-63

② *Slave status bits Array Addr*: bit 1 for online status of station address 0, bit 2 for station address 1. Length is fixed to be 64

③ *Network Status/Firmware ID*: 3 words representing Server status, Can status and Firmware version, See next page for detail

④ *Master to Master Data Area*: configure DNM to operate as a slave



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Network Status/Firmware ID

Server (slave) status:
How DNM200 works as a slave

Can network status

Firmware ID of DNM200

Word 1 — Server Status

	bit 7	bit 6	bit 5	bit 4	bit 3	bit 2	bit 1	bit 0
byte 0	res.	AKS	CYC	COS	res.	ST	P	EX
byte 1	reserved				SERA	IDLE2	IDLE1	G3

Group 2 only I/O connections	AKS	Acknowledge suppress enabled
	CYC	Cyclic I/O connection allocated
	COS	Change-of-state I/O connection allocated
	ST	Bit Strobed I/O connection allocated
	P	Polled I/O connection allocated
Group 2 Explicit Connections	EX	Explicit connection allocated
Group 3 Connection	G3	At least one Group 3 (UCMM) connection allocated
Status Bits	IDLE1	Output area 1 receive idle status bit.
	IDLE2	Output area 2 receive idle status bit
	SERA	Server Explicit Request Available. Use Receive server explicit command to retrieve the request

Word 2 — CAN Network Status

	bit 7	bit 6	bit 5	bit 4	bit 3	bit 2	bit 1	bit 0
byte 0	ML	RO	TO	TA	A	BO	BW	OL
byte 1	SA	O5	O2	O1	RE	reserved	BP	ER

Application Specific Flags

SA	Scanner Active (at least one connection established)
O5	Online at 500 Kbaud
O2	Online at 250 Kbaud
O1	Online at 125 Kbaud
RE	Firmware is resetting so DeviceNet I/O data is not valid

Common Flags

BP	Bus power present (zero if power sense not supported)
ER	CAN communication error
ML	Message lost (CAN controller / receive ISR)
RO	Receive buffer overrun (host app. too slow emptying receive queue)
TO	Transmit failed due to timeout (flooded network)
TA	Transmit failed due to ack error (no other nodes connected)
A	Network activity detected (messages received or transmitted)
BO	Bus off (this node has been disconnected due to excessive errors)
BW	Bus warning (is experiencing a large number of errors)
OL	Online, CAN interface has been initialized

Word 3

Firmware ID, Minor revision:	In BCD four hex digits. For example, revision 1.10 = 01 10 hex.
Firmware ID, Major revision:	See above.

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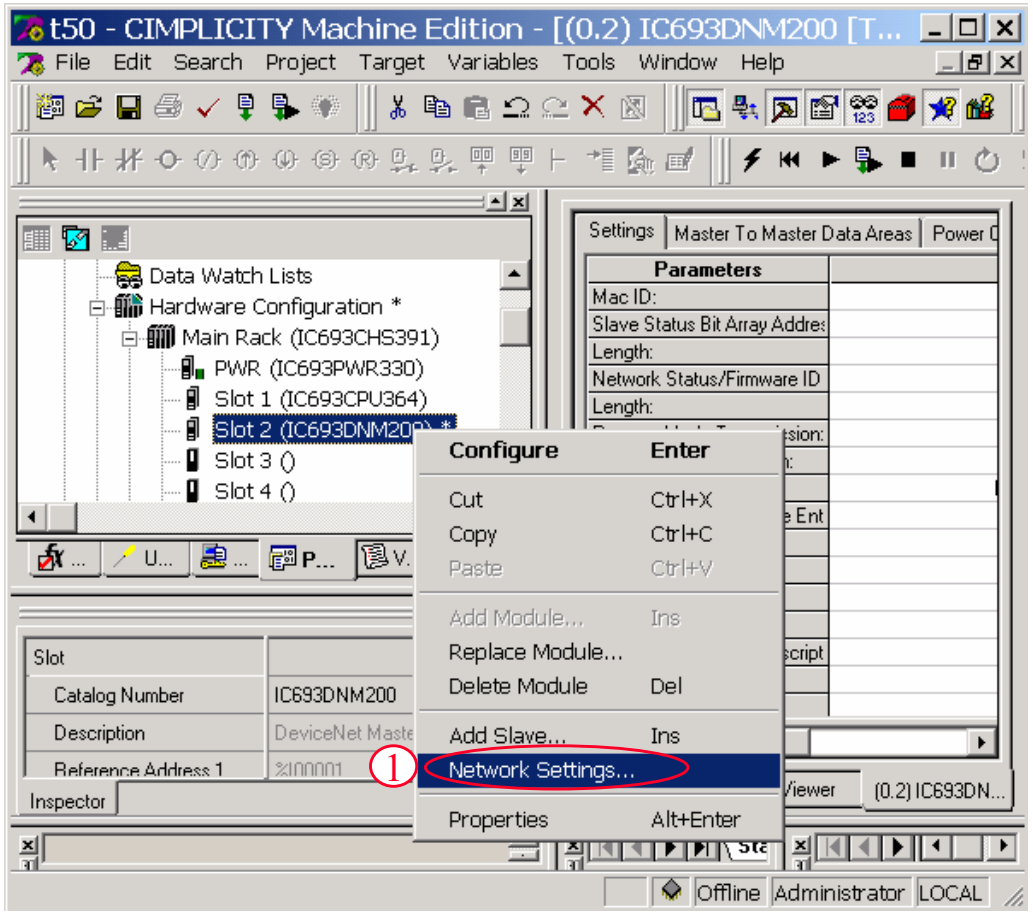
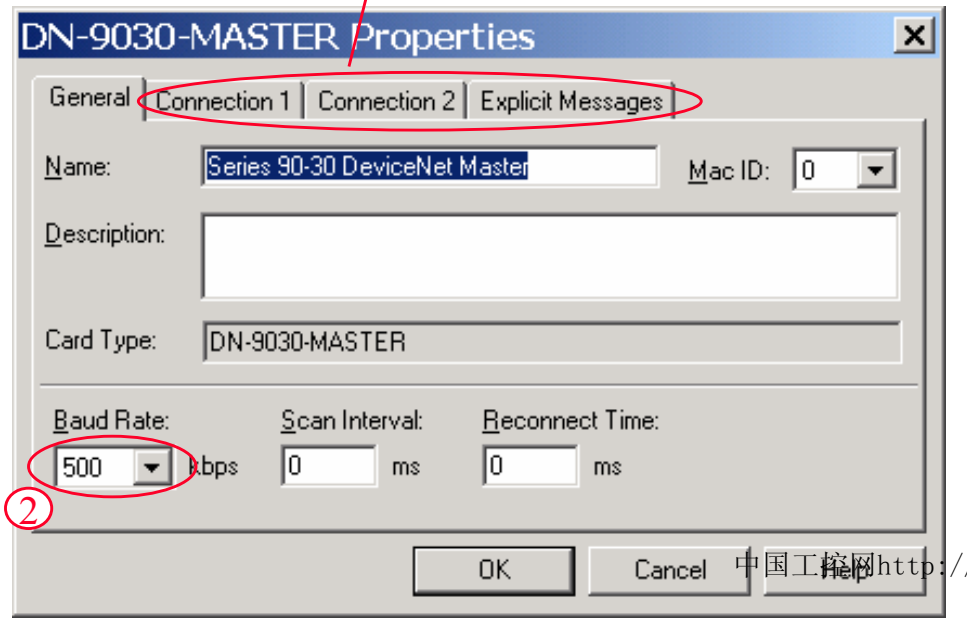
Configure Network Parameters

① Right click DNM200 module and choose “Network Settings”

② Set up the Baud rate for fieldbus



Configure DNM200 as a slave



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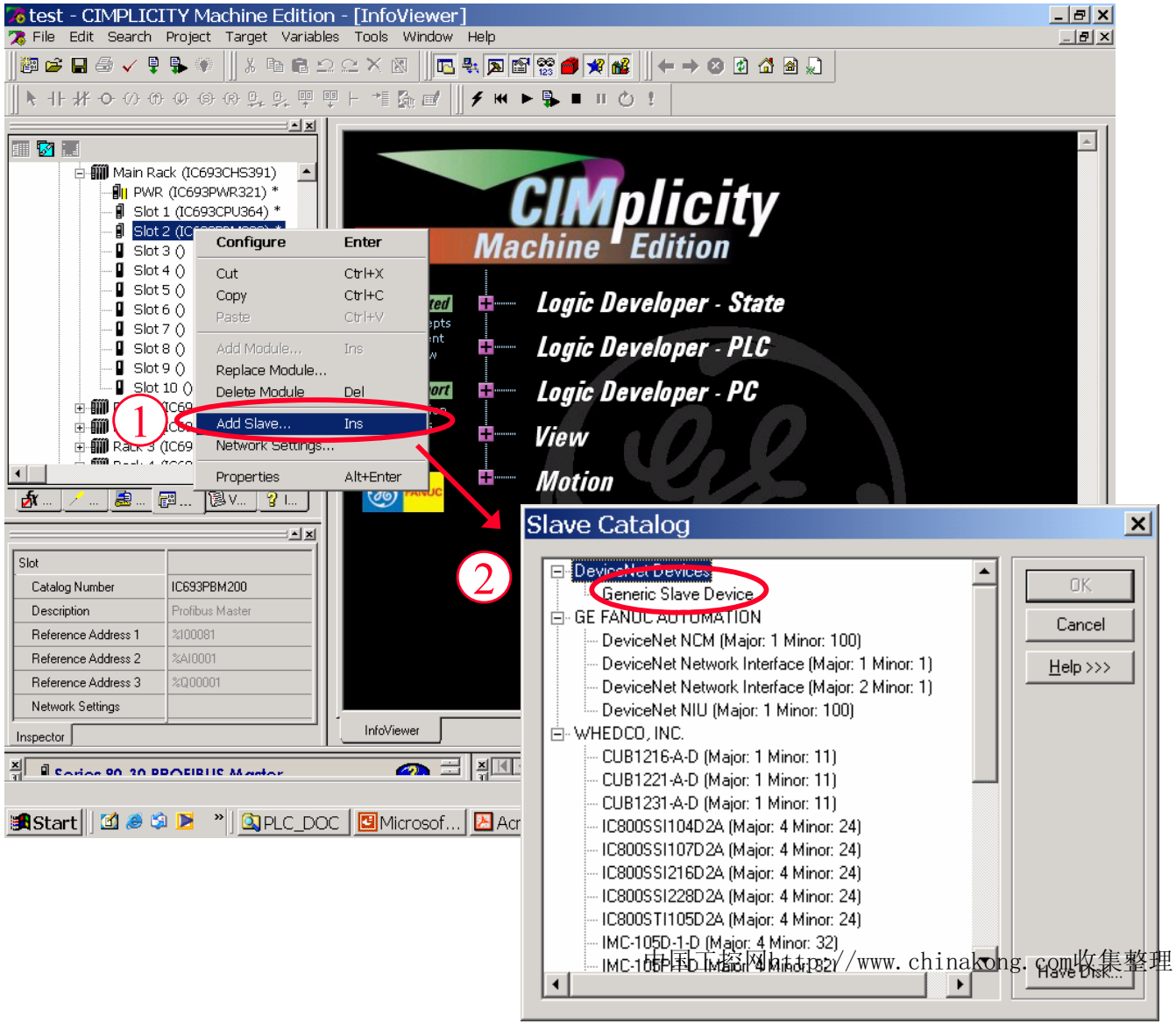
Add Slave



① Right click DNM200 module and choose “Add slave”

② Choose slave device from the list, for most of the cases, choose “Generic Slave Device”

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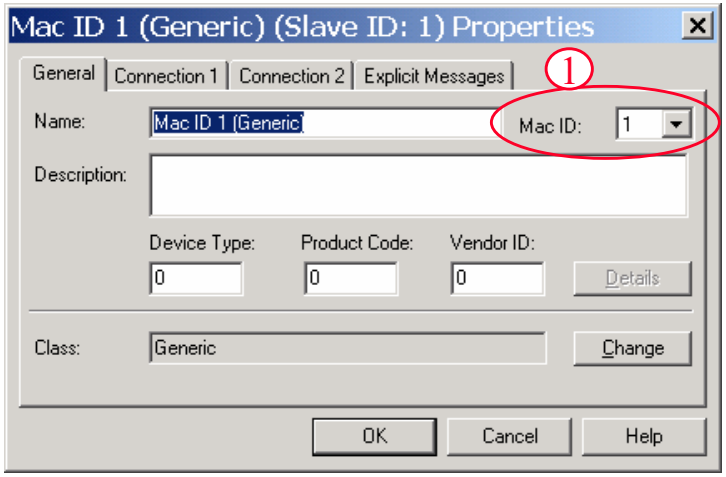
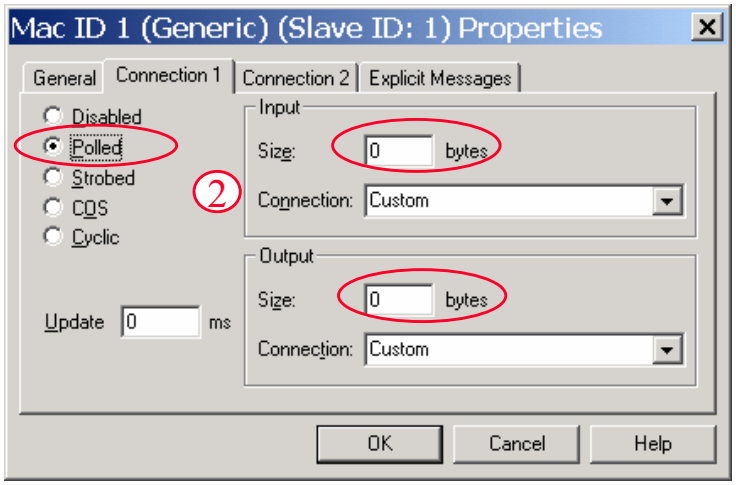
Add Slave …

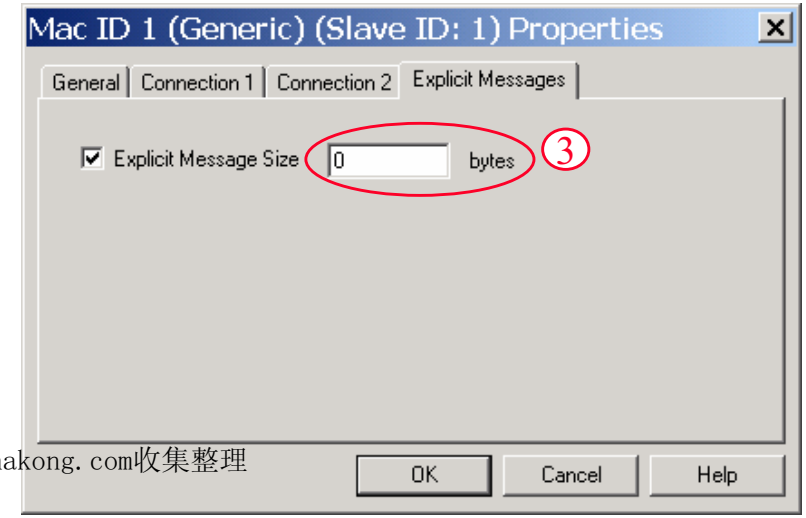




① Slave station address (0-63)

② For most slaves, choose “Polled” and specify the size of input/output data

③ Enable “Explicit Message” if the slave supports “Explicit Message”. Specify the buffer size for DNM200 to receive reply explicit message



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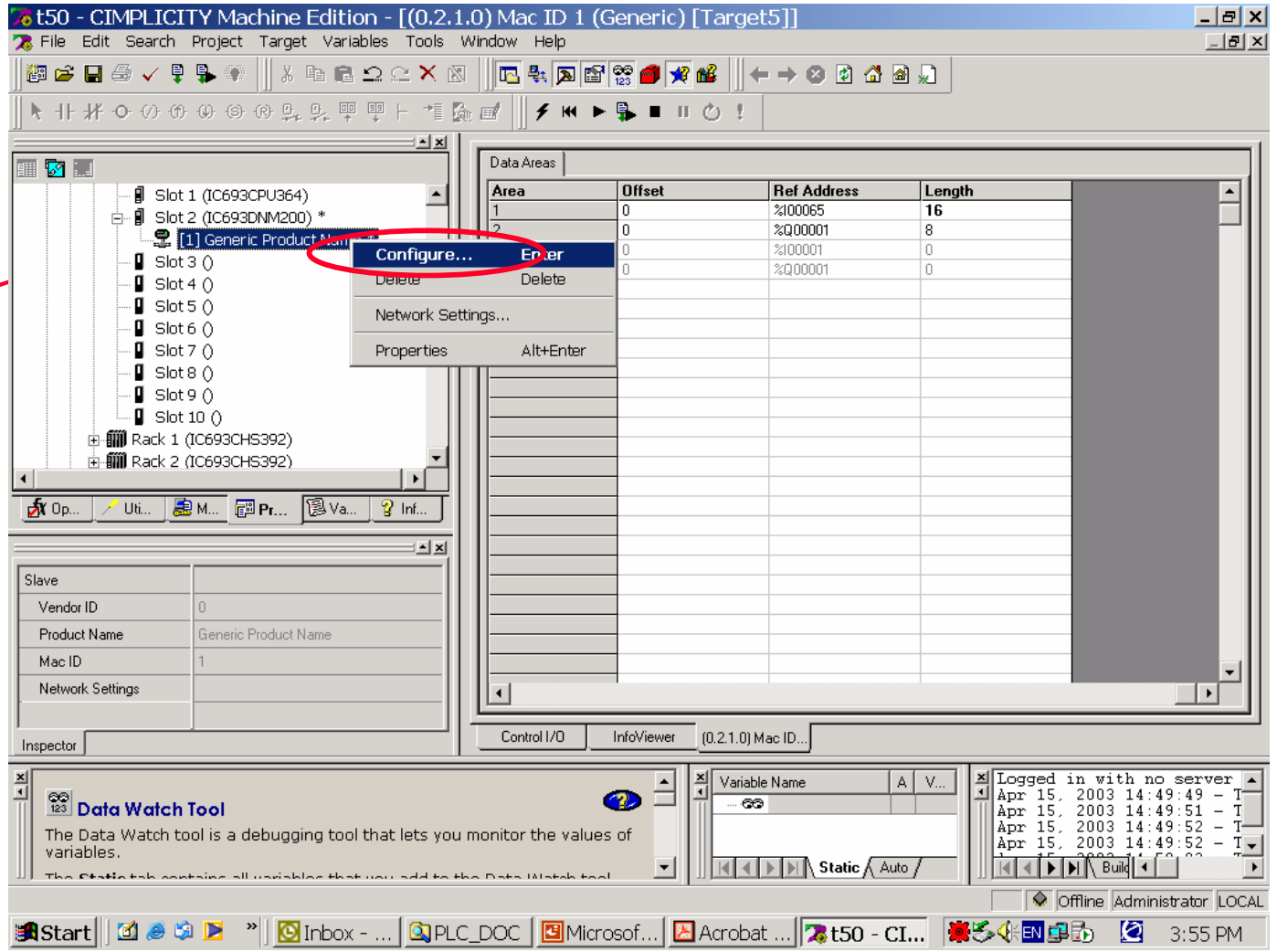
Assign I/O Address for Slave Modules

Right click slave device
Choose “Configure”



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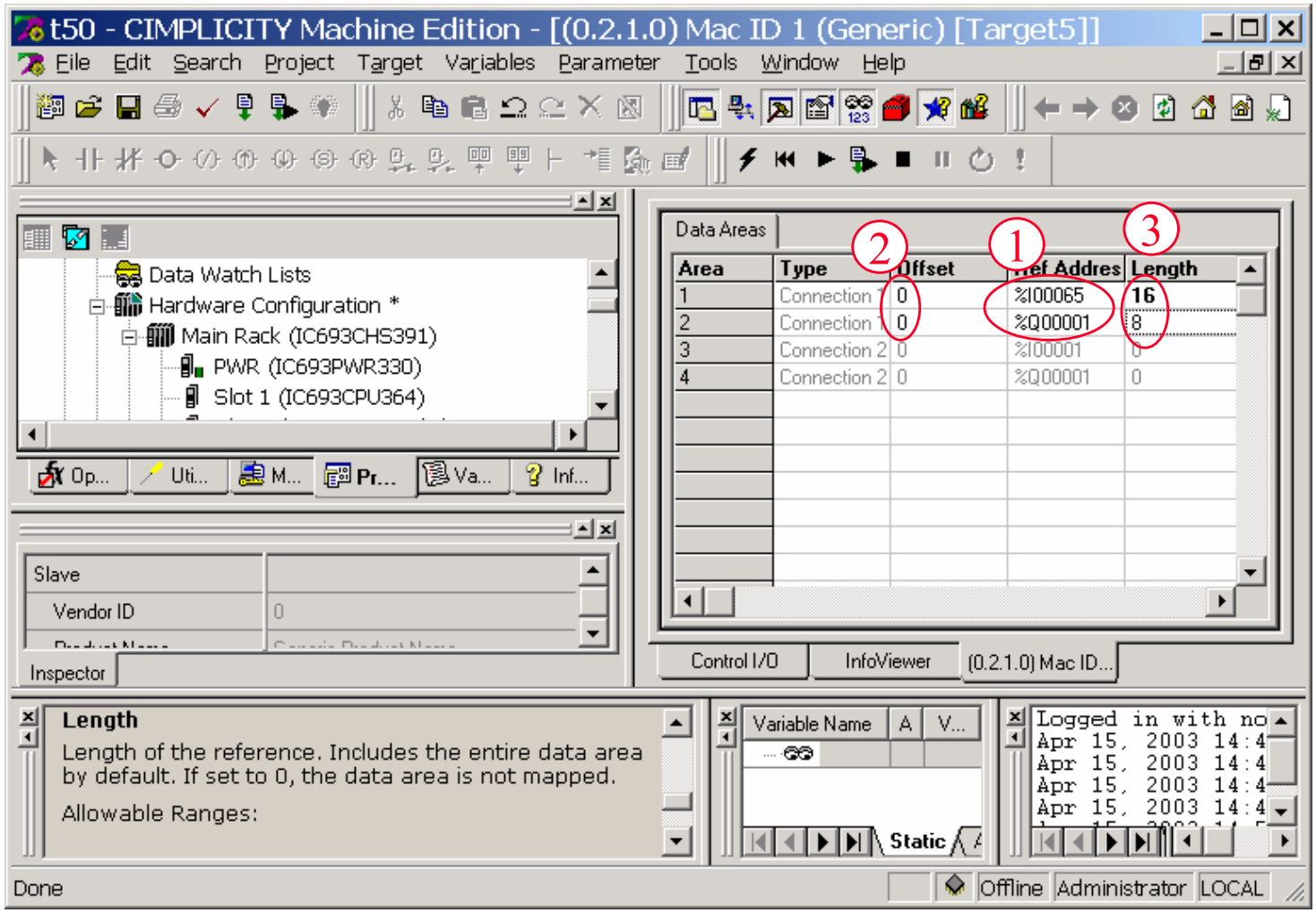
Assign I/O Address for Slave Modules



① Define I/O reference address for this slave

② Offset of input/output data of slave, which the I/O reference is assigned to

③ Don't change the length which is automatically adjusted by ME

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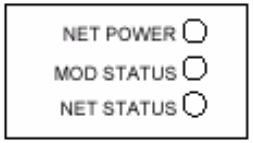
LEDs on DNM200

Module Status LED

LED	*Indicates*
Off	There is no backplane power to the module.
Green	The module is operating normally.
Flashing Green	The module is in standby mode. Its configuration is missing, incomplete, or incorrect. The module may be in Standby state.
Flashing Red	Recoverable Fault
Red	The module has an unrecoverable fault; it may need resetting or replacing.
Flashing Red / Green	The module is in Self Test mode.

Network Status LED

LED	*Indicates*
Off	▪ The module is not online, or ▪ The module has not completed the Duplicate MACID test, or ▪ The module may not be powered. See Module Status LED.
Flashing Green	▪ The module is online but has no connections in the established state, or ▪ The module has passed the Duplicate MACID check, is online, but has no established connections with other nodes.
Green	The module is online and has one or more connections in the established state.
Flashing Red	One or more I/O Connections are in the Timed Out state.
Red	The module is not capable of communicating on the network.
Flashing Red / Green	The module has detected a Network Access error and is in the Communication Faulted State.



Network Power LED

LED	*Indicates*
Red	There is no power detected on the network.
Green	Power detected on the network.