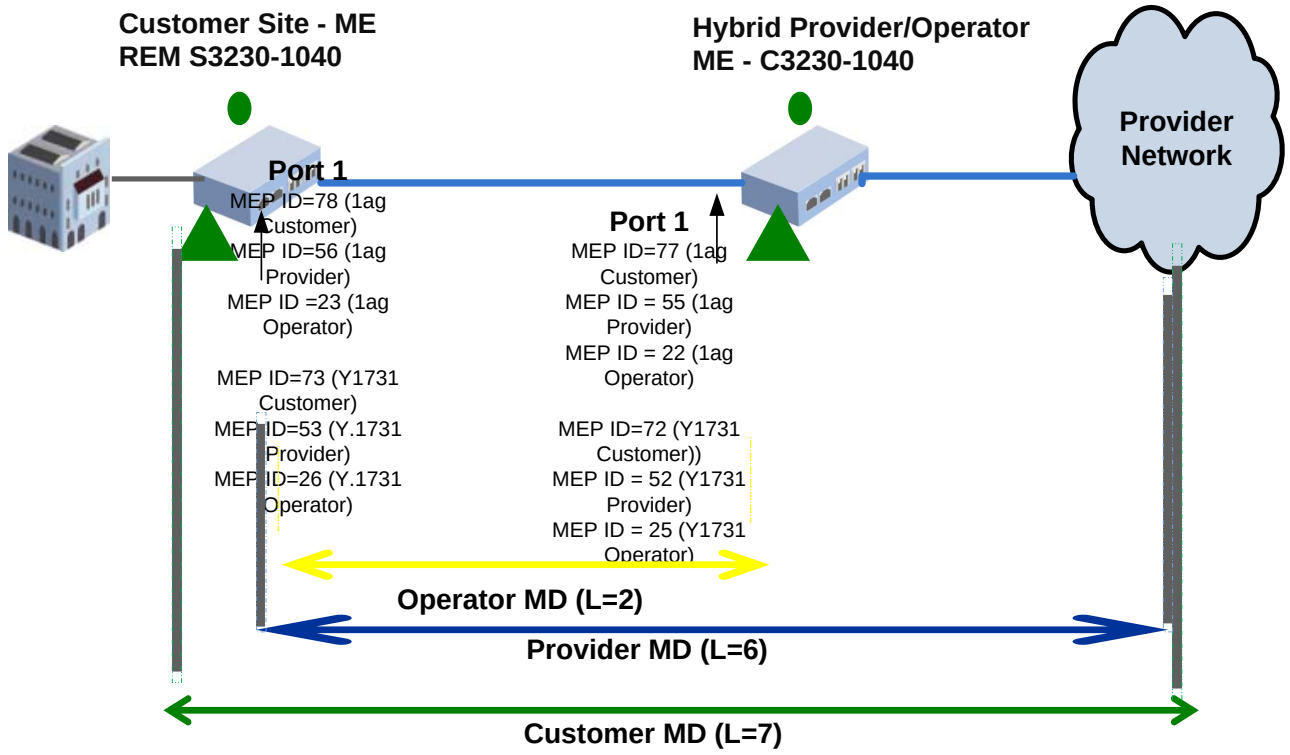
Provisioning SOAM
Application note:

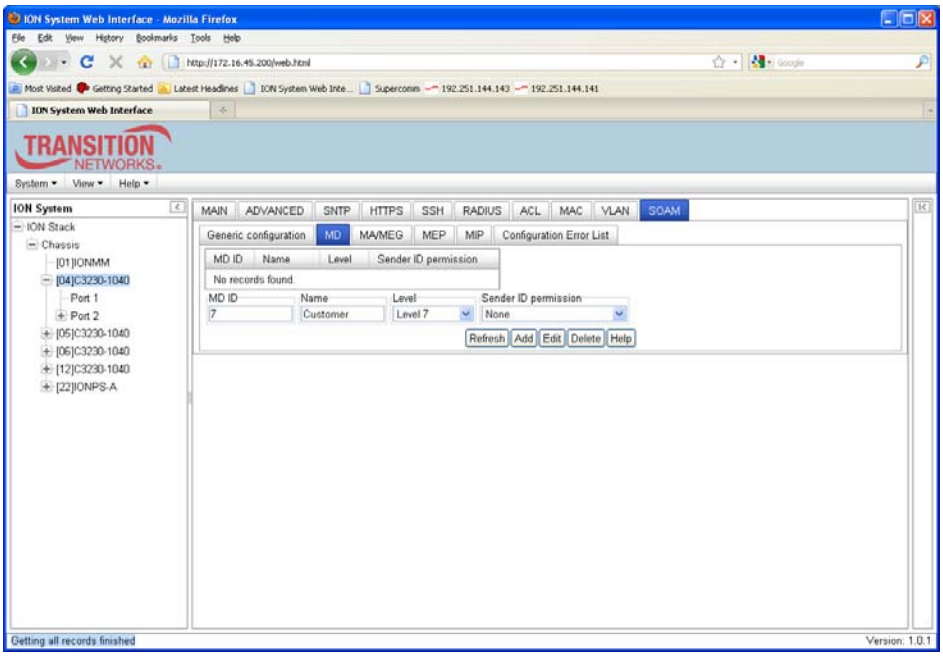
This application note describes how to provision SOAM (802.1ag/Y.1731) using the x3230 (SIC) and stand-alone S3231 NIDs. Using the WEB GUI agent, the customer ME will be provisioned for SOAM and a hybrid ME between the operator and provider networks will also be SOAM provisioned. The customer network will be assigned MD 7, Provider MD 5, and Operator MD 3.



802.1ag Setup Procedure:

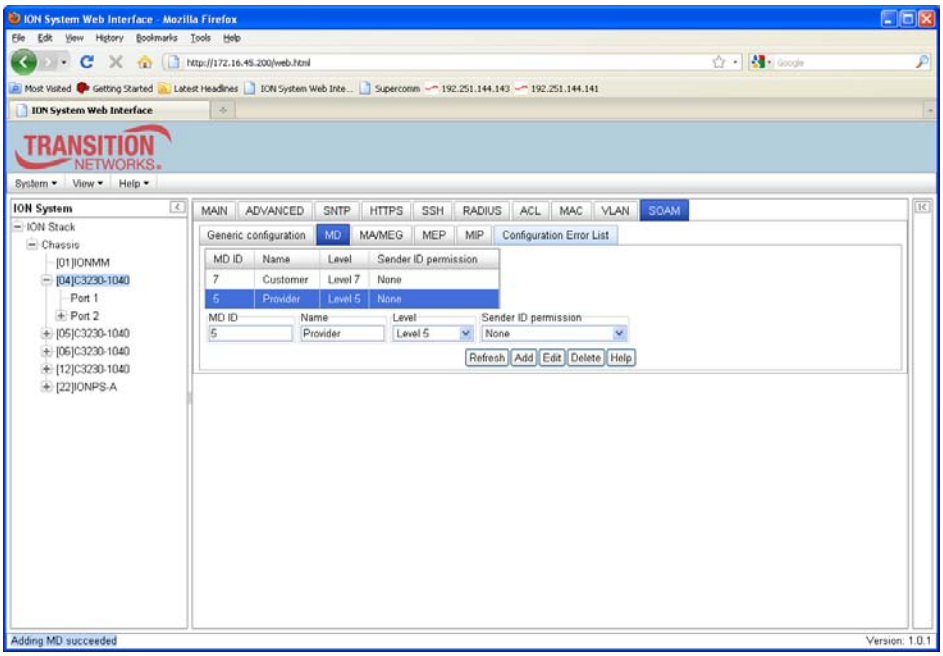
Step 1: Configure/Add the **Maintenance Domain** for the **Customer Network**. Select **SOAM, MD**, enter the **MD id 7**, enter the name **customer (i.e First Union)** , select **Level 7**, then **ADD**

Customer MD ID 7



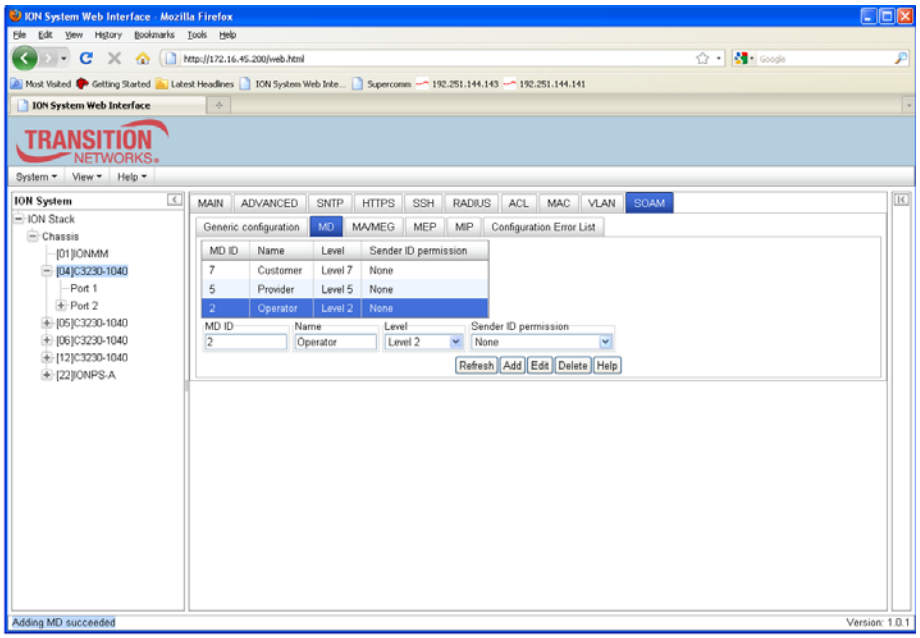
Step 2: Configure/Add the Maintenance Domain for the **Provider** Network. Select **SOAM, MD**, enter **MD id 5**, enter the name **provider (i.e ATT)**, select **Level 5**, then **ADD**

Provider MID 5

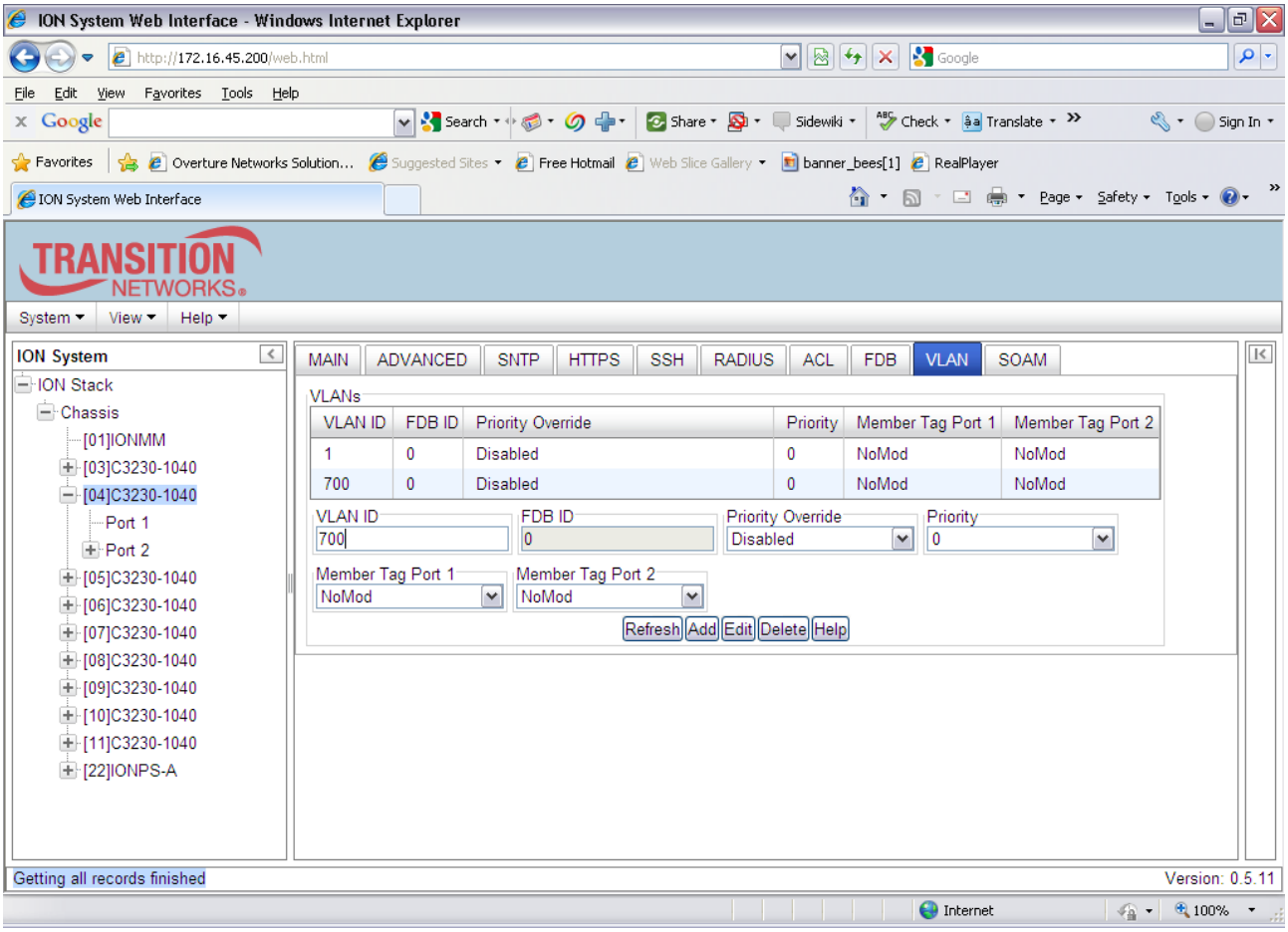


Step 3: Configure/Add the Maintenance Domain for the **Operator** Network. Select **SOAM, MD,** enter the **MD id 2**, enter the name **operator (i.e. TW)**, select **Level 2**, then **ADD**

Operator MD 2

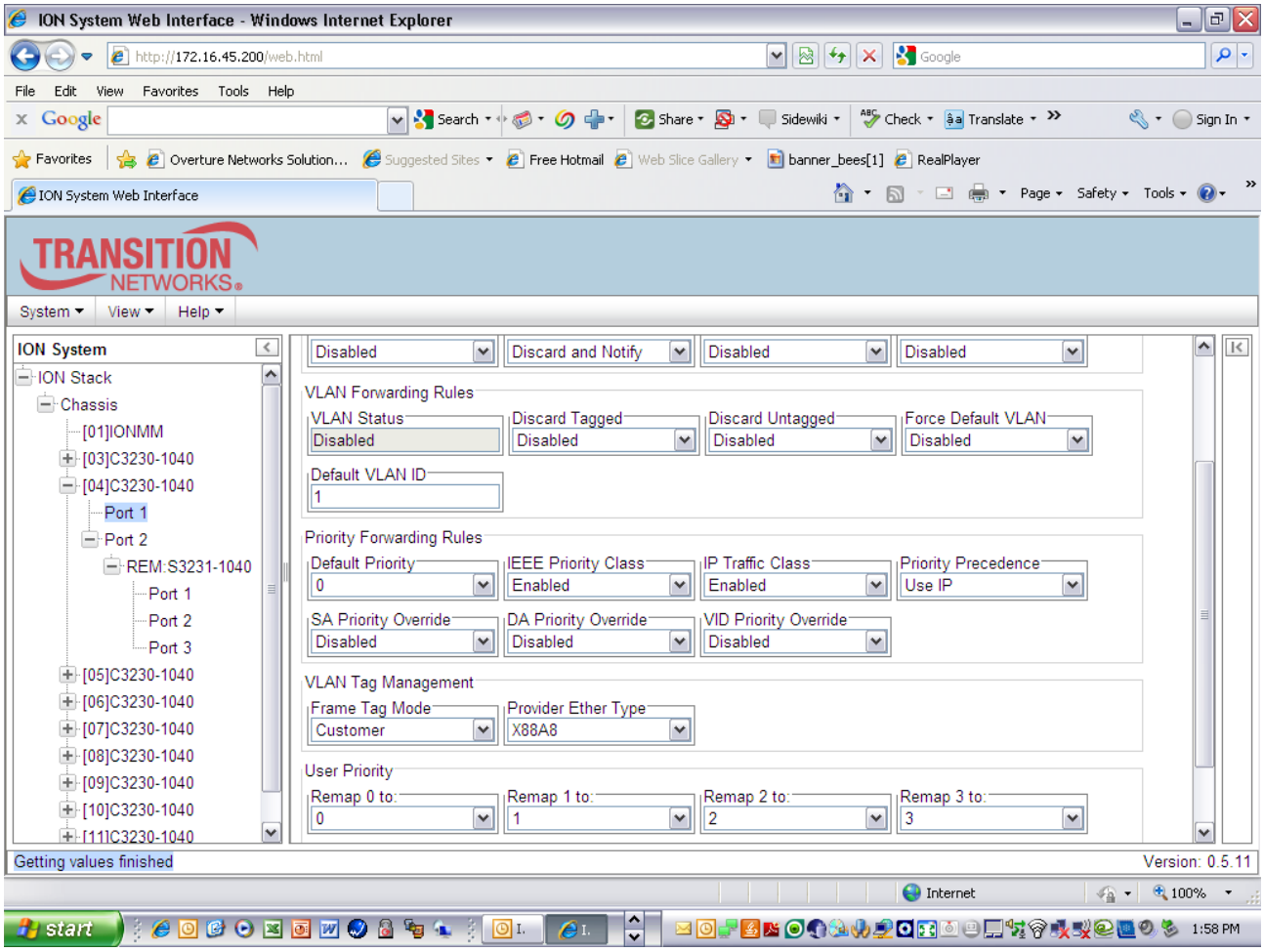


Step 4: Configure/Add in the **VLAN system directory, a new VLAN (i.e 700)**



Step 5: Configure/add the VLAN Tag Mode and Ethertype:

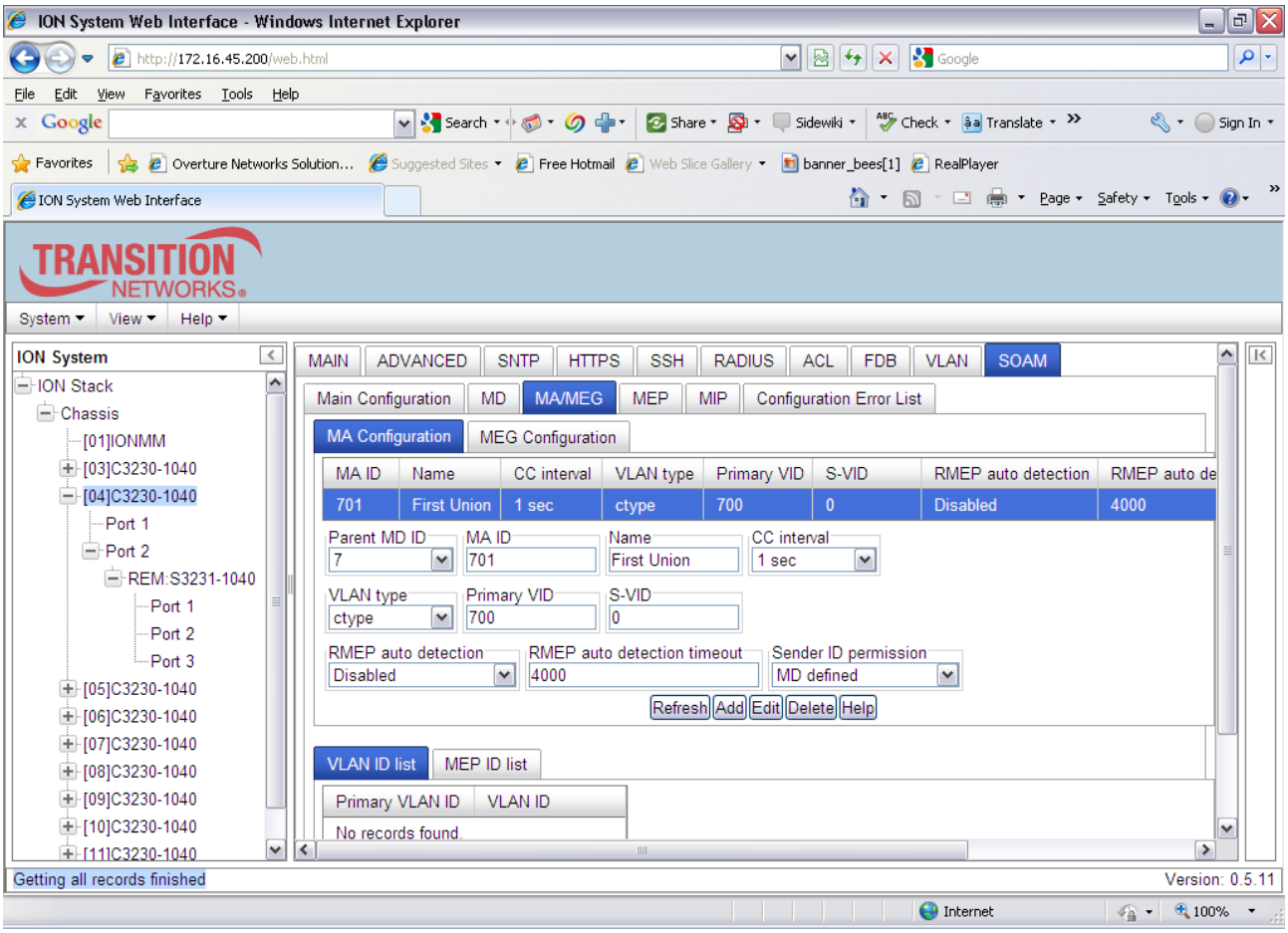
Select Port 1, Advanced tab, select **Frame Tag Mode** =Customer, Set Ethertype to X88A8, then **Save**



802.1ag Customer Network Set-up Procedure

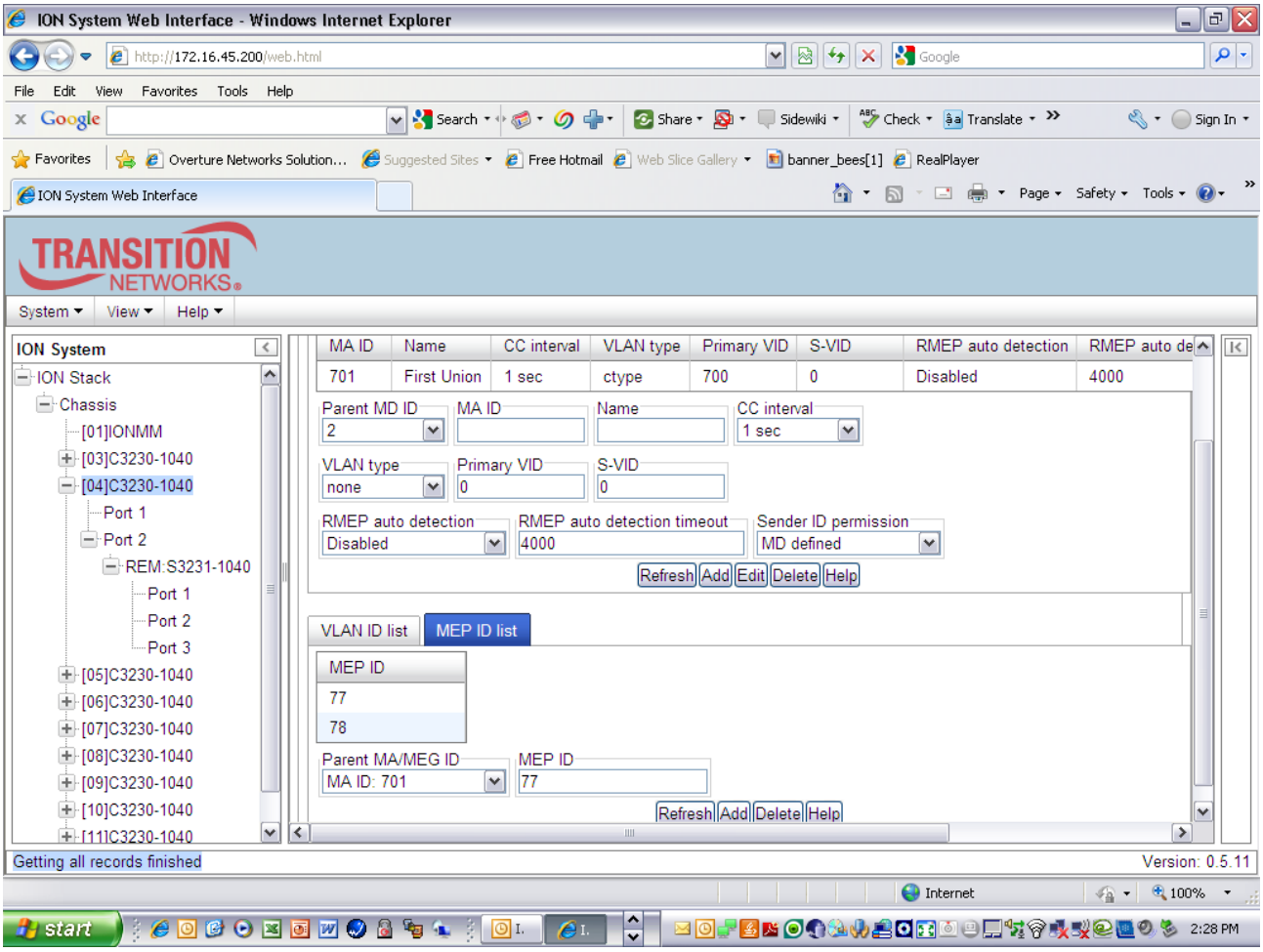
Step 6: Configure/Add the **Maintenance Association ID's** for each Domain (Customer, Provider, Operator.) First, provision the **customer MA ID**. Select **SOAM, MA/MEG, MA Configuration**. Select **Parent MD ID 7** (corresponds to MD defined in Step 1), Enter **MA ID 701** (can be any ID starting with 7) enter **customer name** (Example First Union), Enable Remote MEP (REM) Auto-Detection, select a **VLAN type** (C-tag) and enter new Primary VID 700, if appropriate. Then **ADD**

Customer MA

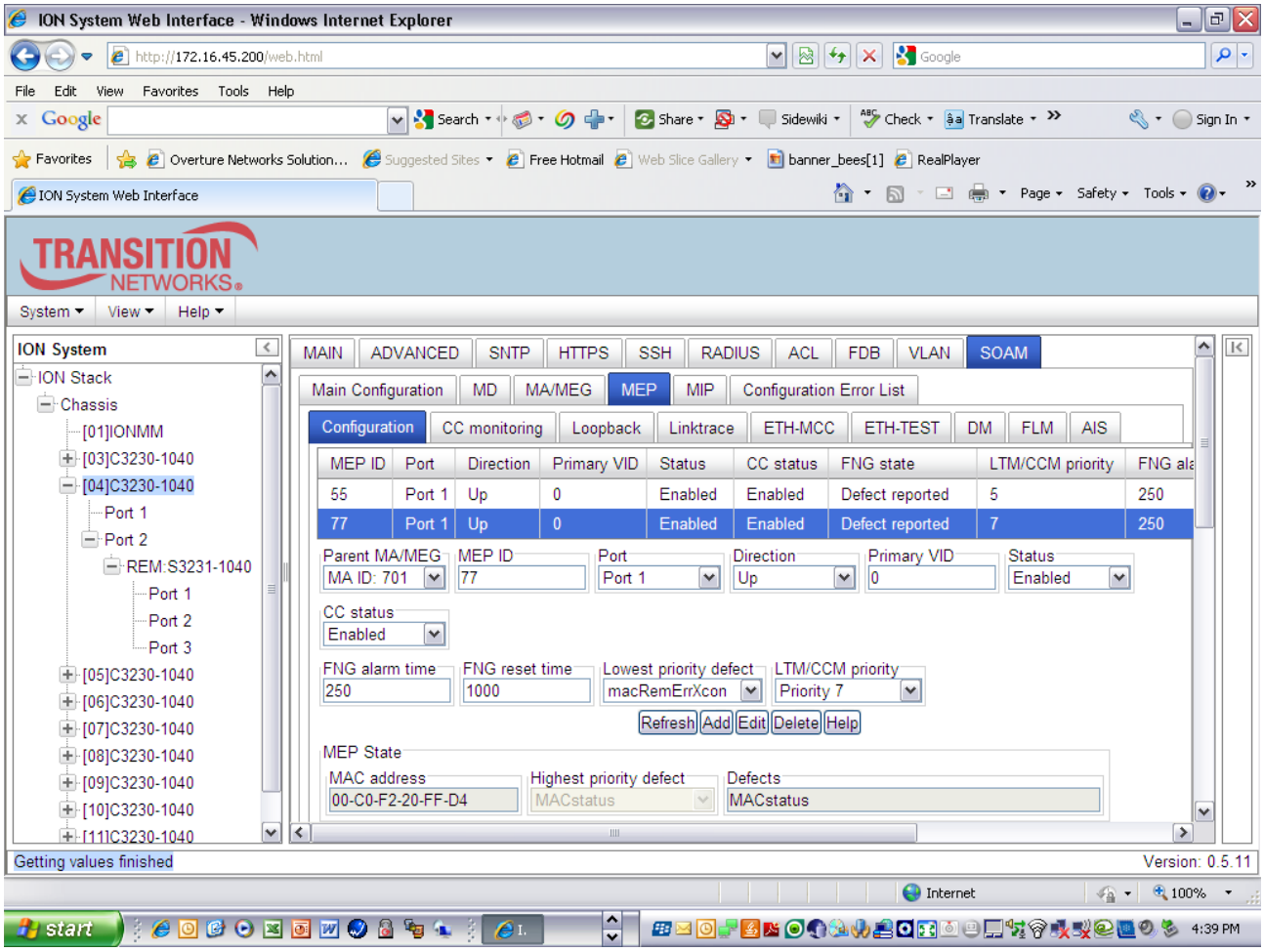


Step 7: Next, configure MEPs for each MA by adding them in the “MEP list” tab in the “MA Page.

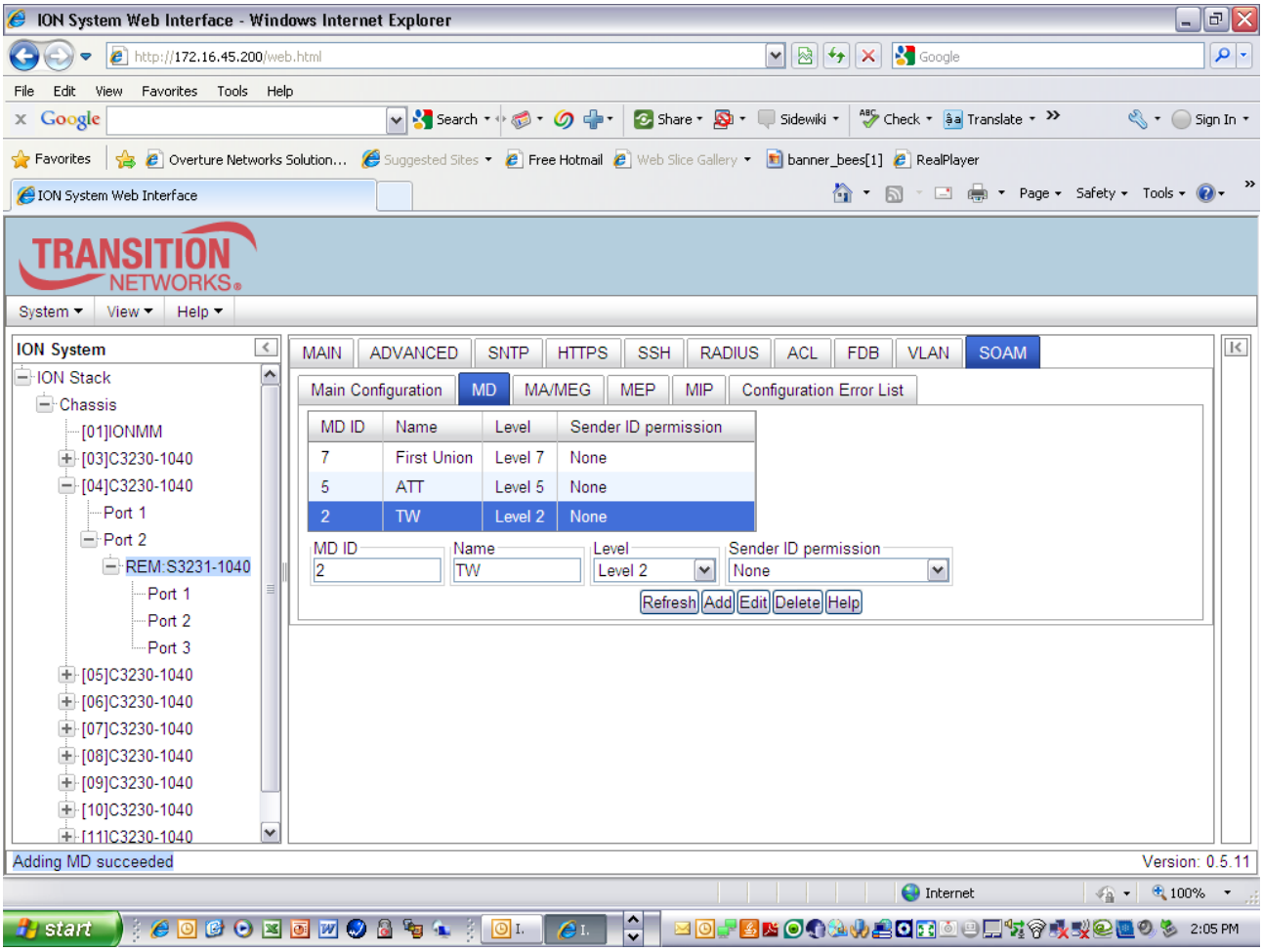
Add MEP ID 77 (Any ID starting w/7) for the MEP ID assigned to the C3230, Add MEP 78 for the Remote peer MEP ID assigned to REM:S3231 corresponding to Parent MA/MEG ID 701.



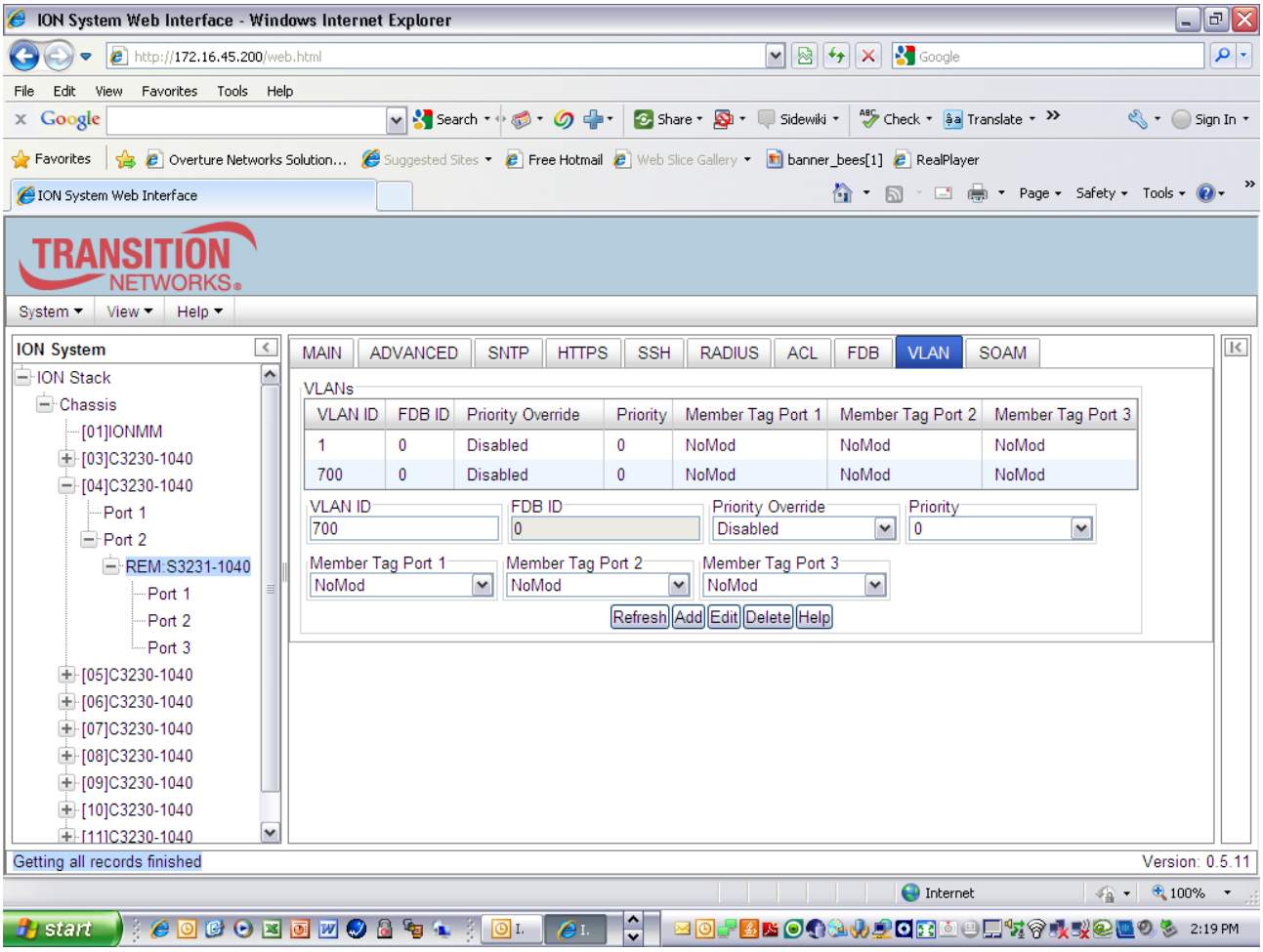
Step 8: After defining the MA's and MEP ID's, configure/add MEP ID 77 in the SOAM MEP Tab. Select port 1, set direction for "UP", status "enable, CC "enable"



Step 9: Select the REM:S3231-1040 remote peer and configure the Maintenance Domains Repeating Steps 1-3 above

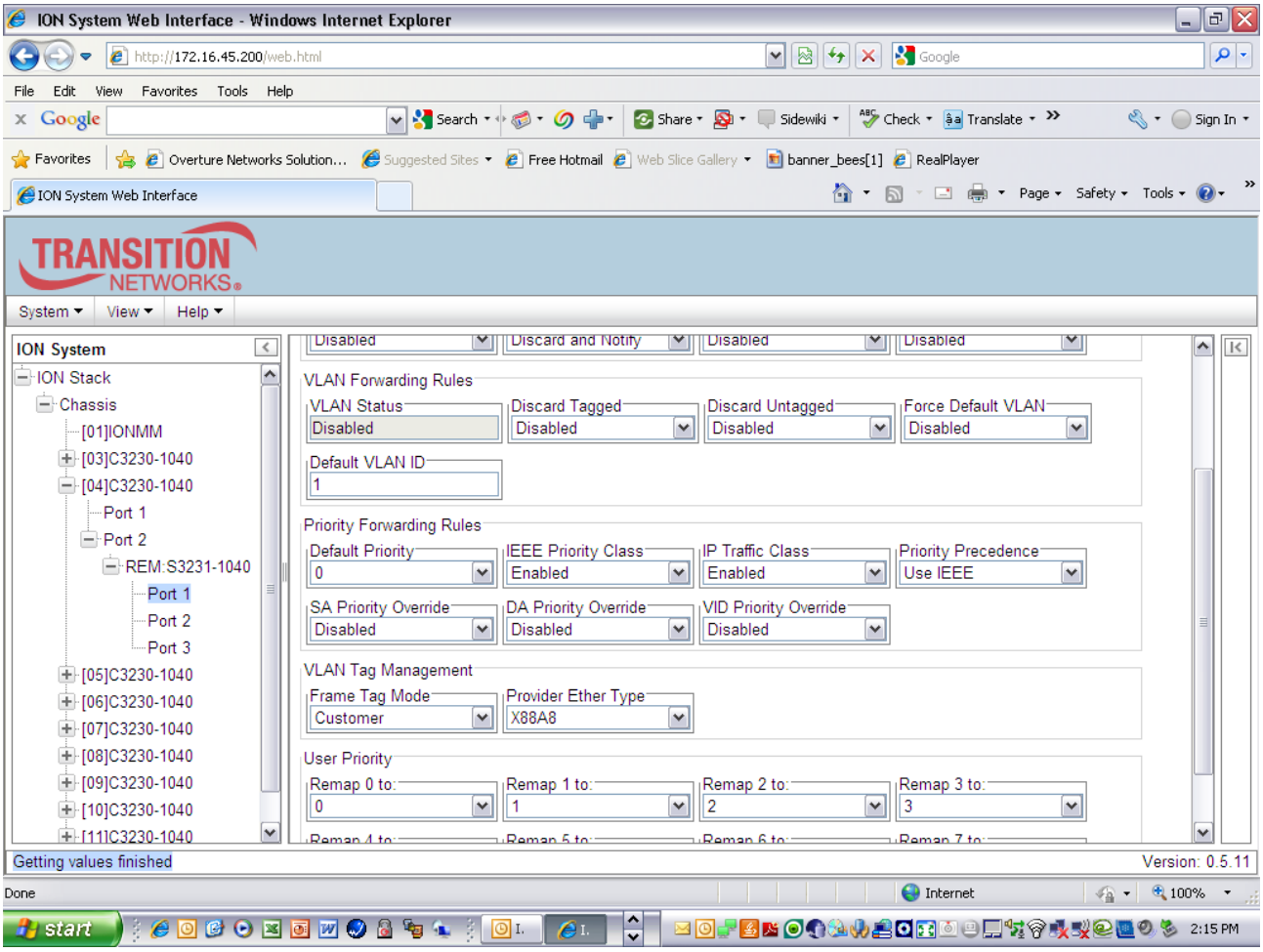


Step 10: Configure/Add in the **VLAN system directory, a new VLAN (i.e 700)**



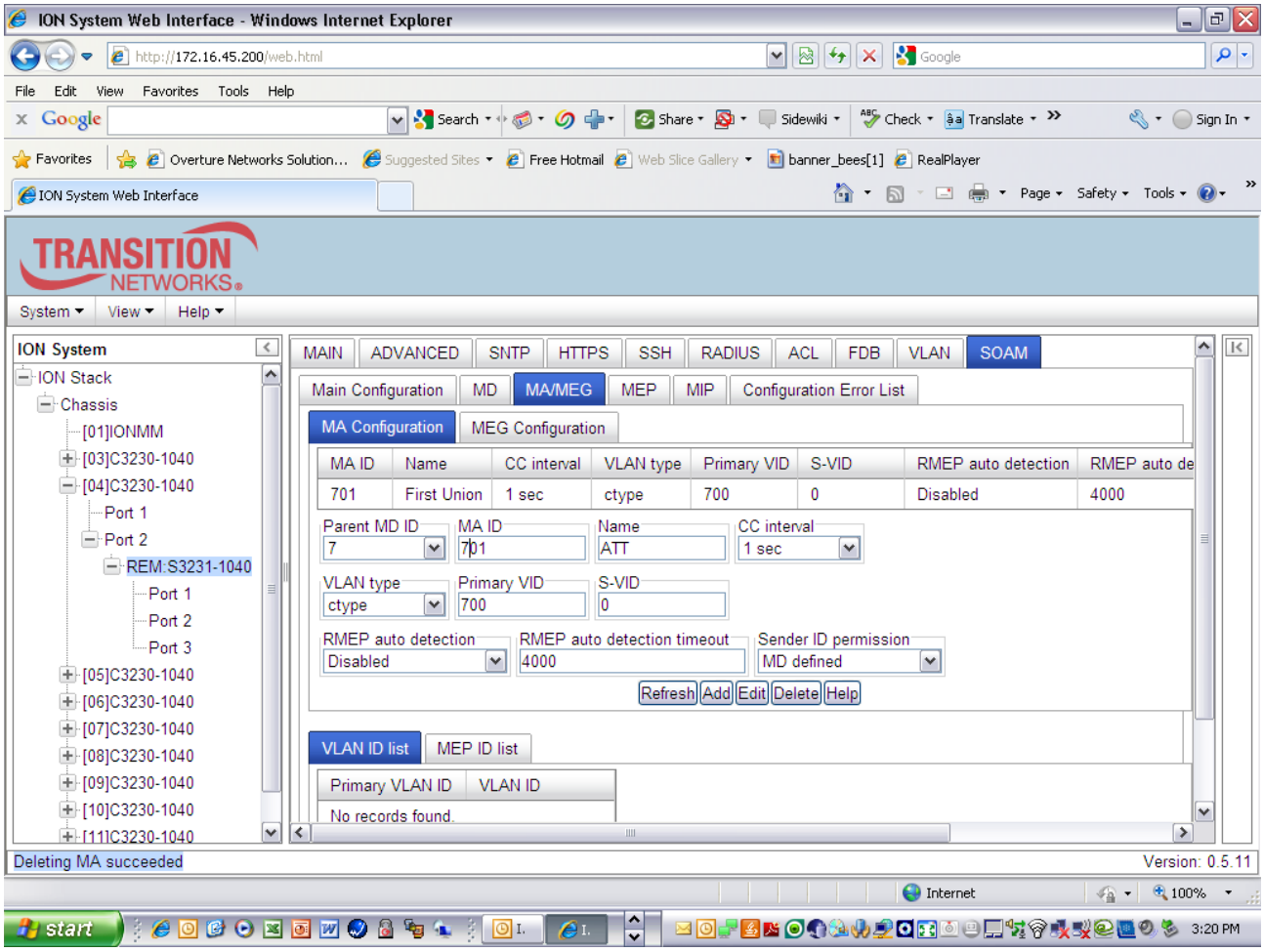
Step 11: Configure/add the VLAN Tag Mode and Ethertype:

Select **Port 1, Advanced tab**, select **Frame Tag Mode,** Customer, Set Ethertype to **X88A8**, then **SAVE**

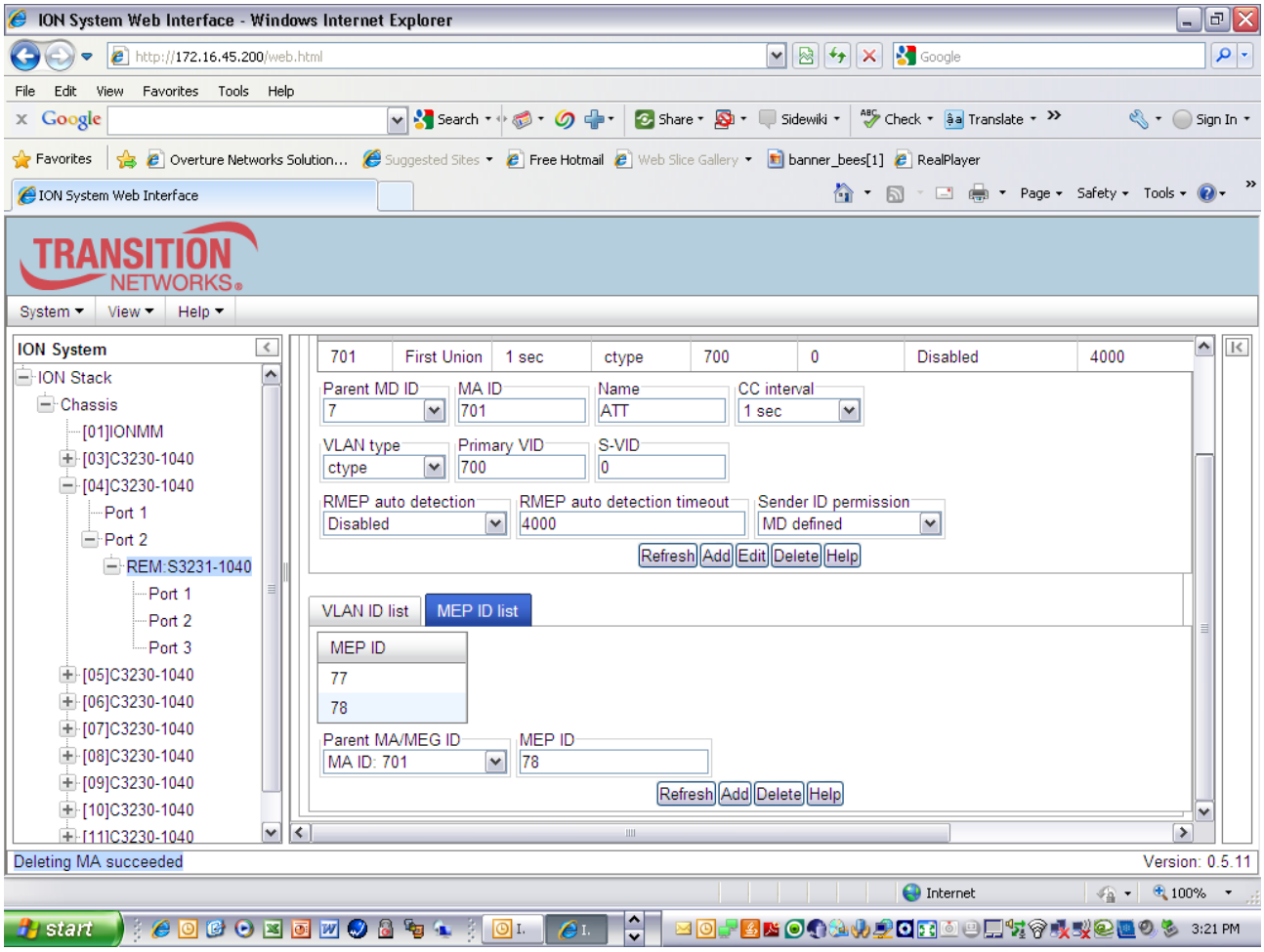


Step 12: Repeat Steps 6, 7, and 8 above for the REM:S3230. Assign MEP ID 78 to the remote peer

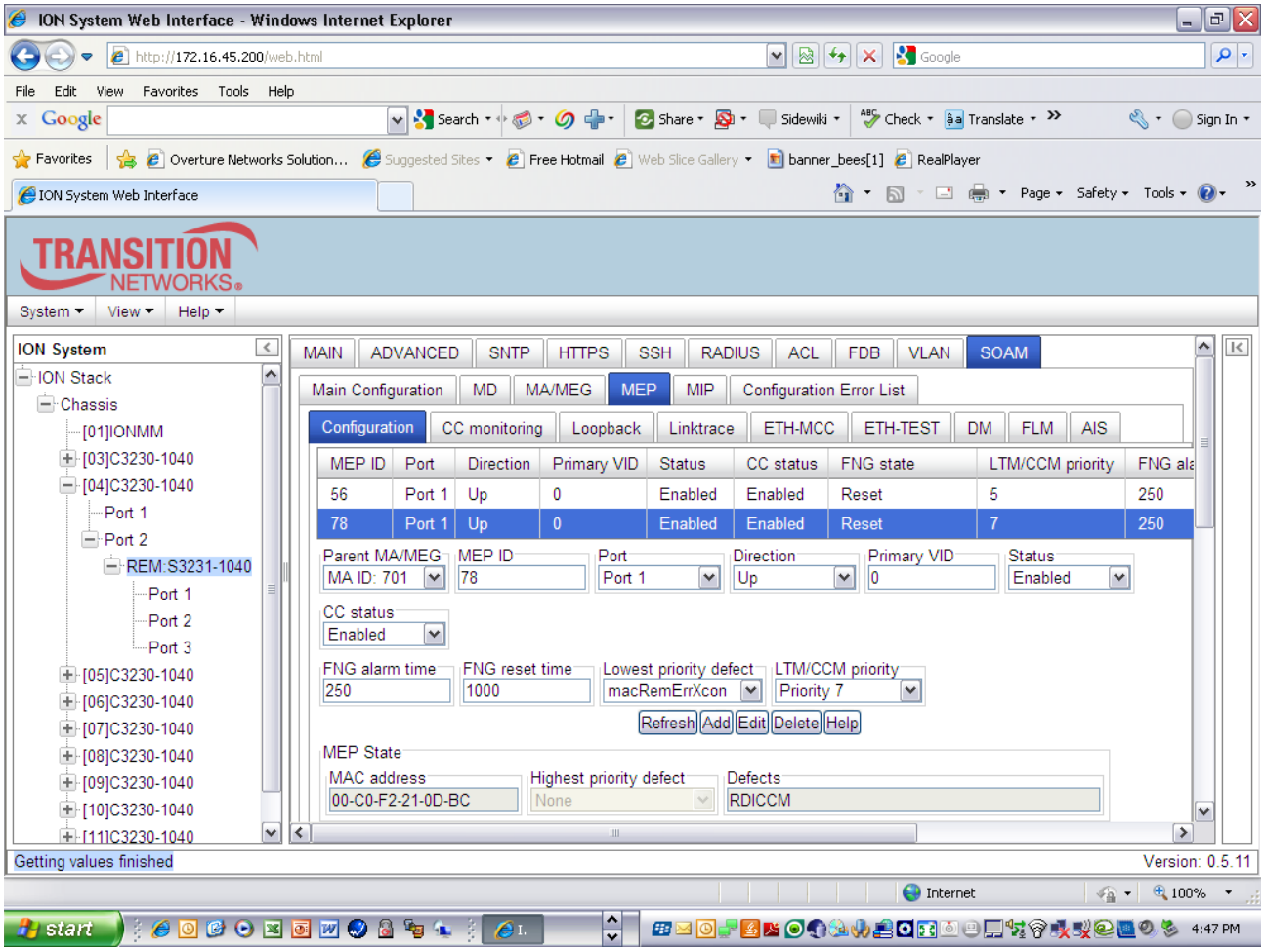
Configuring the Remote MA ID 701 with VID 700



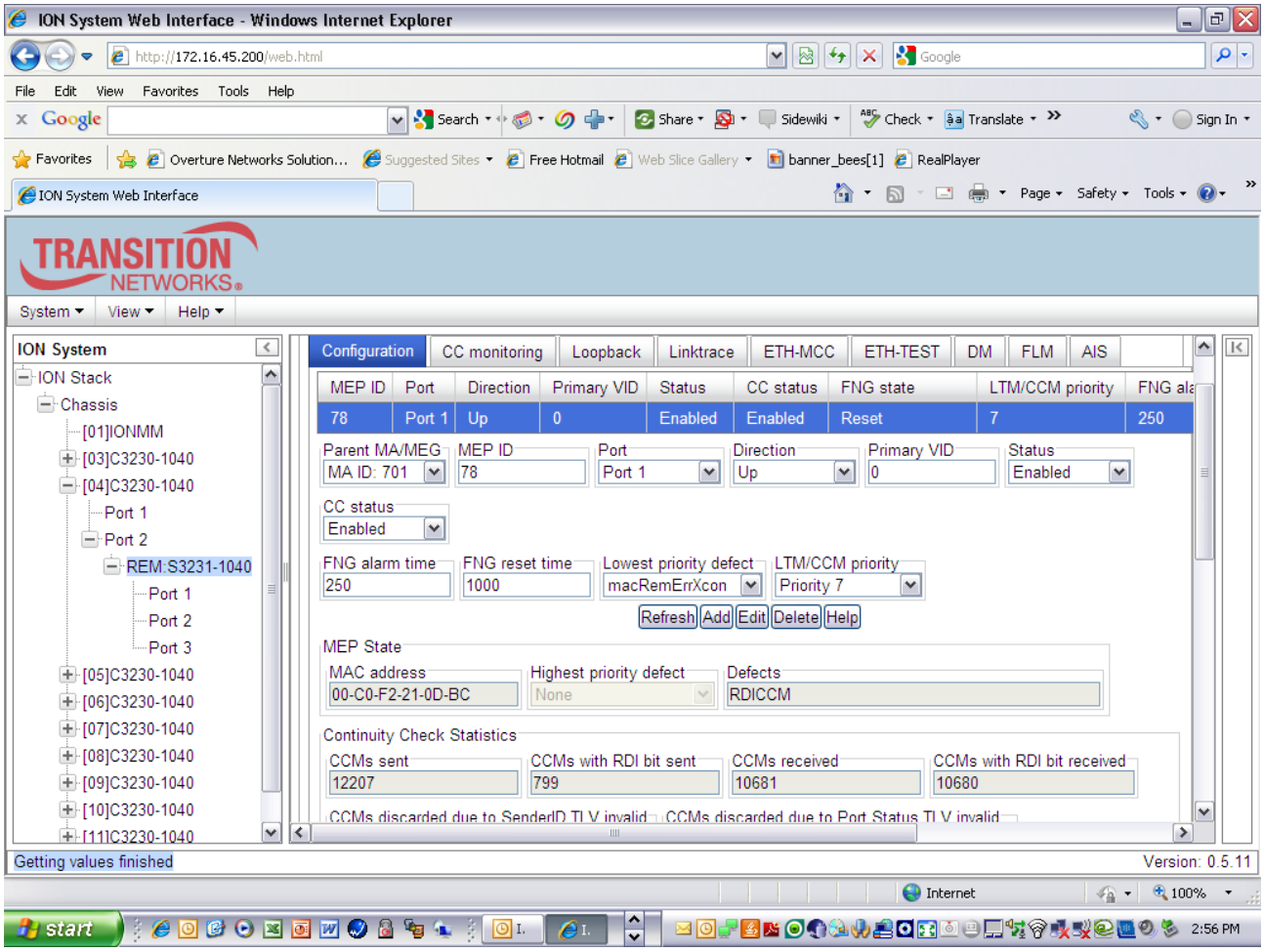
Adding MEP ID's 77, 78 to the **MEP ID List**

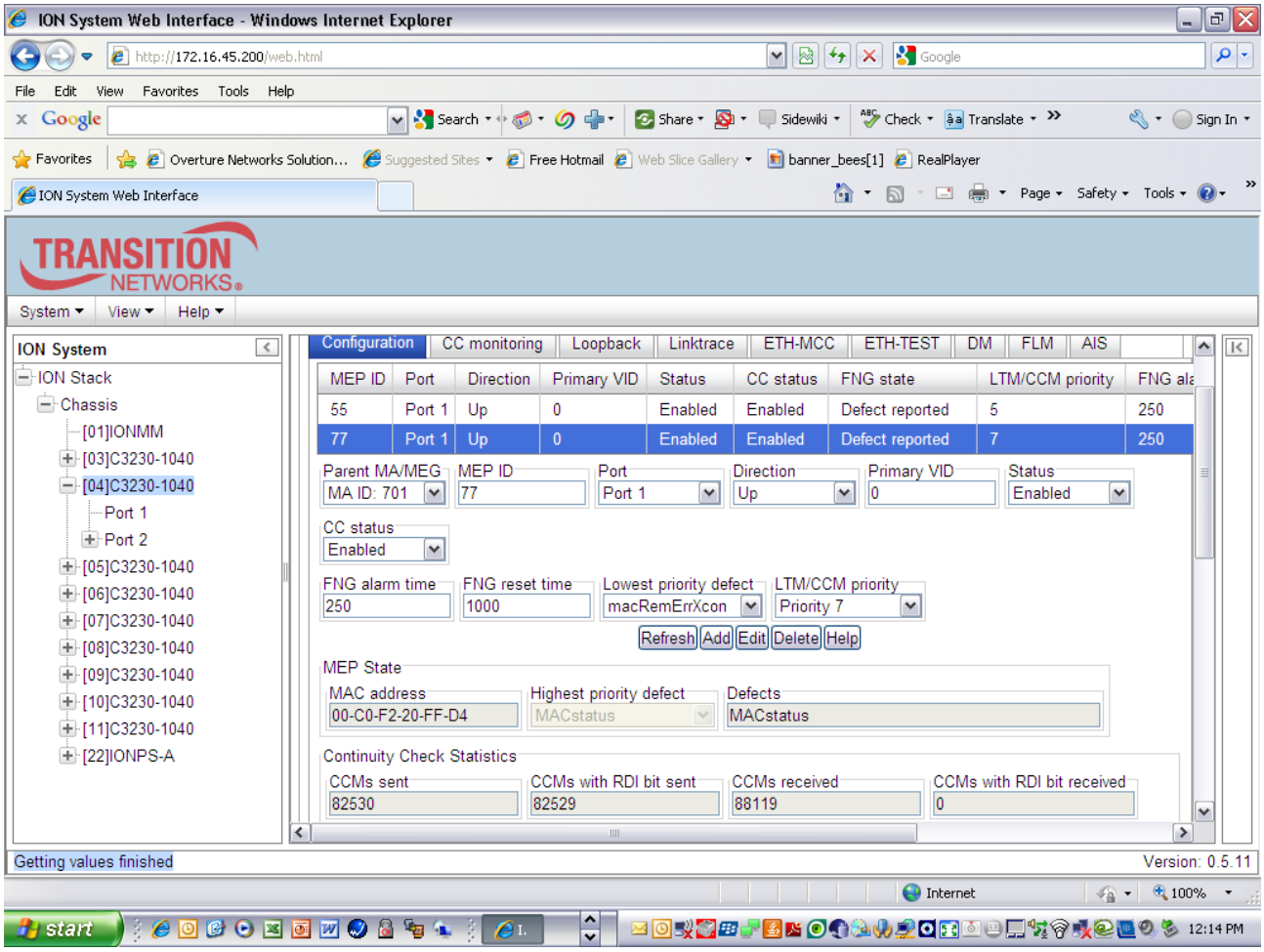


Assigning MEP ID 78, Port 1 status “UP” and enabling status and CC



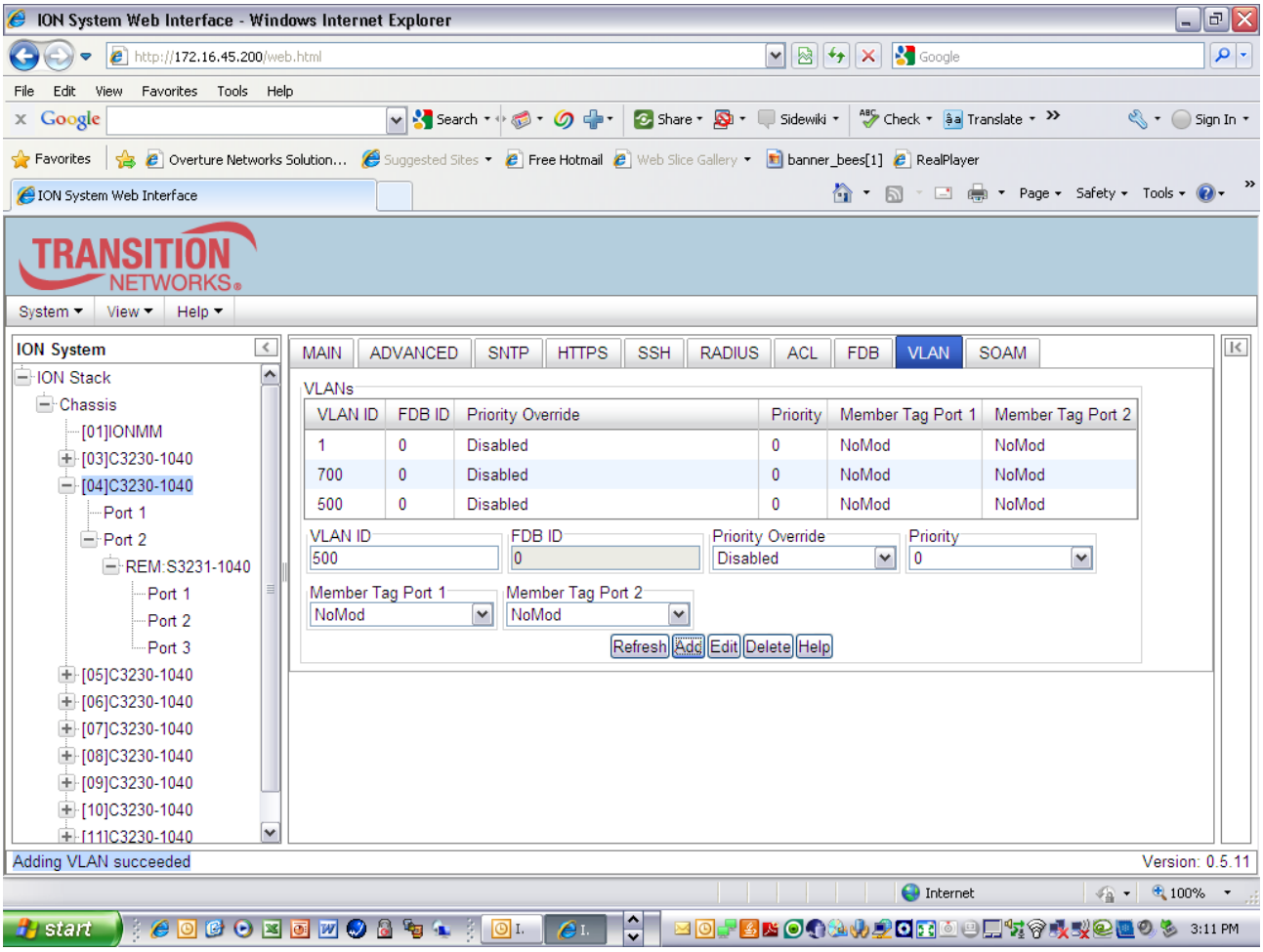
Step 13: Verify CCMs are now being sent/received between MEPs 77 and 78


ION System Web Interface - Windows Internet Explorer
http://172.16.45.200/web.html
TRANSITION NETWORKS
System
View
Help
ION System
ION Stack
Chassis
[01]IONMM
[03]C3230-1040
[04]C3230-1040
Port 1
Port 2
REM:S3231-1040
Port 1
Port 2
Port 3
[05]C3230-1040
[06]C3230-1040
[07]C3230-1040
[08]C3230-1040
[09]C3230-1040
[10]C3230-1040
[11]C3230-1040
Configuration
CC monitoring
Loopback
Linktrace
ETH-MCC
ETH-TEST
DM
FLM
AIS
MEP ID
Port
Direction
Primary VID
Status
CC status
FNG state
LTM/CCM priority
FNG ala
78
Port 1
Up
0
Enabled
Enabled
Reset
7
250
Parent MA/MEG
MA ID: 701
MEP ID
78
Port
Port 1
Direction
Up
Primary VID
0
Status
Enabled
CC status
Enabled
FNG alarm time
250
FNG reset time
1000
Lowest priority defect
macRemErrXcon
LTM/CCM priority
Priority 7
Refresh
Add
Edit
Delete
Help
MEP State
MAC address
00-C0-F2-21-0D-BC
Highest priority defect
None
Defects
RDICCM
Continuity Check Statistics
CCMs sent
12207
CCMs with RDI bit sent
799
CCMs received
10681
CCMs with RDI bit received
10680
CCMs discarded due to SenderID TLV invalid
CCMs discarded due to Port Status TLV invalid
Getting values finished
Version: 0.5.11
Internet
100%
start
2:56 PM



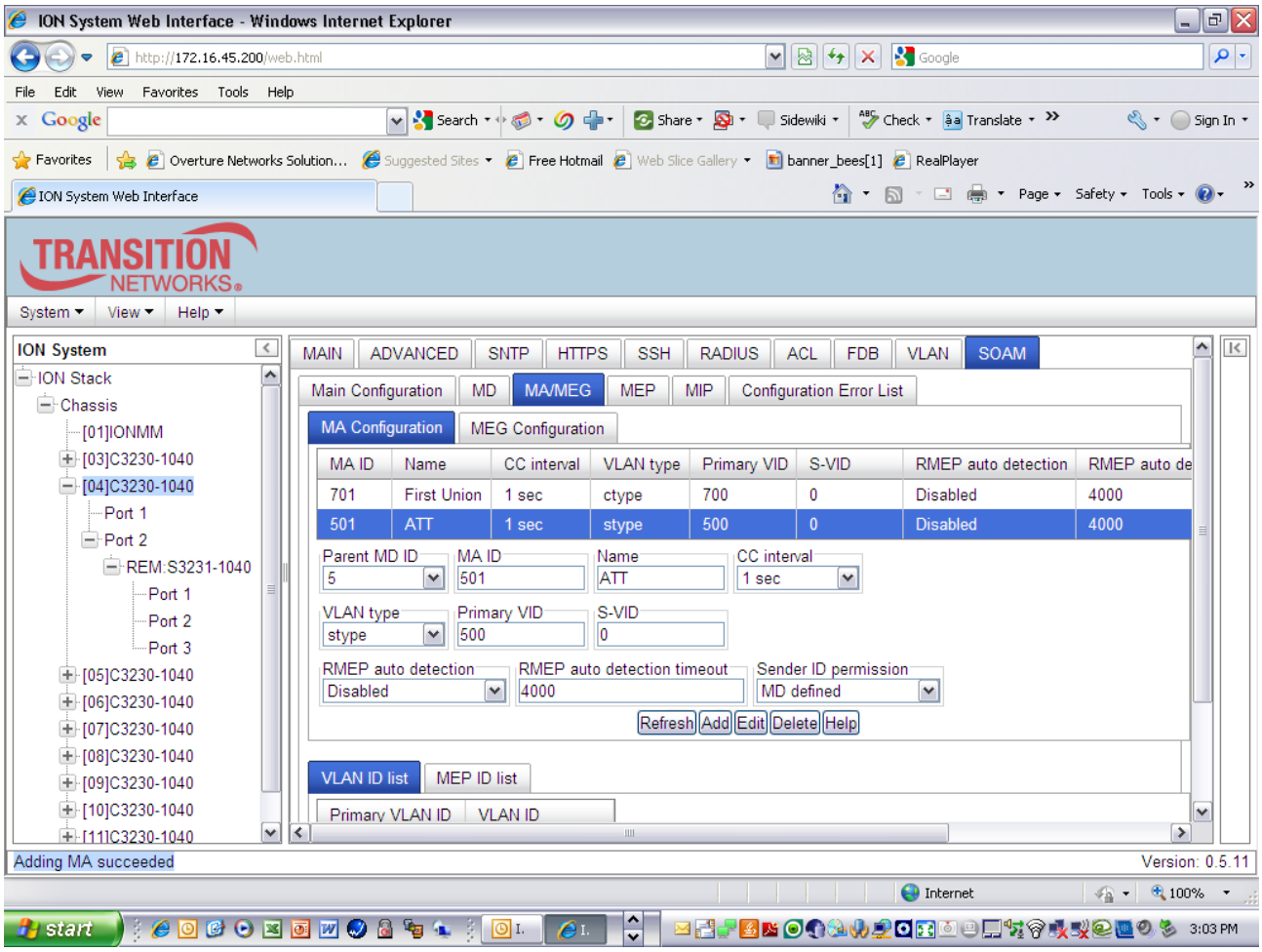
802.1ag Provider Network Set-up:

Step 14: Configure/Add in the **VLAN system directory, a new VLAN (i.e 500)**



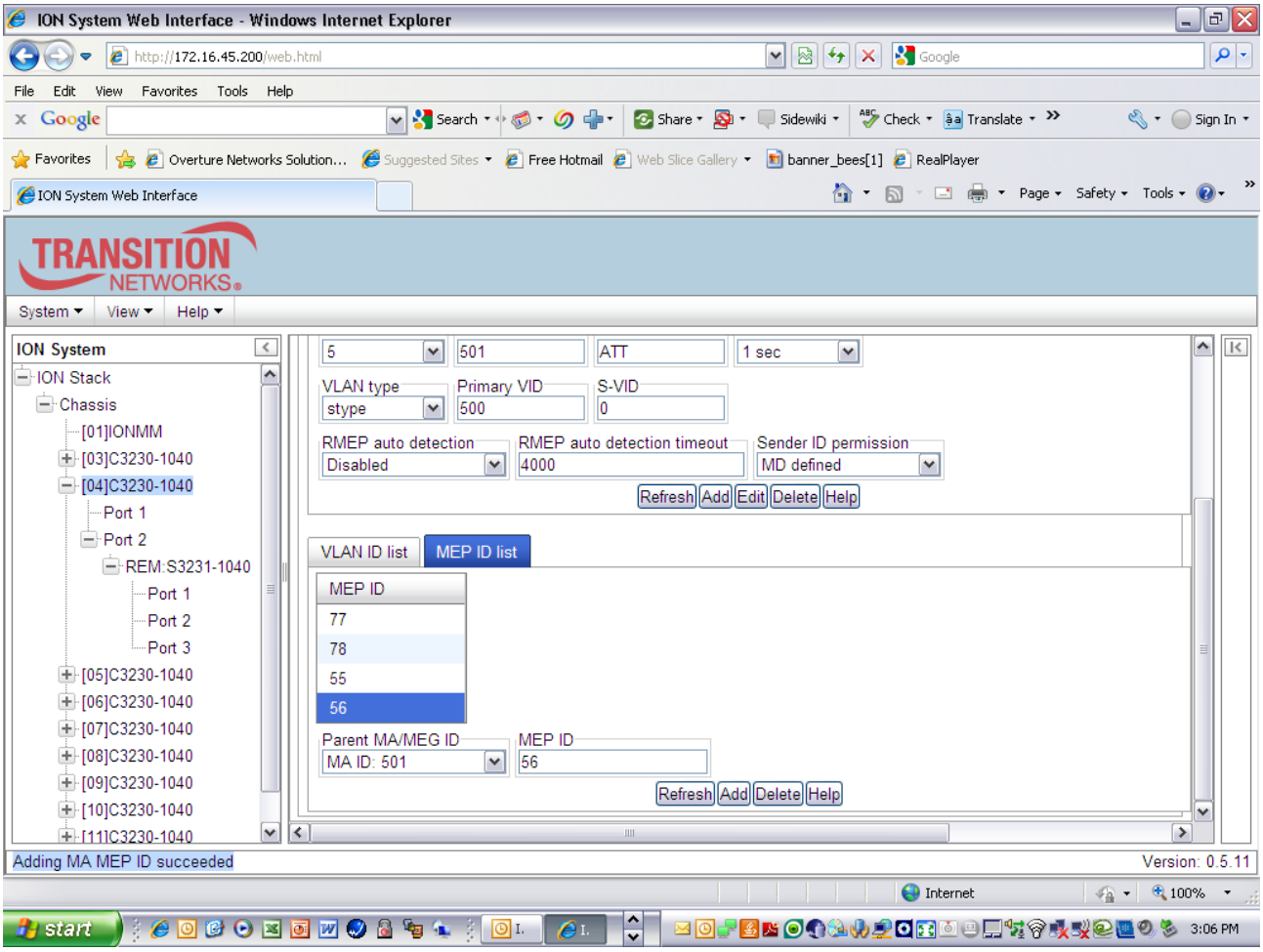
Step 15: Configure/Add the **Maintenance Association ID** for the **provider** network. **Select SOAM**, **MA/MEG, MA Configuration**. Select **Parent MD ID 5** (corresponds to MD defined in Step 2), Enter **MA ID 501** (can be any ID starting with 5) enter **provider** name (Example ATT), Enable Remote MEP (REM) Auto-Detection, add a **VLAN** type (S-tag) and Primary VID (500) if appropriate. Then **Add**

Provider MA

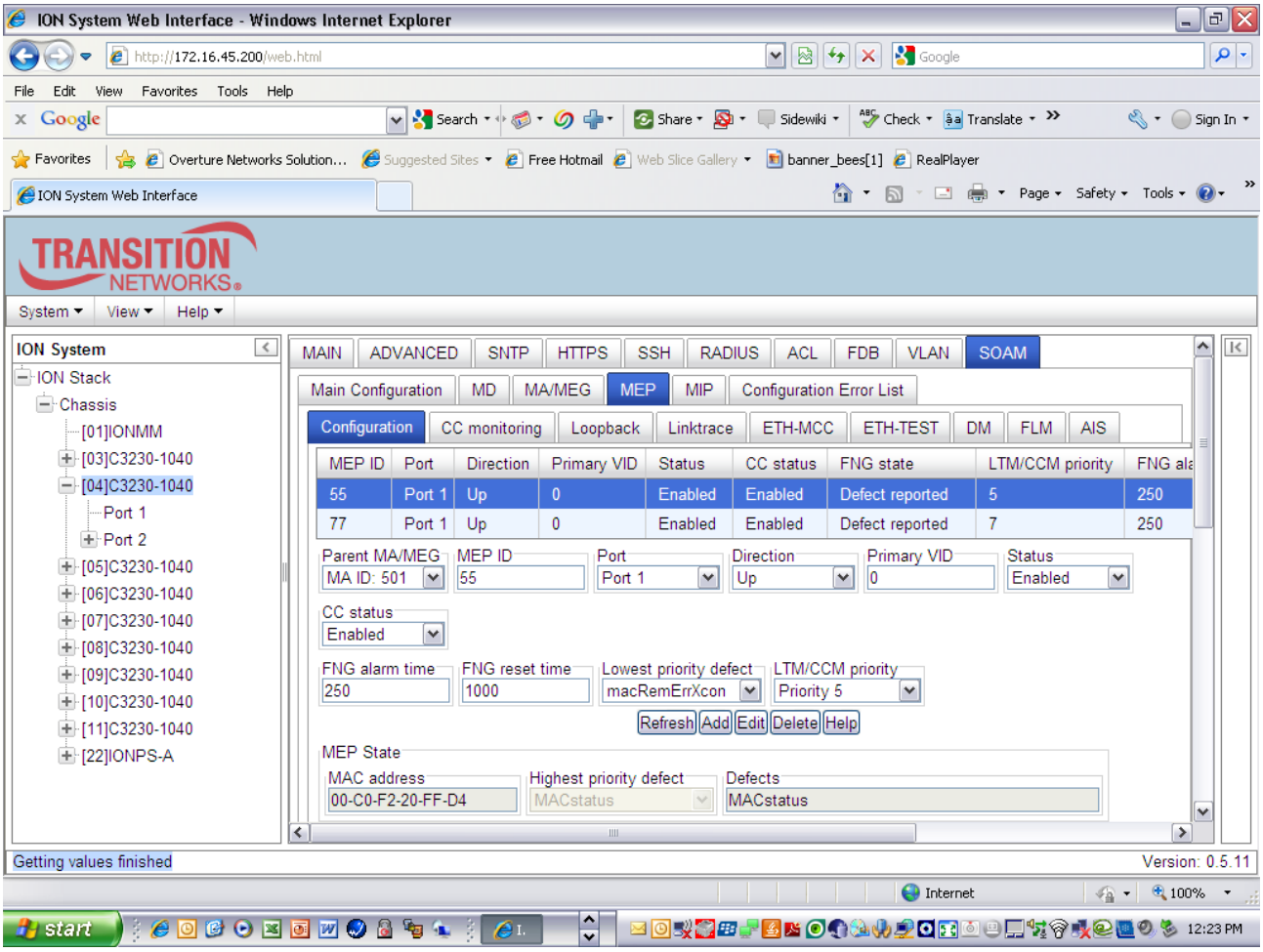


Step 16: After defining the MA's, configure MEPs for each MA by adding them in the "MEP list" tab in the "MA Page.

Add MEP ID 55 (Any ID starting w/5) for the MEP ID assigned to the C3230, Add MEP 56 for the Remote peer MEP ID assigned to REM:S3231 corresponding to Parent MA/MEG ID 501.

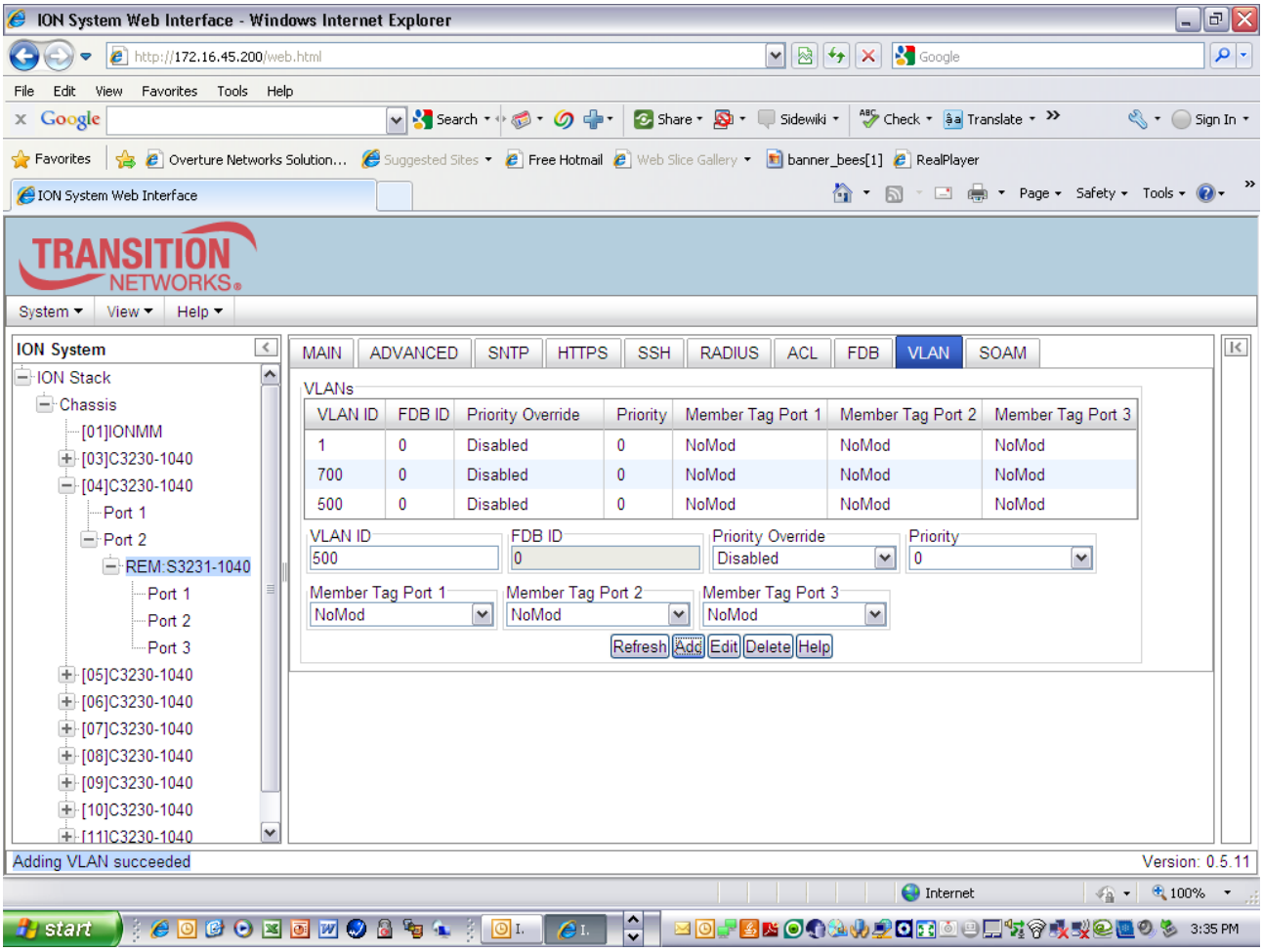


Step 17: After defining the MA's and MEP ID's, configure/add MEP ID 55 in the SOAM MEP Tab. Select port 1, set direction for "UP", status "enable, CC "enable"

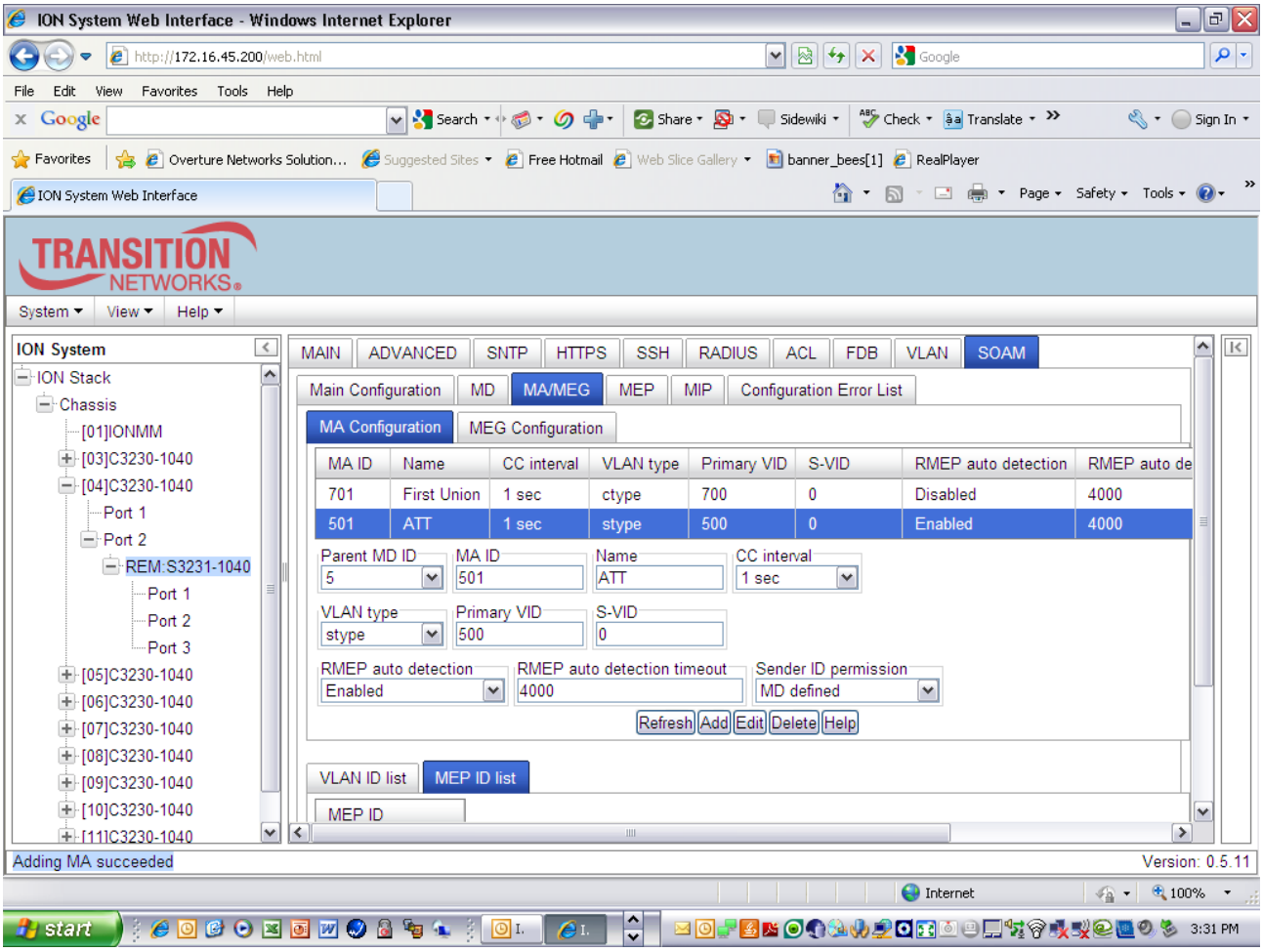


Step 18: Repeat Steps 14 -17 above for the REM:S3240. Assign MEP ID 56 in the final MEP configuration step

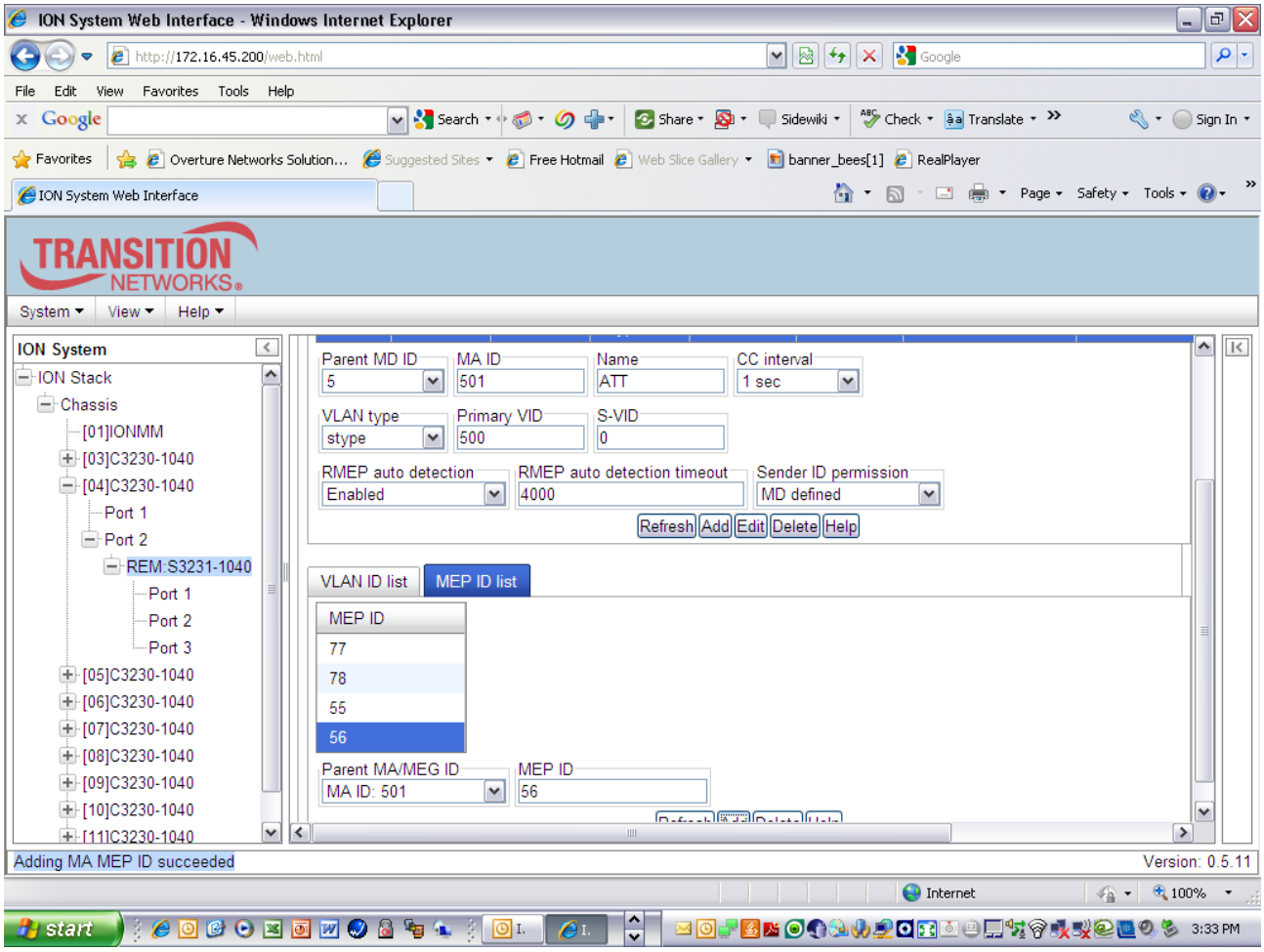
Add VLAN 500 in the VLAN database (Remote S3231)



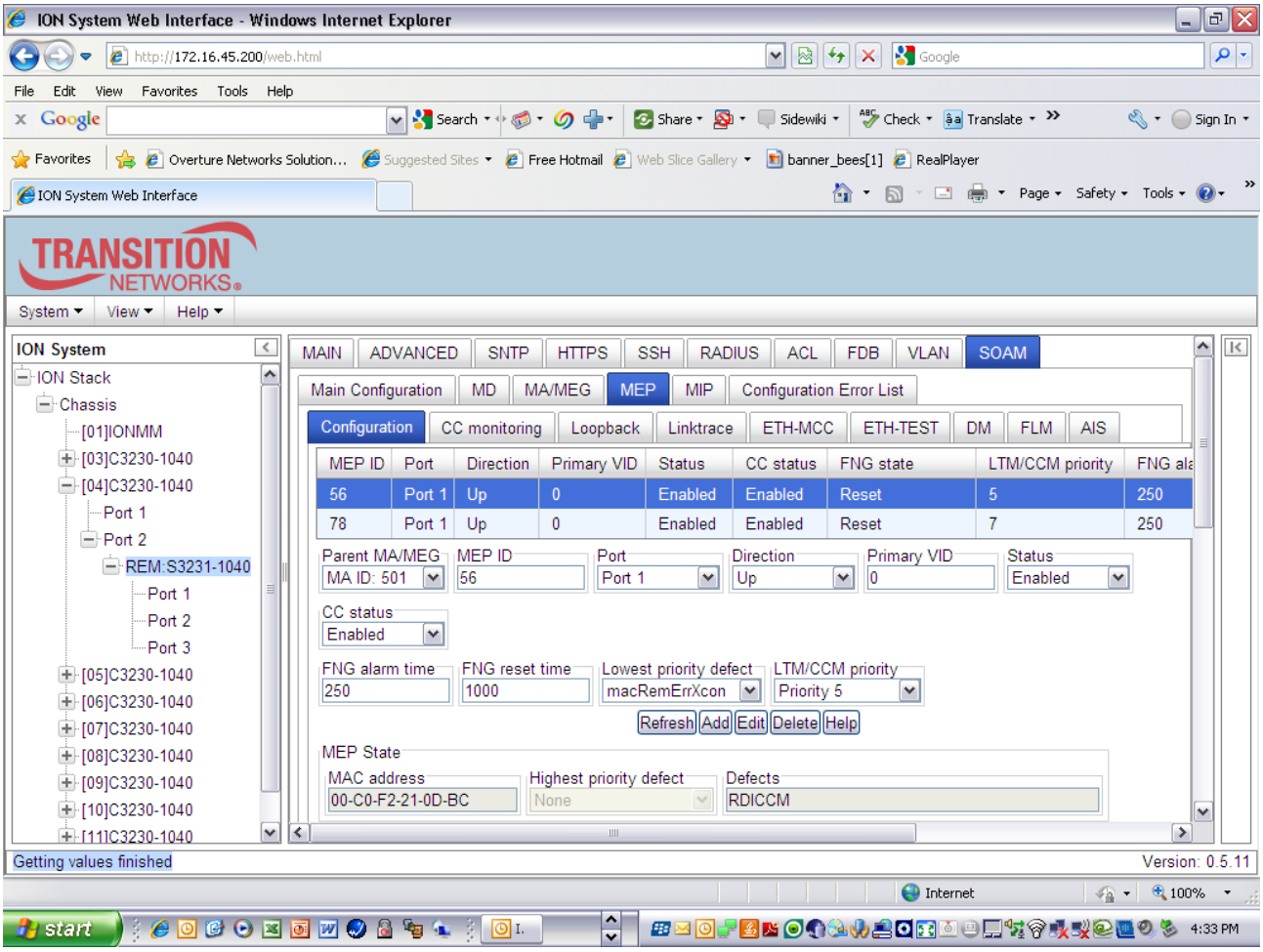
Provisioning the remote for **MA Configuration**. Select **Parent MD ID 5** (corresponds to MD defined in Step 2), Enter **MA ID 501** (can be any ID starting with 5) enter **provider** name (Example ATT), Enable Remote MEP (REM) Auto-Detection, add a **VLAN** type (C-tag) and VID (500) if appropriate. Then **Add**



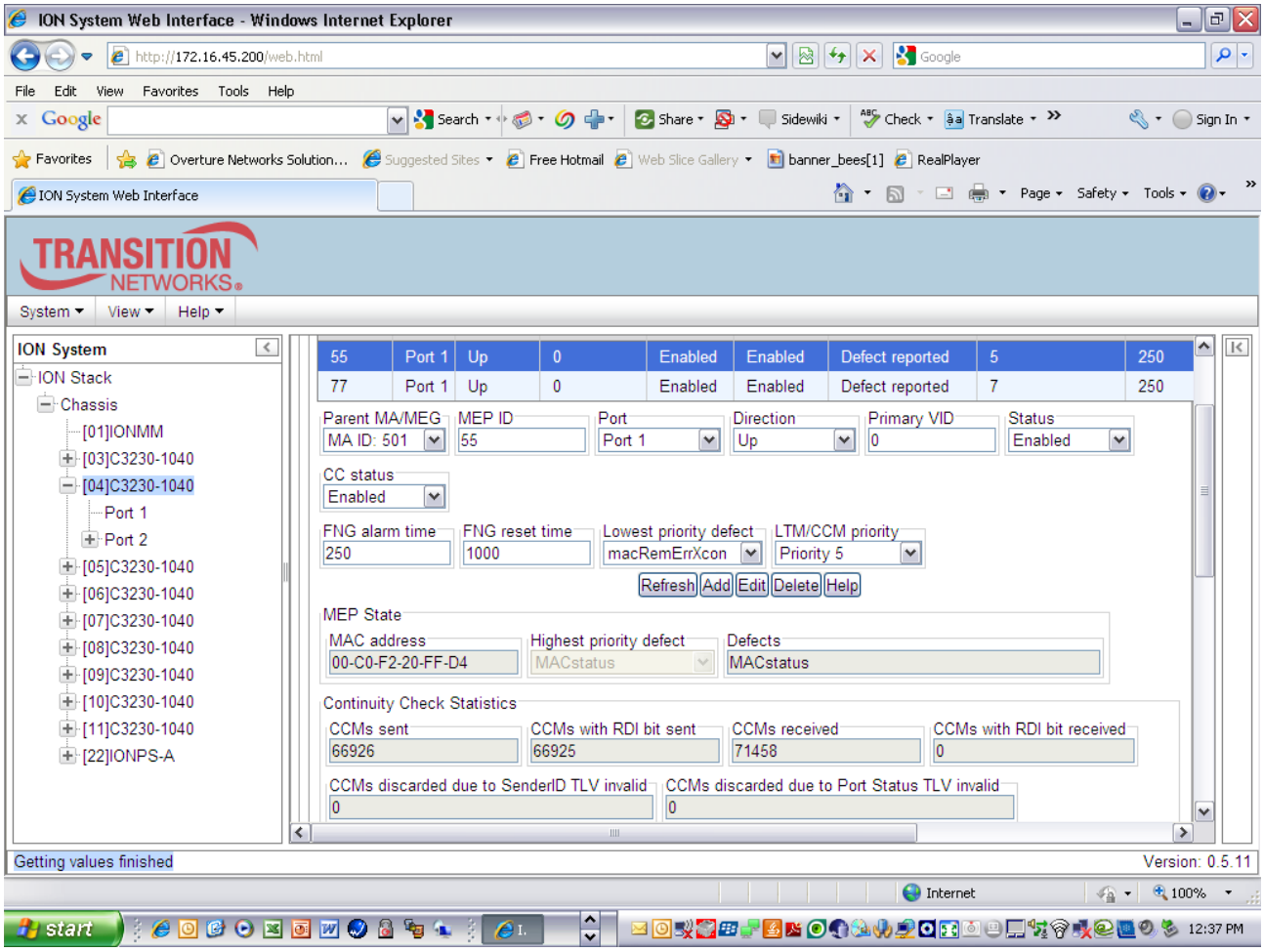
Using the MEP ID List, Add MEP ID 55 (Any ID starting w/5) for the MEP ID assigned to the C3230, Add MEP 56 for the Remote peer MEP ID assigned to REM:S3231 corresponding to Parent MA/MEG ID 501

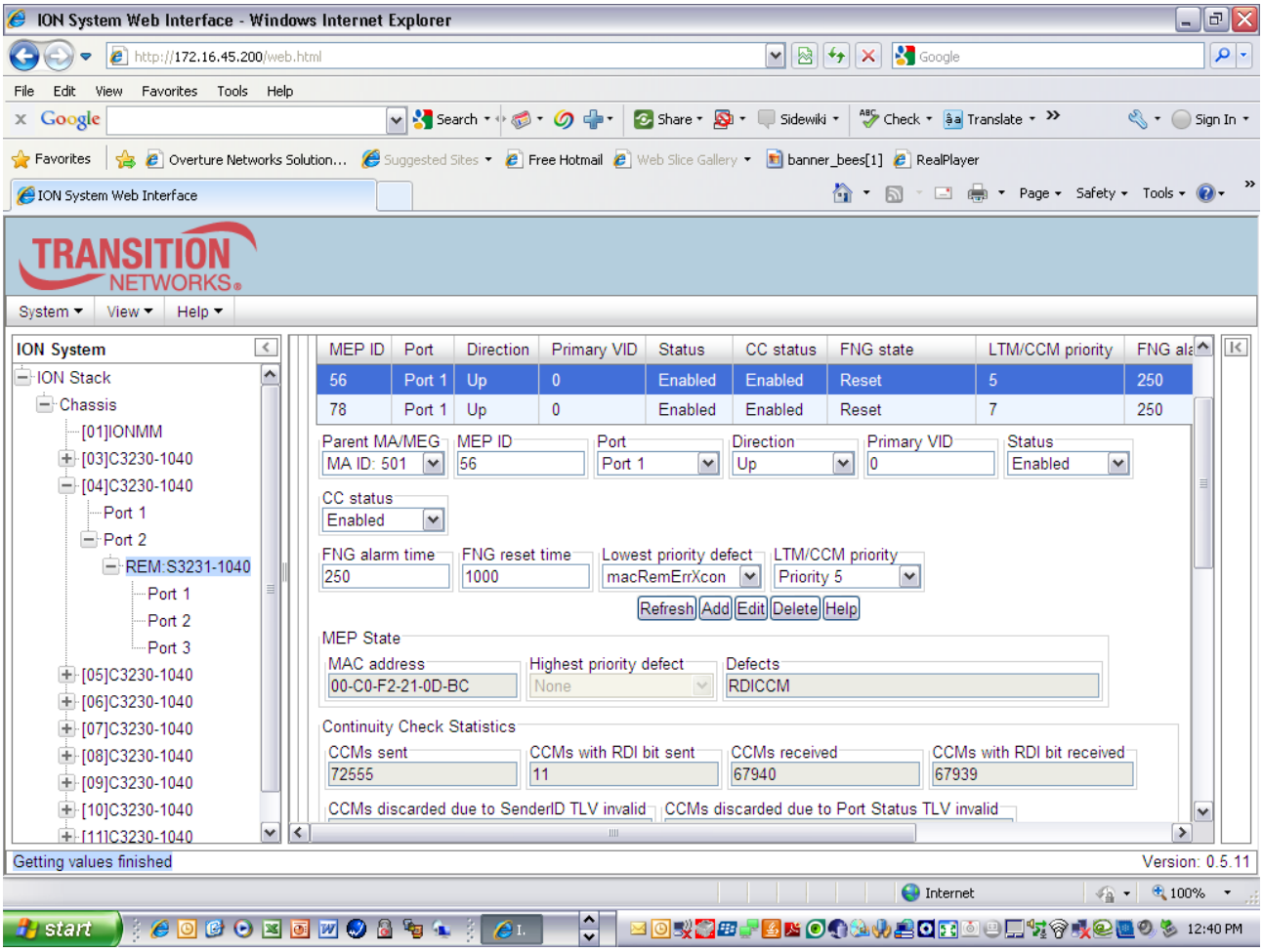


Step 19: After defining the MA's, configure/add MEP *ID 56, select port 1, set direction for "UP", status "enabled," CC "enabled*.



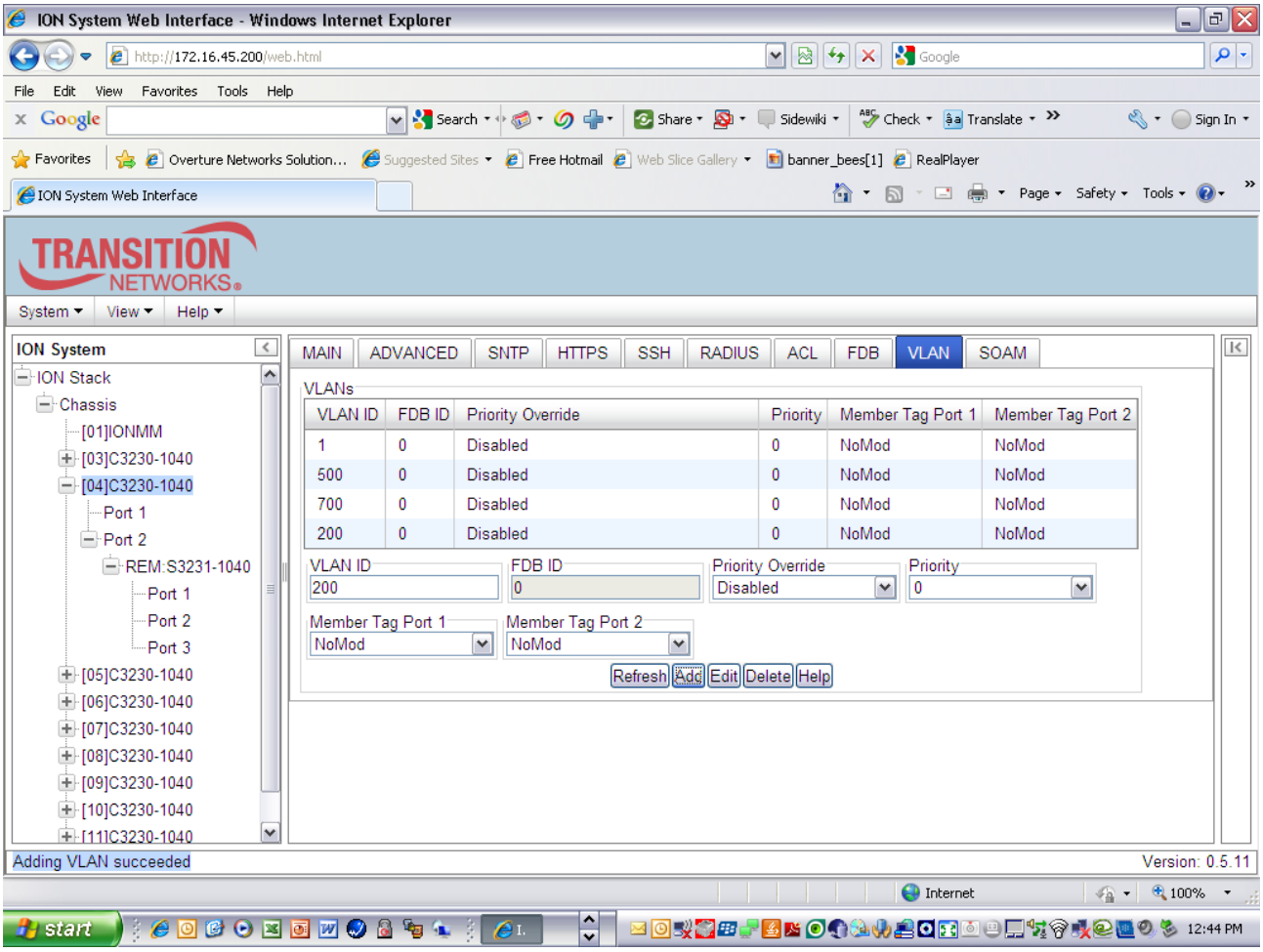
Step 20: Verify CCMs are now being sent/received between MEPs 55 and 56.


ION System Web Interface - Windows Internet Explorer
http://172.16.45.200/web.html
ION System Web Interface
TRANSITION NETWORKS
System
View
Help
ION System
ION Stack
Chassis
[01]IONMM
[03]C3230-1040
[04]C3230-1040
Port 1
Port 2
[05]C3230-1040
[06]C3230-1040
[07]C3230-1040
[08]C3230-1040
[09]C3230-1040
[10]C3230-1040
[11]C3230-1040
[22]IONPS-A
55 Port 1 Up 0 Enabled Enabled Defect reported 5 250
77 Port 1 Up 0 Enabled Enabled Defect reported 7 250
Parent MA/MEG
MA ID: 501
MEP ID
55
Port
Port 1
Direction
Up
Primary VID
0
Status
Enabled
CC status
Enabled
FNG alarm time
250
FNG reset time
1000
Lowest priority defect
macRemErrXcon
LTM/CCM priority
Priority 5
Refresh
Add
Edit
Delete
Help
MEP State
MAC address
00-C0-F2-20-FF-D4
Highest priority defect
MACstatus
Defects
MACstatus
Continuity Check Statistics
CCMs sent
66926
CCMs with RDI bit sent
66925
CCMs received
71458
CCMs with RDI bit received
0
CCMs discarded due to SenderID TLV invalid
0
CCMs discarded due to Port Status TLV invalid
0
Getting values finished
Version: 0.5.11
Internet
100%
start
12:37 PM



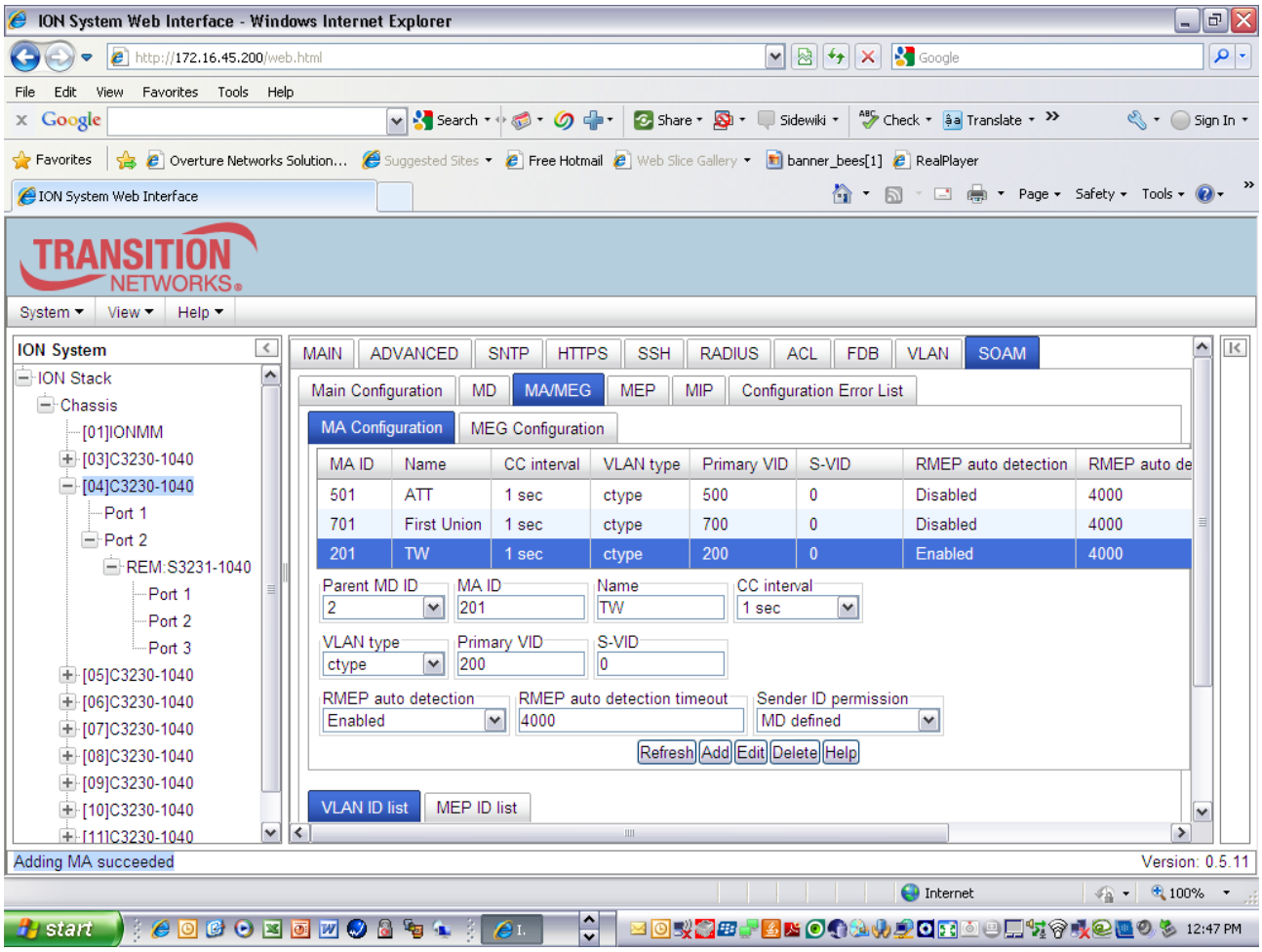
802.1ag Operator Network Set-up Procedure

Step 21: Add in the **VLAN system directory, a new VLAN (i.e 200)**

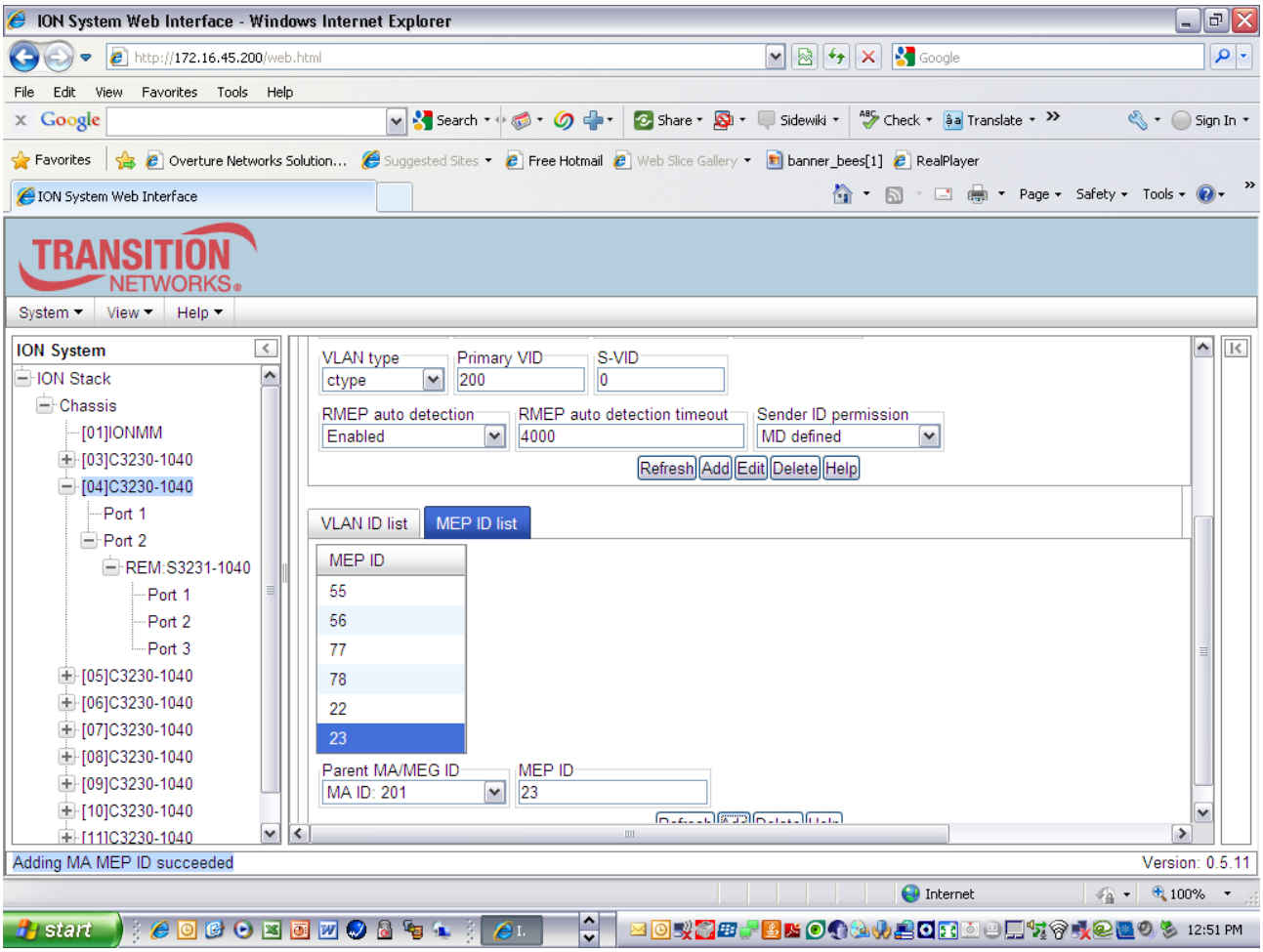


Step 22: Configure/Add the **Maintenance Association ID** for the **operator** network. Select **SOAM, MA/MEG, MA Configuration.** Select **Parent MD ID 2** (corresponds to MD defined in Step 3), Enter **MA ID 201** (can be any ID starting with 2) enter **operator name** (Example Time Warner), Enable Remote MEP (REM) Auto-Detection, add a **VLAN** type (C-tag,S-Tag) and Primary VID (200) if appropriate, then **Add**

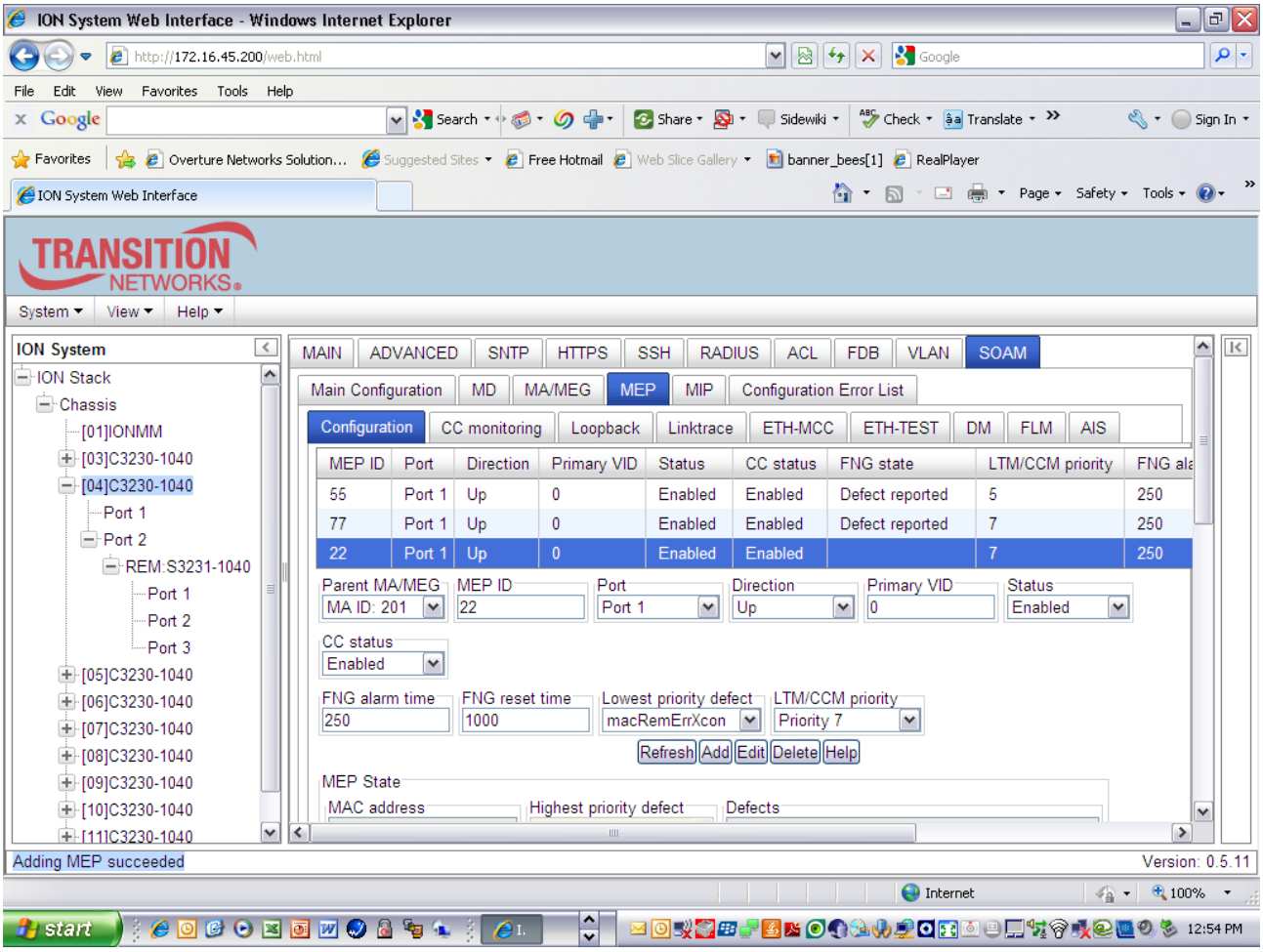
Operator MA


ION System Web Interface - Windows Internet Explorer
http://172.16.45.200/web.html
TRANSITION NETWORKS
System
View
Help
ION System
ION Stack
Chassis
[01]IONMM
[03]C3230-1040
[04]C3230-1040
Port 1
Port 2
REM:S3231-1040
Port 1
Port 2
Port 3
[05]C3230-1040
[06]C3230-1040
[07]C3230-1040
[08]C3230-1040
[09]C3230-1040
[10]C3230-1040
[11]C3230-1040
MAIN
ADVANCED
SNTP
HTTPS
SSH
RADIUS
ACL
FDB
VLAN
SOAM
Main Configuration
MD
MA/MEG
MEP
MIP
Configuration Error List
MA Configuration
MEG Configuration
MA ID
Name
CC interval
VLAN type
Primary VID
S-VID
RMEP auto detection
RMEP auto de
501
ATT
1 sec
ctype
500
0
Disabled
4000
701
First Union
1 sec
ctype
700
0
Disabled
4000
201
TW
1 sec
ctype
200
0
Enabled
4000
Parent MD ID
2
MA ID
201
Name
TW
CC interval
1 sec
VLAN type
ctype
Primary VID
200
S-VID
0
RMEP auto detection
Enabled
RMEP auto detection timeout
4000
Sender ID permission
MD defined
Refresh
Add
Edit
Delete
Help
VLAN ID list
MEP ID list
Adding MA succeeded
Version: 0.5.11
Internet
100%
start
12:47 PM

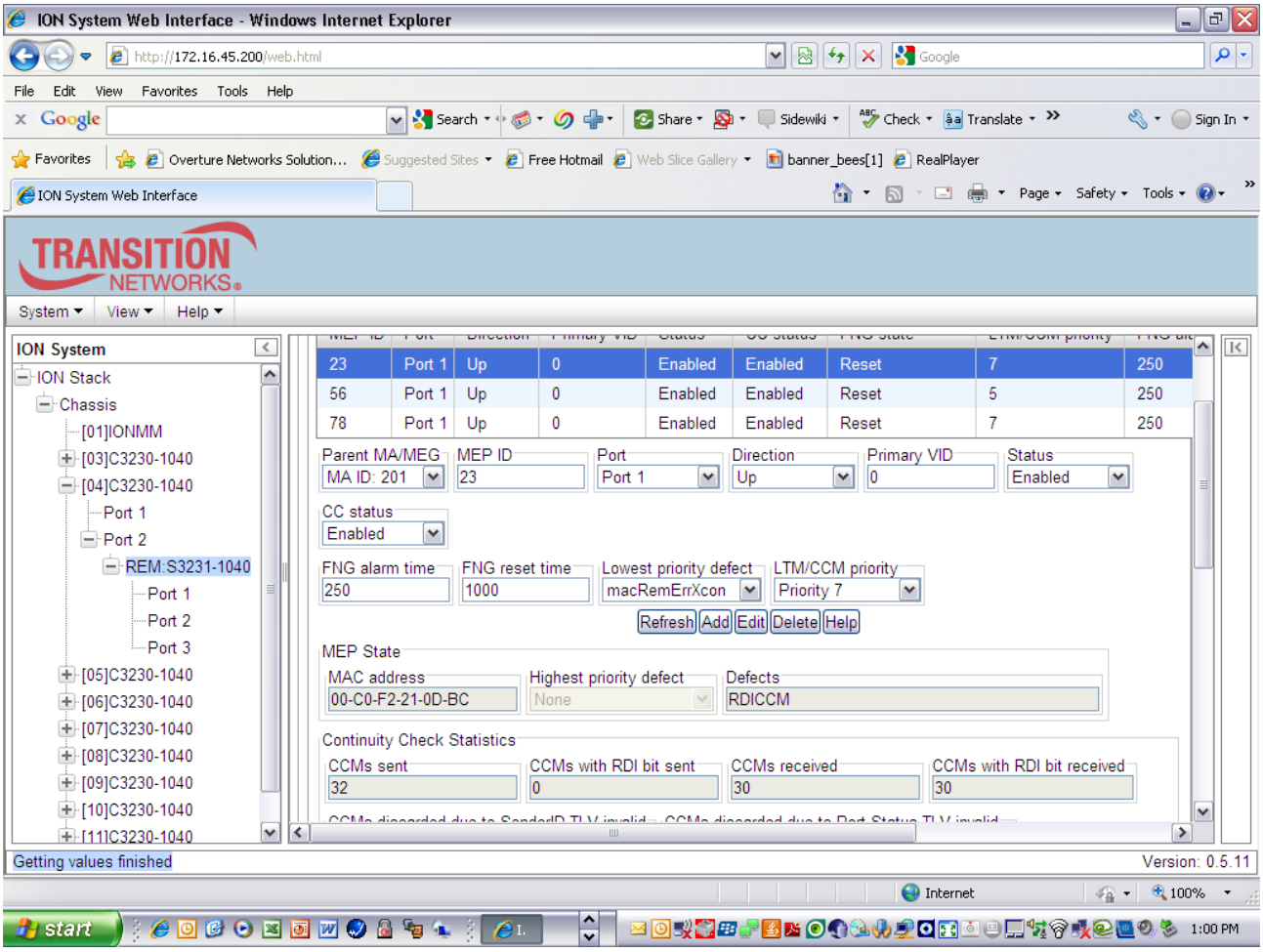
Step 23: Using the MEP ID List, Add MEP ID 22 (Any ID starting w/2) for the MEP ID assigned to the C3230, Add MEP 23 for the Remote peer MEP ID assigned to REM:S3230 corresponding to Parent MA/MEG ID 201



Step 24: After defining the MA's, configure/add MEP ID 22, select port 1, set direction for "UP", status enabled, CC enabled



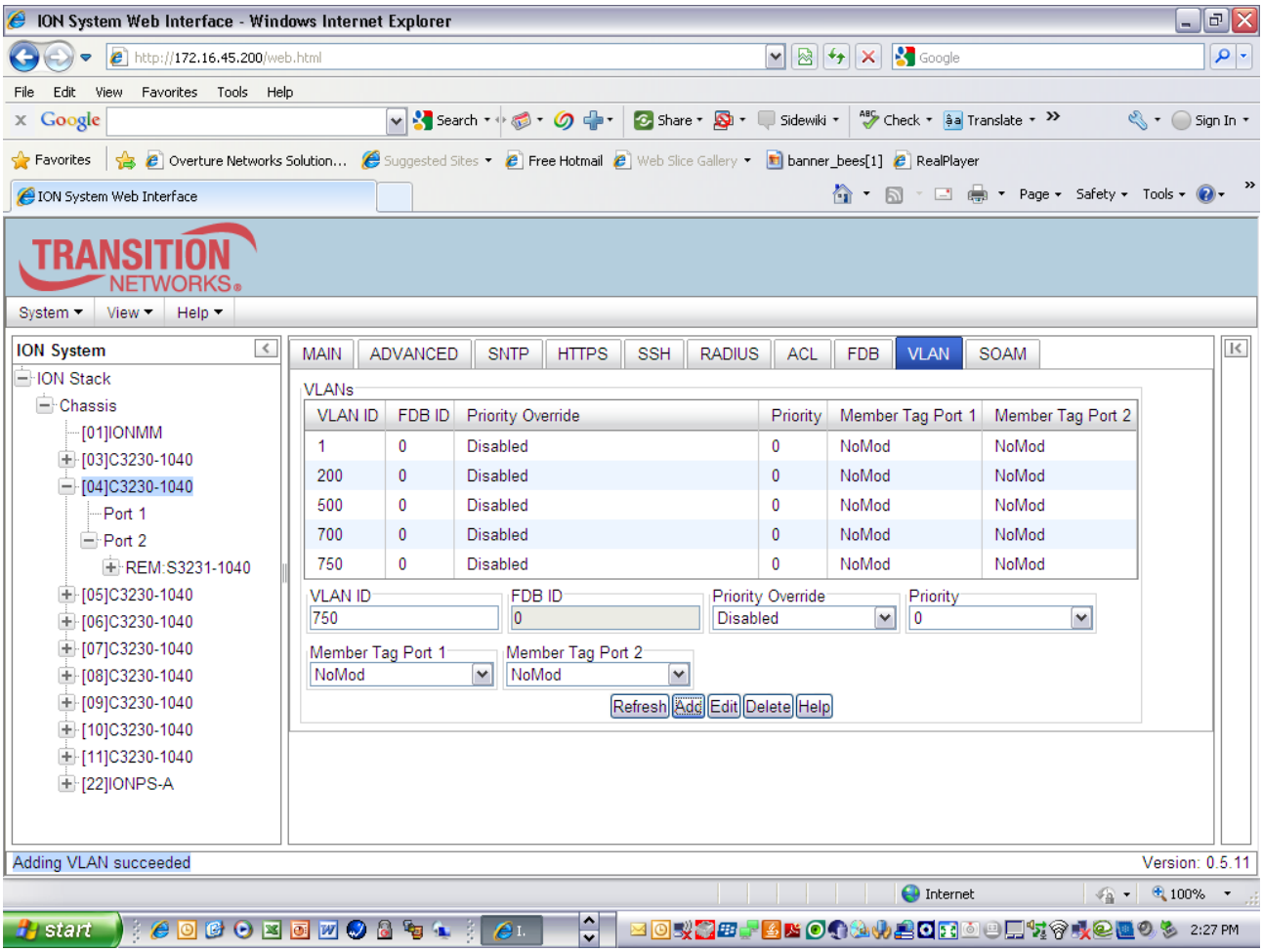
Step 25: Repeat Steps 21 -24 above for the REM:S3240. Assign MEP ID 23 to the remote S3230 in the final MEP configuration step



Verify CCMs are being sent/received from MEP 22 and 23

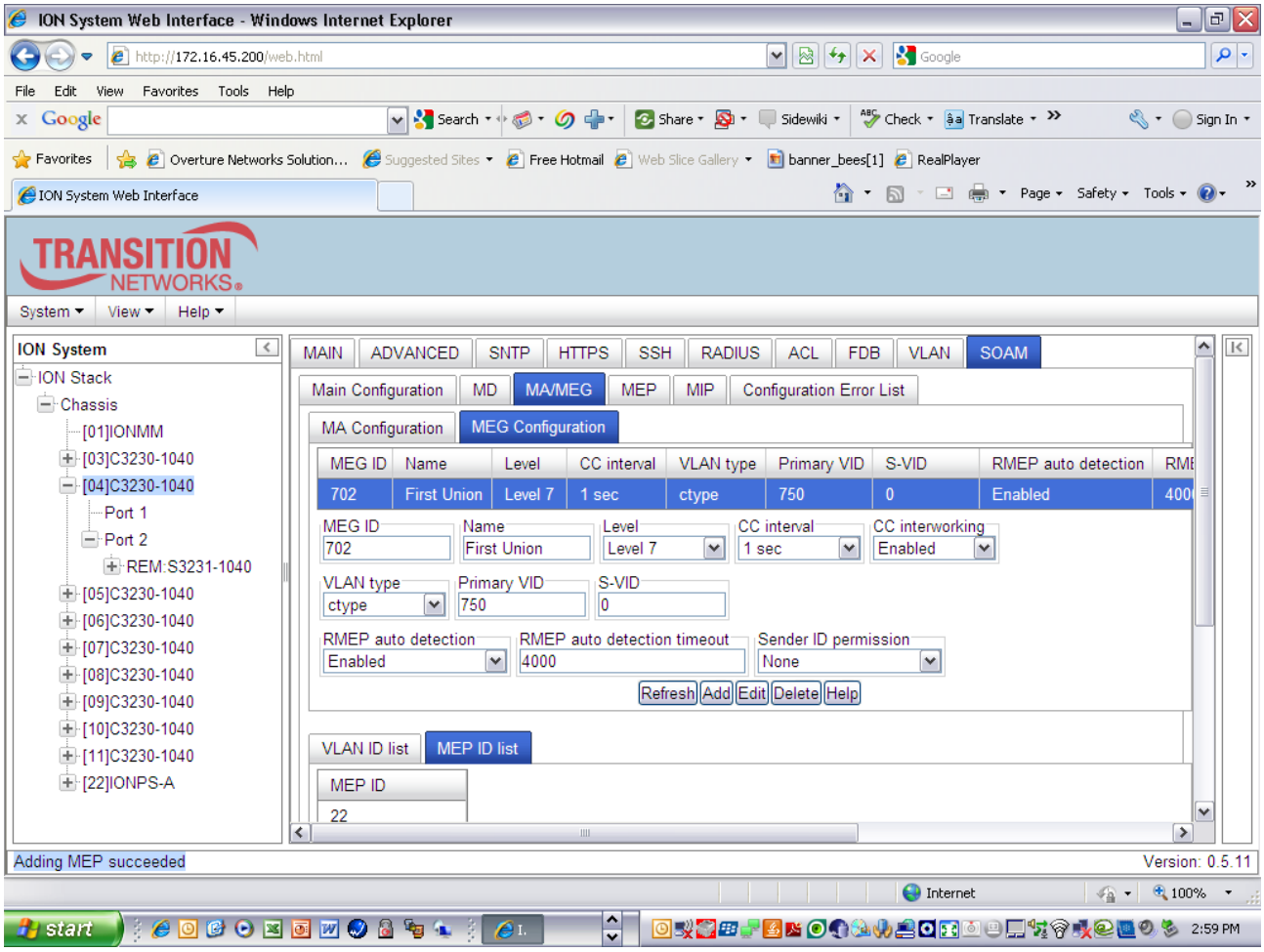
Y.1731 Set-up Procedure - Customer Network

Step 26: Add VLAN ID (i.e 750) in the VLAN directory of C3230 for associating Y.1731 with customer network

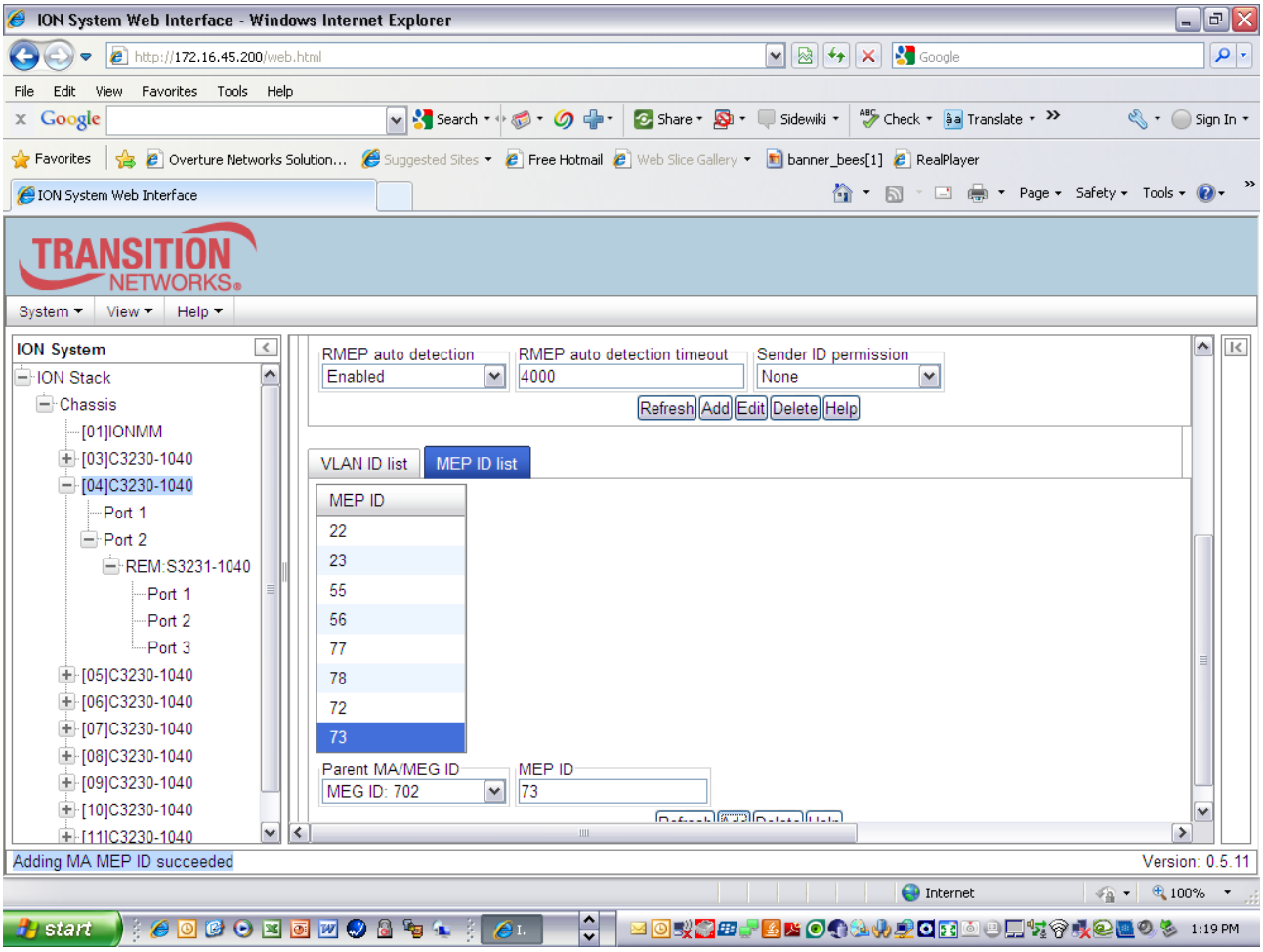


Step 27: Configure **Y.1731 MEG** for the Customer, Provider, and Operator Network. First configure Y.1731 MEG for the **customer** network. Select **SOAM, MA/MEG, MEG Configuration, enter MEG ID 702, customer** name (Example First Union) **select Level 7** from pull-down**, Enable CC Interworking, Enable REM Auto-Detect, Enter VLAN type (C/S Tag), enter PVID (i.e. 750)** then **Add.**

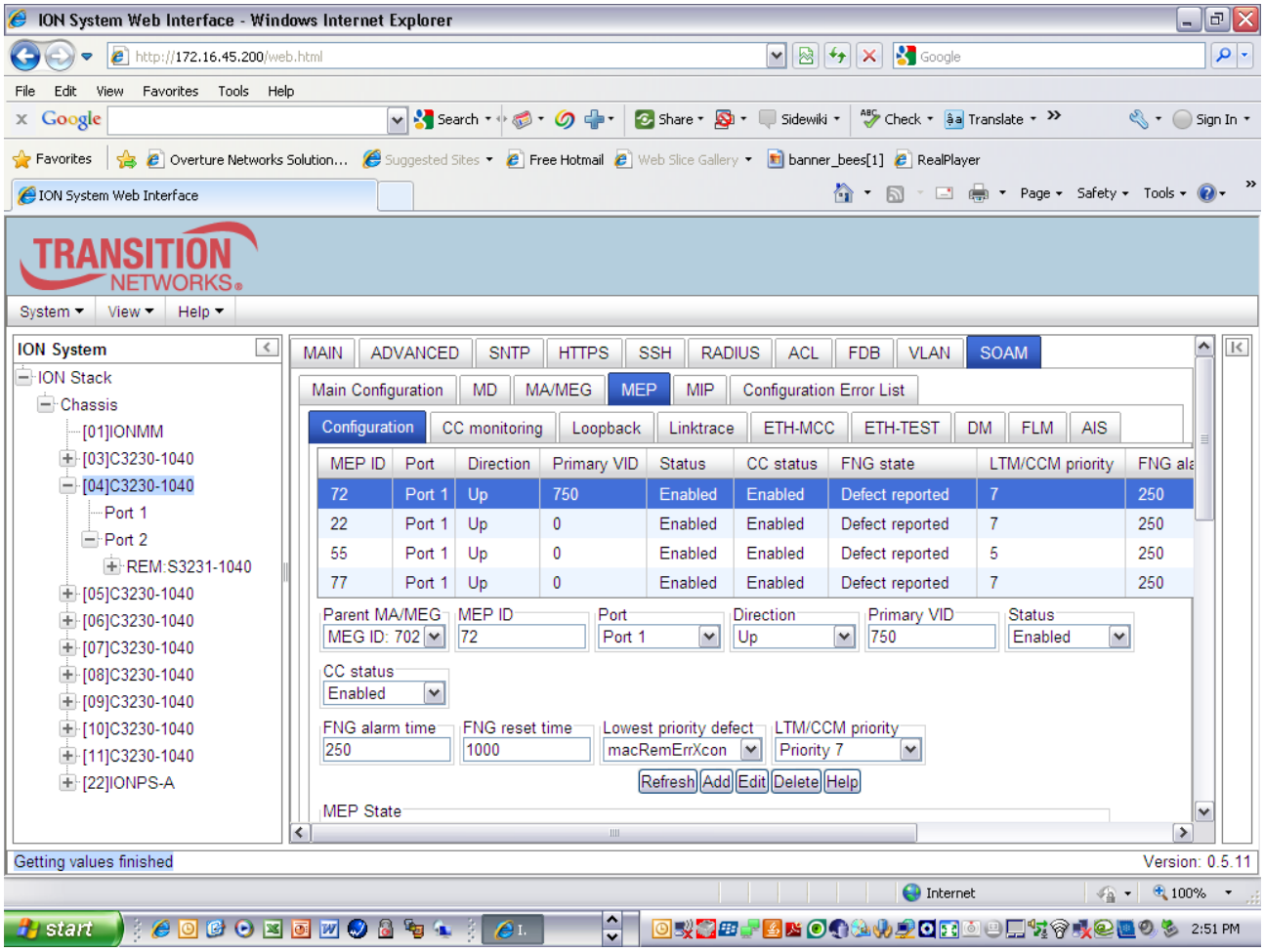
Customer MEG Y1731



Step 28: Configure/Add MEP ID's 72 (C3230) and 73 (REM) for MEG ID 702

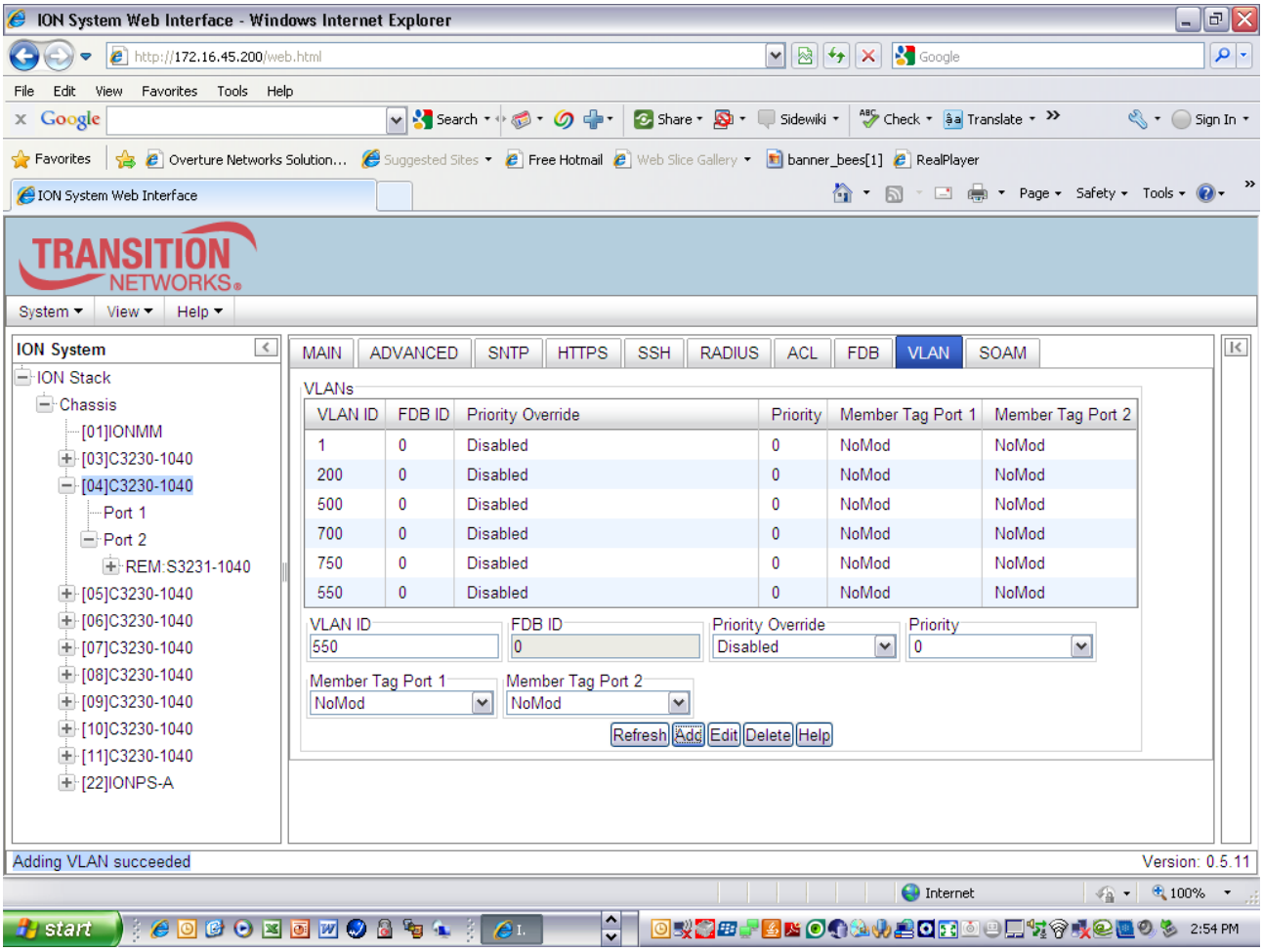


Step 28: Add MEP ID 72 (C3230) to MG ID 702 in the MEP Configuration, set Port 1 “UP”, and enable status and CC



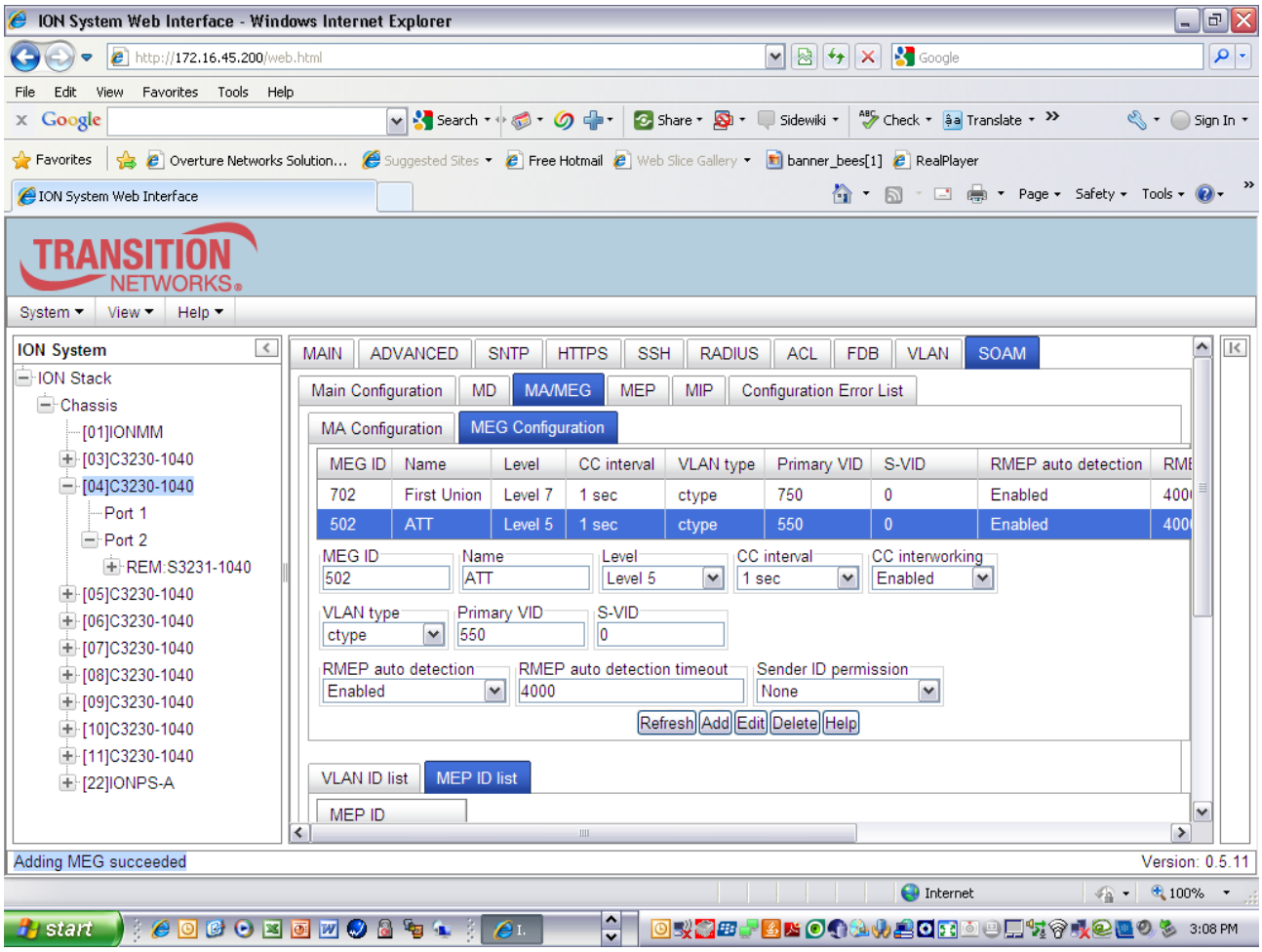
Y.1731 Set-up Procedure - Provider Network

Add VLAN ID (i.e 550) in the VLAN directory of C3230 for associating Y.1731 with provider network

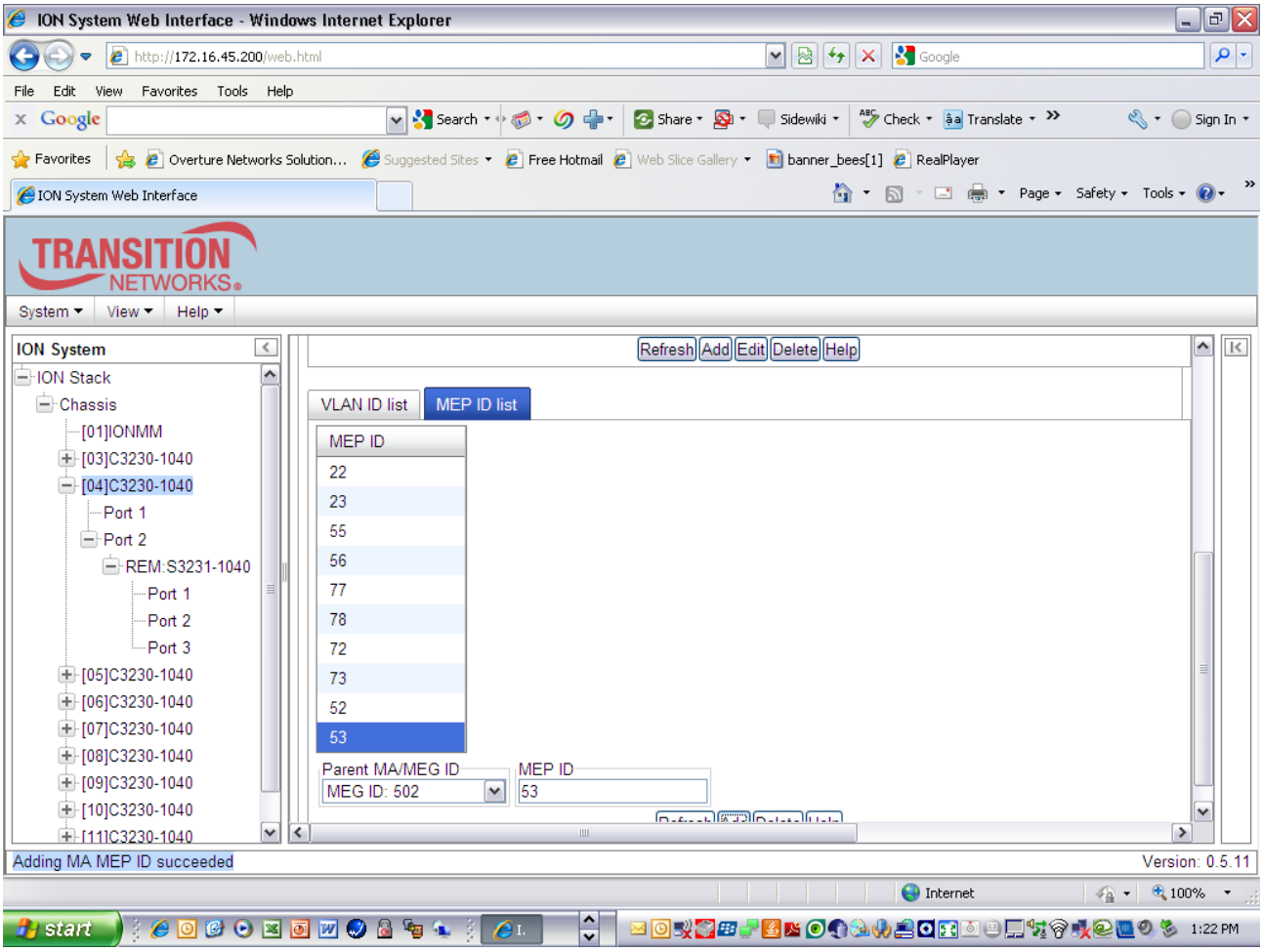


Step 29: Configure **Y.1731 MEG** for **provider** network. Select **SOAM, MA/MEG, MEG Configuration, enter MEG ID 502, customer** name (Example AT&T) **select Level 5** from pull-down**, Enable CC Interworking, Enable REM Auto-Detect, Enter VLAN type (C/S Tag), PVID (e.g 550)** then **Add.**

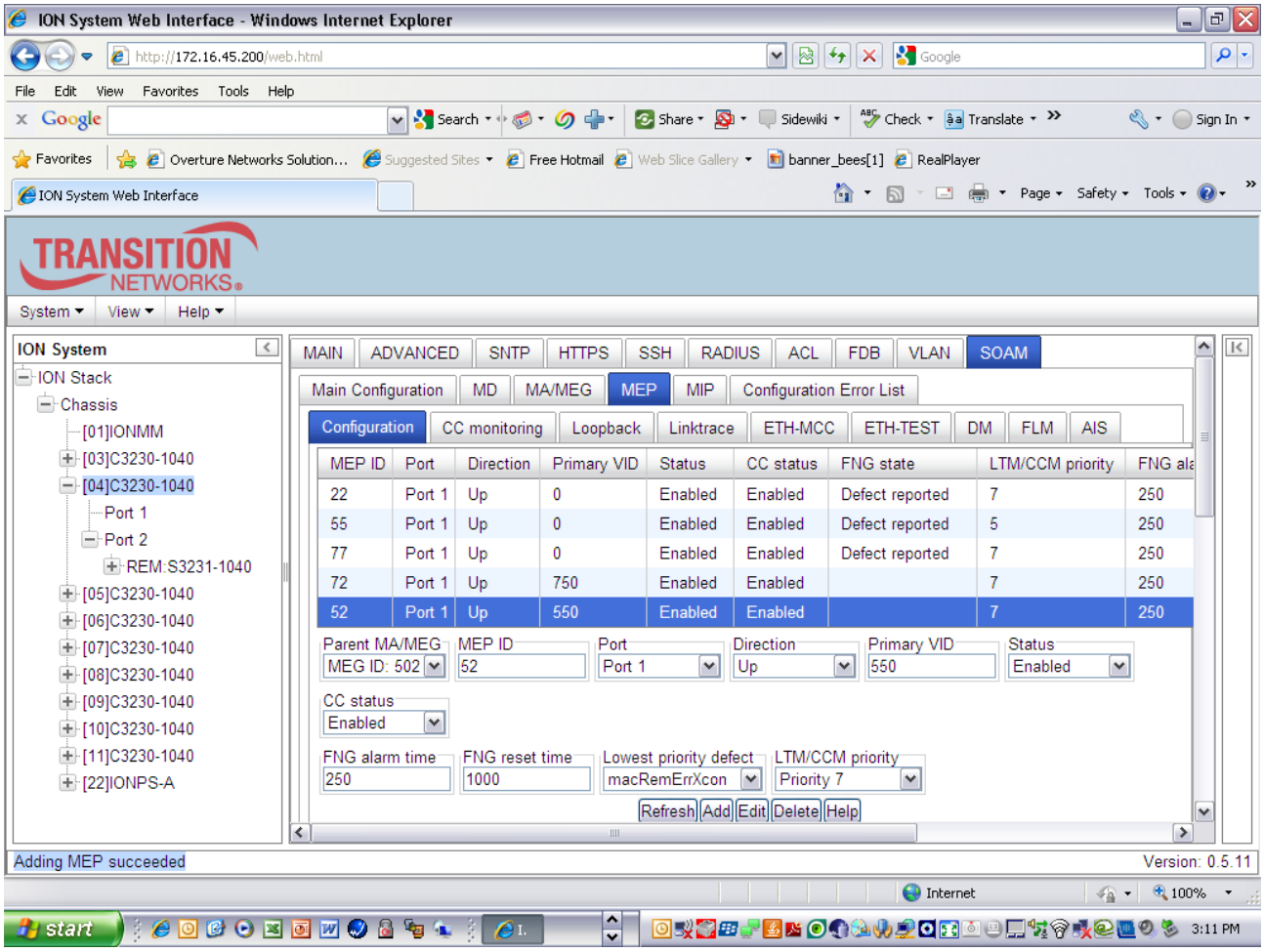
Provider MEG Y1731



Step 30: Configure/Add MEP ID's 52 (C3230) and 53 (REM) for MEG ID 502

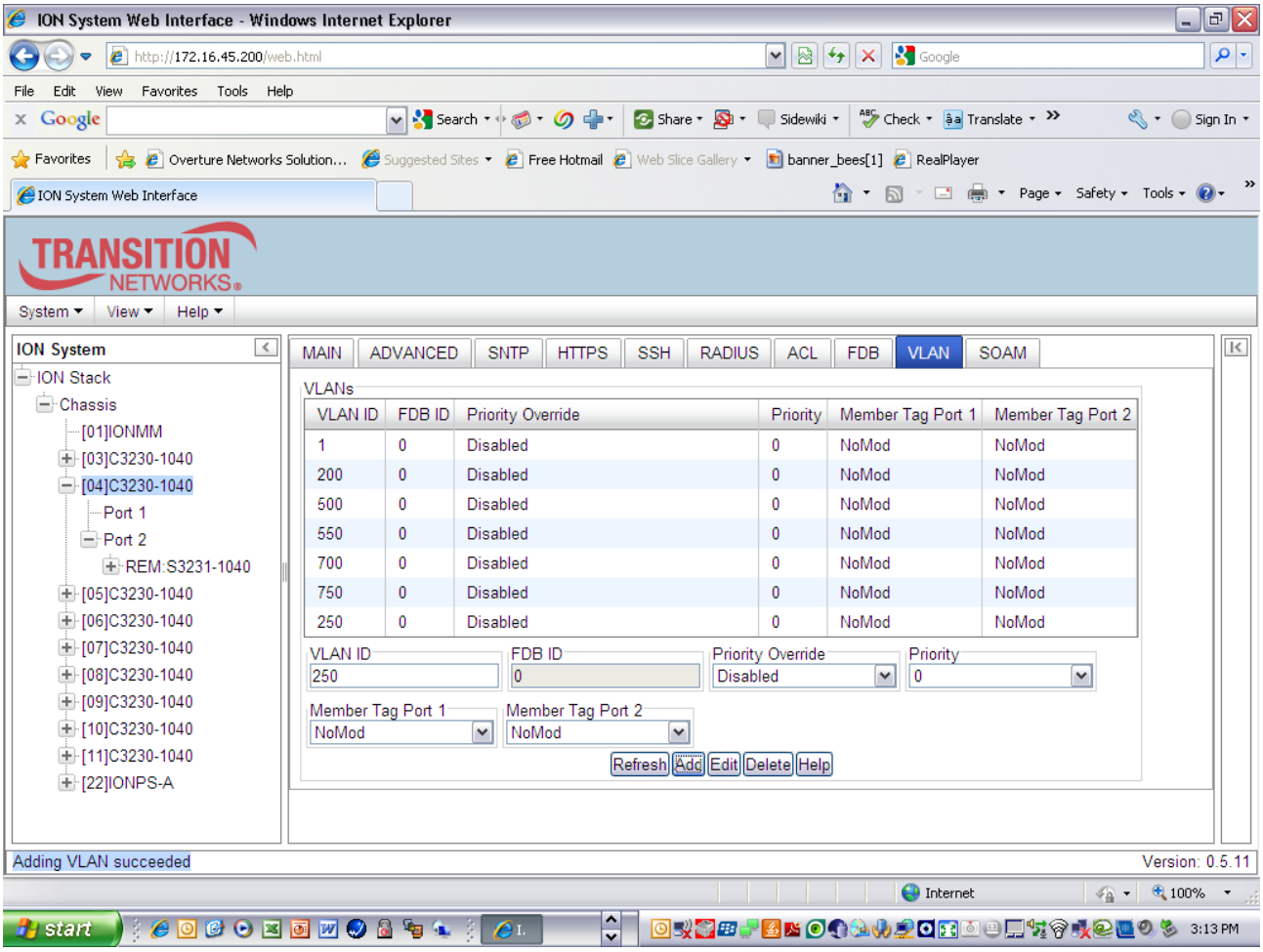


Step 31: Add MEP ID 52 (C3230) to MG ID 502 in the MEP Configuration, enter PVID (e.g. 550) set port 1 “UP” and enable status and CC

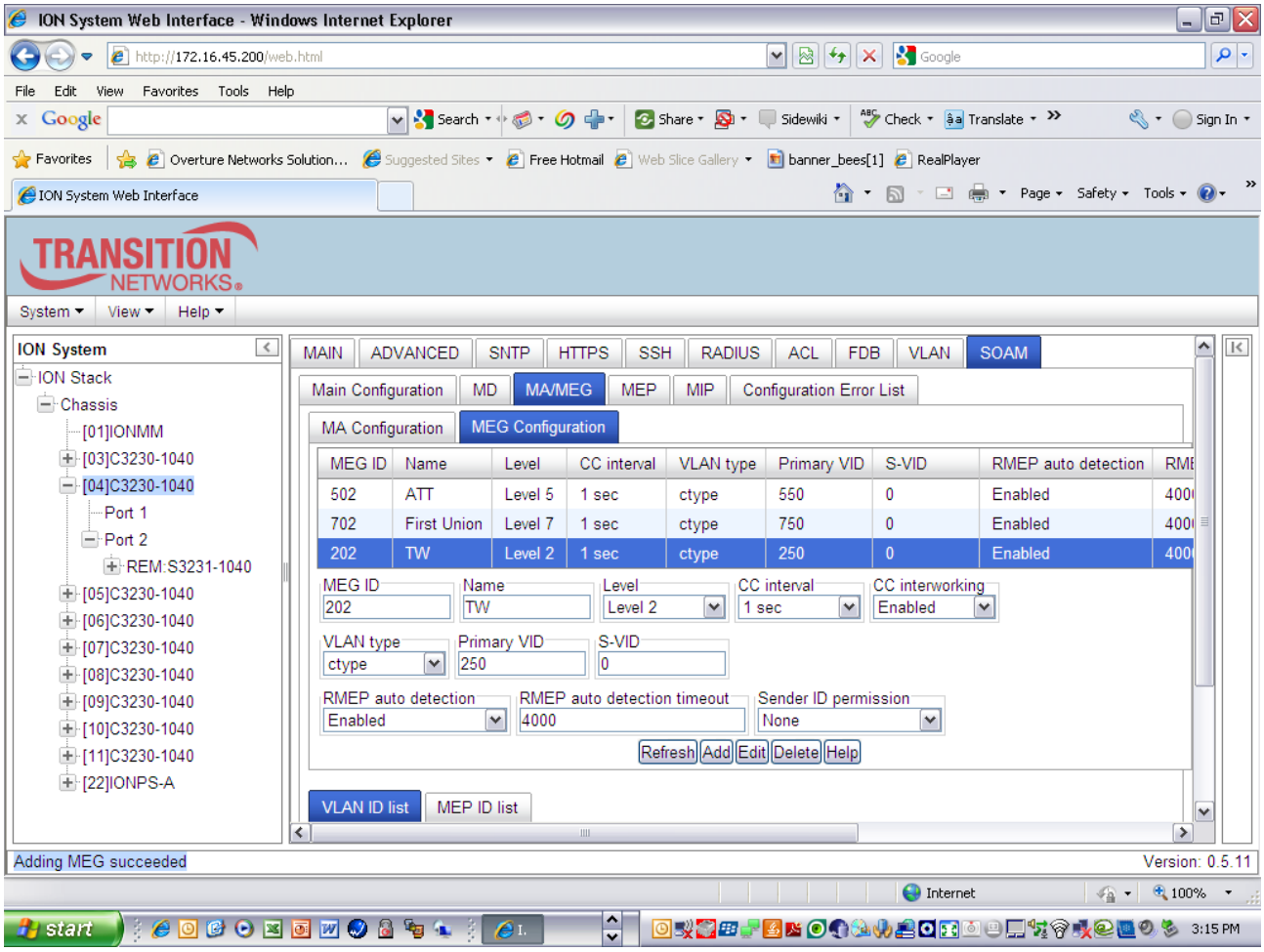


Y.1731 Set-up Procedure - Operator Network

Step 32: Add VLAN ID (i.e 250) in the VLAN directory of C3230 for associating Y.1731 with operator network

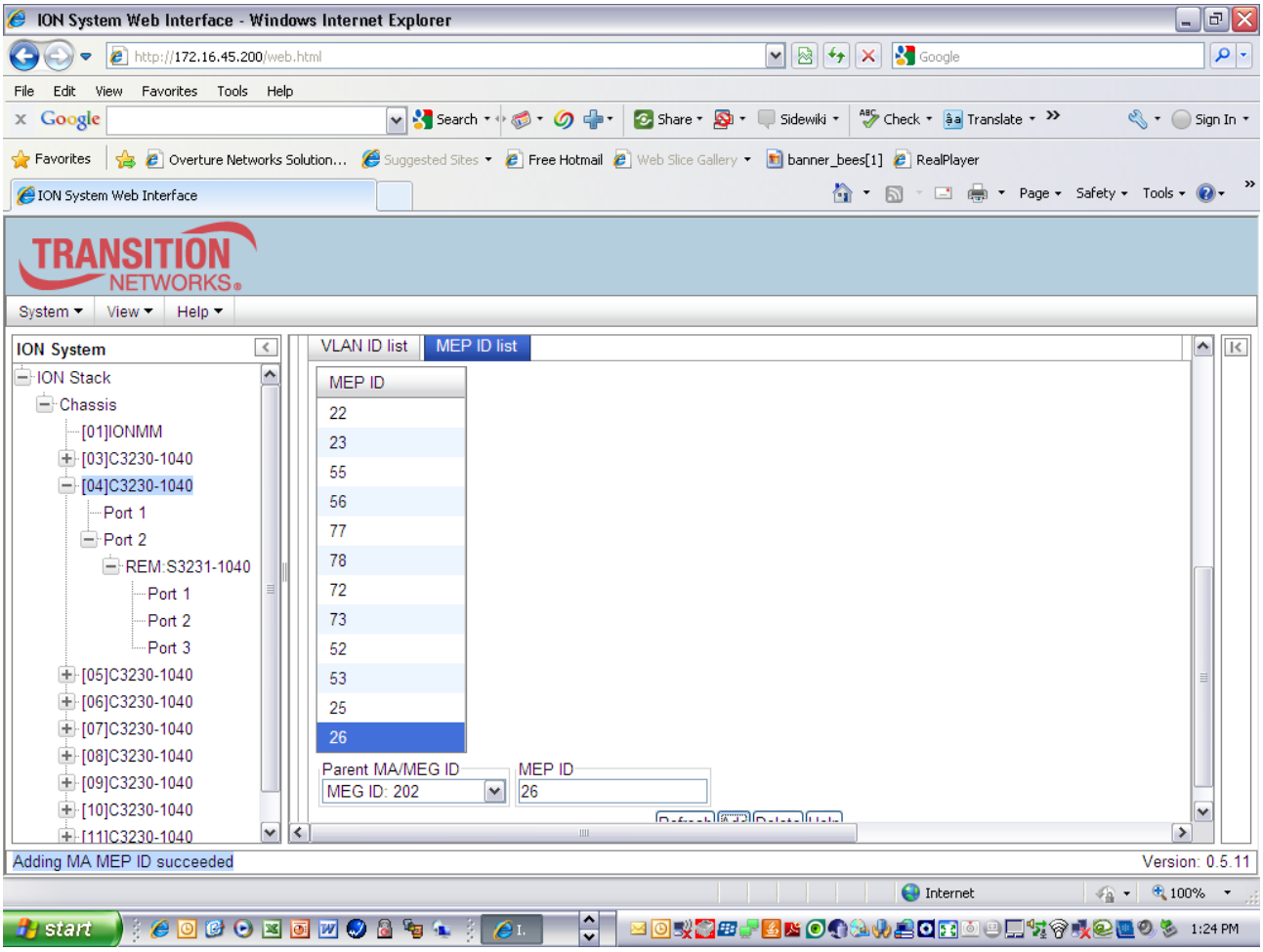


Step 33: Configure **Y.1731 MEG** for **operator** network. Select **SOAM, MA/MEG, MEG Configuration, enter MEG ID 202, customer** name (Example TW) **select Level 2** from pull-down**, Enable CC Interworking, Enable REM Auto-Detect, Enter VLAN type (C/S Tag), PVID (e.g 250)** then **Add.**

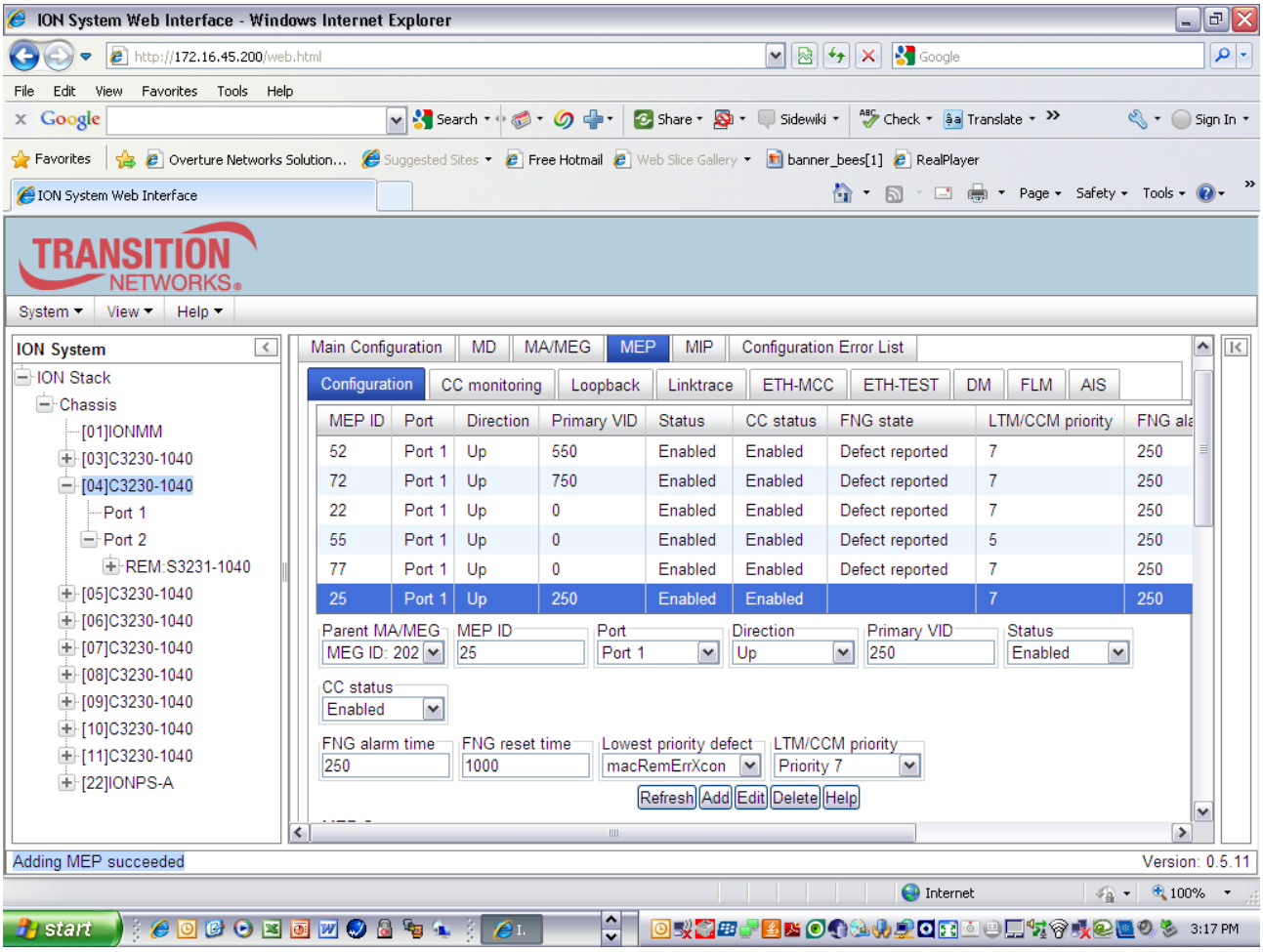


Operator MEG Y1731

Step 34: Configure/Add MEP ID's 25 (C3230) and 26 (REM) for MEG ID 202



Step 35: Add MEP ID 25 (C3230) to MG ID 202 in the MEP Configuration, set Port 1 “UP”, enter VLAN PVID (e.g. 250), enable status and CC



Y.1731 Set-up Procedure (Customer, Provider, Operator) – Remote Device (S3231)

Step 36: Repeat Steps 26-35 for the Remote (REM:S3230) assigning MEP ID 73 (MEG ID 702) MEP ID 53 (MEG ID 502) MEP ID 26 (MEG 202)

Test

Verify CCM's are being sent/received properly between MEG Y.1731 MEPs (72,73,52,53,25,26)

Run Linktraces and Loopbacks between MEPs to verify complete operation