

NOTICE

Note that when converting this document from its original format to a .pdf file, some minor font and format changes may occur. When viewing and printing this document, we cannot guarantee that your specific PC or printer will support all of the fonts or graphics. Therefore, when you view the document, fonts may be substituted and your individual printer may not have the capability to print the document correctly.

UNIVERGE[®] SV8300

SIP Trunking Service Configuration Guide for Broadvox

NEC Corporation of America reserves the right to change the specifications, functions, or features at any time without notice.

NEC Corporation of America has prepared this document for use by its employees and customers. The information contained herein is the property of NEC Corporation of America and shall not be reproduced without prior written approval of NEC Corporation of America.

UNIVERGE is a registered trademark of NEC Corporation. All other brand names and product names referenced in this document are trademarks or registered trademarks of their respective companies.

Copyright 2010

**NEC Corporation of America
6535 N. State Highway 161
Irving, TX 75039-2402**

Communications Technology Group

TABLE OF CONTENTS

Section 1	NEC SV8300 and Broadvox Setup Guide.....	1-1
1.1	This Guide and Related Documents	1-1
1.2	Broadvox Account	1-2
1.3	SV8300 System Software	1-2
1.4	Requirements	1-2
1.5	Limitations	1-2
Section 2	NEC PBX Configuration.....	1-3
2.1	Prerequisites	1-3
2.1.1	SIP Trunking Information from Broadvox	1-3
2.1.2	NEC UNIVERGE SV8300	1-3
2.1.3	Installation Worksheet	1-3
Section 3	SV8300 Programming.....	1-5
3.1	System Version and License Check	1-5
3.2	CC-CP00 Network Setup CM 0B101	1-7
3.3	IP PAD Configuration CM 0B201	1-10
3.4	SIP Trunk Numbers CM 1003	1-11
3.5	Trunk Route and CIC to Each Voice Trunk CM 30	1-12
3.6	SIP Trunk Route Data CM 35	1-14
3.7	SIP Control Channel Data Settings CM A7	1-18
3.8	SIP Control Data 2 Settings CM A8	1-20
3.9	SIP Profile Settings CM BA	1-21

3.10 DID Digit Conversion CM 76 1-26

3.11 Numbering Plan CM 29 & 20 1-28

Section 4 Initial Testing and Troubleshooting.....1-31

LIST OF FIGURES and tables

Table 1	Installation Worksheet	1-4
Figure 1	System Version	1-5
Figure 2	SIP Trunk License CM F88	1-6
Figure 3	CC-CP00 Network Setup CM 0B101	1-7
Figure 4	Network Setup CM 0B101 (continued)	1-8
Figure 5	Network Setup CM 0B101 (continued)	1-9
Figure 6	IP PAD Configuration CM 0B201	1-10
Figure 7	SIP Trunk Numbers CM 1003	1-11
Figure 8	Trunk Route and CIC to Each Voice Trunk CM 30	1-12
Figure 9	Trunk RT No. and CIC to Voice Trunks CM 30 (continued)	1-13
Figure 10	SIP Trunk Route Data CM 35	1-14
Figure 11	SIP Trunk Route Data CM 35 (continued)	1-15
Figure 12	SIP Trunk Route Data CM 35 (continued)	1-16
Figure 13	SIP Trunk Route Data CM 35 (continued)	1-17
Figure 14	SIP Control Channel Data Settings CM A7	1-18
Figure 15	SIP Control Channel Data Settings CM A7 (continued)	1-19
Figure 16	SIP Control Channel Data Settings CM A8	1-20
Figure 17	SIP Profile Settings CM BA	1-21
Figure 18	SIP Profile Settings CM BA (continued)	1-22
Figure 19	SIP Profile Settings CM BA (continued)	1-23
Figure 20	SIP Profile Settings CM BA (continued)	1-24
Figure 21	SIP Profile Settings CM BA (continued)	1-25

Figure 22	DID Digit Conversion CM 76	1-26
Figure 23	DID Digit Conversion CM 76 (continued)	1-27
Figure 24	DID Digit Conversion CM 76 (continued)	1-28
Figure 25	Numbering Plan Tenant CM 29	1-29
Figure 26	Numbering Plan CM 20	1-30
Table 2	Troubleshooting Guide	1-32

Configuring NEC SV8300 with Broadvox SIP Trunking Service

SECTION 1 NEC SV8300 AND BROADVOX SETUP GUIDE

1.1 This Guide and Related Documents

This guide was created to assist knowledgeable vendors with configuring the NEC SV8300 Communication Server with Broadvox's SIP Trunking service. It provides sample entries for the required fields. The actual data is provided by Broadvox when service is activated. Questions about software and hardware installation or other PBX configuration issues should be directed to NEC's National Technical Assistance Center (NTAC).

For complete details on using SIP trunks with the SV8300, refer to the SV8300 Networking Manual.

For complete details on using DID features, refer to the DID feature in the SV8300 Features and Specifications Manual.

For details about related hardware, refer to the SV8300 System Hardware Manual.

These manuals can be downloaded from NEC's National Technical Assistance Center (NTAC) web site. You must have a valid dealer ID to access the documents.

1.2 Broadvox Account

Contact your Broadvox representative.

1.3 SV8300 System Software

The SV8300 requires system software **R3.5 D2 2.01** or higher to use Broadvox service.

1.4 Requirements

With the SV8300, a VoIP gateway daughter board is required in addition to licensing for IP (SIP) trunks.

A minimum of four IP (SIP) trunks are required due to the NEC Communications Server infrastructure setup.

The system software for the NEC Communications Server should be version **R3.5 D2 2.01** or higher.

NEC recommends that the requirements and programming are completed with as much information as possible before scheduling an activation appointment with Broadvox.

1.5 Limitations

The following limitations apply:

- Sending and receiving FAX when voice traffic is set to G.729
- SIP diversion header – Call forwarding to 8xx numbers
- SIP Privacy – Cannot mark the calling party number as private or restricted
- Sending and receiving calling party name
 - ✎ *SV8300 R4 and higher supports calling party name.*
- Secondary SIP server for failover

SECTION 2 **NEC PBX CONFIGURATION**

This section provides information to NEC's solution providers and NEC Associates for configuring an NEC UNIVERGE SV8300 to connect to a Broadvox SIP Trunk service provider.

2.1 **Prerequisites**

Before you configure the UNIVERGE SV8300, you must have the following information available.

2.1.1 SIP Trunking Information from Broadvox

- Primary SIP Proxy Server IP Address
- Number Plan, if applicable for the Point-to-Point Connection
- Trunking DID(s)
The DID(s) are forwarded to the Public WAN IP address(s), DNS or DNS SRV records of the PBX.

2.1.2 NEC UNIVERGE SV8300

- SV8300 CPU software version **R3.5 D2 2.01** or higher
- IPLA-R UNIT (PZ-64IPLA or PZ-128IPLA)
- SIP Trunking Licenses
- Digital, IP and TDM Telephones

2.1.3 Installation Worksheet

Use the worksheet to record the information needed for setting up the SIP Trunking service.

Table 1 Installation Worksheet

WAN Side:	
Internet Access Type and Speed:	
WAN IP Address:	
WAN Subnet Mask:	
WAN Gateway IP Address:	

LAN Side:	
LAN IP Address for SIParator or EdgeMarc:	
LAN Subnet Mask:	
LAN IP Address for SV8300:	
VLAN ID:	

PBX Information:	
Model:	
Firmware Version:	
Number of SIP Trunk Licenses:	
Add-on Software Applications:	
Number of Users:	
Number of Concurrent Calls:	

Notes:

SECTION 3 SV8300 PROGRAMMING

When using Broadvox as your SIP trunking service provider, the following programs must be changed for SIP trunking service.

3.1 System Version and License Check

Values shown are for example purposes only. Your actual IP values will be determined by your local LAN administrator.

After connecting, check the SV8300 software version.

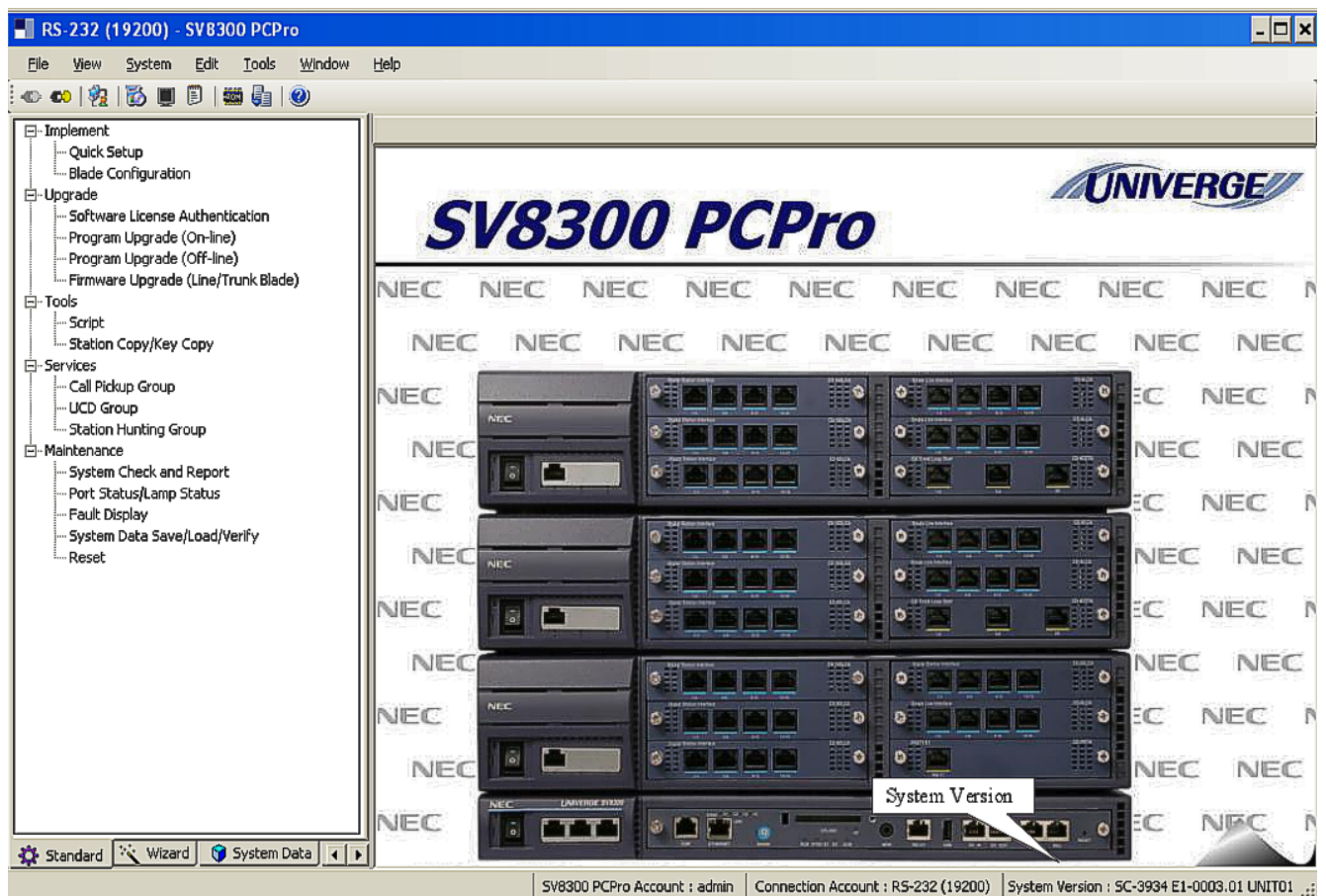


Figure 1 System Version

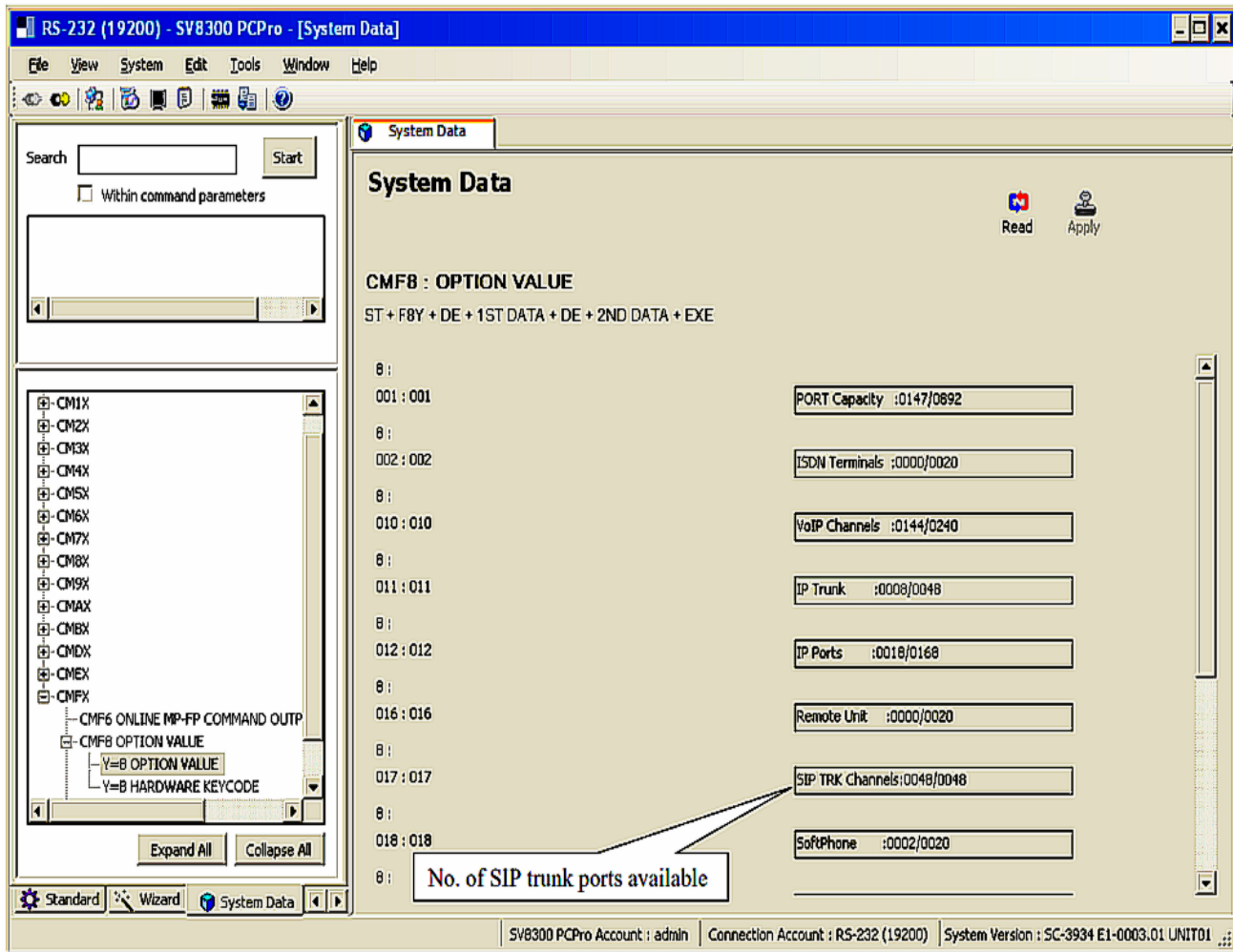


Figure 2 SIP Trunk License CM F88

3.2 CC-CP00 Network Setup CM 0B101

Values shown are for example purposes only. Your actual IP values will be determined by your local LAN administrator.

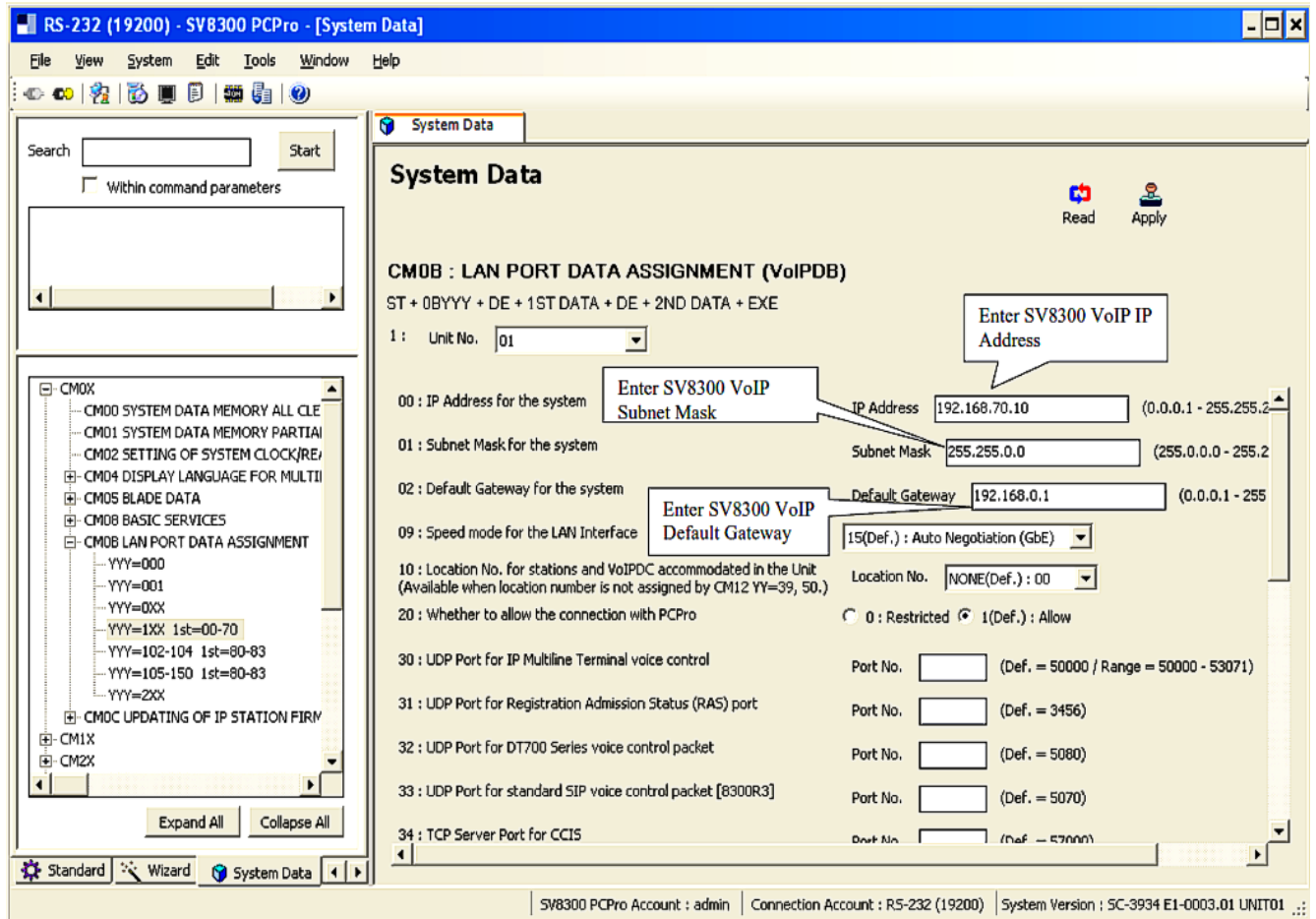


Figure 3 CC-CP00 Network Setup CM 0B101

The SV8300 must be reset in order for the change to take effect.

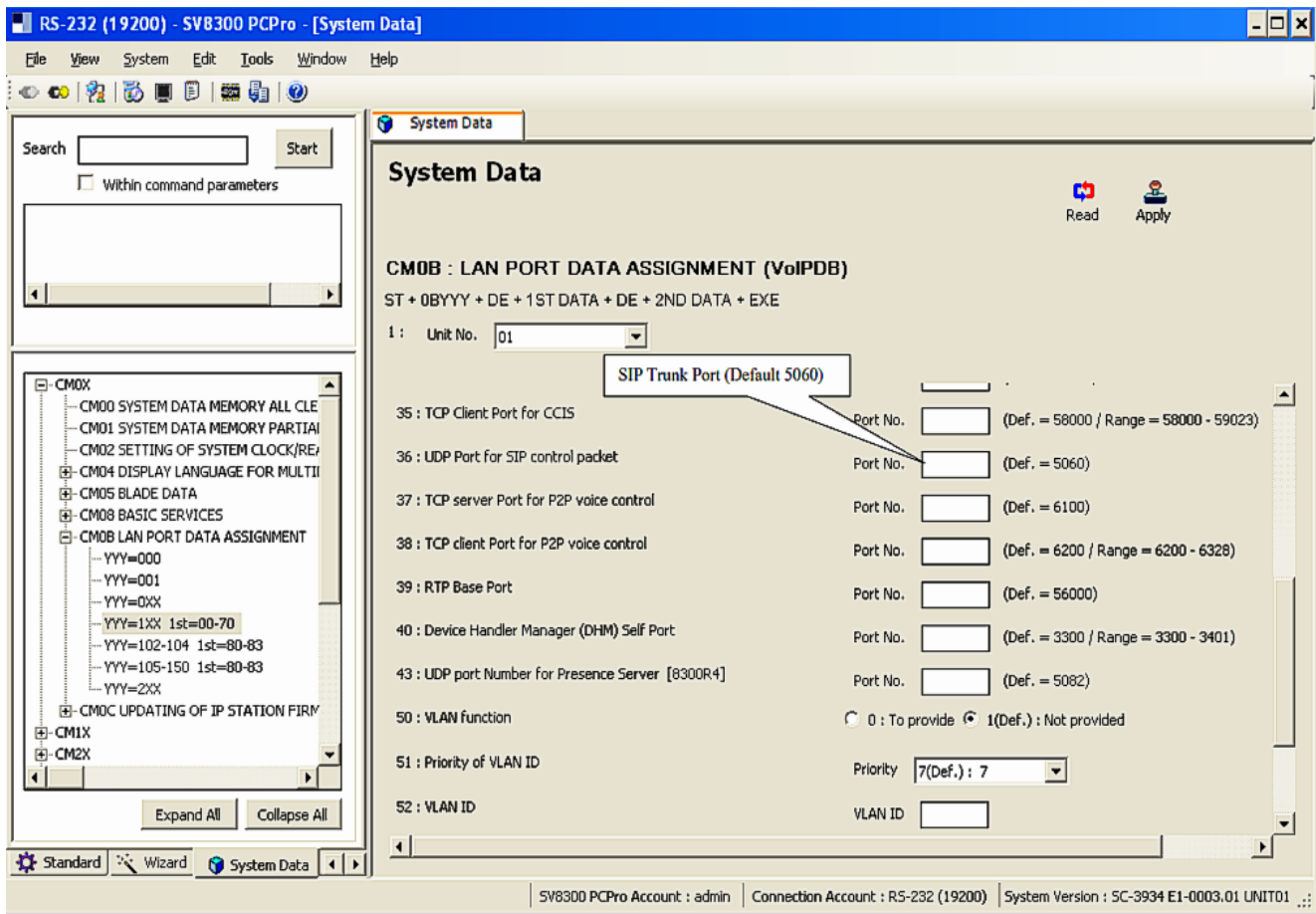


Figure 4 Network Setup CM 0B101 (continued)

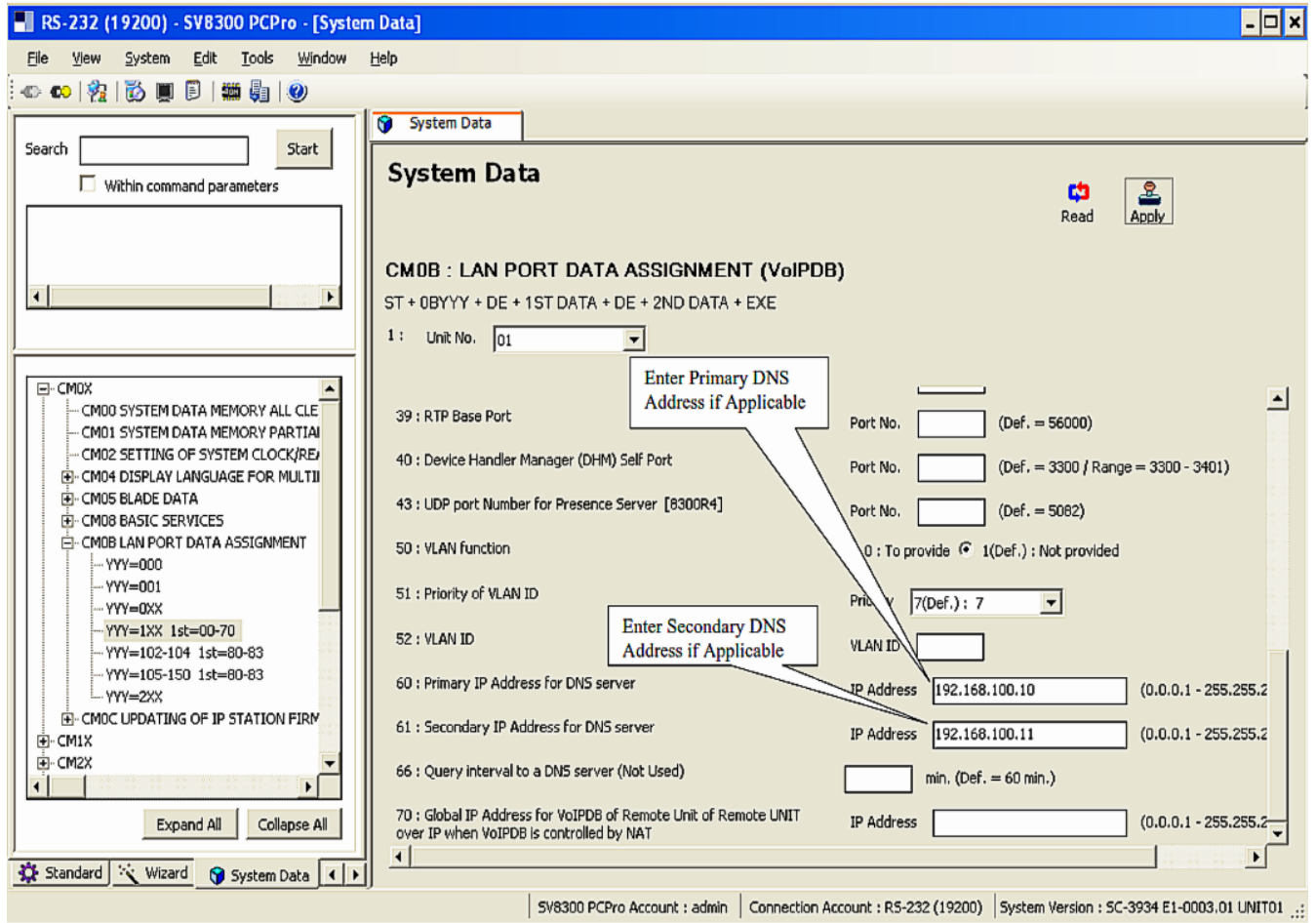


Figure 5 Network Setup CM 0B101 (continued)

3.3 IP PAD Configuration CM 0B201

Values shown are for example purposes only. Actual IP values will be determined by your local LAN administrator.

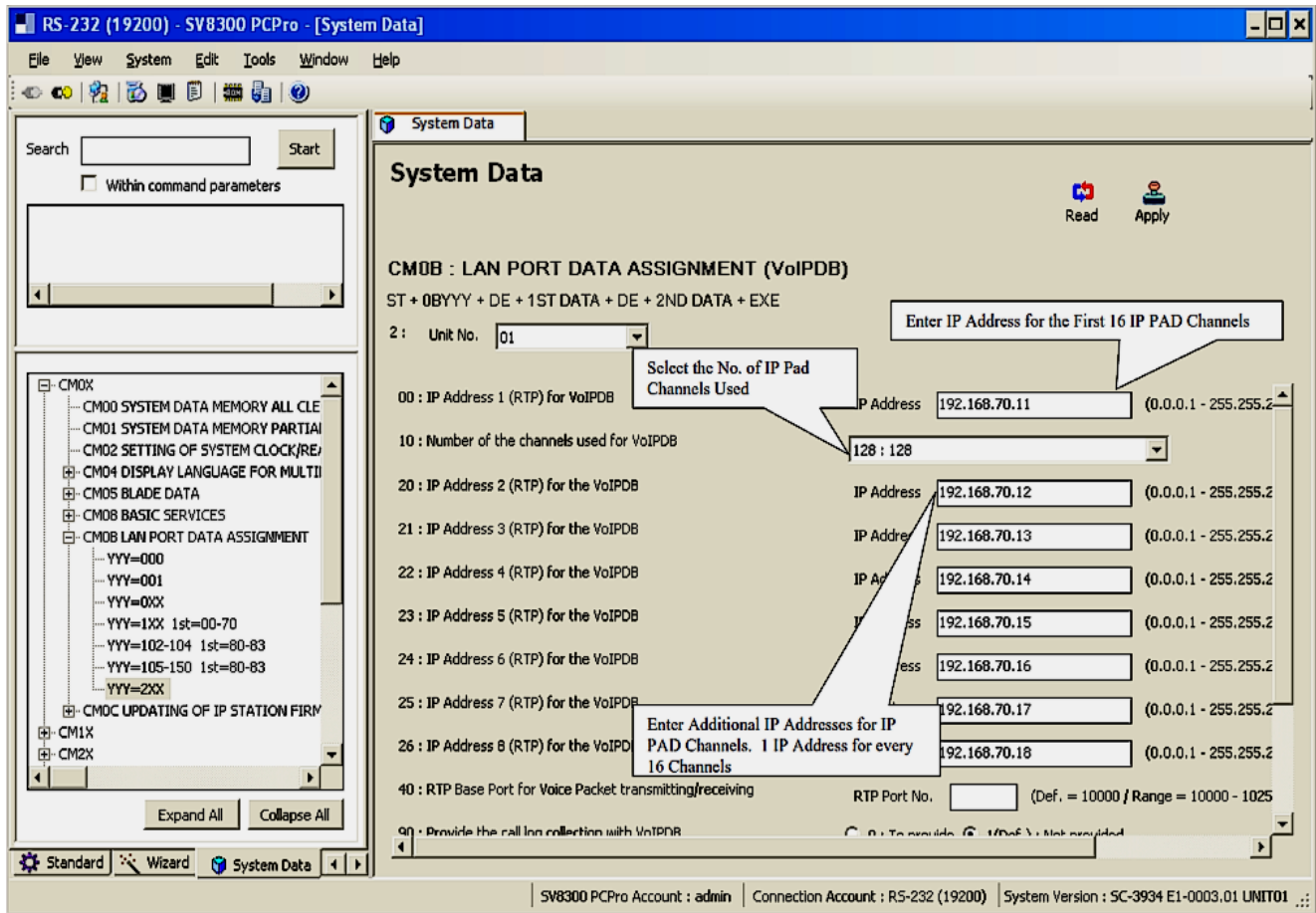


Figure 6 IP PAD Configuration CM 0B201

3.4 SIP Trunk Numbers CM 1003

Values shown are for example purposes only. Your actual values will be determined by your implementation team.

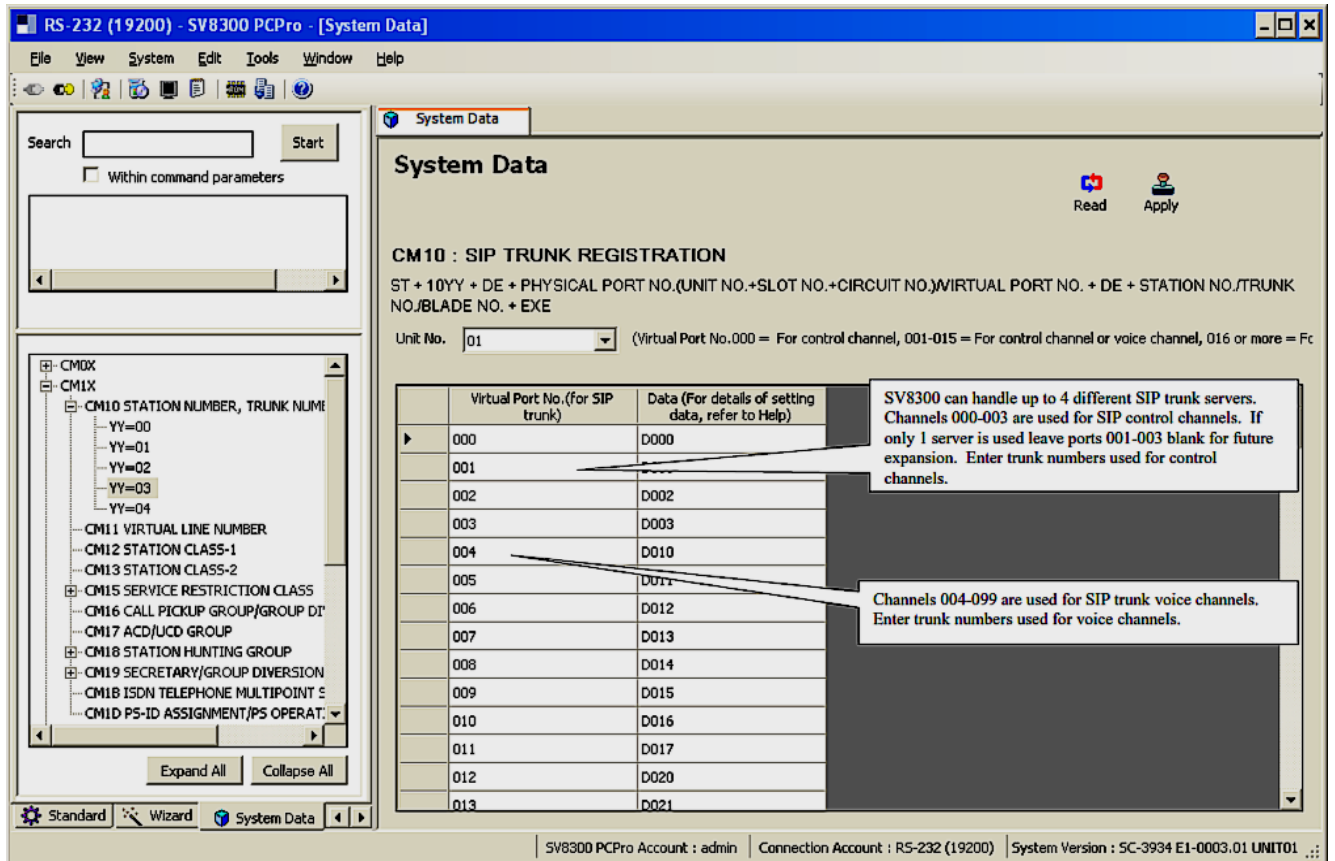


Figure 7 SIP Trunk Numbers CM 1003

3.5 Trunk Route and CIC to Each Voice Trunk CM 30

All values shown are for example purposes only. Your actual values will be determined by your implementation team.

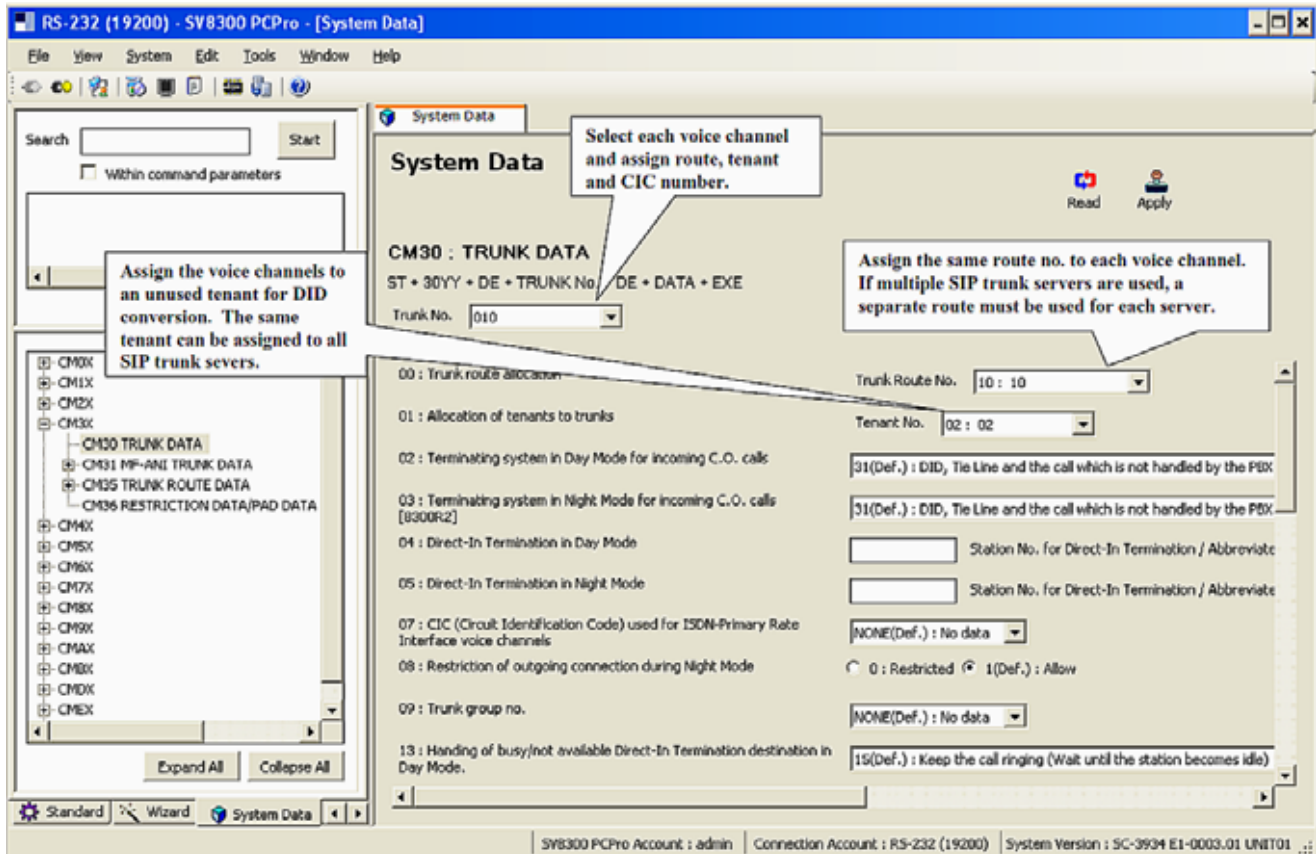


Figure 8 Trunk Route and CIC to Each Voice Trunk CM 30

✍ Do not assign a RT No. or a CIC to the control channel trunk.

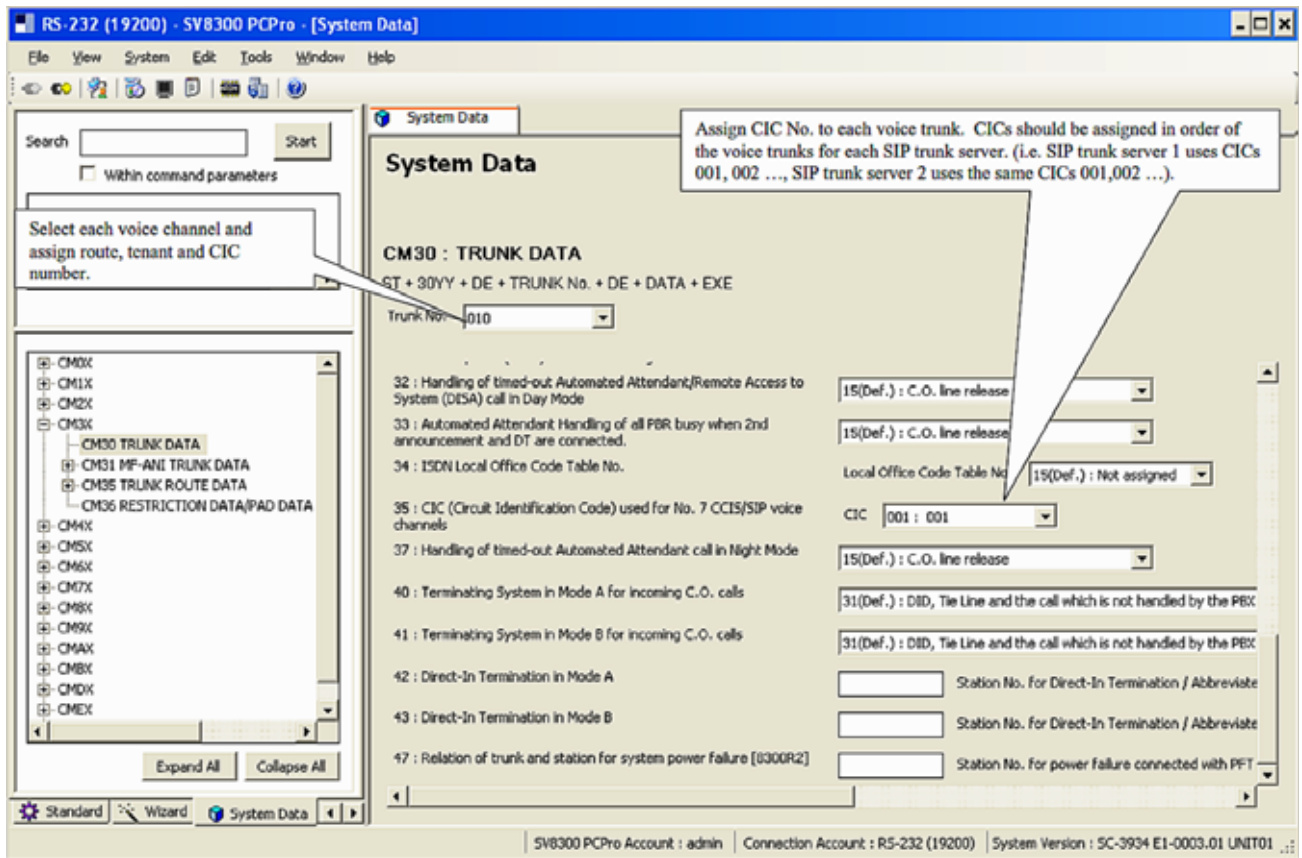


Figure 9 Trunk RT No. and CIC to Voice Trunks CM 30 (continued)

3.6 SIP Trunk Route Data CM 35

All values shown are for example purposes only. Your actual values will be determined by your implementation team.

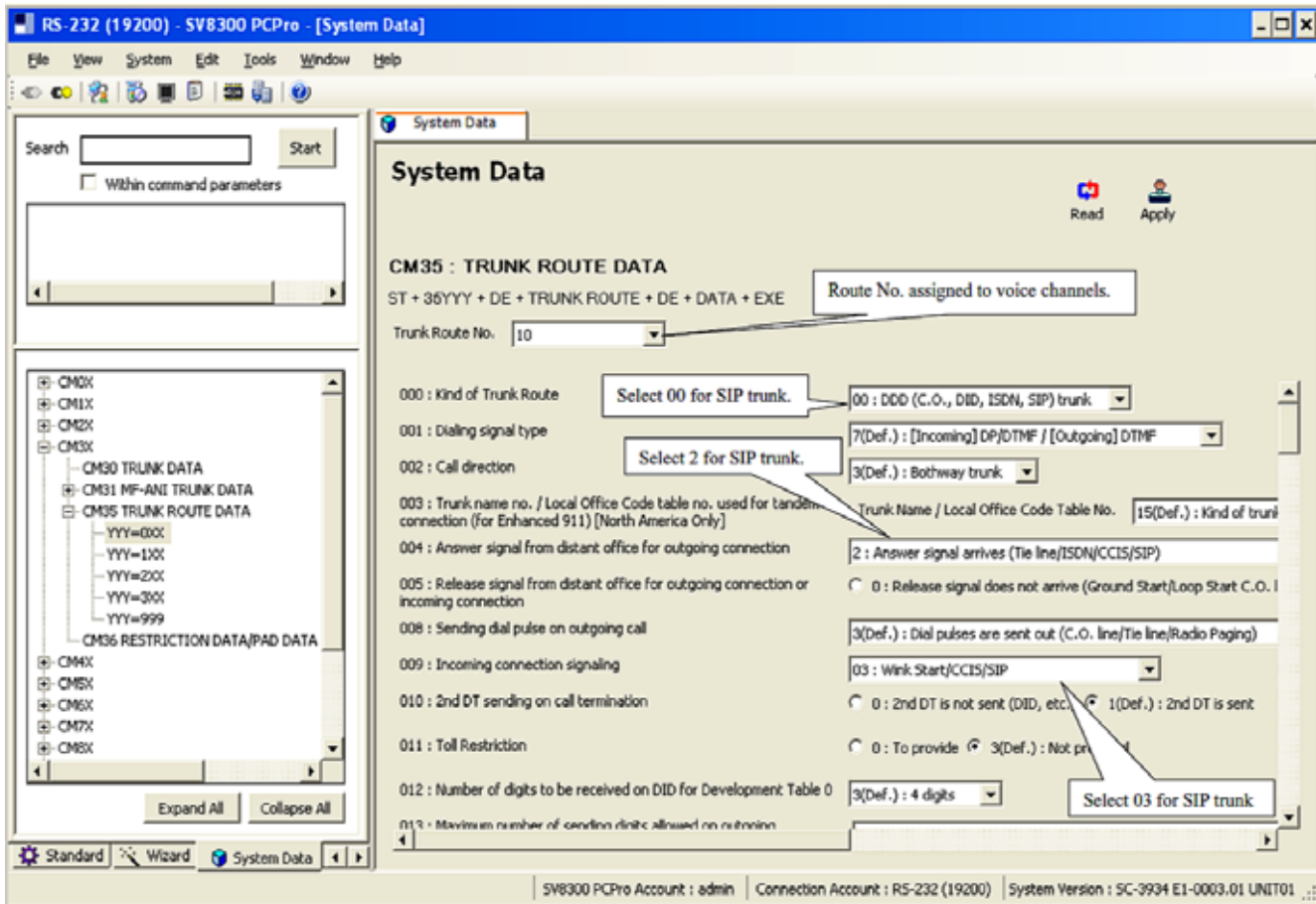


Figure 10 SIP Trunk Route Data CM 35

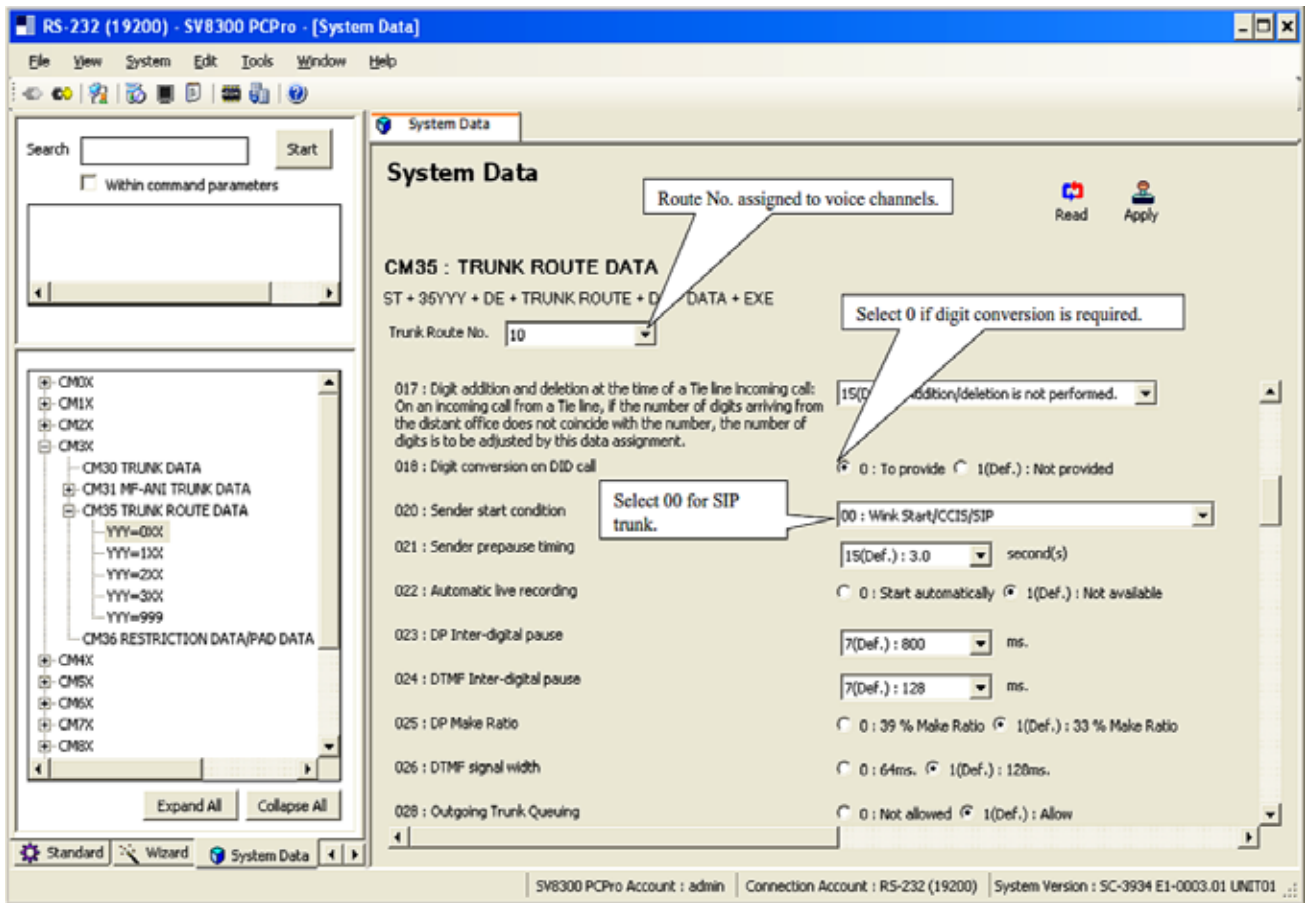


Figure 11 SIP Trunk Route Data CM 35 (continued)

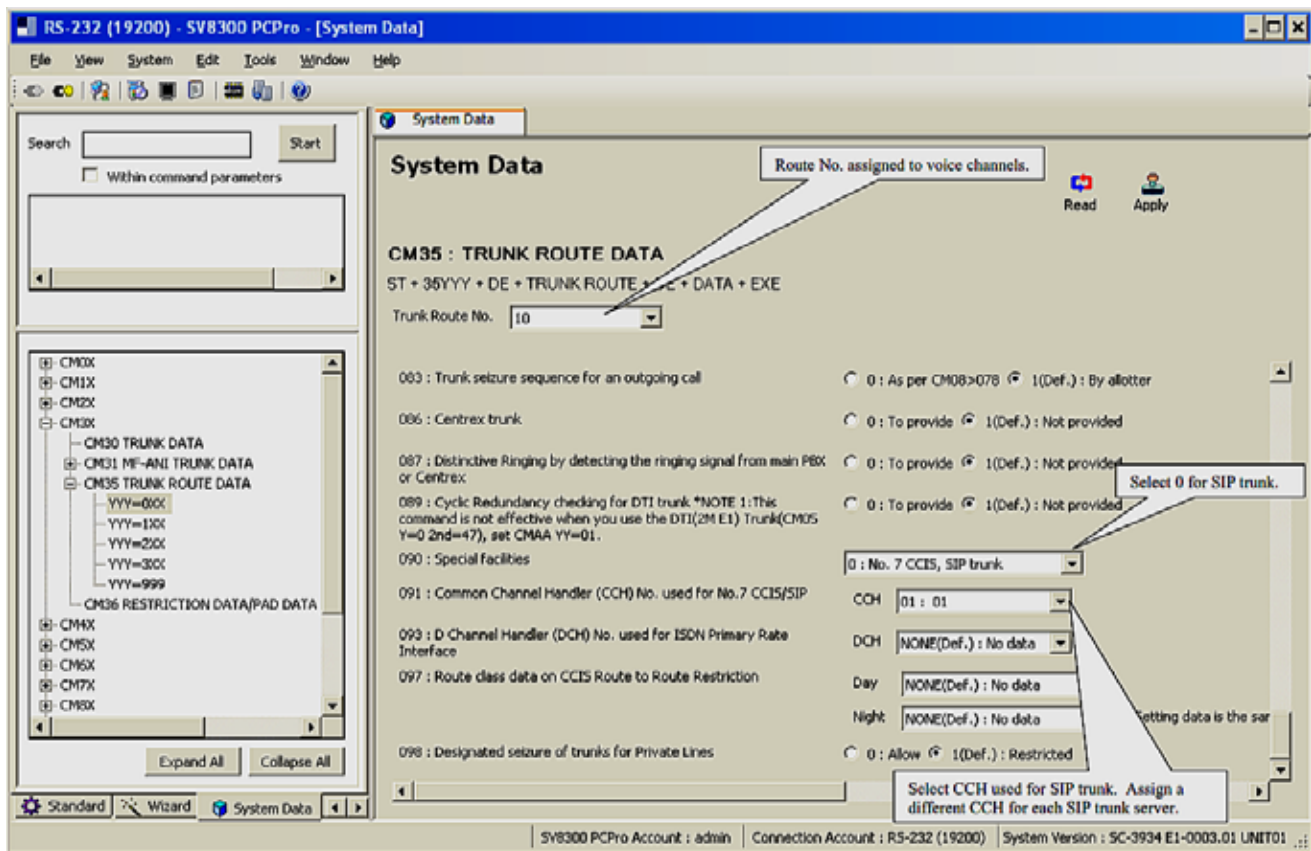


Figure 12 SIP Trunk Route Data CM 35 (continued)

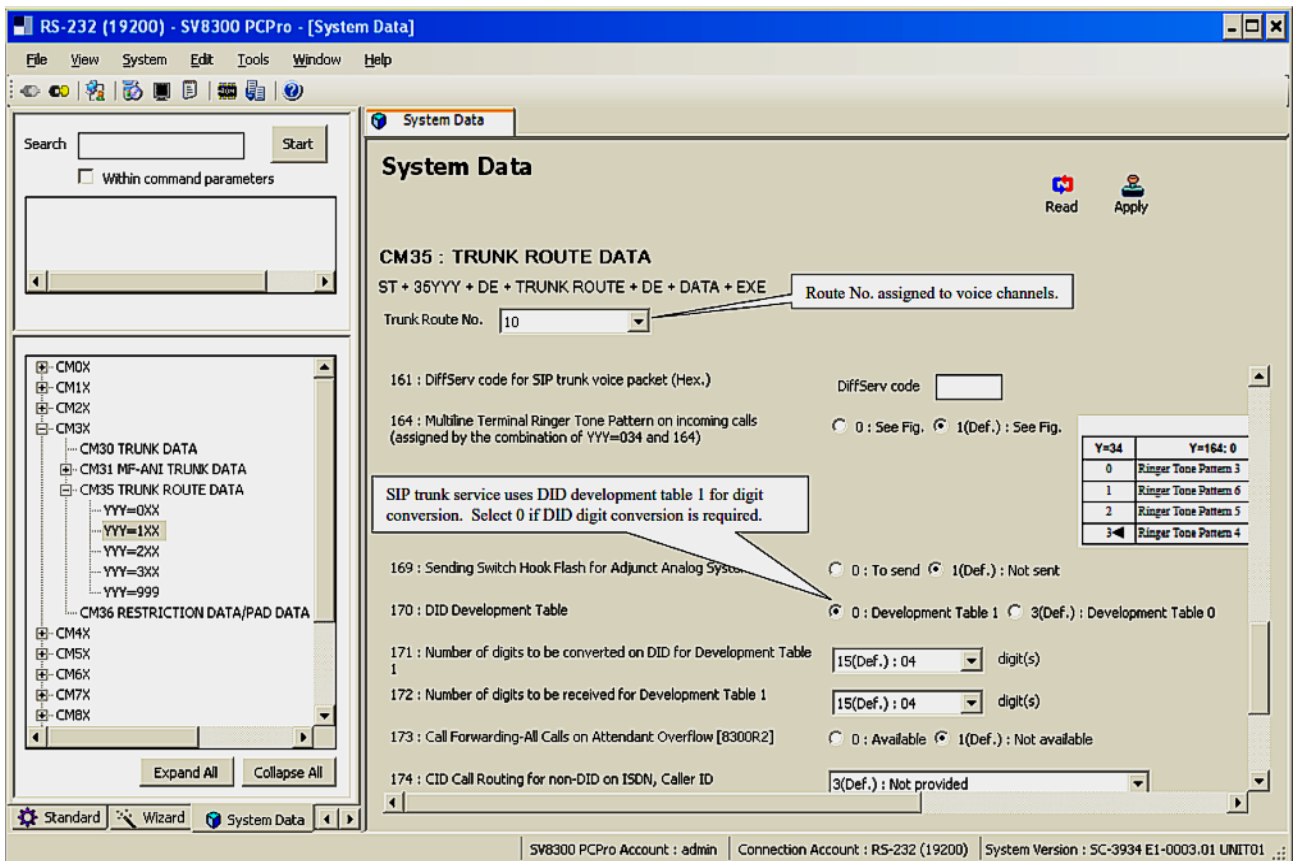


Figure 13 SIP Trunk Route Data CM 35 (continued)

3.7 SIP Control Channel Data Settings CM A7

All values shown are for example purposes only. Your actual values will be determined by your implementation team.

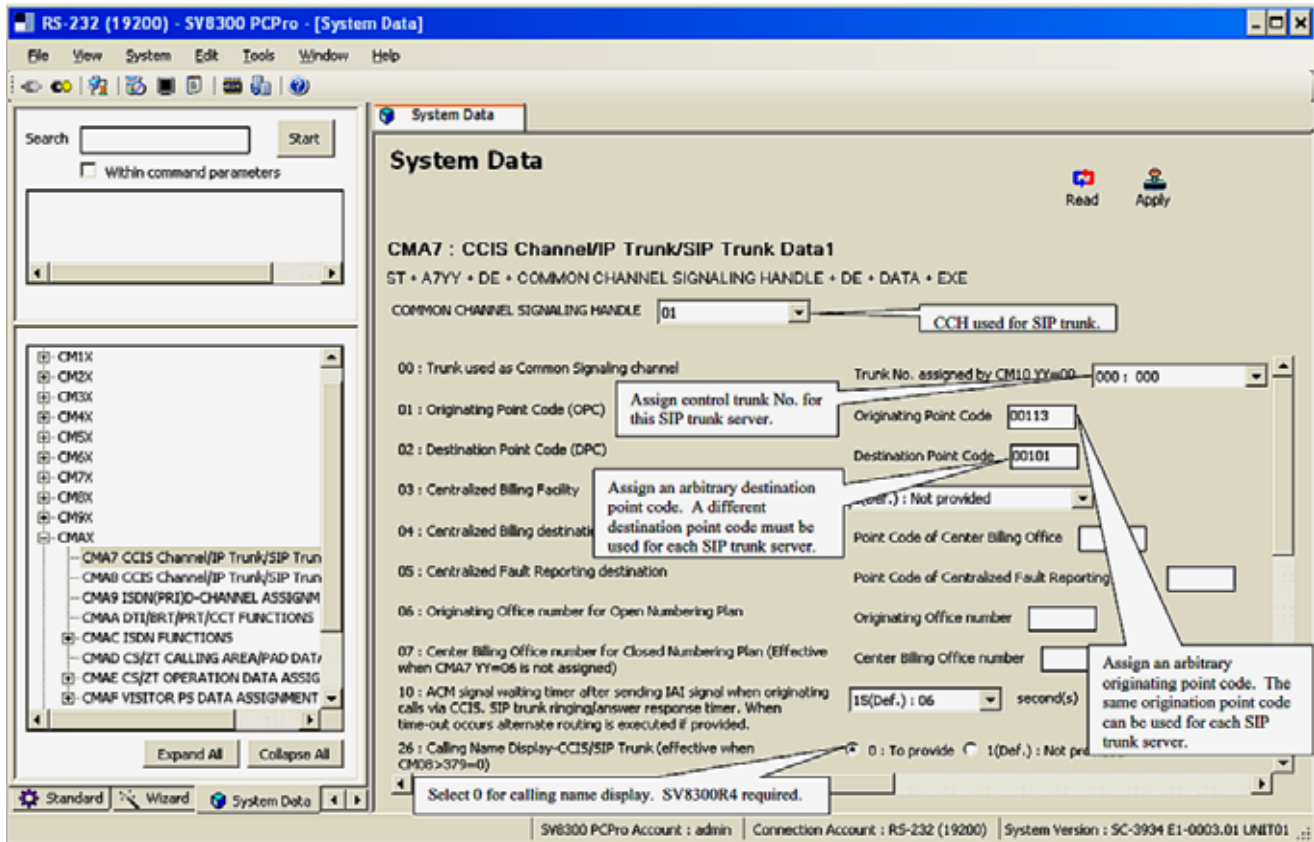


Figure 14 SIP Control Channel Data Settings CM A7

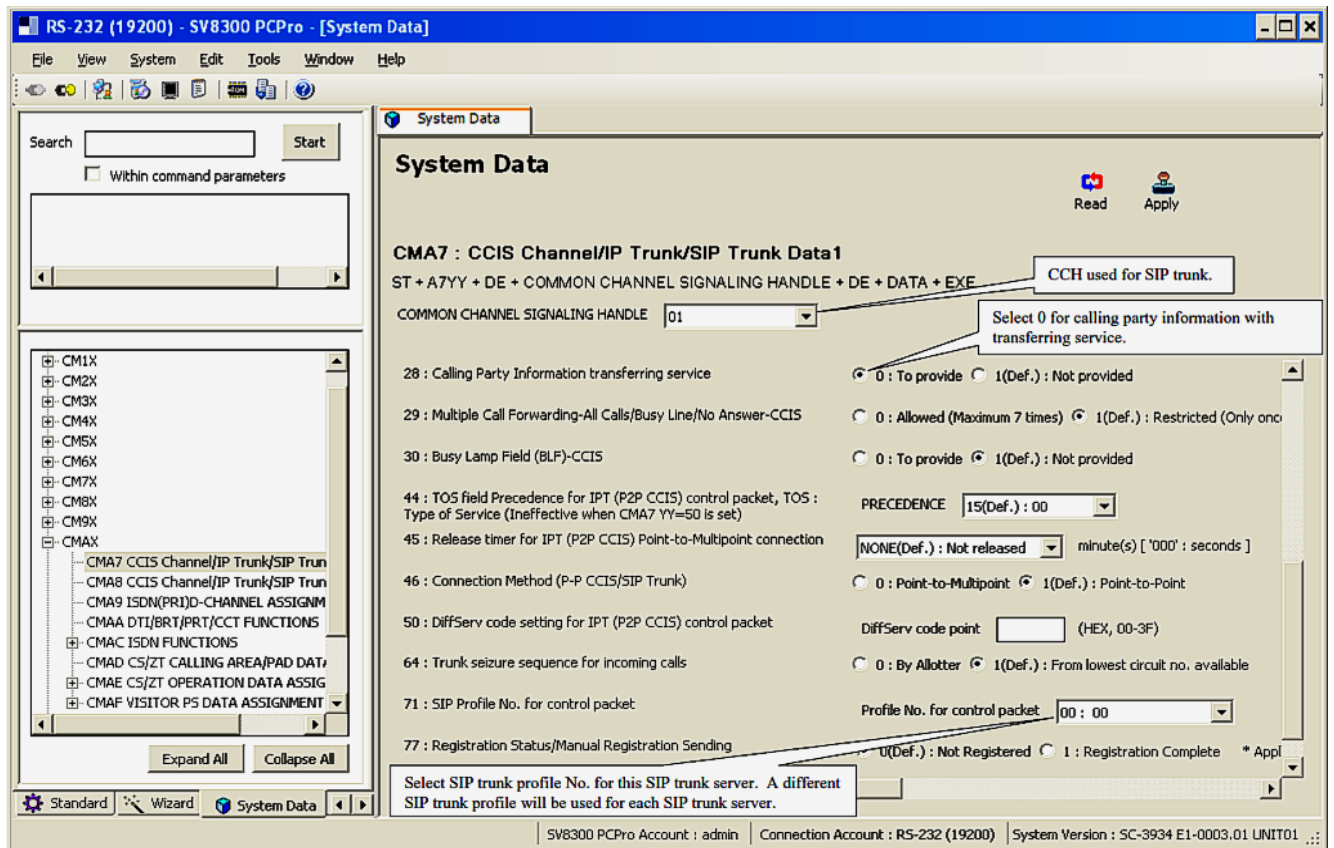


Figure 15 SIP Control Channel Data Settings CM A7 (continued)

3.8 SIP Control Data 2 Settings CM A8

All values shown are for example purposes only. Your actual values will be determined by your implementation team.

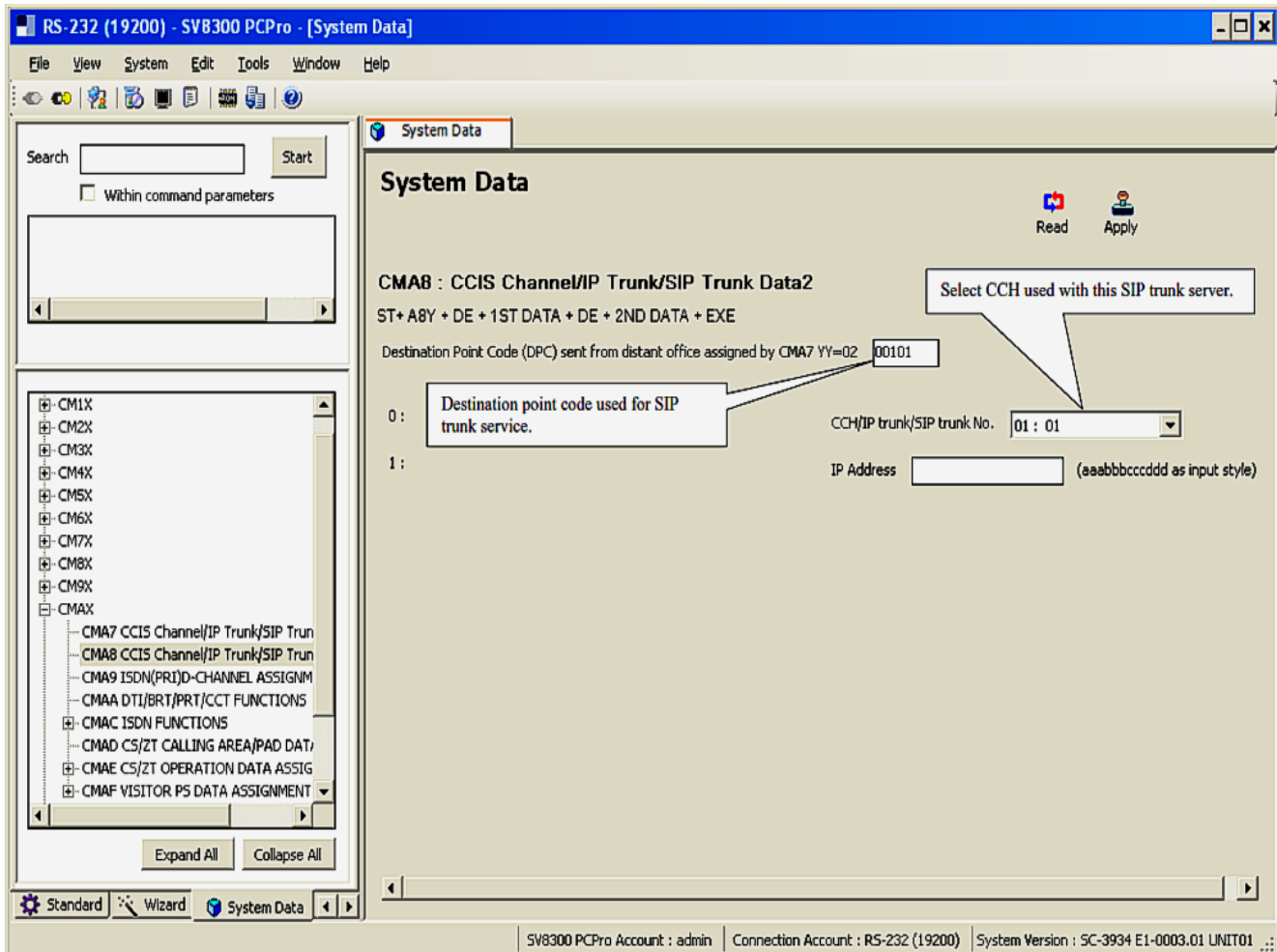


Figure 16 SIP Control Channel Data Settings CM A8

3.9 SIP Profile Settings CM BA

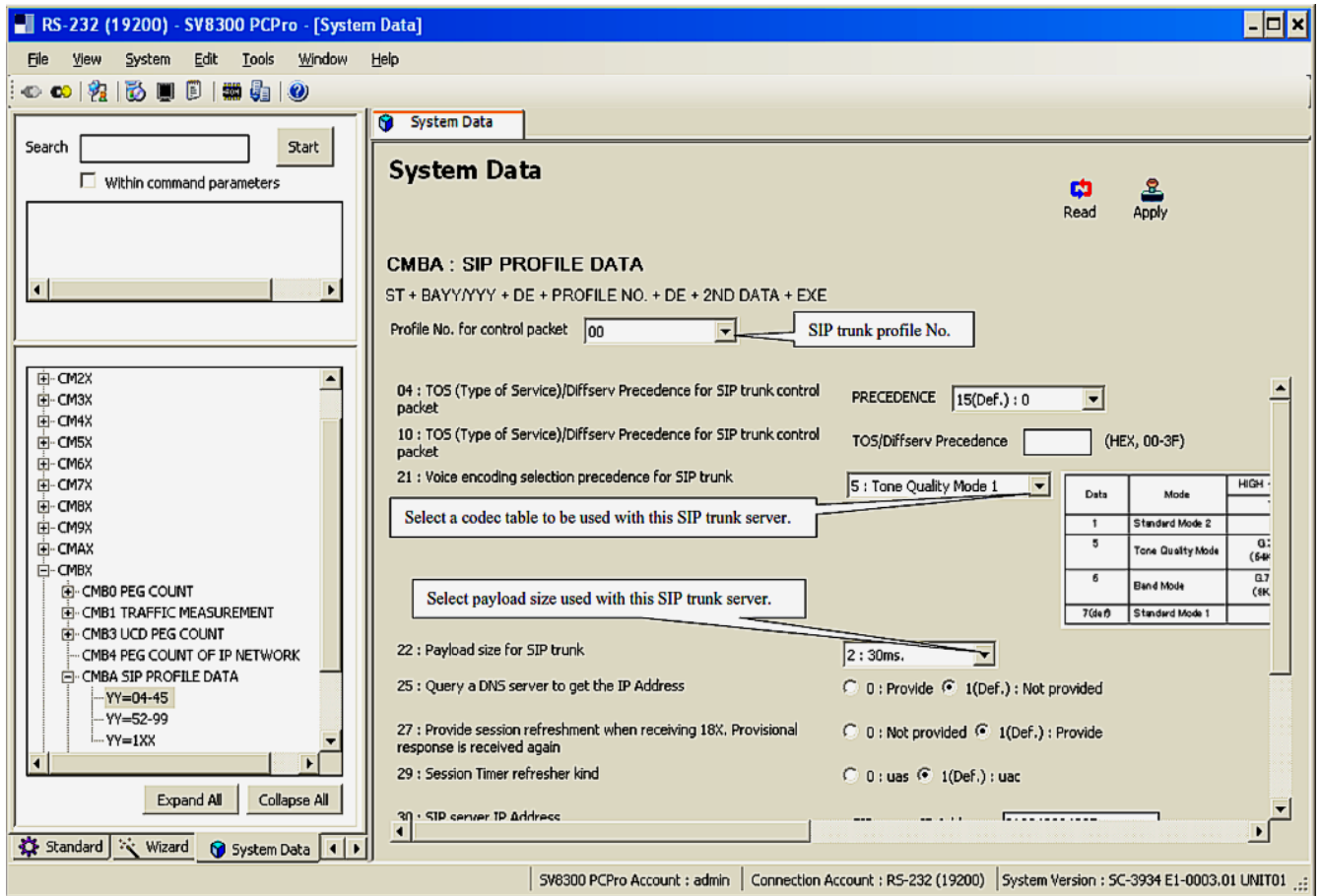


Figure 17 SIP Profile Settings CM BA

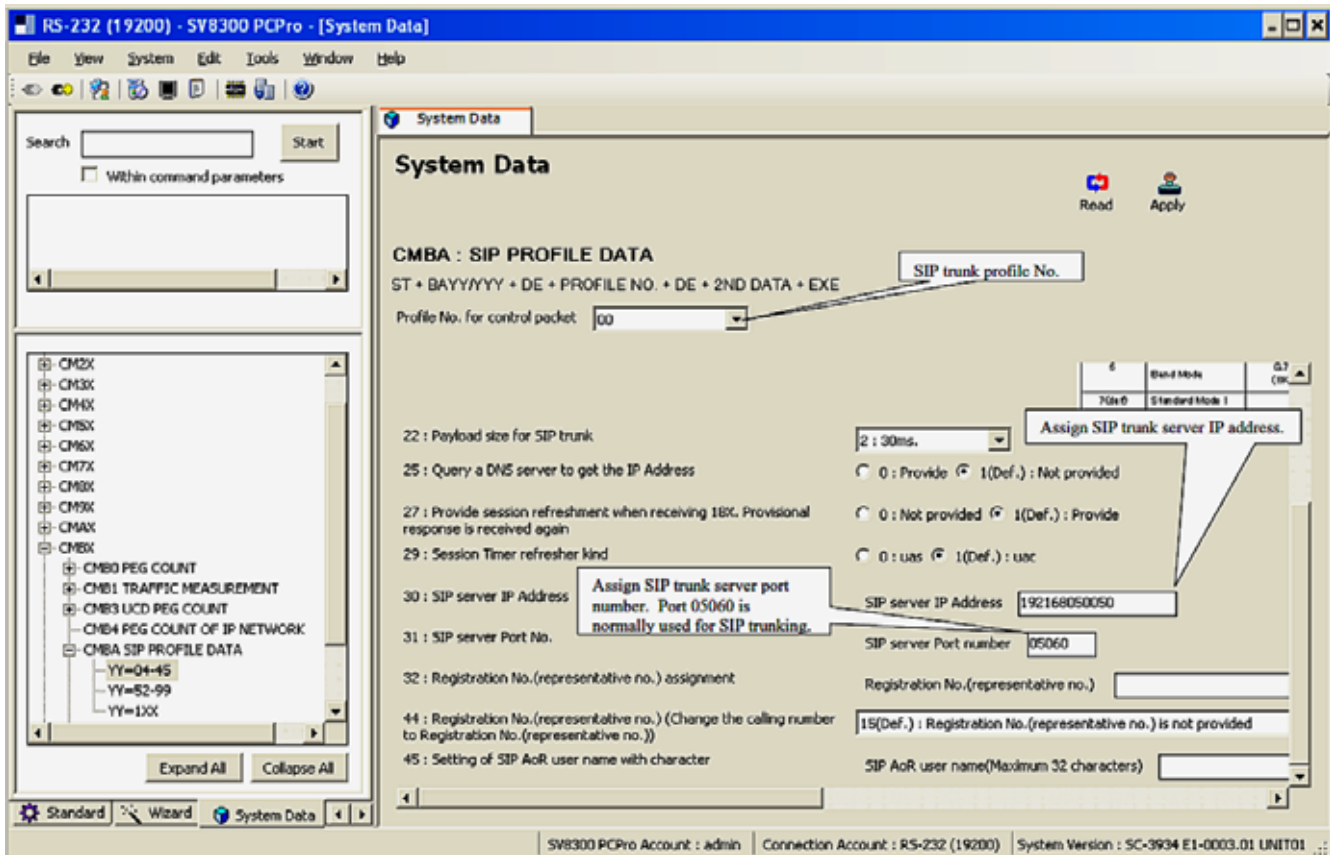


Figure 18 SIP Profile Settings CM BA (continued)

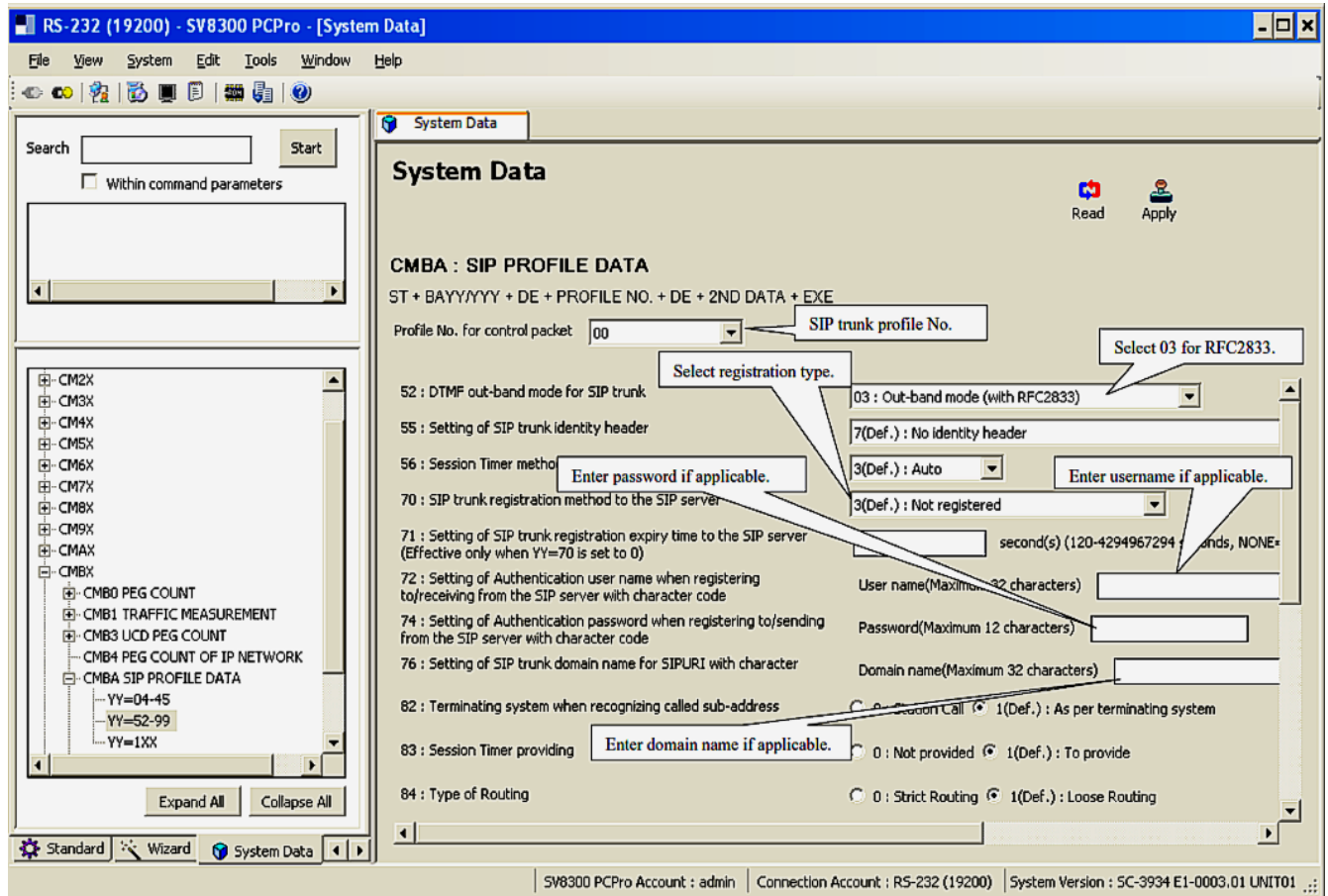


Figure 19 SIP Profile Settings CM BA (continued)

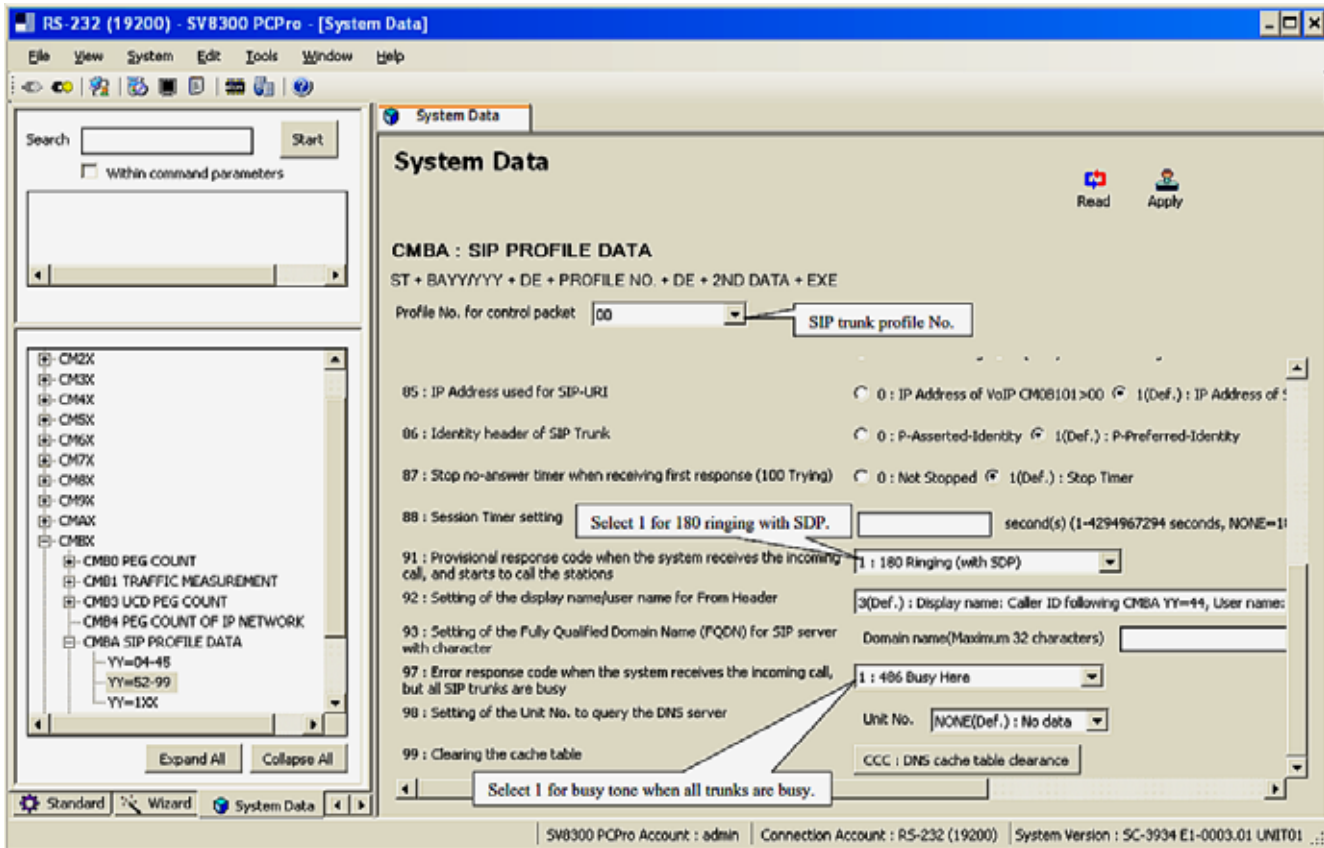


Figure 20 SIP Profile Settings CM BA (continued)

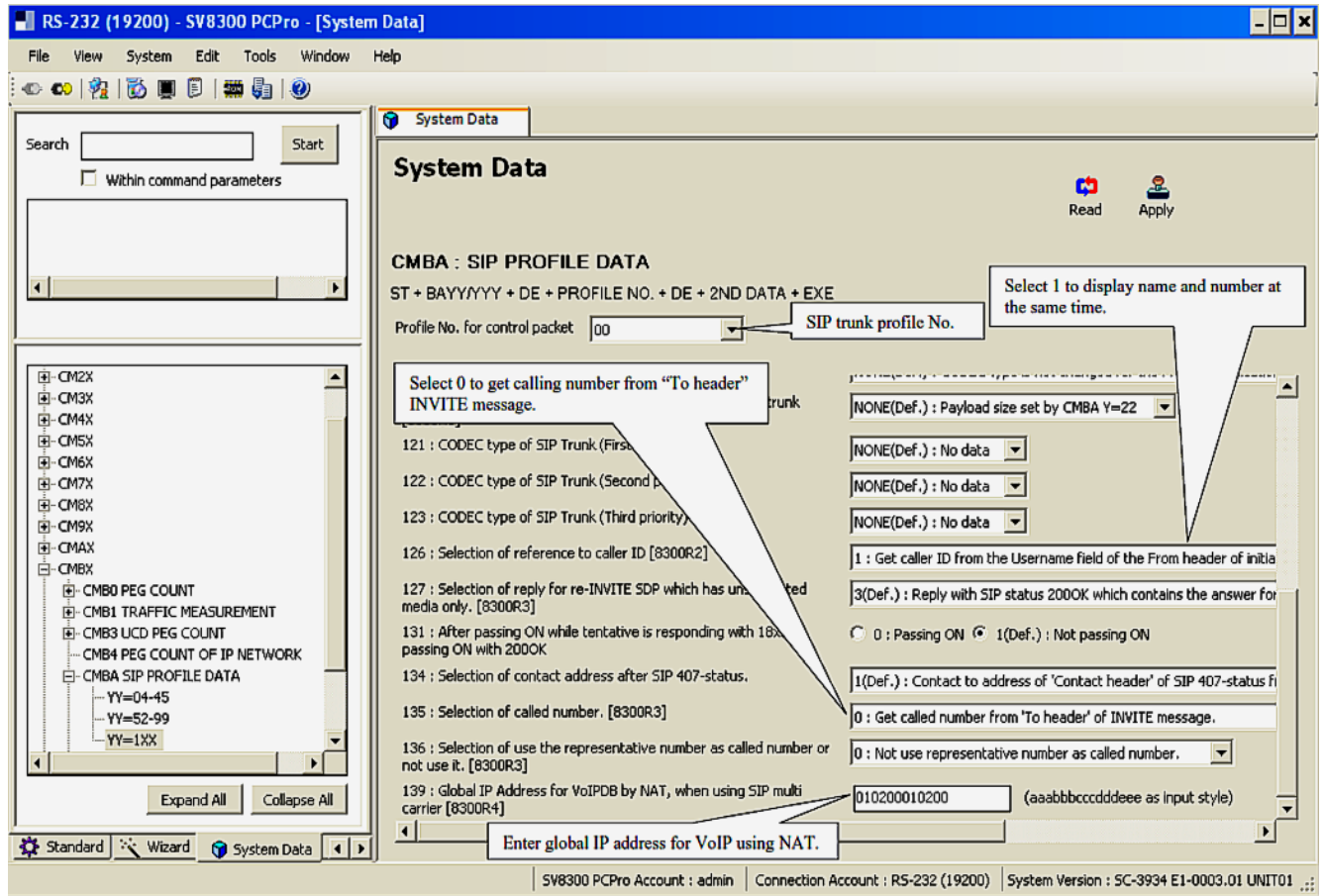


Figure 21 SIP Profile Settings CM BA (continued)

3.10 DID Digit Conversion CM 76

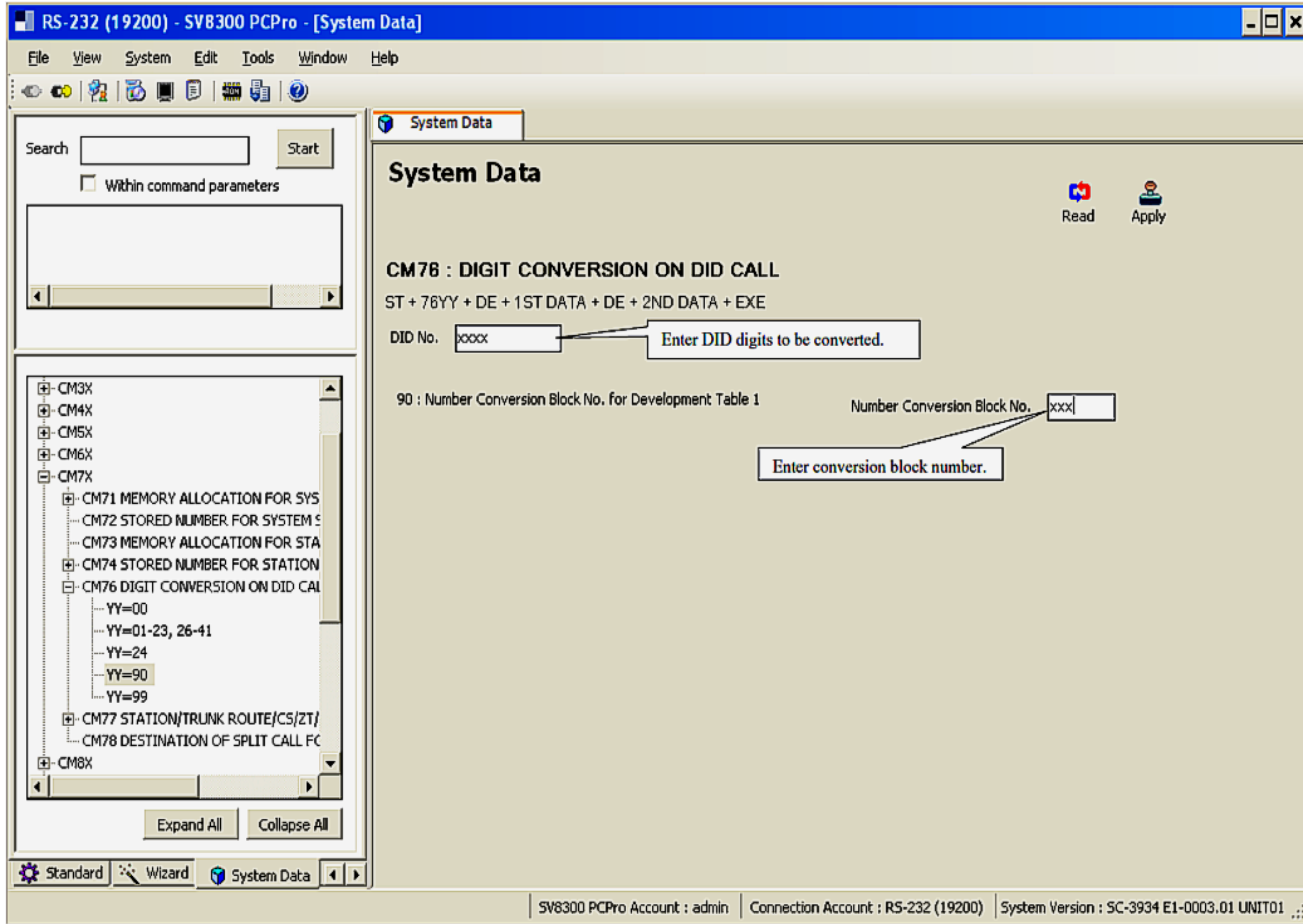


Figure 22 DID Digit Conversion CM 76

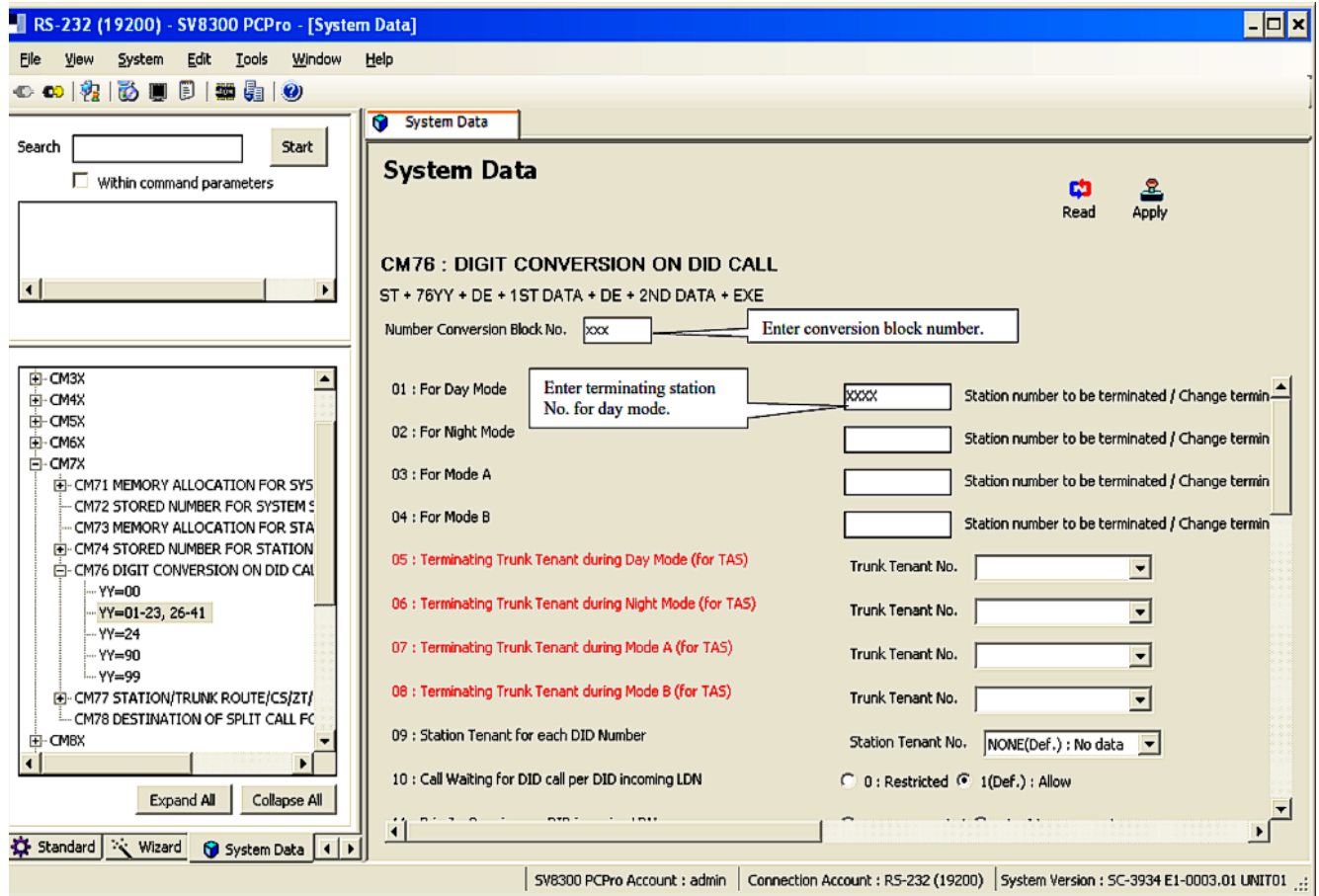


Figure 23 DID Digit Conversion CM 76 (continued)

3.11 Numbering Plan CM 29 & 20

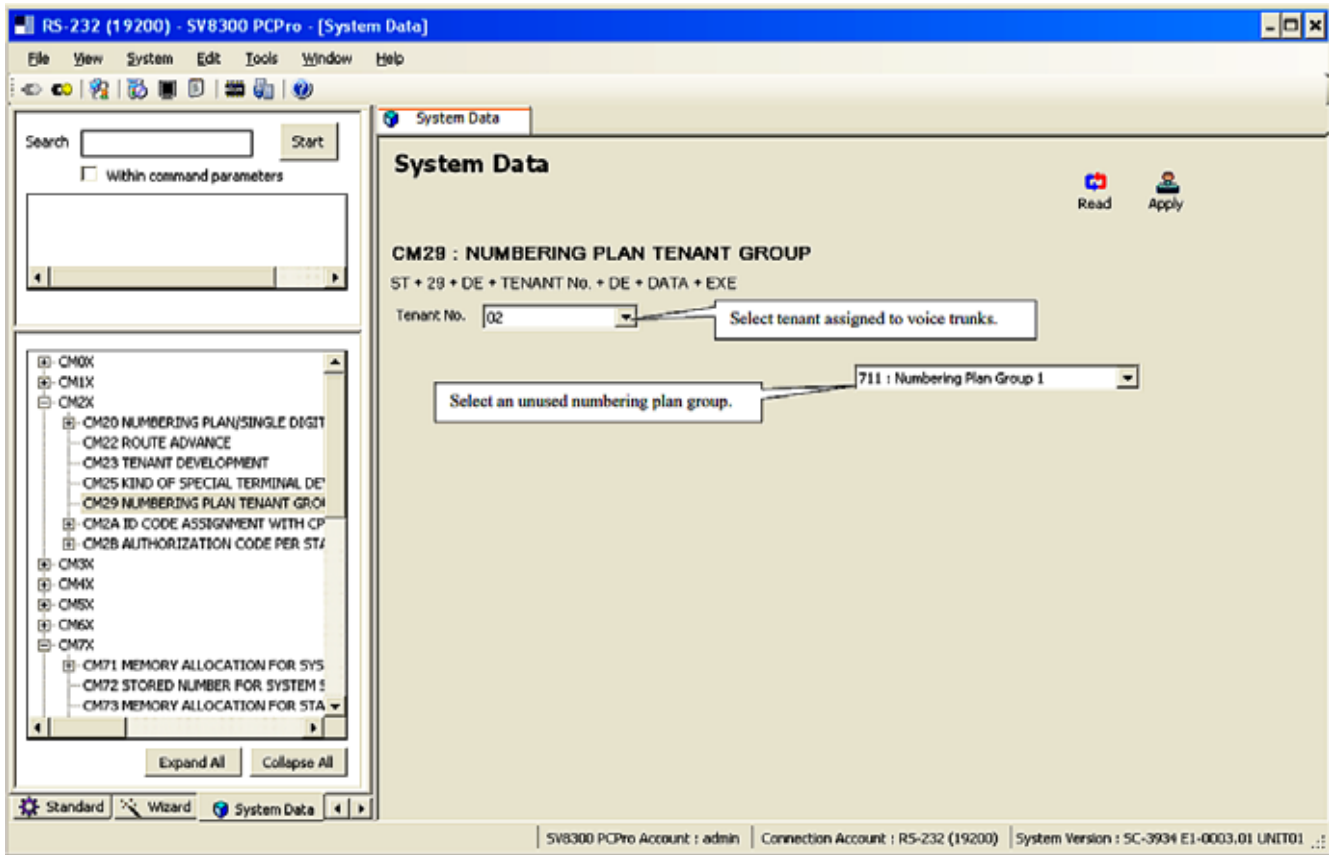


Figure 24 Numbering Plan Tenant CM 29

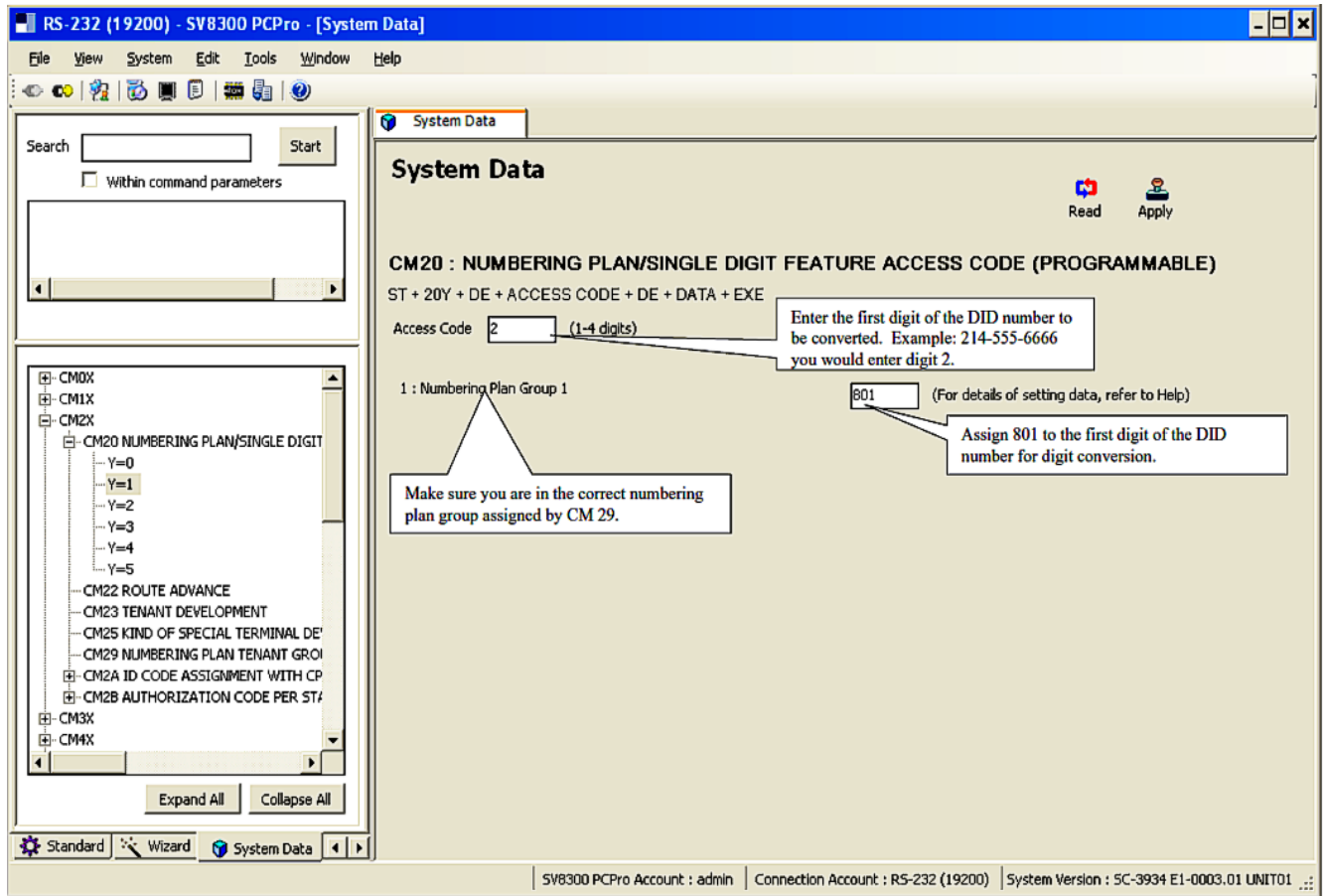



Figure 25 Numbering Plan CM 20

SECTION 4 INITIAL TESTING AND TROUBLESHOOTING

To confirm that the system is correctly set, perform the following tests:

 *If you run into an issue with any of these tests, refer to [Table 2 Troubleshooting Guide](#). Test an outgoing call to a local number. Check for ringback, 2-way audio and quality.*

1. Test an outgoing call to a long distance number. Check for ringback, 2-way audio and quality.
2. Test an outgoing call to an international number. Check for ringback, 2-way audio and quality.
3. Test an outgoing call lasting more than 15 minutes.
4. Test multiple call concurrences on outgoing calls. Setup multiple calls to PSTN.
5. Test an outgoing call to an Operator '0'.
6. Test an outgoing call to directory assistance '411'.
7. Test a 911 call.



Identify to the operator that this is a TEST!

8. Test an incoming call to an internal DID. Check for ringback, 2-way audio and quality.
9. Test an incoming call to an auto-attendant. Check DTMF and audio quality.
10. Test transferring calls off-site.
11. Test an outgoing call to an auto-attendant and verify DTMF.

Table 2 Troubleshooting Guide

Issue	Cause	Remedy
No Calls IN/Out	○ Router Configuration	○ Check Router Configuration
	○ NEC Configuration	○ Check NEC Configuration
	○ Unqualified IP Address	○ Note WAN IP Address and Contact Provider
No Calls Out	○ NEC Configuration	○ Check NEC Configuration
	○ Unqualified IP Address	○ Note WAN IP Address and Contact Provider
No Calls In	○ NEC Configuration	○ Check NEC Configuration
	○ Unqualified IP Address	○ Note WAN IP Address and Contact Provider
One-Way Audio	○ NEC Configuration	○ Check NEC Configuration
Echo	○ Excessive Delay	○ Check LAN and WAN for high latency
	○ Echo Cancellation Issue	○ Check Echo settings and/or consult Broadvox
Call Dropping	○ Internet Access Issues	○ Call Internet Access Provider
	○ Extreme Latency on LAN	○ Check Latency on LAN
	○ SIP issue	○ Contact Provider
Static or HUM on Phones	○ Power issue	○ Check power if using AC, should not be issue in PoE
Missing Parts of Words	○ Packet Loss or Latency on LAN	○ Check LAN
	○ Packet Loss or Latency on WAN	○ Check with Internet Access Provider
	○ Jitter Buffer Configuration	○ Check with NEC

THIS PAGE INTENTIONALLY LEFT BLANK