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TM-2000 Trunk Master Field Guide

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Field Guide

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Requirements

Version 8.7.1 of the TM-2000 requires version 8.7.x as the standby TM-2000.

TrunkEdit

TrunkEdit over Ethernet: requires TrunkEdit version 1.02.00 or later.

Katakana support: requires TrunkEdit version 1.02.01 or later.

Support for Unicode alphas: requires TrunkEdit version 1.03.00 or later. Support for IFB Special Lists requires TrunkEdit: version 1.03.01 or later in order to be able to view alphas for IFB Special Lists and fix trunks to IFBSL's.

Configuring the Trunk Allocation timeout in seconds requires TrunkEdit version 1.03.02 or later.

Configuring SNMP requires TrunkEdit version 1.4.0 or later.

Trunk Supervisor

Requires Trunk Supervisor version 1.04.00 or later.

The following versions of firmware support trunking on the following:

More than 20 intercoms trunked, Detection of "half links", TIF Dialing Across Intercoms

- Standard ADAM Master Controller version 9.16.0
- Standard Peripheral Controller version 10.8.0
- DBX version 1.8.0
- ZEUS-II version 3.1.0
- ADAM MCII-e - any version
- ADAM MCII-e Peripheral Controller - any version
- Cronus - any version

It is possible to connect intercoms that only support 20 remote intercoms to a v8.7.x TM-2000. However, the following restrictions exist: You can only define trunks between the older intercom(s) and intercoms whose number is in the range 1-20. Also, calls cannot be made between an intercom whose number is 21 or higher and an older intercom.

Also, a "half link" will not be detected until proper communications has first been established. (It will detect a communications circuit that is established, and then fails in one direction. It will also detect the failure if communications is lost, and then only half the circuit is working when the circuit is subsequently restored.

Software Organization

The TM-2000 Trunk Master consists of a PC running a Linux kernel with real-time extensions. The TM-2000 software consists of some kernel load modules (i.e. they can be dynamically loaded and unloaded; when loaded, they become part of Linux), in cooperation with some executable programs.

All of the TM-2000 software is installed in the /tm directory. (Unlike DOS and Windows, Linux uses the forward slash, "/", as a directory separator.) There are some other files in other directories which are customized, e.g. to automatically start the TM-2000 software when the system is rebooted.

Configuration of the TM-2000 is done by running the TM-2000 software (which automatically happens when the computer is booted) and then running Trunk Edit on another computer which is connected via Ethernet or a serial port to the TM-2000 computer.

Hardware Requirements

Serial Ports

There are two (2) types of Serial Com ports used in the TM-2000. One type is the (former standard) computer communications Com ports. The TM-2000 requires the standard COM1 and COM2 devices. (These are referred to as /dev/ttyS0 and /dev/ttyS1, respectively, in Linux.) COM1 is used specifically for Trunk Edit; COM2 is used specifically for the Trunk Supervisor.

The second type is an 8 port PCI Com card used for trunking communication between intercom frames. In order to communicate with intercoms, one or more 8 port serial cards must be installed. The cards to be used are PCI-COM485/8 cards, from ACCES I/O Products Inc. The TM-2000 will run without any ACCES cards being installed; however, it will not be able to be connected to any intercoms for trunking.

PCI slots each have a unique number. The first 8 serial ports are on the ACCES card in the lowest-numbered slot; the next 8 serial ports are on the serial card in the next-highest numbered slot, etc. (The cards do not have to be in adjacent slots. If 2 cards are installed, they will provide serial ports numbered 1 through 16, whether they are adjacent or not. (see page 7, this document)

This information can also be determined by booting off the TM-2000 installation disk and selecting option 3 ("List PCI devices and check for interrupt conflicts"). It will not, however, tell you which device is related to what physical slot the device number corresponds to for a port range. **See page 7** for more details on Com identification.

If a VDP (VTR Delegate Panel) controller is to be used, it must be connected to the first serial port on the first ACCES card; otherwise this serial port can be used for intercom communications. VDPs, however, are rarely used.

The selection of whether or not to enable VDP operation is made when the software is installed from the CD.

Ethernet Adapters

The TM-2000 supports the use of a single Ethernet adapter. This is used for active/standby communications, and also for Trunk Edit communications via Ethernet. If Trunk Edit via Ethernet is to be used, the computers must be connected by a switch or hub; otherwise, a single Category-5 cross-over cable can be used between the active and standby computers.

The following Ethernet adapters are supported:

3COM 3c501/3/5/9, 3c529, 3c579, 3c59x, and 3c9xx
Intel EtherExpressPro/100
Intel 815E chipset (e.g. Intel 82801)
National Semiconductor DP8381x
NetGear FA-311
AMD PCnet32 PCI

Note that there are many Ethernet adapter cards that are listed as being supported by Linux. However, in order to support any other cards, the Linux kernel that is included with the TM-2000 software must first be rebuilt to add support for those cards.

In other words, if you install an Ethernet card other than one from the above list, it won't work without modifications to the software, even if the card is listed as being supported by Linux.

PCI Slots and Interrupts

The PCI architecture is designed to allow multiple PCI cards to share an interrupt line. The TM-2000 software allows multiple ACCES cards to share an interrupt. However, an interrupt line which is used by an ACCES card MUST NOT be shared with another device.

It may be necessary to move the network card to a different slot as the network card cannot share it's IRQ assignment with any of the other cards.

It is possible for the same interrupt line to be assigned to an ACCES card and to another PCI device which doesn't actually generate interrupts - for example, a VGA controller. In this case, the system should be okay.

When a computer is booted from the TM-2000 installation CD, one of the options is "List PCI devices and check for interrupt conflicts". If this option is selected, a list of all PCI devices which use interrupts will be printed. The device/slot number is also printed, which can be used to identify how the PCI slots are numbered. Note that the lowest-numbered slot may be something other than 0 or 1.

* * *

TM-2000 Software Upgrade Procedure

The following upgrade pertains to Trunk Master version 8.7.1 and assumes there to be a **bootable TM-2000 software installation CD** on hand.

NOTE: Before performing the following, procedures, **SAVE** the current Trunk Master setup file to disk via TrunkEdit.

Connect a monitor and keyboard to the Trunk Master.

You should see a prompt similar to "`tm_solo login:`". If not, run "ctl-alt-del" to get the prompt.

Next, shut down the TM software by first logging in as "`root`", then you will see a prompt "root@tm_solo ~ #".

Next enter the command "/tm/stop_tm all". You should then see several exiting statements followed by the prompt similar to "root@tm_solo ~ #".

Insert the bootable installation CD into the Trunk Master CD drive and at the console enter the command "shutdown –r now. This will cause the Trunk Master to safely shut down and re-boot from the installation CD. If you do not have a bootable CD, **stop here** and see page 12, Creating a bootable CD from an ISO file.

The CD will boot Linux, and then prompt for what to do next. This will take a few minutes. . . .

You will now see the following screen text:

```
TM-2000 Trunk Master Software

Options?
   1.  Run the TM-2000 as a demonstration off the CD ROM.
   2.  Install Linux and the TM-2000 software on the hard drive
   3.  List PCI devices and check for interrupt conflicts
```
(see previous section, PCI slots / interrupts)

Assuming you select Option 2 for installation:

When the option to install the software is selected, the computer will prompt for various pieces of information.

There are defaults for most of the options. The first question addresses whether the computer is to be part of an active/standby configuration.

The following 3 choices are available:

1) Stand-alone operation: This option sets the computer name to tm_solo; the IP address to 10.201.202.203; and no standby computer.

2) Active/standby, active by default: This sets the computer name to tm1; the IP address to 10.201.202.204; and the active/standby "partner" to tm2 / 10.201.202.205. (each pair of a dual TM system must be set up and identified separately) i.e. this TM will be assign the active tm1 by default by selecting #2 for this TM setup.

3) Active/standby, standby by default:. This sets the computer name to tm2; the IP address to 10.201.202.205; and the active/standby "partner" to tm1 / 10.201.202.204. (each pair of a dual TM system must be set up and identified separately) i.e. this TM will be defined as the standby tm2 by default by select #3 for this TM setup.

Select the appropriate configuration. (remember; if this is a dual TM configuration, you will need to do this procedure for the other TM in the system as well and set it up as the appropriate partner)

In addition, the following parameters are set by default:

Domain or workgroup name: WORKGROUP. This is significant only if you want to be able to access the TM-2000's hard disk from a Windows machine (e.g. to update the software).

Network number: 10.201.202.x . This value may need to be changed if the IP address is set to something other than 10.201.202.x .

Subnet mask: 255.0.0.0 . This value may need to be changed if the network number is changed.

Broadcast address: 10.255.255.255 . This value may need to be changed if the network number is changed.

Gateway address: None. This parameter is normally not required. After selecting the configuration, you have the ability to change the computer name or any of the networking parameters, if needed. See the section on networking information for more details.

Networking Note: If the TM-2000 computers are going to be used on a private network with no other devices, there should be no need to change the default IP addresses that the TM-2000 uses. However, if they are going to be connected to an existing network, the default IP addresses may not be suitable. The local network administrator should be consulted to obtain the proper IP addresses, network mask, etc.

A following section, (page **11)** describes which files need to be changed in order to change the network configuration without reinstalling the TM-2000 software.

Next, you will see a screen similar to below.

```
Configuration? 1

    Network mask value:    255.0.0.0

    This computer:
        Mode:                       Stand-alone
        Host name:                  tm_solo
        IP address:                 10.201.202.203
        Workgroup / Domain:         WORKGROUP
```

You will now be asked if you want to change any of these values.

If you select “y”, you will be prompted for the change. If no change, just hit enter to accept what is displayed or enter the change and hit enter.

When finished and you have confirmed the settings, select “n”.

The software next prompts for whether the TM-2000 will be used with VTR Delegate Panels. This affects whether the first ACCES serial port is available as an intercom connection or not. Most installations will not need VDPs.

Select from 3 options:

1. Abort installation
2. Allow installation to continue
3. Partition disk manually

Next, the software attempts to determine the hard disk drive size and partition information. You have a choice, of either controlling how the hard disk is partitioned, or of letting the software generate default partitions.

When asked: “Do you wish to choose alternate partitions (y/n)” Choose “n”

If the default partitioning is chosen, 2 partitions will be generated: one of 5 MB (containing the files essential for booting) and one of 250 MB. Once the partitions have been selected, the partitions will be formatted, and the software installed on the hard disk drive.

When asked OKay to repartition drive, type “`yes`” a “y” will not be accepted for safety sake.

Follow the remaining partitioning prompts.

Once the partitioning process is complete, a “`tm_demo login`:” will be displayed.

Press **Ctl-Alt-Del** to safely re-boot the Trunk Master. As the system re-boots, press the eject button on the CD drive so it does not try to run the CD again. You may have to rapidly and repeatedly push the eject button so that the button is engaged when the hardware polls it. At some point during re-boot, the CD should eject and the system will use the internal drive to boot from. **If this doesn't release the CD**, do a hard power cycle and repeat above.

After the Trunk Master re-boots and shows the Login prompt, similar to "`tm_solo login`:" the new TM software version (8.7.1) should be seen in the list of system parameters on the screen.

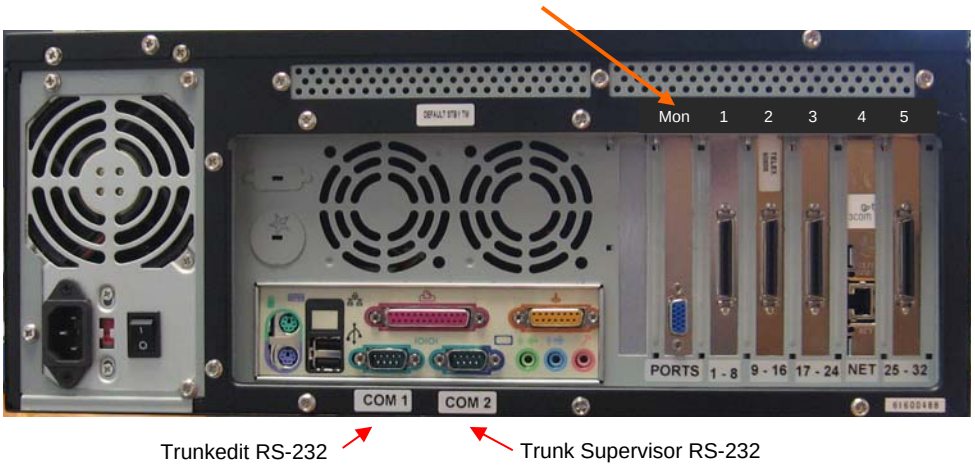
If necessary, send the previously saved TM setup file to the TM-2000 via TrunkEdit.

This completes the TM-2000 software upgrade.

TM-2000 Serial Com Port Identification

The purpose of this section is to identify in advance which TM2000 / MTM2000 RS-485 Com ports relate to which PCI card slots in a Trunk Master frame. In the following examples, one of a dual TM-2000 configuration with 4 PCI cards was used.

The TM2000 PCI RS-485 Serial card slots are typically numbered 1 – 5 across the back of the Trunk Master from left to right, beginning with the slot to the right of the monitor card. Usually slot 4 is the Ethernet card.



These Com ports are not to be confused with the trunking management software RS-232 Com ports used for Trunkedit and Trunk Supervisor.

These five (5) slots handle Trunking Com ports 1 – 32 and an Ethernet controller card. These card slots have a specific relationship to the TM computer's PCI device number, which determines the Com port range for each PCI Serial card.

Every PCI Serial slot in the TM2000 has a slot I.D. reported to the processor. Each PCI card in the TM2000 may not necessarily be in a logical 8 port group order. This can vary from one TM2000 mother board manufacturer to another. For example, PCI card slot 1 may be ports 1-8, slot 2 may be ports 17-24, etc. Most usually, the Com ports will be laid out as shown in the photo above but in any case should be labeled by the factory how each port range falls.

Depending on the motherboard, the IRQ assigned to a given slot might change depending on what other cards are installed. This can lead to a problem, e.g. if a Serial card ends up sharing an IRQ with an Ethernet card. It may be necessary to move the Ethernet card to another slot which does not conflict in IRQ.

For a given motherboard, PCI slot (or device number) for each PCI slot is fixed. The TM-2000 will first assign ports 1-8 to the Serial card in the lowest-numbered ID slot regardless to its physical position in the TM frame.

To determine the TM-2000 PCI Com port numbers relative to the PCI ID number, connect a monitor and keyboard to the TM2000.

Assuming the Trunk Master software has already been installed, boot up the Trunk Master with only one (1) PCI Serial and the Ethernet cards installed and wait for it to display the login prompt.

Log in as "root". You should have a prompt something like:

`root@tm1 ~ #` or `root@tm2 ~ #` if the TM has been configured as the standby TM.

Type in the command: `less /proc/pci`

This will give you lots of information about each installed PCI device. On some computers, it includes the following: (Hit the space bar to display the next screen; hit "q" to exit. You can also use arrow-up/down and page-up/down to navigate).

You should now be able to find the PCI Trunking Serial card and the Ethernet card as shown below.

There may be many other devices showing up in this screen but the ones we are concerned with, in terms of the Trunk Master, are the "494f : 1069" Serial PCI devices, the Network card and their respective IRQs.

```
Bus 0, device 9, function 0:
     Serial controller: PCI device 494f:1069 (rev 1).
       IRQ 5.
       Non-prefetchable 32 bit memory at ...
       I/O at ...
       I/O at ...

Bus 0, device 12, function 0:
     Ethernet controller: PCI device ...
       IRQ 11.(must not be the same as a serial controller)
   ....Master Capable.  Latency 32...
       I/O at ...
       Non-prefetchable 32 bit memory at ...
```

This identifies the serial card we currently use for the serial ports in the TM.

Write down the device numbers and the related IRQ for both.

WARNING: When installing or removing PCI cards, the Trunk Master must be powered down each time a PCI card is installed or removed. Hot swapping of serial cards is not recommended.

If not already done so, unplug all the Serial PCI cards except for one in slot 1.

Next, plug in a PCI Serial card into slot # 2 and power up the TM. This process will be done for each remaining PCI card.

Read the information after entering the "`less /proc/pci`" command and again note the device # and IRQ for slot 2.

Repeat for the remaining two PCI cards.

Upon adding the last PCI card, the screen should now look similar to below along with any other PCI devices the system may have.

```
Bus 0, device 9, function 0:
     Serial controller: PCI device 494f:1069 (rev 1).
       IRQ 5.
       Non-prefetchable 32 bit memory at ...
       I/O at ...
       I/O at ...
Bus 0, device 10, function 0:
     Serial controller: PCI device 494f:1069 (rev 1).
       IRQ 12.
       Non-prefetchable 32 bit memory at ...
       I/O at ...
       I/O at ...
Bus 0, device 11, function 0:
     Serial controller: PCI device 494f:1069 (rev 1).
       IRQ 10.
       Non-prefetchable 32 bit memory at ...
       I/O at ...
       I/O at ...
Bus 0, device 13, function 0:
     Serial controller: PCI device 494f:1069 (rev 1).
       IRQ 5.
       Non-prefetchable 32 bit memory at ...
       I/O at ...
       I/O at ...
Bus 0, device 12, function 0:
     Ethernet controller: PCI device ...
       IRQ 11.(must not be the same as a serial controller)
   ....Master Capable.  Latency 32...
       I/O at ...
       Non-prefetchable 32 bit memory at ...
```

By this process, you can now determine in advance what ports will be assigned to which cards, based on the slot ID numbers.

Applying the port mapping scheme to the above information, lowest device # being first, the port numbering for this Trunk Master is as follows:

Card Slot	Device ID #	IRQ	Trunk Com Ports
1	9	5	1 - 8
2	10	12	9 - 16
3	11	10	17 – 24
4	12	11	Ethernet
5	13	5	25 - 32

Suppose a motherboard has PCI device numbers 8, 7, 10, 11, 12 . Assuming the Ethernet card is in slot 4 with no IRQ conflicts, you plug in 1 card in the left-most slot to the right of the monitor card, You enter the command string "`less /proc/pci`" and it reports (slot 1, PCI device ID #8) and this will become trunk ports 1-8 (it's the only PCI Serial card in the frame).

You now plug in the next card in slot #2, re-boot and run the "pci" command. Bios reports PCI device ID #10 for slot #2. This device is the higher device number, so it will become trunk ports 9-16. You now plug in the next card, slot #3, re-boot and run the "pci" command and this device is reported as PCI device ID #7. It is now the lowest device number, so it will now become trunk ports 1-8, card slot 1 is now reassigned trunk ports 9-16 and card slot 2 is assigned trunk ports 17-24.

Lastly, you plug in the last card in slot 5. Doing the same routine, and it is reported as PCI device ID #11 and it is assigned trunk ports 25-32, being the highest ID number in the PCI Serial card string.

The resulting port assignments in the above example will now be:

Card Slot	Device ID #	IRQ	Trunk Com Ports
1	8	x	9 - 16
2	10	x	17 - 24
3	7	x	1 - 8
4	12	x	Ethernet
5	11	x	25 - 32

This is only a hypothetical example of how card slots relate to PCI slot ID numbers. In most cases the port number scheme will be as in the first eaxmple on page 9.

This concludes Com port I.D procedure

Changing the TM-2000 Network Parameters

After initial installation or for updating network parameters, a file may be run that allows access to the TM-2000's network settings without having to re-install the TM-2000 software. This file is "chg_ip.sh".

To change network parameters in the TM-2000 you need to run the file "chg_ip.sh. This file is installed with the TM-2000 upgrade to version 8.7.1.

NOTE: If you have two Trunk Masters running in an active/standby configuration, you must update the network settings for each computer separately.

To run this file, connect a monitor and keyboard to the TM-2000.

At the computer console, type "`root`" at the login prompt. If a password has been set for root, enter it at the password prompt.

You should then get the message "`Linux 2.4.17-rthal5`", followed by a prompt similar to "`root@tm_solo ~ #`".

You can also log in via the network. Use telnet to connect to the TM; enter a user name of "`tm_admin`" (the default password is "`KermitFrog`"). Then type "`su`" to become the user "root".

Next, shut down the TM-2000 software by entering "`/tm/stop_tm all`":

You should get several lines of output (not necessarily in this order):

```
nvconfig: exiting
Active/Standby: exiting
Trunk Master: exiting
LAN interface: exiting
```

At the prompt, type in "`sh /tm/chg_ip_addr.sh`".

The computer will then check the local configuration files to determine what the current network settings are; it will then display the network settings:

- the TM-2000's IP address
- the subnet mask
- the address of a gateway computer, if any
- the IP address of the active/standby "partner", if any

Then you will be asked: `Do you want to change any of these settings? (y/n)`

If you select "y", you will be asked for a new value, if any, for each parameter. If "n", just hit "enter" and it will step to the next prompt.

If you make a mistake when entering a value, don't worry. Just hit <Enter> at each prompt. Eventually, it will show the prompt again: `Do you want to change any of these values? (y/n)`

Make the necessary corrections and continue.

Note: If you have 2 TM-2000 computers running in an active/standby configuration, you must update the network settings for each computer separately.

(You will not get the "Active/Standby" line if the TM-2000 started up in stand-alone mode.) These messages are sent to the console; you will not see them if you are connected via telnet.

When finished, you may be asked again: `Do you want to change any of these values? (y/n)`

If you select "n", you will see the following prompt:

```
Ready to update the configuration files.
Okay to proceed? (y/n)
```

If you hit <Enter> at this prompt, it will exit without touching the configuration files. Otherwise, (if you enter "y") it will update either of two files (/etc/hosts and /etc/rc.d/rc.inet1) as required, depending on what information changed.

After the update is sent, you should now be returned to the "`root@tm_solo ~ #`" prompt.

If no changes were made and no configuration update was done, you can re-start the TM by entering "`sh /tm/run_tm`:".

If changes were made, re-start the TM by pressing "ctl-alt-del". The computer should shut down safely, reboot itself, and automatically restart the TM-2000 software using the new network settings.

Creating Bootable TM-2000 Installation CD

Obtain the "tm_871.iso" file from RTS Technical Support.

Double click on the "`tm_871.iso`" file and if you are using Roxio or Nero as a CD creator, it should launch you in the appropriate context to make a bootable CD.

Follow the prompts and when finished, check the CD with Windows Explorer and the file structure should look similar to below.

```
bin         home        root       usr
boot_img    initrid     sbin       boot.catalog
dao         lib         setup      tm_2000.htm
etc         opt         tm         TRANS.TBL
```

If you see only a single file,"tm_871.iso", the burn was not successful.

SWP-2000 Switch-Over Panel

The following helps explain the normal operational status indicators of the SWP-2000 Trunking Switchover Panel.

If both TM's are running normally, the following status should appear: (*see also, Summary below*)

- The Activity LED for each TM should be blinking green (3x per second, when quiescent). This indicates activity associated with the TM-A inputs.

- For the active TM, the Active LED should be solid green, indicating ON, and the Standby TM LED should be off.

- For the standby TM, the Active LED should be off, and the Standby TM LED should be solid green, indicating it is on standby.

- For both TM's, the "Other TM" LED should be solid green, winking. (It. should wink frequently when there is active/standby communications occurring, occasionally at other times.) It will be red if not and off if not configured for a standby TM.

SWP-2000 Normal Status Indications Summary

Active TM-A	
Activity	(blinking green)
Active TM	(solid green)
Standby TM	(off)
Other TM	(solid green/wink)

Standby TM-B	
Activity	(blinking green)
Active TM	(off)
Standby TM	(green)
Other TM	(solid green/wink)

If Trunk Supervisor is having trouble talking TM1, possibly check if the Auto-TIMS is connected directly to the PC running Trunk Supervisor. However, Trunk Supervisor could have problems talking to TM1 if TM2 is not working properly. If you suspect this might be the case, you can try powering off TM2; you could also try disconnecting the RS-232 cables that go from TM2 to the SWP-2000.

When the TM boots up, the last few messages on the console should be similar to:

```
Starting Samba...
Run TM-2000 software (y/n, default y)?
Loading RTAI modules...
Using /tm/rtai
Using /tm/rtai_shm
Using /tm/rtai_sched
Using /tm/rtai_fifos
Using /tm/rt_com
Using /tm/acces
Starting up Trunk Master application...
Using /tm/tm
Trunk Master, Version <version>, <date> <time>
Shared memory created
VDP support disabled
Initializing shared memory segment...
Completing system initialization

Welcome to Linux 2.4.17-rthal5.

tm1 login:
```

In TrunkEdit:

1.) - Go to Diagnostics | Trunk Master Status, and see what it reports. (expecting that it will show "-" for the status of the standby.)

2.) - Go to View | Configuration, ensure the Trunk Master connection is set to NET:, and click the Browse button (next to the Host address/Connection name boxes, labeled with "..."). It should show tm1 and tm2. Click each one in turn, and verify the information is correct.

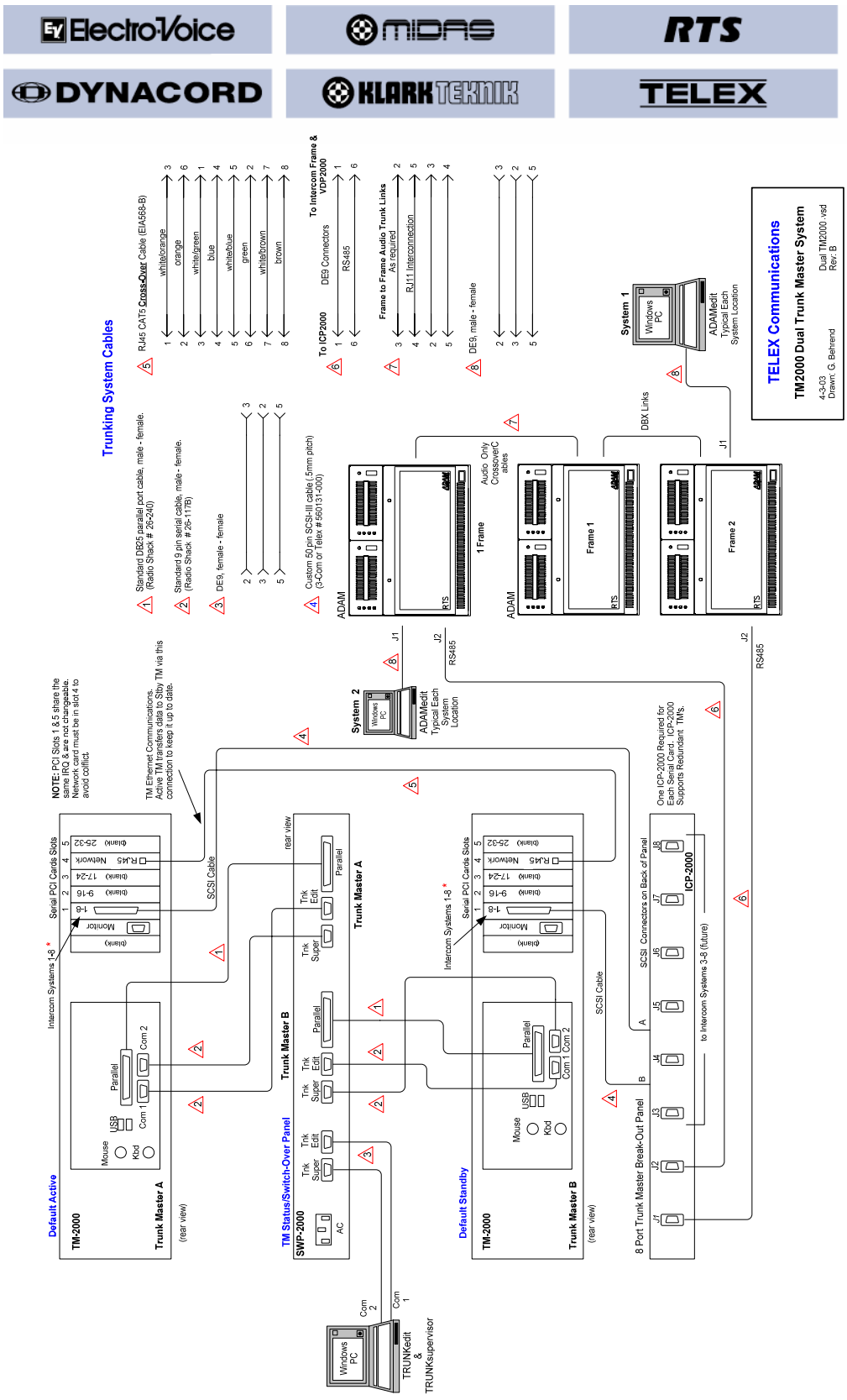
If you still have a problem with tm2 not talking, log on as "root" at tm2's console (by default, there is no password), and then enter

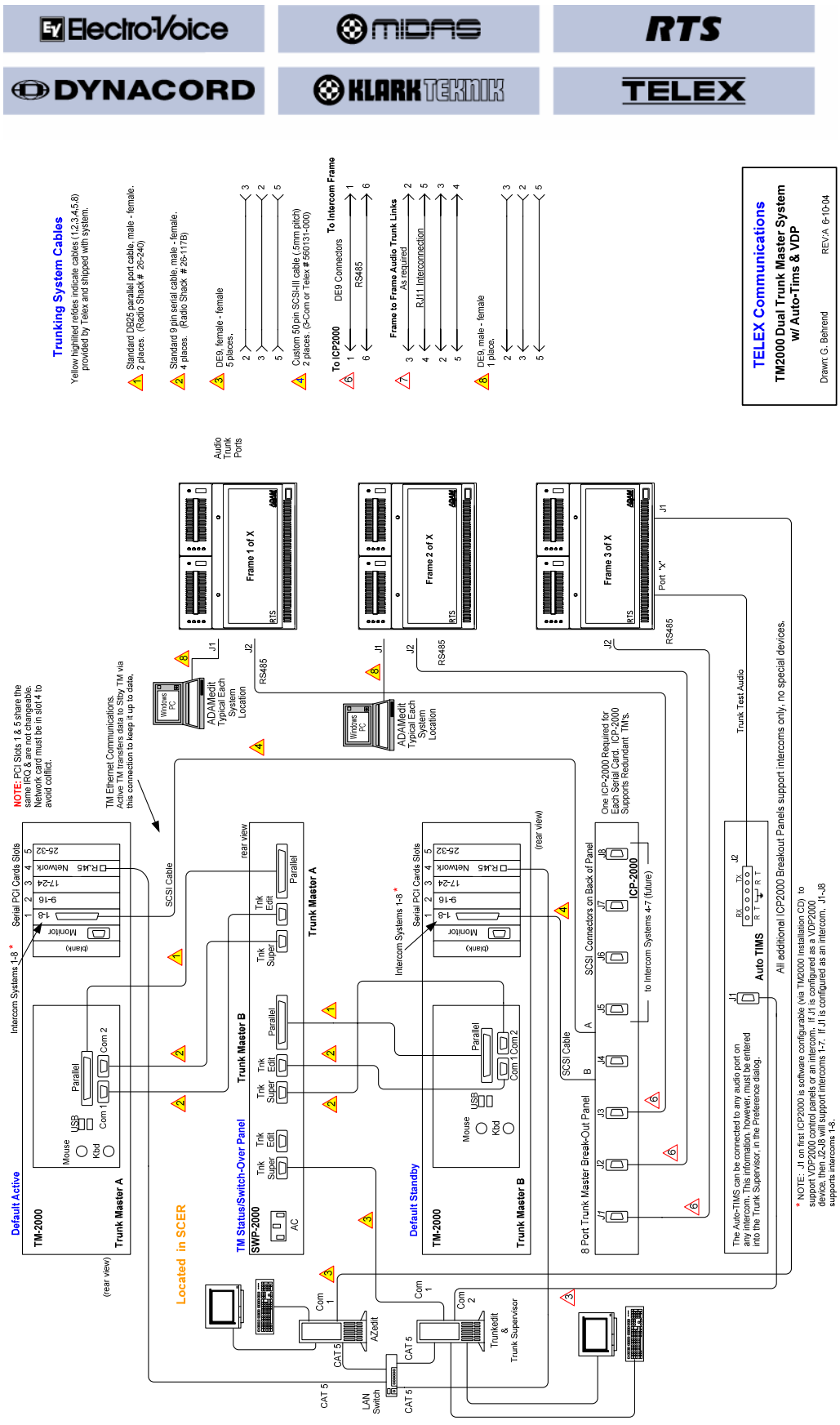
```
dmesg | tail -n 20
```

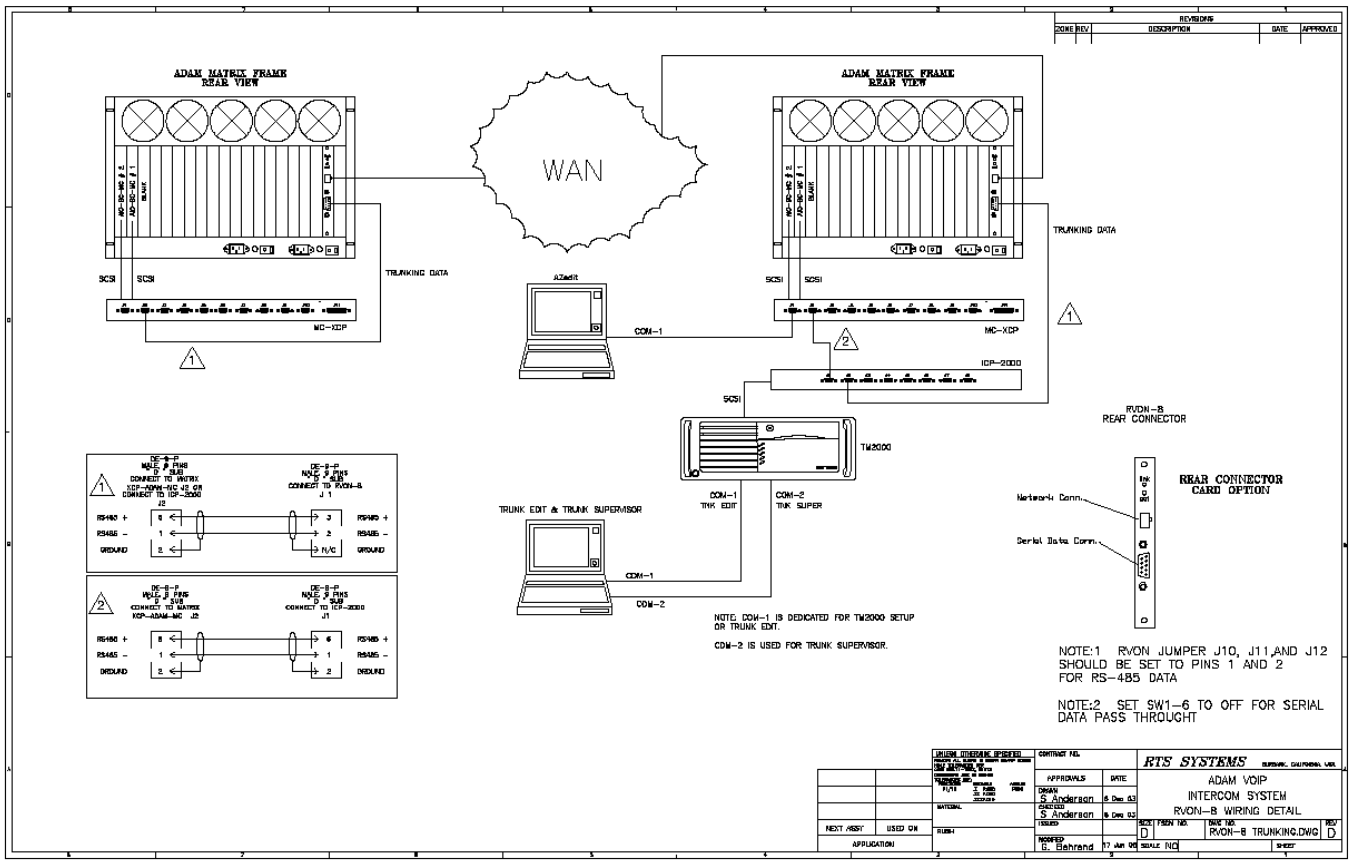
The last few lines should show something like the following:

```
rt_com: RT-Linux serial port driver (version 0.5.4) successfully loaded.
rt_com: Copyright (C) 1997-2000 Jochen Kupper et al.
Build Dec  4 2002, 10:46:10
ACCES driver version 0.0.1, build Dec  4 2002, 10:46:08
Installing handler for IRQ <number>
Installing handler for IRQ <number>
Usable ACCES I/O cards found: 4
Trunk Master, Version <version>, <date> <time>
Shared memory created
VDP support disabled
Completing system initialization
```

Type "`exit`" to log out again.


Trunking System Cables
TELEX Communications
TM2000 Dual Trunk Master System
4-3-03
Drawn: G. Behrend
Dual TM2000.vsd
Rev: B
Standard DB25 parallel port cable, male - female. (Radio Shack # 26-240)
Standard 9 pin serial cable, male - female. (Radio Shack # 26-117B)
DE9, female - female
Custom 50 pin SCSI-III cable (.5mm pitch) (3-Com or Telex # 560131-000)
RJ45 CAT5 Cross-Over Cable (EIA568-B)
white/orange
orange
white/green
blue
white/blue
green
white/brown
brown
To ICP2000
DE9 Connectors
RS485
To Intercom Frame & VDP2000
Frame to Frame Audio Trunk Links
AS required
RJ11 Interconnection
DE9, male - female
System 1
Windows PC
ADAMedit
Typical Each System Location
DBX Links
ADAM
1 Frame
Audio Only CrossoverCables
Frame 1
Frame 2
RTS
J1
J2
RS485
System 2
Windows PC
ADAMedit
Typical Each System Location
NOTE: PCI Slots 1 & 5 share the same IRQ & are not changeable. Network card must be in slot 4 to avoid conflicts.
TM Ethernet Communications. Active TM transfers data to Stby TM via this connection to keep it up to date.
Intercom Systems 1-8 *
Serial PCI Cards Slots
Monitor
RJ45 Network
(blank) 25-32
(blank) 17-24
(blank) 9-16
1-8
(blank)
SCSI Cable
rear view
Trunk Master A
Trunk Master B
Trk Edit
Trk Super
Parallel
Com 1
Com 2
USB
Mouse
Kbd
Default Active
TM-2000
(rear view)
TM Status/Switch-Over Panel
SWP-2000
AC
Default Standby
Intercom Systems 1-8 *
SCSI Cable
One ICP-2000 Required for Each Serial Card. ICP-2000 Supports Redundant TMs.
SCSI Connectors on Back of Panel
ICP-2000
to Intercom Systems 3-8 (future)
8 Port Trunk Master Break-Out Panel
Com 2
Com 1
Windows PC
TRUNKedit & TRUNKsupervisor


Trunking System Cables
Yellow highlited refdes indicate cables (1,2,3,4,5,6) provided by Telex and shipped with system.
1 Standard DB25 parallel port cable, male - female. 2 places. (Radio Shack # 26-240)
2 Standard 9 pin serial cable, male - female. 4 places. (Radio Shack # 26-1176)
3 DE9, female - female 5 places.
4 Custom 50 pin SCSI-III cable (.5mm pitch) 2 places. (3-Com or Telex # 360131-000)
To ICP2000 DE9 Connectors To Intercom Frame
RS485
Frame to Frame Audio Trunk Links As required
RJ11 Intercomnection
6 DE9, male - female 1 place.
TELEX Communications
TM2000 Dual Trunk Master System w/ Auto-Tims & VDP
Drawn G. Behrend REV:A 6-10-04
Audio Trunk Ports
Frame 1 of X
Frame 2 of X
Frame 3 of X
Port "X"
RS485
Trunk Test Audio
ADAMedit Typical Each System Location
TM Ethernet Communications. Active TM transfers data to Stby TM via this connection to keep it up to date.
NOTE: PCI Slots 1 & 5 share the same PCI slot and are not changeable. Network card must be in slot 4 to avoid conflict.
Intercom Systems 1-8 *
Serial PCI Cards Slots
1-8
9-16
17-24
25-32
RJ45 Network
Monitor
(blank)
SCSI Cable
Default Active
TM-2000
Trunk Master A
(rear view)
Mouse
Kbd
USB
Com 1
Com 2
Parallel
Trk Super
Trk Edit
Trk Edit
Parallel
Trunk Master B
TM Status/Switch-Over Panel
SWP-2000
AC
Located in SCER
Default Standby
Trunk Master B
One ICP-2000 Required for Each Serial Card. ICP-2000 Supports Redundant TM's.
SCSI Connectors on Back of Panel
ICP-2000
to Intercom Systems 4-7 (future)
8 Port Trunk Master Break-Out Panel
The Auto-TIMS can be connected to any audio port on any intercom. This information, however, must be entered into the Trunk Supervisor, in the Preference dialog.
Auto TIMS
All additional ICP2000 Breakout Panels support intercoms only, no special devices.
* NOTE: J1 on first ICP2000 is software configurable (via TM2000 Installation CD) to support VDP2000 control panels or an intercom. If J1 is configured as a VDP2000 device, then J2-J8 will support intercoms 1-7. If J1 is configured as an intercom, J1-J8 supports intercoms 1-8.
Com 1
Com 2
CAT 5
AZedit
Trunkedit & Trunk Supervisor
LAN Switch


ADAM MATRIX FRAME
REAR VIEW
WAN
ADAM MATRIX FRAME
REAR VIEW
TRUNKING DATA
SCSI
SCSI
MC-XCP
TRUNKING DATA
ADedit
COM-1
SCSI
SCSI
MC-XCP
ICP-2000
SCSI
TM2000
RVON-8
REAR CONNECTOR
COM-1
TRK EDIT
COM-2
TRK SUPER
TRUNK EDIT & TRUNK SUPERVISOR
COM-1
COM-2
NOTE: COM-1 IS DEDICATED FOR TM2000 SETUP OR TRUNK EDIT.
COM-2 IS USED FOR TRUNK SUPERVISOR.
REAR CONNECTOR
CARD OPTION
Network Conn.
Serial Data Conn.
NOTE:1 RVON JUMPER J10, J11,AND J12 SHOULD BE SET TO PINS 1 AND 2 FOR RS-485 DATA
NOTE:2 SET SW1-6 TO OFF FOR SERIAL DATA PASS THROUGHT
RTS SYSTEMS
ADAM VOIP
INTERCOM SYSTEM
RVON-8 WIRING DETAIL
RVON-8 TRUNKING.DWG

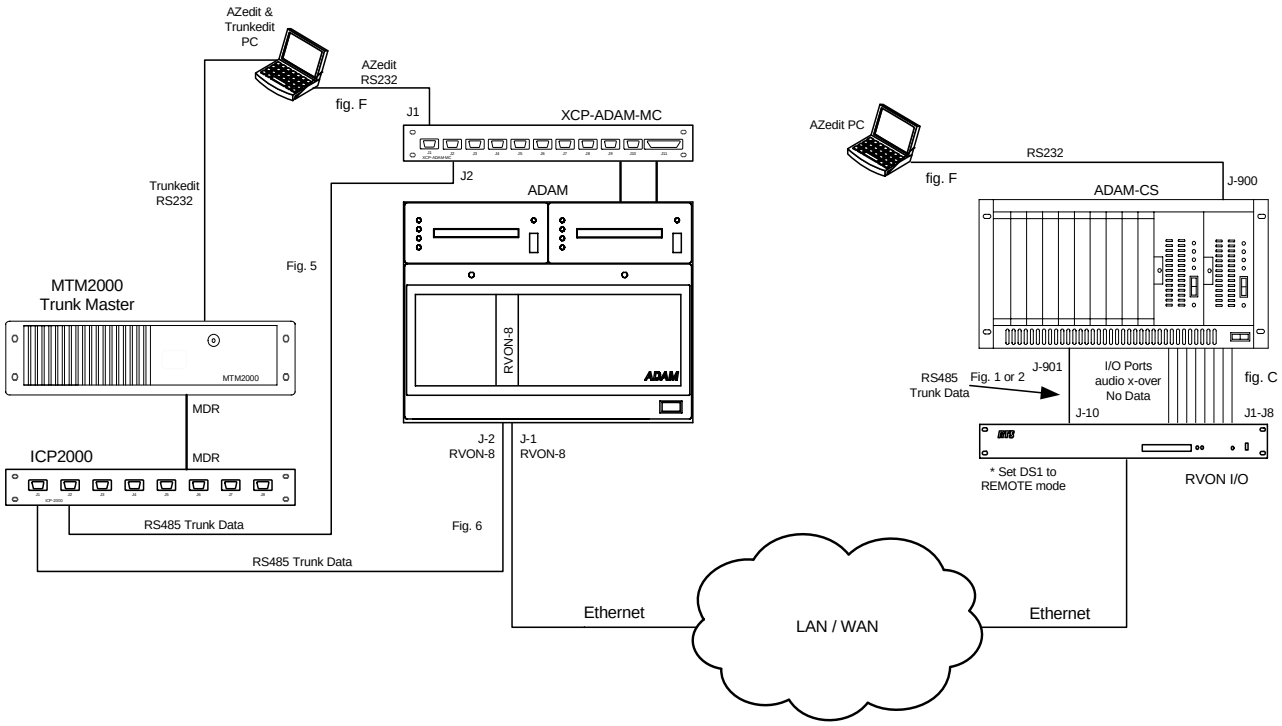


Figure BD-5. Serial Pass-Through (intelligent) Trunking Connection
ADAM & ADAM-CS with RVON I/O

RVON5.vsd