*Team*Pad 7500

User's *Guide*

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1. Overview

The *Team*Pad 7500 is a RISC based Hand Held computer designed for use in a Thin Client system. The unit consists of an 8.4 inch diagonal 800x600 Pixel touch sensitive LCD display panel, built in numeric keypad, Radio Frequency Local Area Network card, and a rechargeable Lithium Ion battery. The unit is primarily designed to be used in a facility such as a warehouse, hospital, or retail store where proximity to an RF Access Point is guaranteed.

2. Unit Specifications

2.1. Hardware

The *Team*Pad 7500 unit specifications are shown below:

Feature	Specification
CPU	NEC VR4111-85MHz
Operating System	Windows CE v2.11
RAM	16Mb
Flash ROM	16Mb
Display	8.4" Diagonal DSTN 800x600x256
Interfaces	Touch Panel PCMCIA Type II (One Slot) Numeric Keypad RS-232 Serial Port TTL Serial Port IrDA 1.0

2.2. Software

The *Team*Pad is equipped with Microsoft RDP client software to support Windows Terminal Server thin client implementation, and Citrix ICA client software to support Citrix MetaFrame thin client implementation.

3. Operation

*3.1. Holding the Team*Pad

The unit is equipped with a hand strap on the back so you can hold it securely with one hand during use.

3.2. Turning the unit on and off

To turn the unit on, press the PWR key and hold it until the green LED illuminates. Release the power key. To power the unit off, press and hold the PWR key until the screen goes dark.

3.3. Checking the battery levels

To see the current state of the battery, press the 'SYS' and ' ' keys simultaneously. This will display a pop-up window containing information about the battery. This information includes the battery status, the percentage of battery power remaining, the predicted remaining operating time on this charge, and the number of charge/discharge cycles the battery has been through.

3.4. Adjusting the screen visibility

To adjust the LCD display contrast, use the '-' and '+' keys on the keyboard. To adjust the backlight intensity, press the ' ' key. The system has 4 levels of backlight, it will cycle through them as you press the key.

3.5. Screen Keyboard

The *Team*Pad 7500 is equipped with a 'virtual keyboard' that allows key entry from the touch screen. This keyboard is designed for entry of alphanumeric data, primarily to increase security by allowing users to log onto the server with a non-numeric ID and password. Pressing the 'SYS' and down-arrow keys on the 10 key keypad activates the keyboard. The same key sequence closes the keyboard window. The keyboard should be closed while not in use, because it may interfere with the display of data from the server.

3.6. Key functions

The unit is equipped with a numeric keypad, which consists of the following keys:
PWR – Controls system power
0-9 – Numeric values
ENT – Enter
Arrow Keys – Allow scrolling just like the arrow keys on your PC keyboard
CLR – Escape key
'.' – Decimal point
'BKS' – Backspace
'FUNC' – Function shift key
'SYS' – System key
' ' – Back-light brightness
'-' and '+' – Screen

3.7. Switches

There are two recessed buttons on the back of the unit. The function of the buttons is marked beneath each button.
The RESET button is self-explanatory. A reset also causes the unit to power off.
The RAS button causes the unit to enter the on-board diagnostics. The details of the RAS diagnostics are covered in another section of this document.
The Battery Lock is also a switch; if the battery lock is not in the locked position, the unit will not power on.

3.8. What does the LED mean?

The unit has an LED on the front panel. This LED has multiple functions depending on the state of the unit.

LED action while unit is operating without charger connected		
LED State	What does it mean	What should you do
Red Blinking at 3 second intervals	Battery voltage is below 6.6V. A screen popup window may be displayed as well.	Connect a charger or replace the battery with a charged battery.
LED action after pressing PWR switch		
LED State	What does it mean	What should you do
Green – not blinking	The unit is processing the power on request. The LED will remain lit until the screen is displayed	Nothing.
Red – blinking for 5 seconds at 0.5 second rate	Unit has detected an internal problem.	Contact your service representative.
LED action while charging is being performed		
LED State	What does it mean	What should you do
Green – not blinking	The battery is being charged. The LED will go out when the battery is fully charged.	Nothing.
Green – blinking at 0.5 second interval	Charging problem is detected: The battery voltage is below 6.8v or the battery voltage has not reached 8.3v after the charging interval is complete.	Replace the battery with a new one.
Red – not blinking	AC adapter voltage is below 11.0v, so charging cannot be performed.	AC adapter may have a problem. Check your AC mains voltage, or contact your service representative.

The battery pack charger is also equipped with an LED to indicate the status of the charging operation.

Pack Charger LED actions		
LED State	What does it mean	What should you do
Orange – Not blinking Blinking at 3 second intervals	Battery is being charged.	Nothing.
Green – Not blinking	Battery charging is complete.	Nothing. Remove the battery from the pack charger
Red – Not blinking	Battery is not connected properly, or the battery is defective.	Re-seat the battery. If the problem persists, contact your service representative.

3.9. System Setup

3.9.1. Touch Screen Calibration

To calibrate the touch screen, power the unit on and press/hold the ‘SYS’ key. Release the key when the calibration screen is displayed. Follow the instructions on the screen to calibrate the unit. The unit will power itself off when the calibration is complete.

3.9.2. System Software Setup

To enter the system setup mode, power the unit on, then press and hold the SYS and FUNC keys, while simultaneously holding your finger against the touch screen. Continue to hold until the system displays the world map. The system will display a window with the message "Do you want to change the network settings'. Click on Yes to continue. If you click No, the system will proceed to the Windows Terminal Server connection settings screen (See section 3.9.2.4).

3.9.2.1. Network Settings

This icon allows the user to change network configuration settings. If you click on the Network icon, the network configuration screen will be displayed. This allows the user to set the identification properties of the machine (under the 'Identification' tab). These include the user name, password, and domain that the system will log into. Under the 'Adapters' tab, a list of the installed RF LAN cards will be displayed. Click to highlight the appropriate card, and click on 'Properties' to change driver properties for that card. In the case of the Symbol Spectrum24, or the PROXIM RangeLAN card, you will be presented with another tab selection box. Under the tab entitled 'IP Address' you can set the IP address, sub-net mask, and default gateway that the unit will use. Alternatively, you can select DHCP, for use if the network has a DHCP server available. Under the 'Name Servers' tab, you can set the Primary and Secondary DNS and WINS server IP addresses.

3.9.2.2. Proxim RangeLAN RF card Settings

Double clicking on the 'Proxim' icon brings up the Proxim RangeLan card settings window. The following network card settings can be changed:
Under the Network Domain tab:

- Network Domain: Selects the network domain to match the access point. Default is 0

Under the Advanced tab:

- Roam Config: Selects the roaming configuration. Default is Normal.
- Inactivity seconds and minutes: selects the idle power down timeouts for the card. Default is 1 second, 0 Minutes

3.9.2.3. Spectrum24 RF card Settings

Double clicking on the 'Spectrum24 Settings' icon brings up a window that allows you to change the Spectrum24 RF-LAN card settings. The following tables describe the settings available under each tab. The settings that are shaded should not be changed without consulting Support.

Mobile Unit Tab		
Title	Values	Description
ESS ID	Alphanumeric up to 32 characters Default: "101"	'Extended Service Set Identifier'. This parameter must match the ESS ID set in the Access Point. The default value is 101, which should be changed on a production system to provide protection against outside RF cards entering the system.

Mobile Unit Tab		
Title	Values	Description
Power Mode	PSP – Power Saving Poll CAM – Continuous Access Mode Default: PSP	This selection determines how the radio is powered. CAM uses more power but provides slightly faster responses, PSP provides longer battery life at the cost of slightly reduced performance.
Beacon Alg	1 – 11 Default value: 11	The PSP mode beacon algorithm determines how often the adapter wakes up to check for data.1 wakes up more often, 10 wakes less often
Beacon Min	1-10 Default: 1	Minimum time lapse between beacon wakeups when using algorithm 11.
Beacon Max	1-10 Default: 10	Maximum time lapse between beacon wakeups when using algorithm 11.
Preferred BSS ID	0 or MAC address of Access Point. Default: 0	This is the MAC address of the Access point to which the adapter would prefer to be associated. The adapter will associate with another AP if this one cannot be located. 0 indicates no preferred AP
Mandatory BSS ID	0 or MAC address of access point. Default: 0	The MAC address of the access point to which the adapter MUST associate. If this access point cannot be located, no other Aps can associate with this unit. 0 indicates no mandatory AP.
Enable Mobile IP	Not checked	These fields should not be changed.
Home IP address	<blank>	
Delay	3	
Registration	60	

MicroAP Tab		
Title	Values	Description
AP Base Rate	Neither checked	These fields should not be changed.
Hop Set	1	
Hop Sequence	255	
DTIM Delay	1	

WLAN Adapter Tab		
Title	Values	Description
Card Type	PCMCIA	Do not change.
Interrupt	Default: 10	Interrupt level
IO Port Address	Default: 0x340	I/O port address
Memory Base Address	Default: 0xD0000	Memory address

Diversity Antenna	Default: Checked	Use dual antennas
Radio Link Rate	Default: Both 1Mb and 2Mb Support	Data communications speed.

3.9.2.4. Windows Terminal Server Settings

To change the Windows Terminal Server connection settings, answer yes to 'Do you want to change WTS connection settings'. If you answer 'YES', the next popup will ask for the server type. You can select 'TSE' for Microsoft RDP client setup or 'MetaFrame' for Citrix ICA client sertup. This will cause the WTS connection wizard to run. The first frame asks for the connection name and server name. Use the on screen keyboard (Section 3.5) to enter the connection name 'fht' in the connection name box, and the server's name or IP address in the Server text box. The Low Speed Connection checkbox should not be checked.
Click Next. The next frame asks for automatic logon information. Enter it if required by the customer, otherwise, click Next. Here you can setup the application that the system will start when it logs on to the server. See the System Installation planning section for more details on using this with Windows Terminal Server. Click Finish to complete the WTS connection setup.

3.9.2.5. System Settings

The system now displays a window entitled: "Power savings and connecting to Terminal Server". This window allows the user to set several of the internal system parameters. There are three tabs in the window, each is described in detail in the tables below.

Power Savings		
Title	Values	Description
Default brightness of backlight	Bright Mid-Bright Mid-Dark Dark	Sets the brightnes of the backlight when the system is powered on.
Auto backlight off timer	Disable 1-5 Minutes	Sets the length of time that the backlight will stay on.
Auto Power Off Timer	Disable 3-30 Minutes	Sets the length of time that the unit will remain powered on with no keyboard or touch screen activity.
Battery Low Message	Enable/Disable	Allows the user to disable the low battery warning pop-up message.

Server Connection		
Title	Values	Description
Enable autoconnect to a server	Enable/Disable	Enables the unit to attempt a connection to the server immediately on power up.
Server2 Name Server3 Name Server4 Name	Names or IP addresses of alternate servers	These names show up in the initial connection screen drop down menu, to allow the user to log onto additional servers.

Initialize

Title	Values	Description
Initialize	Initialize	To initialize the network settings to their defaults, check the box and close the initialize sheet.

3.9.3. Care and Feeding

Clean the unit with one of the following: a dry cloth; or a damp cloth, a cloth soaked in a diluted mild detergent and firmly squeezed. When using a cloth soaked in a soap-water solution, squeeze the cloth firmly enough to prevent any water from dripping into the device. Water may cause a device failure.

Do not use volatile solvents such as thinner and benzene. They cause discoloration and may erase the characters on the covers.

Clean the display with one of the following:

-- a cloth soaked in water and firmly squeezed

-- a fine cloth, such as those used for cleaning eyeglasses

3.9.4. Battery Maintenance

The *Team*Pad 7500 is equipped with a highly efficient Lithium Ion battery. No special charging precautions need to be undertaken by the user, and unlike NiCd batteries, is not prone to voltage depression (so called memory effect). Make sure the battery is not subjected to extremes of temperature outside the normal operating range of the unit (0-40° C) or the normal storage range (-20-60° C). The Lithium-Ion battery pack has a minimum service life of 500 charge-discharge cycles, and should be replaced when it's performance degrades. Replace the battery pack only with another manufactured by Fujitsu.

3.9.5. Firmware updates

The *Team*Pad 7500 provides a facility to update the internal flash ROM data. Only qualified service personnel should perform this procedure. The unit is very sensitive to static electricity during this procedure, and may be damaged beyond repair. This is not an end user process. An attempt by non-qualified personnel to perform this procedure will void the warranty.

3.10. Troubleshooting

This section contains some tips on troubleshooting problems with the *Team*Pad 7500. Please try the procedures outlined below before calling for support. Additionally, this section should give you some ideas on what information the support specialist will need to help you solve the problem.

3.10.1. Unit won't power on

If the unit doesn't power on, please check the following table:

Question	Action
Is the battery sufficiently charged?	Attach AC adapter and try again
Is the battery installed correctly?	Make sure that the battery lock switch on the back of the unit is in the locked position, and that the battery is securely locked in place.
Last Resort	Press the RESET button on the back, using the stylus.

3.10.2. Unit won't connect to server

If the unit powers on, but won't connect to the server, refer to the table below. In a Symbol Spectrum24 system, you can determine which side (wired or wireless) has failed by looking at the 'attached' LEDs on the access point. In a working system, there will be two green LEDs lit on the access point, one for 'attached to the wired network' and one for 'attached to at least one mobile unit'. If any *Team*Pad 7500s are working on the network, you can rest assured that the problem lies in the configuration of the unit that doesn't work. If this is the first unit, and there are no other units working, look at the LEDs on the AP, while the 7500 is trying to connect.
If the 'wired' attached LED is not lit, the connection to the network is bad. You can test this by using 'telnet' from the server to query the AP configuration. Troubleshooting the wired network is beyond the scope of this manual
If the 'wired' attached LED is lit, but the 'wireless' attached LED isn't, you probably have a configuration issue with either the AP or the handheld. Double check the ESSID in both units to make certain that it is identical (upper/lower case MATTERS!). Check that the mandatory BSSID in the 7500 is set correctly.

Error Message	Possible cause
The client could not connect to Terminal Server. The server may be too busy. Please try connecting later.	RF connection to the server failed. Check the following: • Is the access point turned on? • Is the access point within range? • Is the access point connected to the network? • Does the ESS ID in the access point match that in the *Team*Pad ? • Are the BSSIDs in the *Team*Pad set properly? • Is the server powered on and configured properly?
DHCP Server could not be contacted.	The *Team*Pad is configured for DHCP, and: • cannot talk to the network, or • There is no DHCP server available on the network.

3.10.3. Short battery life

If the system seems to have shorter than normal battery life, double check the network card settings to ensure that PSP mode is selected. Check the charging practices to ensure that the batteries are fully charged before the unit is placed into service.

4. RAS Diagnostics

4.1. Starting the diagnostics

To start the diagnostics, press the RAS button on the back of the unit, using the stylus. The screen will display the following menu:

```
Copyright (c) 1998-1999 FUJITSU Limited.
<TeamPad  7500 RAS MENU VxxLxx>

*ALL Tests
 ROM Verion
 ROM SUM
```

```
Memory(DRAM)
Contrast/Backlight
Real Time Clock
Touch Screen
Keyboard
Graphics
Serial(EXT I/F)
Serial(BCR)
Serial(IRDA)
Initalize NVRAM
Show Trace Data on FROM
Show Trace Data on RAM
Update SUB-CPU firmware
Running Test
```

Use the up and down arrow keys to move the '*' on the menu. Press the ENT key to select the test. The VxxLxx indicates the version and release level of the RAS software. To exit the RAS tests, press the RESET switch on the back of the unit.

4.2. How to Operate RAS

Forward: Press the up arrow cursor key (UPKEY) or contrast key (-)
Backward: Press the down arrow cursor key (DOWNKEY) or contrast key (+)
Enter/Select: Press the [ENTER] key or the [SYS] key
Suspend/End: Press the [CLR] key or backlight key
* In extraordinary cases, the [SYS] key is used as an end key for Contrast/Backlight.
For operation, use the up/down and left/right arrow keys and move the test upper limit [*]. Then press the [ENTER] key to start the test.

4.2.1. Test description

4.2.1.1. All Tests

Conduct various tests in sequence.
Tests are programmed to be carried out as automatically as possible.
Pressing the Suspend/End key during the test procedure will cause the test of the current item to be suspended. The subsequent test is then started.
Contrast/Backlight
Touch Panel Test
RTC Test
Graphics Test
Keyboard Test
ROM Sum Check
Memory (DRAM) Check
NVRAM Check

4.2.1.2. ROM version display

Indicates the following two versions and the date of release:
ROM version: Representative ROM version
OS version: Main program version
RAS version: Final maintenance program (RAS) version
SUB-CPU version: SUB-CPU firmware ROM version

4.2.1.3. ROM SUM check

Separates the ROM into four logical blocks, and calculates each Checksum to see whether there is agreement with the Checksum written in the ROM.
Description of blocks
1) 9F000000-9FBFFFFF: Main program of this system
2) 9FC00000-9FC3FFFF: Reset vector
3) 9FC40000-9FC7FFFF: RAS program
4) 9FC80000-9FFFFFF: Reserved (Checks whether this block consists entirely of 0xFF.)
Display of the result
Normal: "Checksum O.K." or "All Clear O.K."
Faulty: "Unmatched Checksum = xxx" or "Reserved area is not erased."

4.2.1.4. Memory (DRAM)

Tests each byte of DRAM.
The DRAM is used (low-order memory) to operate the RAS, so the test must be conducted in two separate portions; Low order memory and high order memory.
1) Low-order memory test: Read out the current memory data and write them back. Then check the contents.
(0X8000000-0X801FFFFF)
2) High-order memory test For the entire area (0X80200000-0X80FFFFFF):
Check after writing 00 data.
Check after writing FF data.
Check after writing 00 and FF data alternately.
Check after writing FF and 00 data alternately.
Check after writing from 00 to FF in sequence.
Check after writing 00 data in sequence byte by byte alternately starting from the head (0X80200000) of the high-order memory, and from the intermediate (0X807F8000).
* In the event of a memory error, the following messages are indicated, and the system waits for the Suspend/End key to be pressed.
"Error Address = 80XXXXX
Write data = XX
Read data = XX

Detect an error. "

4.2.1.5. Contrast/backlight

Adjusts the DSTN LCD screen contrast and backlight. It should be noted, however, that the adjusted value is valid only in this RAS. And will not be carried forth into normal operations of the unit.
Contrast: Adjusted in 32 gradations from 0 to 32.
"-" key: Bright (UP)
"+" key: Dark (DOWN)
Backlight: Adjusted in four gradations from 0 to 3.
Pressing the backlight key will result in the following cyclic changes:
0 (dark) → 1 → 2 → 3 (bright) → 0 (dark) → 1 → …
Only for this test, use the [SYS] key or the [CLR] key as an [END] key. (This is because the backlight key is used for adjustment.)

4.2.1.6. Real Time Clock

RTC has a function for monitoring RTCLong1, RTCLong2 and Elapsed Timer counting and each interrupt (polling of interrupt register).
Checks the count and displays the results in 30 seconds.

4.2.1.7. Touch Screen test

Indicates the touch pressure value at the point (x, y) on the panel that you have touched and the lost data count.

4.2.1.8. Keyboard test

The keyboard has a function for monitoring the scan code of the key when the key has been pressed (a maximum of two keys when depressed in combination), the number of keys being depressed (a maximum of 16 keys) and KDATRDY/KDATLOST interrupt (polling of the interrupt register).

4.2.1.9. Graphics Display test

Displays various graphic patterns over the entire screen.
Black/white 16 × 16 checkered pattern 1
Black/white 16 × 16 checkered pattern 2 (reversed version of black/white pattern 1)
Completely white display
White/red/green/blue color bar (each 64-gray scale indication)
Indication in standard pallet color (256 colors 16 × 16)
The display pattern can be switched by executing the following key operations:
Forward key: Down arrow key, right arrow key, [-] contrast key, [ENTER] key, [SYS] key. The Menu screen appears when any of them is pressed on the screen of standard pallet color.
Backward key: Up arrow key, left arrow key, [+] contrast key, [CLR] key
Interrupt key: [CLR] key, backlight key
Reference:
The white screen display can be used to check indications of such faults as missing LCD dots.

4.2.1.10. Serial (EXT I/F)

Tests the TTL serial port, using a loopback connector.

4.2.1.11. Serial (BCR)

Tests the RS-232 port, using a loopback connector.

4.2.1.12. Serial (IRDA)

Tests the IrDA port. Use another 7500 as a target machine for testing. Point the IrDA ports at each other, select receive on one unit and transmit on the other.

4.2.1.13. Initialize NVRAM (Normally disabled)

Note:
This procedure, normally disabled for protection purposes, can be enabled by following the steps given below. However, it should be noted that the radio card driver will need to be reinstalled after NVRAM has been initialized..
1) When "*" is set to "ROM Version" on the menu screen, press the [-] key with the [FUNC] key kept pressed, and then release the [-] key. This will cause the ROM copy menu to appear.
2) The function is then enabled by selecting "Initialize NVRAM."
3) When it is selected, the message "Initialize NVRAM?" will be displayed.
Then press the Suspend/End key to redisplay the Menu screen. Pressing the Enter/Select key will cause initialization to take place.

4.2.1.14. Show Trace Data on FROM

Displays the data recorded on the FROM.
You can change pages by following the following steps given below:
Next page: Down arrow key, [+] contrast key

Previous page: Up arrow key, [-]contrast key
Displays the following messages in the absence of trace data:
"Error: No Trace Data!!"

4.2.1.15. Show Trace Data on RAM

Displays data recorded on the DRAM.
The display is the same as that of the FROM trace information.
Pressing the [FUNC] key causes the trace data to be copied onto the FROM.

4.2.1.16. SUB-CPU Firmware Update

Updates the sub-CPU firmware.
This procedure requires the power to be supplied from the AC adaptor. Furthermore, the NVRAM must be loaded with the updating firmware.

4.2.1.17. Running Tests

Repeats DRAM/ROM/NVRAM checks in endless mode.
You can redisplay the main menu by pressing the Suspend/End key.

5. Serial Device Interface

The *Team*Pad 7500 provides an interface that allows applications running on the server to communicate with serial ports on the 7500 itself. This interface is call COMLAN, for COM support over rf LAN. The user applications communicate with virtual communications ports on the server, and the COMLAN software transports the data transparently to and from the 7500. There are three interfaces on the 7500 which can be interfaced with: A serial RS-232 port for bar code scanners, a serial TTL port for magnetic card or smart card devices, and an IrDA SIR port. The RS-232 port occupies one virtual port, and the other virtual port can be connected (under software control) to either the TTL port or the IrDa port.

5.1. ComLan Interface

The virtual ports that interface to COMLAN are VCOMxx, where xx are numbers from 1 to 20. The odd numbered port (VCOM1) connects to the TTL or IrDA port, the even numbered port (VCOM2) connects exclusively to the RS-232 serial port. Control of the ports (setting the baud rate, etc) is done just like a normal PC COM port.

5.2. Server Setup

The COMLAN server side software must be installed to support the COMLAN interface. There are two versions of the server software, a two client and a ten client version. The differences are obvious. For the COMLAN software to be set up, it is necessary to know the IP address of the client terminal (the 7500). This IP must be fixed, since it is entered into the server registry to allow the connection to the client.

5.2.1. Installing COMLANX as an NT service

You can use the Srvany utility (found on the NT 4.0 Resource Kit, available from Microsoft) to run COMLANX as an NT service, with the following benefits.

- When COMLANX is run as a service, it is not closed during logoff, so users do not need to restart it each time they log on.
- COMLANX can service requests even when no user is logged on.

5.2.1.1. Installing Srvany

To install Srvany, use the following procedure:

1. Copy Srvany.exe to a folder on your computer and install it as a Windows NT service by typing the following command at the command prompt.

   instsrv *MyService* **c:\tools\srvany.exe**

2. In Services in Control Panel, click the service you specified, and then click **Startup** to display the **Startup** dialog box.
3. In the **Startup** box, click **Automatic** or **Manual**.
4. In the **Log On As** box, choose the account in which to run the service, and specify the correct logon password.

   If you need to have access to the screen and keyboard, choose **This Account** (LocalSystem account) and select the **Allow Service to Interact with Desktop** check box. Otherwise, you can choose any account.

5.2.1.2. Specifying the COMLANX to Start

To specify COMLANX to run as a service, you must use Registry Editor to add information to the Windows NT registry.

To start Registry Editor

1. Click the **Start** button, and then click **Run**.
2. In the **Open** box, type **regedt32**, and click **OK**.

Note None of the strings mentioned in the following examples is case-sensitive.

To specify an application to start as a service

1. Add a new **Parameters** subkey in the following registry location:

   HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\ MyService

2. In the new **Parameters** subkey, create an **Application** value entry with a data type of REG_SZ, and specify the full path of the COMLANX file for the application (including the extension). For example:

   Application: REG_SZ: D:\Tools\COMLANX.exe

COMLANX does not require command line parameters

Note You must type two backslashes (\\) in order to specify a single backslash (\).

5.2.1.3. Starting and Stopping a Service

Services are configured to start automatically or manually. If a service is configured for automatic startup, it is started by the system when the computer is started.
For services configured for manual startup, you can start them in the following ways.

To start a service manually

- In Services in Control Panel, click the service, and then click **Start**.

  – Or –

- Use the Sc.exe utility. At the command prompt, type:

  sc start *MyService*

  – Or –

- Use the **net start** command. At the command prompt, type:

  net start *MyService*

To stop a service

- In Services in Control Panel, click the service, and then click **Stop**.

  – Or –

- Use the Sc.exe utility. At the command prompt, type:

  sc stop *MyService*

  – Or –

- Use the **net stop** command. At the command prompt, type:

  net stop *MyService*

To stop a service until further notice

1. In Services in Control Panel, click the service, and then click **Startup** to display the **Startup** dialog box.
2. In the **Startup** box, click **Disabled**.

5.3. Serial Port API

There are a number of IOCTL functions supported in addition to the standard ones, those are described below. It is assumed that anyone programming to this API is already familiar with the serial device API, and so none of the standard API functions will be described.

5.3.1. Serial Set Multiplexor

This function selects which port VCOM1 is connected to.
Function call:

```
BOOL DeviceIoControl(HANDLE hDevice, DWORD dwIoControlCode, LPVOID
lpInBuffer,
DWORD nInBufferSize,NULL,0,LPDWORD lpBytesReturned, NULL)
```

Parameters:

`hDevice`	Handle returned from the open of VCOM1
`dwIoControlCode`	IOCTL_SERIAL_SET_MPX (0x001B3E80)
`lpInBuffer`	Pointer to input buffer, containing one of the following values: 1 – MPX_PORT_A (Mag Card Reader) 2 – MPX_PORT_B (Smart Card Reader) 3 – MPX_PORT_C (IrDA SIR Mode)

nInBufferSize	sizeof(lpInBuffer)
lpBytesReturned	Pointer to DWORD to contain the number of bytes returned.
Return Values:	TRUE = OK, FALSE = Error.

5.3.2. Serial Get Multiplexor

This function returns the port that VCOM1 is connected to.

Function call:

```
BOOL DeviceIoControl(HANDLE hDevice, DWORD dwIoControlCode,
NULL,0,
LPVOID lpOutBuffer, DWORD nOutBufferSize,LPDWORD lpBytesReturned,
NULL)
```

Parameters:

hDevice	Handle returned from the open of VCOM1
dwIoControlCode	IOCTL_SERIAL_GET_MPX (0x001B3E84)
lpOutBuffer	Pointer to Output buffer, on return contains one of the following values: 1 – MPX_PORT_A (Mag Card Reader) 2 – MPX_PORT_B (Smart Card Reader) 3 – MPX_PORT_C (IrDA SIR Mode)
nOutBufferSize	sizeof(lpOutBuffer)
lpBytesReturned	Pointer to DWORD to contain the number of bytes returned.
Return Values:	TRUE = OK, FALSE = Error.

5.3.3. Serial Set Power

This function controls the power for the specified port.

Function call:

```
BOOL DeviceIoControl(HANDLE hDevice, DWORD dwIoControlCode, LPVOID
lpInBuffer,
DWORD nInBufferSize,NULL,0,LPDWORD lpBytesReturned, NULL)
```

Parameters:

hDevice	Handle returned from the open of VCOM1 or VCOM2
dwIoControlCode	IOCTL_SERIAL_SET_PWR (0x001B3E88)
lpInBuffer	Pointer to input buffer, containing one of the following values: 1 – Power Off 0 – Power On
nInBufferSize	sizeof(lpinBuffer)
lpBytesReturned	Pointer to DWORD to contain the number of bytes returned.
Return Values:	TRUE = OK, FALSE = Error.

5.3.4. Serial Get Power

This function returns the power status of the port.

Function call:

```
BOOL DeviceIoControl(HANDLE hDevice, DWORD dwIoControlCode,
NULL,0,
LPVOID lpOutBuffer, DWORD nOutBufferSize,LPDWORD lpBytesReturned,
NULL)
```

Parameters:

hDevice	Handle returned from the open of VCOM1 or VCOM2
dwIoControlCode	IOCTL_SERIAL_GET_PWR (0x001B3E8c)
lpOutBuffer	Pointer to Output buffer, on return contains one of the following values: 1 – Power Off 0 – Power On

`nOutBufferSize`	sizeof(lpOutBuffer)
`lpBytesReturned`	Pointer to DWORD to contain the number of bytes returned.
Return Values:	TRUE = OK, FALSE = Error.

5.3.5. Serial Get ROM Version

This function returns the ROM Version of the 7500 unit

Function call:

```
BOOL DeviceIoControl(HANDLE hDevice, DWORD dwIoControlCode,
LPVOID lpInBuffer, DWORD nInBufferSize,
LPVOID lpOutBuffer, DWORD nOutBufferSize,LPDWORD lpBytesReturned,
NULL)
```

Parameters:

`hDevice`	Handle returned from the open of VCOM1 or VCOM2
`dwIoControlCode`	IOCTL_SERIAL_GET_ROM_VER (0x001B3E90)
`lpInBuffer`	Pointer to input buffer, containing one of the following values: 0 – Return operating system version 1 – Return Sub CPU Firmware version
`nInBufferSize`	sizeof(lpinBuffer)
`lpOutBuffer`	Pointer to Output buffer, on return contains either main CPU rom version (in ASCII) or sub CPU version (in UNICODE)
`nOutBufferSize`	sizeof(lpOutBuffer)
`lpBytesReturned`	Pointer to DWORD to contain the number of bytes returned.
Return Values:	TRUE = OK, FALSE = Error.