

Configuring Serial Terminal Emulation Programs

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Configuring Serial Terminal Emulation Programs: An Introduction

The serial terminal emulation program is used for the serial communication between the host computer and an embedded system (Target). It is mainly used as a user interface for debugging embedded system. It is also used for sending commands, displaying result, loading firmware, logging result, etc.

This document explains how to configure serial terminal emulation programs such as HyperTerminal, Tera Term, and PuTTY on Windows XP operating system. The HyperTerminal is a part of the Windows XP operating system but it is no longer a part of the Windows Vista or Windows 7 operating systems. The open source and free serial terminal programs like Tera Term and PuTTY can also be used as a replacement for HyperTerminal in Windows Vista and Windows 7 operating systems.

The Tera Term can be downloaded using the following link: http://hp.vector.co.jp/authors/VA002416/teraterm.html

The PuTTY can be downloaded using the following link: www.chiark.greenend.org.uk/~sgtatham/putty/download.html

HyperTerminal

Configuring HyperTerminal

1. Click the Windows Start menu. Select All Programs > Accessories > Communications and click the HyperTerminal Program (Figure 1). This opens HyperTerminal.



Figure 1: Invoking the HyperTerminal



2. The Connection Description window is displayed (Figure 2). Enter a name and choose an icon for the connection. For example, type Serial Console as the name of the new HyperTerminal session and click **OK**.

Connection Description	? ×
New Connection	
Enter a name and choose an icon for the connection:	
Name:	
Serial Console	
lcon:	
N	N
OK Cance	el

Figure 2: HyperTerminal Connection Description

3. Connect To window is displayed. Select a COM port from the drop-down list. For example, COM3 (Figure 3).

Connect To	? ×
쵫 Serial Co	insole
Enter details for I	the phone number that you want to dial:
<u>C</u> ountry/region:	India (91) 💌
Ar <u>e</u> a code:	040
Phone number:	
Co <u>n</u> nect using:	Haris Akkool: IN-Sg90-01, IP Phon Haris Akkool: IN-Sg90-01, IP Phone: 10 COM1 COM2
	TCP/IP (Winsock)

Figure 3: HyperTerminal Port Selection



- 4. The COM3 Properties window is displayed. Select the following settings (Figure 4):
 - Bits per second: 57600
 - Data bits: 8
 - Parity: None
 - Stop bits: 1
 - Flow Control: None

COM3 Properties			? ×
Port Settings			
<u>B</u> its per second:	57600		•
<u>D</u> ata bits:	8		•
<u>P</u> arity:	None		•
<u>S</u> top bits:	1		•
<u>F</u> low control:	None		•
		<u>R</u> estore	Defaults
0	к	Cancel	Apply

Figure 4: HyperTerminal Port Settings

5. Select File > Properties in the HyperTerminal window. Choose the Settings tab (Figure 5).

Serial Console Properties	? ×
Connect To Settings	
Function, arrow, and ctrl keys act as Image: Terminal keys Image: Windows keys	
Backspace key sends © <u>D</u> trl+H © <u>D</u> el © Ctrl+ <u>H</u> , Space, Ctrl+H	
Emulation:	
Auto detect	
Tel <u>n</u> et terminal ID: ANSI	
Backscroll buffer lines: 500	
Elay sound when connecting or disconnecting	
Input Translation	
OK Car	icel

Figure 5: HyperTerminal Properties



6. Click the ASCII Setup button. Select the check box labeled 'Send line ends with line feeds' and 'Echo typed characters locally' (Figure 6).

ASCII Setup 🔗 🔀
ASCII Sending
Send line ends with line feeds
Echo typed characters locally
Line delay: 0 milliseconds.
Character delay: 0 milliseconds.
ASCII Receiving Append line feeds to incoming line ends Force incoming data to 7-bit ASCII Yap lines that exceed terminal width
OK Cancel

Figure 6: ASCII Character Settings

7. Save the settings for later use. Select **File > Save** as Session files.



Tera Term Pro

Configuring Tera Term Pro

1. After installing Tera Term Pro, click the Windows **Start** menu. Select **All Programs** > **Tera Term Pro** and click the **Tera Term Pro** program (Figure 7). This displays the Tera Term Pro screen.

	Set Program Acces	s and Defaults	
	🔰 Windows Catalog		
Mozilla Firefox) Windows Update		
E-mail	Accessories	•	ents →
Microsoft Office	🧃 Tera Term Pro		📕 Readme
	🚹 Games	۱.	🌮 Tera Term help
Adobe Reader 9	1 McAfee	•	🛄 Tera Term Pro
	Microsoft Office	•	
Microsoft Office	👔 Mozilla Firefox	•	
] RealVNC	+	F
) ShoreTel	+	
star) Startup	+	
Actel SoftConso	 Acrobat.com 		nd
	Adobe Reader 9		
Calculator	👂 Internet Explorer		
1000 C	👂 MSN		
Microsoft Office	🕽 Remote Assistance	,	
	🔰 Windows Movie Ma	iker	
	Actel SoftConsole	v3.1 ►	
	TextPad		
	- WordWeb		
All Programs 🔸	- Actel Firmware Cal	alog v9.0 🔹 🕨	
	\mathcal{D}	Log Off 🚺 Dis	sconnect
ಶ 🖂 🥑 🖢			

Figure 7: Invoking Tera Term Pro

2. The Tera Term: New connection window is displayed (Figure 8). Select Serial radio button.

Tera Term: Nev	v connect	tion	×
○ <u>T</u> CP/IP	H <u>o</u> st:	myhost.mydomain	-
		I Telnet TCP port#; 23	
• Serial	Port:	СОМ1 -	
·			
	ОК	Cancel <u>H</u> elp	

Figure 8: Tera Term New Connection Window



3. Select a COM port from the drop-down list and click OK. For example, COM3 (Figure 9).

Tera Term: New connection 🛛 🗙				
© TCP/IP	Host:	myhost.mydd	main	-
		🕅 Telnet	TCP port#:	23
• Serial	Port:			
	OK	COM2 COM3 COM4	Help	

Figure 9: Tera Term Port Selection

- Select Setup > Serial port in the Tera Term window. The COM3 Serial port setup window is displayed. Select the following settings (Figure 10):
 - Baud rate: 57600
 - Data: 8 bit
 - Parity: None
 - Stop: 1 bit
 - Flow Control: None

Tera Term: Serial port s	setup	×		
<u>P</u> ort: <u>B</u> aud rate:	СОМЗ • С	Ж		
<u>D</u> ata:	8 bit 🔹 Ca	ncel		
P <u>a</u> rity:	none			
<u>S</u> top:	1 bit •	elp		
Elow control:	none			
Transmit delay 0 msec <u>/c</u> har 0 msec <u>/l</u> ine				

Figure 10: Tera Term Serial Port Setup

 Select Setup > Terminal in the Tera Term window. The Terminal setup window is displayed (Figure 11).

Tera Term: Terminal setup		×
Terminal size 80 X 24 Term <u>s</u> ize = win size Auto window resize	New-line <u>R</u> eceive: CR • Trans <u>m</u> it: CR •	OK Cancel
Terminal ID: VT100 -	□ <u>L</u> ocal echo □ A <u>u</u> to switch (VT<->	<u>H</u> elp TEK)

Figure 11: Tera Term Terminal Setup



6. Select the check box labeled Local echo and select CR+LF from Transmit drop-down list under New-Line menu (Figure 12).

Tera Term: Terminal setup		×
Terminal size	New-line Receive: CR -	ОК
☐ Term <u>size</u> = win size ☐ Auto window resize	Trans <u>m</u> it: CR+LF ▼	Cancel
Terminal <u>I</u> D: VT100 -	🔽 Local echo	<u>H</u> elp
Answerback:	Auto switch (VT<->	TEK]

- Figure 12: Tera Term Terminal Setup
- 7. Save the settings for later use. Select **Setup** > **Save** setup.

PuTTY

Configuring PuTTY

1. Click the putty.exe. This opens PuTTY Configuration window (Figure 13).

🕵 PuTTY Configuration		2
Puttry Configuration Category: □ Session □ Logging □ Terminal □ Keyboard □ Bell □ Features □ Window □ Appearance □ Behaviour □ Translation □ Selection □ Colours □ Data □ Proxy □ Telnet □ Rlogin □ Serial	Basic options for your PuTTY session Specify the destination you want to connect to Host Name (or IP address) Port 22 Connection type: C Raw O I elnet C Rlogin • SSH C Serial Load, save or delete a stored session	
	Load, save or delete a stored session Sav <u>e</u> d Sessions Default Settings	Load Sa <u>v</u> e Delete
	Close window on exit: C Always C Never I Only on clean exit Dpen <u>C</u> ancel	

Figure 13: PuTTY Configuration Window



- 2. Select Category > **Connection** > **Serial** in the PuTTY Configuration window. The Serial Line configuration window is displayed. Select the following settings (Figure 14):
 - Speed (baud): 57600
 - Data bits: 8
 - Stop bits: 1
 - Parity: None
 - Flow Control: None

😵 PuTTY Configuration			
Category:			
🖃 Session	Options controlling	local serial lines	
Logging ⊡ Terminal	Select a serial line	Coup	
Keyboard	Seriaj line to connect to	ICUM3	
Features	Configure the serial line		
🖻 Window	Speed (baud)	57600	
- Appearance Behaviour	Data <u>b</u> its	8	
- Translation	S <u>t</u> op bits	1	
Selection Colours	<u>P</u> arity	None	
E Connection	Elow control	None 💌	
- Data Proxy			
Telnet			
Rlogin			
. SSH			
i senar			
About	<u> </u>	pen <u>C</u> ancel	

Figure 14: Serial Line Configuration



 Select Category > Terminal in the PuTTY Configuration window. The terminal emulation configuration window is displayed. Select Force on radio button under Local echo menu and Select the check box labeled Implicit CR in every LF under Set various terminal options menu (Figure 15).

🕵 PuTTY Configuration	n 🗙
Category:	
🖃 Session	Options controlling the terminal emulation
 Logging Terminal Keyboard Bell Features Window Appearance Behaviour Translation Selection Connection Data Proxy Telnet Rlogin SSH Serial 	Set various terminal options ✓ Auto wrap mode initially on DEC Origin Mode initially on ✓ Implicit CB in every LF ✓ Use background colour to erase screen Enable blinking text Answerback to ^E: PuTTY Line discipline options Local echo: C Auto Force on C Force on Force off Remote-controlled printing Printer to send ANSI printer output to: None (printing disabled)
About	<u>O</u> pen <u>C</u> ancel

Figure 15: Terminal Configuration

 Select Category > Session in the PuTTY Configuration window. The basic options for PuTTY session appear. Select Serial radio button under Connection type menu (Figure 16) and click Open.

😵 PuTTY Configuration			
Category:			
- <mark>- Session</mark>	Basic options for your PuTTY session		
 Logging Terminal Keyboard Bell Features Window Appearance Behaviour Translation Selection Colours Connection Data Proxy Telnet Rlogin SSH Serial 	Specify the destination you want to connect to Serial line Speed COM3 57600 Connection type: Serial Cad, save or delete a stored session Saved Sessions Default Settings Load Default Settings Load Save Delete Close window on exit: C Never Close window on exit: Only on clean exit		
About	<u>Open</u> <u>Cancel</u>		

Figure 16: Basic Options For a Session



5. Save the session for later use. Right-click the PuTTY title bar and click **Change Settings** (Figure 17).



Figure 17: PuTTY Current Session Settings

Note: Press Ctrl+J instead of Enter.



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