

Configuring Serial Connection to LANforge

Goal: Using a serial cable and terminal emulator on Windows to connect to LANforge.

If you experience crashes or system misconfiguration, a network link to LANforge can become unavailable. LANforge machines are shipped with a serial cable for just this possibility. Most LANforge servers come with standard RS232 DB9 pin serial ports, other models have a special RJ45 style connector. You might need a USB to Serial adapter to connect your laptop to the serial cable.



1. Connect Serial Cable to LANforge

- A. We will use a CT525 for our example There are two different types of CT525, some have a I/O shield with colors, others do not. Both have DB9 serial ports:
- B. Picture of an unmarked I/O plate:



C. Picture of a colorized I/O plate:



D. Picture of a colorized I/O plate plugged in:



- E. Other LANforge chassis models can have either RJ45 or DB9 serial ports.
- 2. Connect Serial Cable to Windows
 - A. Chances are you will be connecting a USB to Serial adapter to your laptop.
 - B. Typically, right after you connect the cable to your USB port, you will see a message from Windows letting you know a new drive has been installed.
 - C. Windows will map this USB adapter to a COM port. Use Device Manager to discover the new COM port:
 - A. Press the Windows key and type device manager

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B. Hit Enter to open the Device Manager

C. In Device Manager, select Ports



D. In this example, we see that our new USB device was assigned COM3.

- 3. Configure PuTTY to connect to serial port
 - A. Press the Windows key and search for putty

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B. When you double click on the PuTTY icon and it launches, you can start customizing your session preferences

| 🕵 PuTTY Configuration | Ν | ? × |
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| Category: | 44 | |
| Session Logging Terminal Keyboard Bell Features Window Appearance Behaviour Translation | Basic options for your PL Specify the destination you want to Host Name (or IP address) Connection type: O Raw Jelnet Load, save or delete a stored sess Saved Sessions | connect to <u>Port 22 SSH O Serial </u> |
| Selection Colours Connection ···· Data ···· Proxy ··· Telnet ··· Rlogin ⊕· SSH | Default Settings atlas fs1 jed-ming sg sg-proxy sg-vpn | ↓ Load Sa <u>v</u> e ↓ Delete |
| About <u>H</u> elp | Close window on exit: Always Never On Qpen | nly on clean exit |

C. Start by setting your connection type (serial), serial device (com3) and speed (115200). Name your session 'com3'

| 🕵 PuTTY Configuration | N | ? × |
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| Category: | 7 | |
| Session Logging Terminal Keyboard Bell Features Window Appearance Behaviour | Basic options for your PuTT Specify the destination you want to co Serial line COM3 Connection type: O Raw O Ielnet O Rlogin O Load, save or delete a stored session | Speed 115200 |
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| About <u>H</u> elp | O Always O Never O Only | on clean exit |

D. Select category Serial, specify the Serial Line **COM3**, speed (115200) and set both Parity and Flow Control to **None**.

| PuTTY Configuration | | ? × |
|---------------------------|---------------------------|------------------|
| ategory: | | |
| - Session | Options controlling loc | cal serial lines |
| Logging | Select a serial line | |
| Keyboard | Serial line to connect to | СОМЗ |
| Bell Features | Configure the serial line | |
| . Window | Speed (baud) | 115200 |
| Appearance Behaviour | Data bits | 8 |
| - Translation | Stop bits | 1 |
| Selection Colours | Parity | None V |
| | Flow control | None VT~ |
| Data | / | U |
| ···· Proxy ···· Telnet | | |
| Rlogin | | |
| SSH Serial | | |
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| About He | Oper | n Cancel |

E. Select the **Session→Logging** category, select Printable Output and name set the Log file name as you prefer. This allows you to collect your commands as notes for later.

| 🕵 PuTTY Reconfiguration | | ? × |
|---|--|----------------|
| Category: | Options controlling session loc | aaina |
| | Session logging: O None O All session output Log file name: | |
| i⊒- Window | putty.log | Browse |
| Appearance Behaviour Translation Selection Colours ⊡- Connection Serial | (Log file name can contain &Y, &M, &D fo time, and &H for host name) What to do if the log file already exists: ○ Always overwrite it ○ Always append to the end of it ● Ask the user every time ☑ Flush log file frequently | vrdate, &T for |
| | Apply | Cancel |

F. Select the **Session** category, save the **com3** profile and click **Save**

| 🕵 PuTTY Configuration | Ν | ? × |
|---|--|--------------------------------|
| Category: | Basic options for your PuTTY se | |
| ⊡ Terminal | Specify the destination you want to conner Serial line COM3 | Speed 115200 |
| Features Window Appearance | Connection type: | H |
| Behaviour Translation Selection | Load, save or delete a stored session Sav <u>e</u> d Sessions com3 |] |
| Colours ⊡- Connection Data Proxy Telnet | Default Settings atlas com1 com3 fs1 jed-ming | Load Sa <u>ve</u> Delete |
| i - Riogin ⊕ SSH - Senal | Sg ✓ Close window on exit: ○ Always ○ Never ● Only on c | lean exit |
| About <u>H</u> elp | 13 | <u>C</u> ancel |

- G. Click the **Open** button. You will see a terminal window appear.
- 4. Use PuTTY to Log In over COM3
 - A. If the screen is blank, hit **Enter** to see a login prompt.
 - B. Enter username lanforge Enter , password lanforge Enter

| Putty | | × |
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| Fedora 24 (Twenty Four) Kernel 4.16.18+ on an x86_64 (ttyS0) | | |
| jedway2 login: | | |
| Fedora 24 (Twenty Four) | | |
| Kernel 4.16.18+ on an x86_64 (ttyS0) | | |
| jedway2 login: lanforge Password: | | |
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5. Collect console output to a logfile



B. step 1



- 6. Common Commands Cheat Sheet: Hit Enter after all commands
 - A. pwd Enter : print current directory
 - B. 1s Enter : list items in directory
 - C. cd Enter : change to your Home Directory
 - D. cd /home/lanforge Enter : go to LANforge home directory
 - E. cd /root Enter : go to root user's home directory
 - F. sudo ./serverctl.bash restart Enter : Restart LANforge service
 - G. sudo reboot Enter : reboot machine
 - H. ip a show Enter : show interface addresses

- I. df -h Enter : show disk usage
- J. mv script.sh.txt /home/lanforge/scripts/script.sh Enter : move file to new name
- K. dos2unix script.sh Enter : Remove DOS/Windows CRLF style line endings
- L. chmod +x script.sh Enter : Turn script executable
- M. ./script.sh Enter : Run script in current directory
- 7. Example of clearing disk space on a LANforge machine
 - A. One common problem with any LANforge machine is cleaning out old kernels. This is an example that shows you how to check disk space and how to remove unused kernels.
 - B. Check disk space with the df -h command



C. Use the dmesg command to see if there are system warning.

| B COM3 - PuTTY | <u> </u> | × |
|---|----------|---|
| [root@jedway2 boot]# dmesg > /tmp/dmesg.log [root@jedway2 boot]# less /tmp/dmesg.log | | ^ |
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D. go to the /boot directory. The uname -r command tells you which kernel you are currently running. You may remove old **ct** kernels.



E. In addition to removing old kernels, you can remove modules that correspond to those kernels



F. After old kernels and modules have been removed, we re-run grub2-mkconfig to regenerate the boot menu:



G. the results will look like this:



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