

Read Me First

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New editions of this manual will incorporate all material updated since the previous edition. Update packages may be issued between editions and contain replacement and additional pages to be merged into the manual by the user. Each updated page will be indicated by a revision date at the bottom of the page. A vertical bar in the margin indicates the changes on each page. Note that pages which are rearranged due to changes on a previous page are not considered revised.

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Updating your HP-UX System to the 5.0 Release

This document describes the process for updating your HP-UX System from 4.02 to 5.0. **Do not follow the instructions in the previous *HP-UX System Administrator Manual* (HP Part Number 97089-90048).** This update is complicated due to the transition to Bell System V compatibility. Everything possible has been done to simplify this procedure. Read these instructions completely before starting your update. If you have any questions after the update, read */etc/newconfig/Update_info* (installed by the update) or call your local Hewlett-Packard Sales Office.

Before the Update

1. Clean your tape heads.

2. The *uids* and *gids* 0, 1, 3, 4, and 12 are now reserved for the system. If you modified these reserved *uids* and *gids* for values other than 0 and 1 for *root*, 3 for *sys*, 4 for *adm*, and 12 for *news*, carefully remap the *gids* and *uids* to these values. To remap the old id's follow this procedure:

- Edit */etc/passwd* so that your *gid* and *uid* differ from the reserved *gid* and *uid*
- Edit */etc/group* in the same manner.
- Change the *uids* with the command:

```
# find / -user <oldid> -exec chown <username> {} \; &
```

- Change the *gid* with the command:

```
# find / -group <oldid> -exec chgrp <groupname> {} \; &
```

3. Edit */etc/passwd*. Edit this file separately regardless of what you did in step 2.

If other systems call and log in as *uucp*, they require a *uucico*. To avoid changing all of their *L.sys* files, add a new user *UUCP* with the same *uid* (user id) and *gid*, but a different password and a shell (instead of *uucico*). Also add a mailbox for *UUCP* from *root* using

```
echo "Forward to root" > /usr/mail/UUCP
```

which will forward *UUCP*'s mail to *root* (as you have done with *uucp*). Be sure to supply a password for *UUCP* or use *** which suffices. It is necessary to be user *UUCP* when you set up a *cron(1M)* file for your *uudemons*. You will be reminded of this later.

- Change the *gid* (group id) for *news* to 12.
- Make sure you have a user *uucp* with a login shell of */bin/sh*. You need a user *uucp* to spawn a shell so that you can use the new *crontab(1)* file to spool your *uucp demons*. It can not literally be *uucp*, but it should be the same *uid* (we recommend *UUCP*). For example:

```
uucp:VGKzpfkYXU:5:1:UUCP:/usr/spool/uucppublic:/usr/lib/uucp/uucico
UUCP:5:1:uucp administration:/usr/spool/uucppublic:/bin/sh
```

NOTE

The user *uucp* must appear before *UUCP* in */etc/passwd*.

4. Edit */etc/group*. Again, you must edit this file separately regardless of what you did in step 2. The *update* process adds *group 3 (sys)* files to the system. If you incorporate these */etc/group* changes and change the *group 3* files to *group 12* before running *update*, then *sys* files unpacked during the update will not be mixed in with the *news* group files.

- Change *gid 3* to *sys*.
- Create *gid 12* for *news*.
- Create *gid 0* for *root*.
- Use *chgrp* (see *chown(1)*) to change all files, belonging to *sys (gid 3)*, to *news (gid 12)*. This includes making the above changes to */etc/group* and then running the command:

```
# find / -group 3 -exec chgrp 12 {} \; &
```

The changes listed below should be done in advance of the update, but do not have to be. However, if they are performed in advance your system will be up and running quicker. Example *inittab(5)* files, showing the old and new version, are provided in the "Examples" section at the end of this update note. For further details see Chapter 4 of the new *Series 500 HP-UX System Administrator Manual*.

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5. Create a new *inittab(5)* file (see the "Examples" section). To do so, edit your existing */etc/inittab* file or edit a second copy and move the new copy into place after completing the update. See the *inittab(5)* manual page for further detail.

- Swap fields 1 and 2. Field 1 becomes the two-letter identifier; field 2 indicates the run-state.
- Old *o* becomes *off* (field 3).
- Old *c* becomes *respawn* (field 3).
- Old *k* is obsolete; if the state is not specified, the process is killed.
- If a run-state is not specified (i.e., blank or null), the process is run for every state 0-6. If one or more state(s) are specified, then the process runs for those states only, and is killed upon entry to any other state.
- Other actions (field 3) include *wait*, *once*, *boot*, *bootwait*, *powerfail*, *powerwait*, *ondemand*, *initdefault*, and *sysinit*. There is not sufficient room or need to explain these actions here; consult the on-line manual pages or the new *Series 500 HP-UX System Administrator Manual* after reading this update for further details.
- Entries in the *inittab* file that echo the states are superfluous and can be removed (e.g., `1:ec::/bin/echo "inittab execution -- state 1 entered" >/dev/console`). Instead *init(1M)*, which reads the *inittab* file, tells you the state most recently entered.
- During the update, your existing *inittab* file is moved to *inittab.OLD*, and a new default *inittab* is provided. If your */etc/inittab* file has been changed to the new format, then that existing *inittab* file is not replaced. Do not type in the first few lines you see in the new example; they are included in the default *inittab*. Append what you are creating now to that file after the update. Be certain you do not spawn multiple *getty(1M)s* for the console.
- Be sure you have a line in *inittab* to execute the *rc* shell script. This is no longer an automatic process. Example:

```
rc::wait:/etc/rc </dev/syscon >/dev/syscon 2>&1 #run com
```

(This line is provided in the new default file */etc/inittab*.)

- Blank lines are allowed in the new *inittab* file. Commented lines are not always ignored; therefore, enter comments as *off* entries:

```
c1::off:      Write comments like this, extending
c2::off:      to multiple lines if needed.
```

- The new suggested multi-user run-state is state 2. Change the *gettys* for your terminals accordingly.
 - The parameters of *getty(1M)* have different syntax. Most *gettys* in *inittab* have **delay** (now called **timeout**) set at 0. Remove that 0, unless you use timeouts (for security) on dial in lines. The syntax of *getty(1M)* is now */etc/getty* *[+t timeout]* line. For more information see the *getty(1M)* manual pages or *Update_info*, after the update.
 - The new *init(1M)* only has 7 numbered states (0-6) and *s* for single-user state. The old *init* file had 9 numbered states. Convert any states greater than 6 accordingly.
6. Edit */etc/rc*. You can edit the existing file, but it is preferable to edit a copy and then move the copy into place after the update.
- Add the line **set 'who -r'** before any numbered shell variables (e.g., \$1, \$2, \$7, \$8) are used. For most */etc/rc* files, **set 'who -r'** can be added before the following line:

```
# only for state 1, first entry:
```

The apostrophes shown in the line **set 'who -r'** actually represent the grave accent mark (i.e., ASCII 96).

- Change shell variables \$1, \$2, \$3 to \$7, \$8, \$9 throughout */etc/rc*. The *init* process no longer sends arguments to *rc*, but those same arguments can be obtained from the **set 'who -r'** command.
- If you are using a default state of 2, change the *test* statement also. For example:

```
...
set 'who -r'                                #new line added to /etc/rc
# only for state 2, first entry:            #formerly state 1
if test $7 = 2 -a $8 = 0                    #changed from
then                                         #if test $1 = 1 -a $2 = 0
...

```

- Remove the statements in */etc/rc* that redirect standard output (stdout) and standard error (stderr) to */dev/console*; this redirection is now set up in */etc/inittab*. Remove only these lines leaving the code that lies between them:

```
# Start logging output:
log=/dev/console
{
...
} <$log >$log 2>$log
```

- Change the *PATH* definition to remove */sbin* and */usr/sbin*; add */usr/contrib/bin* and */usr/local/bin*.
- There are two alternatives for preventing */usr/lib/cron/log* from growing to the maximum file size allowed on your system.

- Link */dev/null* to */usr/lib/cron/log* in *rc* before *cron(1M)* is executed.

```
/bin/ln /dev/null /usr/lib/cron/log
cron
```

- If you want a copy of the *cron(1M)* log before deleting it, place the following command in *root's crontab* file:

```
cp /usr/lib/cron/log /usr/lib/cron/log.old;>/usr/lib/cron/log
```

7. Edit */usr/lib/crontab*.

- Take out lines with *su somebody -c ...* and move them to *cron.somebody*. Edit the lines and remove *su somebody -c*, leaving only the command to be executed.
- Remove the line in *crontab* that executes */usr/lib/atrun* which is obsolete.
- The file */usr/lib/crontab* is moved to */usr/spool/cron/crontabs/root* by the *update* process. *crontab(1)* is also changed by *update* to a command used to schedule *cron(1M)* activities.

8. Edit */etc/profile* and the *root's .profile* to change *PATH* (as you did in */etc/rc*).

Updating Your System

These directions also appear, with more detail, in the new *Series 500 HP-UX System Administrator Manual* (HP Reorder Number 97089-90049).

NOTE

Do not attempt to use *coreupdate*, *sysupdate*, or *optupdate*; these tools have been replaced by *update*. To use *update*, your system console **must be an HP supported terminal with softkeys**.

Preparing to Update Your System

1. Your system must be in **single user mode** and **have no extraneous processes** running prior to starting the update. Follow the instructions in the old *HP-UX System Administrator Manual* to put the system into this state. In particular, be sure of the following:
 - If your system was running *cron(1M)*, ensure that the *cron(1M)* process has been killed.
 - If your system is part of a **Local Area Network (LAN)**, ensure that your connection to the network has been brought down (you can use the command *nusers -1* followed by *ncontrol /dev/lan reset* to do this, assuming that */dev/lan* is your LAN device).
 - If the system uses the *lp(1)* spooler, ensure it is stopped by using the */usr/lib/lpshut* command (see *lpsched(1M)*).

Once your system is in single-user mode with all extraneous processes killed, enter the command:

```
ps -ef
```

If any processes other than *init(1M)*, *sh(1)*, and *ps -ef* exist, kill them using the *kill* command with the process id (see *ps(1)*). Be certain the shell is the Bourne shell (*sh(1)*), not the C-shell (*csh(1)*).

2. If you do not have a current backup of the current file system, do not continue until you do! This is the single most important safeguard you can perform before updating the system.

3. Execute *fsck(1M)* to check the integrity of your file system. Fix any problems encountered.

You should now be running in single-user mode and logged in as *root* (i.e., the superuser). The superuser default shell, found in */etc/passwd*, must be Bourne shell.

4. Check that the update tape is write protected (the protect screw must point to **SAFE**), then insert it into the drive to be used. **Do not proceed until the busy light remains off!** The busy light will remain on for one to three minutes.
5. Enter the following commands to load the new update tools onto the system. (These commands assume */dev/rmtc* is the tape drive where the update tape is loaded. If this is not the case, substitute the name of the drive's character device file for */dev/rmtc* in the commands.)

```
lifcp -a /dev/rmtc:GETTOOLS /tmp/gettools
chmod +x /tmp/gettools
/tmp/gettools /dev/rmtc
rm /tmp/gettools
```

Executing *gettools* causes any new tools related to the update process to be loaded from the tape and put into your current file system. Loading takes from one to several minutes to complete.

6. You need to know the major and minor numbers of the tape drive (which reads the update tape) and of the disc being updated. Be sure you know these numbers before going on. To learn the numbers use the command:

```
ll /dev
```

(assuming there are existing device files describing these devices) or see the new *Series 500 HP-UX System Administrator Manual*.

On Series 500 the major numbers for both devices are 1. The minor number is the hexadecimal value preceded by 0x.

7. Construct a recovery system. With the tools you just unpacked (using *gettools*), you received a program called */etc/mkrs*. This utility creates a functional HP-UX system on a cartridge tape, used to repair or restore your disk, should it become unusable for any reason. Create this system now, before you proceed with the update. Remove the update tape from your cartridge drive, and insert a blank 150' cartridge tape to receive the recovery system. When the drive has conditioned the tape (the busy light has gone out), type:

```
/etc/mkrs
```

/etc/mkrs -mv 500

mkrs initializes the tape, copies the operating system kernel from your root disc (the source) to the tape (the destination), and copies a small set of commands from the disc to the tape.

mkrs uses, by default, devices */dev/ct* and */dev/rct* for the destination; */dev/hd* and */dev/rhd* for the source. If you do not have devices by these names, either create them or provide alternates by using the options *-f destination_block_device* and *-r source_block_device*. *mkrs* prepends an *r* to these devices to access the matching character device file. For example:

```
/etc/mkrs -f /dev/mtc1
```

causes *mkrs* to use the default source devices */dev/hd* and */dev/rhd* and the specified destination devices */dev/mtc1* and */dev/rmtc1*. In addition, the *-v* option causes *mkrs* to print a running history of the construction process.

The end result is a tape containing a working HP-UX system. In the case your disc becomes unusable, insert the tape into the tape drive, power up the system, and run HP-UX from the tape. You can then mount your disc and make repairs to restore it to working order.

WARNING

Keep this tape in a safe place. Anyone with this tape will have superuser privileges on this or any other HP-UX system.

Run update

The following steps describe the new update process.

1. Enter the following command (notice there are no parameters):

```
/etc/update
```

2. *update* now displays the initial options menu. Note the definitions of softkeys **f2**, **f4**, **f8**; they are used in the following steps. (If on a S500 9020, the **USER KEYS** (i.e., the **14 30** key) must be hit to get *update*'s definition of softkeys.)
3. The *update* displays **-1** and **0xFFFFF** on the initial options menu as major and minor numbers for the **source** (tape) and **destination** (disc) devices. Before proceeding, change the **source** device as follows:

hex 0100
cf 0x060100

- Select the appropriate option (using softkey **f2** to scroll to the **CHANGE source device** option, and softkey **f6** to select the specific option.)
- The system prompts for information describing the device; enter the appropriate **decimal** values ending each value by hitting the **Return** key. For example, when on a 500 with the tape drive's major and minor numbers being 1 and 0x050210, respectively, enter the values:

```
major number = 1
select code = 5
bus address = 2
unit number = 1
volume # = 0
```

- Once the values are entered for each prompt, *update* attempts to run *mknod(1M)* using these values. If this fails, an error message is printed and the system again prompts for the information describing the tape device.
- After *update* creates the device file, the device menu is redisplayed with the device information you entered displayed as a **decimal major number** and a **hexadecimal minor number**.

4. Next, define the destination device as follows:

- Select the appropriate option (using softkey **f2** or **f4** to scroll to the **CHANGE destination device** option, and softkey **f6** to select the specific option.)
- When the system prompts for the information describing the device, enter the appropriate **decimal** values ending each value by hitting the **Return** key.
- Once the values are entered for each prompt, *update* attempts to verify the described device exists and one of three things happens:
 - *update* returns to the initial options menu, signifying that it was able to perform a *mknod(1M)* with the supplied values and mount the device.
 - *update* produces a message stating the device is illegal, and after a short pause, reprompts for the information describing the device (see above).
 - *update* produces a message stating it cannot mount the device, and inquires if the device is your **root device**. Answering yes means you will update your root device. Answering no results in *update* telling you to exit and unmount the device you want updated.

- When *update* returns to the device menu, the device information previously entered is displayed as a **decimal major number** and a **hexadecimal minor number**.
5. Next, select the **READ table of contents** option. This selection causes *update* to read a file from the tape, that defines the tape's contents. This process takes a minute or so.
 6. After *update* reads this table of contents, it displays one or more load options, followed by an option to **Process ALL file sets**, followed by other options you have already seen. These load options match the products listed on the tape's label.
 7. Either load selected products one at a time, or select the *all* option to load everything on the tape. If a load option other than *all* is selected, when the load completes, you are given the opportunity to select from the remaining load options and load other products.
 8. After selecting a load option, *update* keeps you informed about its actions by messages in the center of the console.

The HP-UX operating system is loaded in several pieces. It is unimportant what those pieces are; it is important they are all loaded. Note, only one piece takes more than a few minutes to load, **COMMANDS**, which takes anywhere from 20 to 40 minutes, depending upon the processor and peripherals being used.

9. *update* keeps track of the products loaded through files in the directory */etc/filesets*. Each time *update* is used to load a product it searches */etc/filesets* to see if that product was previously loaded. If not, *update* proceeds with the load. If it was previously loaded, *update* informs you the product already exists on the system and asks if it should be removed. Answering no results in *update* **not** loading the product; responding yes results in *update* removing the files making up that product and proceeding with the load.

WARNING

When loading the HP-UX operating system, answer *yes* for each and every piece unless you are sure a particular piece does not need reloading.

10. When the selected option completes, the main menu is redisplayed with one or more of the load options removed (those options corresponding to the completed load are not displayed). If you selected the *all* option, none of the load options are displayed.
11. After loading everything you want to, select the **EXIT update** option. *update* informs you it is unloading the tape; unloading takes a few minutes. If the HP-UX operating system was loaded to your root device (you could have loaded optional products, or updated a device other than root), *update* causes the system to reboot.

The reboot is necessary since the commands that were put on your disc are incompatible with the currently executing kernel. This reboot process takes slightly longer than normal (on the order of one to ten minutes), because **customise scripts** for the updated products are executed on the first reboot after an update.

NOTE

Do not become impatient and cycle power. It could corrupt the disc and render it unreadable.

Immediately After Running update

After completing the update, valid on-line manual pages are available. If you do not understand the following explanations, read the manual pages.

1. Edit */etc/inittab*. See the previous section on *inittab(5)*. Make sure the states of the *gettys* and the *initdefault* match. We recommend that you leave the *initdefault* state as *s* (i.e., in field #2) until you are certain you have *inittab* set up correctly and all your states are tested. You can test your different states by doing an *init #* command where *#* stands for the state number. Then *initdefault* should be changed to a numbered state (probably 2) that matches all of your */etc/getty* state numbers. **Do not** leave *initdefault* as *s* and leave your system unattended.
2. Edit */etc/rc*. See the previous section on */etc/rc*.
3. Fix up *crontab*.
 - Change the directory (*cd(1)*) to */usr/lib/cron*.
 - Create and add users to *cron.deny*.

- Create (if desired) *at.deny*. (The following information applies to both *crontab(1)* and *at(1)*.) *crontab (at)* does not allow users, listed in *cron.deny (at.deny)*, to use the *crontab (at)* command. If *cron.deny* does not exist, *root* is the only user able to run *crontab* (and set up tasks for *cron*). There are other features available concerning *cron.allow* and *at.allow* files; see the manual pages for *cron(1M)*.
- Ensure *cron* is running; *crontab* will not run without *cron* running.
- Switch the *root* to a new user (using *su(1)*), and run the *crontab(1)* command, as in:

```
su somebody
crontab /usr/lib/cron.somebody
```

These are the files you created before the update.

- Now edit the files */usr/lib/uucp/uudemon**. Two of these three files contain a *uulog* command (see *uucp(1C)*); remove it. This *uulog* function has changed and now it dumps large amounts of information which you don't want.
- You created a user *UUCP* (or something similar). Be sure to *su* to *UUCP* and run *crontab(1)* to set up the *uucp* demons.
- Please warn your users that *cron(1M)* mails, to the user, *stdout* and *stderr* for any command it runs in a user's *crontab* file, unless *stdout* and *stderr* are redirected. Also, the *crontab(1)* command is the **only** way to schedule *cron* activities. Direct editing of the files in */usr/spool/cron/crontabs* is ignored by *cron(1M)*.

4. Inspect */usr/lib/uucp/L.sys*.

- Replace all occurrences of *EOT* with *@*. See *Update_info* for details.

5. Inspect */usr/spool/at*.

- The new *at(1)* command has a different spool directory, and uses a different format. If you find files here, then:
 - Sort them by user.
 - *su(1)* to that user.
 - Read each file to see for what and for when it was scheduled.
 - Re-spool the files using the *at(1)* command.

- Be sure these users are not in the `/usr/lib/cron/at.deny` file, or the step above fails.
 - After cleaning out this directory, remove the directory using `rmdir /usr/spool/at`; it is obsolete.
 - If you do not complete these steps, the old `at` files will never execute.
6. Inspect the boot area using the `/etc/osck` command (see `osck(1M)`). Although the `update` process tries to re-create your existing boot area with new segments, some segments might not make it. (i.e., segments that are not part of the core product, such as LAN, IMAGE, and SRM.) Add any wanted segments, not shown by `osck(1M)`, and reboot.
 7. Modify your `/etc/netdir` file (if your system has LAN). The format of the local `nodename` (first line of directory) must now conform to an HP standard networking `nodename` scheme. If this change is not made, the node cannot access LAN.

New format:

```
node_a.facility_x.company_b
```

where

`node_a` = local name

`facility_x` = domain

`name company_b` = organization name

Example of the old `nodename` format:

```
200000 hpfcrlj 0xC006043F /dev/lan
```

Example of the new `nodename` format:

```
200000      hpfcrlj.fc.hp      0xC006043F      /dev/lan
```

8. Also, warn your users that they will encounter problems associated with the movement of certain commands. This refers especially to the removal of `/lbin` and `/usr/lbin`. They must change the `PATH` variable in their personal `.profile`, `.cshrc`, or `.login file`. In addition, shell scripts may fail if absolute paths for moved commands are used. Look for such errors, and repair the scripts. The safest repair method is to define a `PATH` variable within the shell script, and then use the commands by name (without a path) within the script. Such a script tolerates minor movement of commands. In the case of major movement, only the `PATH` variable needs to be changed.

9. Do not forget to change *PATH* variables:
 - In your interface scripts for the *lp* command (*/usr/spool/lp/interface*).
 - In your backup script.
10. Inspect and possibly change your */usr/lib/uucp/USERFILE*. See the section on “SYSTEM V CHANGES TO UUCP COMMANDS” in */etc/newconfig/Update_info*.
11. Read */etc/newconfig/Update_info* for more information about the key changes and added features provided by HP-UX 5.0.

Optional Actions

- Activate the new accounting feature of HP-UX. See the *Series 500 HP-UX System Administrator Manual*, Chapter 6.
- Edit */usr/lib/uucp/ADMIN*, to insert system names and descriptions:

```
sysname <tab> description <tab>
```

where *description* is any string “John Doe’s system.” For details, see *uucp(1C)*’s manual page.

- Edit */etc/csh.login* to meet your users’ needs. (*/etc/csh.login* is the *csh(1)* equivalent to */etc/profile*.) See the section on “SHELL CHANGES” in */etc/newconfig/Update_info*.

Examples

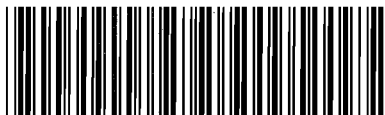
Sample *inittab* files:

Old:

```
1:ec::/bin/echo "inittab execution -- state 1 entered" >/dev/console
2:ec::/bin/echo "inittab execution -- state 2 entered" >/dev/console
7:ec::/bin/echo "inittab execution -- state 7 entered" >/dev/console
8:ec::/bin/echo "inittab execution -- state 8 entered" >/dev/console
9:ec::/bin/echo "inittab execution -- state 9 entered" >/dev/console
1:04:c:/etc/getty tty04 3 0
1:09:o:(cul09)
1:11:c:/etc/getty tty11 3 0
1:co:c:/etc/getty console H 0
1:a1:c:/etc/getty ttya1 H 0
#a2:c:(cula2)
#a3:c:(cula3)
1:a4:c:/etc/getty ttya4 H 0
1:a5:c:/etc/getty ttya5 H 0
1:a6:o:(cula6)
1:a7:c:/etc/getty ttya7 M 0
1:b0:o:(culb0)
1:b1:c:/etc/getty ttyb1 H 0
1:b2:c:/etc/getty ttyb2 H 0
1:b3:c:/etc/getty ttyb3 H 0
1:b4:c:/etc/getty ttyb4 H 0
1:b5:c:/etc/getty ttyb5 5 0
1:b6:o:(culb6)
1:b7:c:/etc/getty ttyb7 H 0
2:04:k:                                # Kill inbound UUCP links for backup
2:11:k:
9:04:k:                                # Kill all lines except console
9:09:k:
9:11:k:
9:a1:k:
9:a4:k:
9:a5:k:
9:a6:k:
9:a7:k:
9:b0:k:
9:b1:k:
9:b2:k:
9:b3:k:
9:b4:k:
9:b5:k:
9:b7:k:
```

New (Old state 1 mapped to 2, old state 2 mapped to 3, oldstate 9 mapped to 6):

```
is:2 :initdefault:
bl: :bootwait:/etc/bcheckrc </dev/syscon >/dev/syscon 2>#1 #bootlog
bc: :bootwait:/etc/brc 1>/dev/syscon 2>#1 #bootrun command
sl: :wait : (rm -f /dev/syscon;ln /dev/systty /dev/syscon;) 1>/dev/console
2>#1
rc: :wait :/etc/rc </dev/syscon >/dev/syscon 2>#1 #run com
04:2 :respawn :/etc/getty tty04 3
09: :off : (cul09)
11:2 :respawn :/etc/getty tty11 3
co: :respawn :/etc/getty console H
a1:2$ :respawn :/etc/getty ttya1 H
a2: :off : (cula2)
a3: :off : (cula3)
a4:2$ :respawn :/etc/getty ttya4 H
a5:2$ :respawn :/etc/getty ttya5 H
a6: :off : (cula6)
a7:2$ :respawn :/etc/getty ttya7 M
b0: :off : (culb0)
b1:2$ :respawn :/etc/getty ttyb1 H
b2:2$ :respawn :/etc/getty ttyb2 H
b3:2$ :respawn :/etc/getty ttyb3 H
b4:2$ :respawn :/etc/getty ttyb4 H
b5:2$ :respawn :/etc/getty ttyb5 5
b6: :off : (culb6)
b7:2$ :respawn :/etc/getty ttyb7 H
```



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