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# 1 Description

As a more comfortable way of applying updates (compared to downloading/unpacking it by hand) we offer a script that simplifies this procedure for some of our devices. This script allows the device to try to automatically detect the device type in order to get the right image for it. It also downloads and unpacks the image file and runs further commands in order to complete the installation. The script can be downloaded from our server from the URL <http://www.cubro.net/cubro/update/exupdate3.sh> (but first please have a look at whether there is a newer version at <http://www.cubro.net/cubro/update/>).

## 2 Supported Devices

Devices supported by the exupdate3.sh script as of April 5, 2017:

- Generation 2
  - EX5-2-T
  - EX6
- Generation 3
  - EX5-2 (not EX5)
  - EX12
- Generation 3.1
  - EX2(+)
- Generation 4
  - EX32(+)
  - EX20400
  - EX484-3 (not EX484 or EX484-2)
  - EX48400

## 3 Connection, Shell

Depending on the method of connection to the device you might need to take additional steps to reach the correct shell and directory in order to apply the update script in.

### 3.1 Serial Connection over Console Port

Our devices offer a RS-232 compliant serial connection through an RJ45 port generally labeled “CON”. Our devices should come with the right adapter cable to DE-9 (it is also compatible with the light blue terminal cables of a large American networking company). For the correct connection settings please refer to the manual of the device but apart from that the parameters should be 8 data bits, 1 stop bit, no parity or flow control and 115200 baud for the generation 4+ devices and 9600 for all previous generations.

If you are connected and you are in a shell that looks similar to one of the following (instead of EX2 it you see the type of device):

```
CubroEX2#
```

```
Switch#
```

Then you need to switch to either the BusyBox shell using:

```
start shell
```

(On devices with a Debian subsystem like EX12 and EX5-2 before version 2.2 you alternatively also use the Bash shell using “`bash`”.)

On EX6 devices with very old software revisions you might need to enter a password at this point, per default the password is “123456” (without quotes).

Then you should then see something similar to:

```
[root@CubroEX2 /mnt/flash]$
```

Whereas instead of “EX2” you should see the type of the device. The folder you are in does not matter.

### 3.2 SSH Connection

If you connecting to your device using SSH you should land in the correct shell right away on all devices but older EX6 versions where you need to call `start shell` first and on even

older software revision have to enter a password which is “123456” (without quotes) first.

```
cd /
```

### 3.3 Internet Connection

If you want to download the update from a server on the internet (as is our server that is set as default) you need to make sure first that a connection is possible. Use the following command for that and check whether the output indicates success:

```
ping -c1 8.8.8.8
```

A successful output should look similar to the following:

```
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.  
64 bytes from 8.8.8.8: icmp_req=1 ttl=56 time=14.0 ms  
  
--- 8.8.8.8 ping statistics ---  
1 packets transmitted, 1 received, 0% packet loss, time 1ms  
rtt min/avg/max/mdev = 14.047/14.047/14.047/0.000 ms
```

In case the request is not successful please check whether you have a right IP and DNS server set and the device has a connection (management port [“MGMT”/“ETH”] connected). (On newer firmware version on most device you can alternatively also run `udhcpd` to get an IP through DHCP until reboot.)

## 4 Update Procedure

### 4.1 Update over the Internet

#### 4.1.1 Quick

If you are connected to the internet and you are in the correct shell (check the previous sections on this manual) then the following line should successfully update your device to the latest version of the appropriate image for your device.

```
echo 'nameserver 8.8.8.8' > /etc/resolv.conf
rm exupdate3.sh
wget http://www.cubro.com/cubro/update/exupdate3.sh
chmod +x exupdate3.sh
./exupdate3.sh
```

Unless you use an appropriate argument like `-o` (see section 5) the script will then ask you whether you want to keep the configuration file where the ssh login data and IP/hostname/etc. are saved (note: the flows aren't saved there). Enter `y` to keep it or `n` to have it replaced with the default settings (e.g. an IP of 192.168.0.200).

If the update was successful the output should indicate that and the device needs to be rebooted which can be done using:

```
reboot
```

#### 4.1.2 Step-by-Step

Same commands as before but explained in detail.

First of all you need to have an IP set on your management port, you can set it using:

```
ifconfig eth0
```

The default management port IP is 192.168.0.200 (unless you asked to have it shipped with a different one). If you want to set a different one (one which will revert to stored IP after reboot) you can use `ifconfig` for that, e.g.:

```
ifconfig eth0 10.0.0.42 netmask 255.255.0.0
```

```
route add default gw 10.0.0.1
```

A permanent IP (permanent if you choose not to overwrite/reset the configuration files) can be set using our `exmenu` tool or the web UI (be it that you have a firmware that already has them). There also always the option of setting it in the other management shell (the default one on serial connection, accessed using `config/vtysh` depending on the device and software version)

```
configure terminal
management ip address 10.0.0.42 netmask 255.255.0.0
management route add gateway 10.0.0.1
exit
write memory
```

On most devices with a newer firmware version you can use `udhcpd` to get an IP using DHCP (IP will revert to stored one after reboot).

Then you might set the DNS server (unless you used the DHCP client and got already one):

```
echo 'nameserver 8.8.8.8' > /etc/resolv.conf
```

This command will not return any output.

Then run the following command in order delete any possibly existing older versions of the script:

```
rm exupdate3.sh
```

If this file does not exist (e.g. because you did not update before) then this command will fail (returning “`rm: cannot remove 'exupdate3.sh': No such file or directory`”), it does not matter. On success the command will return nothing.

Next in order to download the script from our server:

```
wget http://www.cubro.net/cubro/update/exupdate3.sh
```

If the device in question is not connected to the internet, please download the script manually on a file server (e.g. HTTP, FTP) accessible in your network and change the command accordingly (please note you will then also have to call the update script with certain parameters in that case, see section 5).

Next run the following command to set the execute flag for the script making it possible to run the script:

```
chmod +x exupdate3.sh
```

Now in order to run the script using the default settings:

```
./exupdate3.sh
```

It will ask you whether you want to reset the configuration file “startup-config.conf” where e.g. the hostname and the IP addresses are stored. In case you don’t want to be asked and just overwrite/reset or keep the current config file you can use the parameter `-o` or `-k` respectively.

The output should indicate that the update was successfully applied and the device should be restarted. From this shell the device can be rebooted using:

```
reboot
```

## 4.2 Update Using Local HTTP/FTP Server

After setting up an HTTP or FTP server on a location accessible from the management port of the device, the script can be told to get and apply the update from that using the `-u` parameter (see subsection 5.1.1 for more details), e.g.:

```
./exupdate3.sh -u http://192.168.0.254:8000/EX2update_latest.tar.gz
```

### 4.2.1 Image Download URLs

See <http://www.cubro.net/cubro/update/> for a directory listing of all available update images. Some are for specific devices, some are for whole generations of devices (e.g. EX32).

## 4.3 Update Using USB Flash Drive

On Generation 4 devices you can connect USB flash drives into the type A/Mini-A receptacle (an adapter might be necessary) and verify that it was detected by comparing the outputs of `lsusb` prior to and after plugging it in.

If the device has been successfully detected it can be mounted using the following command:

```
mount /dev/sda1 /mnt/udisk
```

Now the update script can be instructed to update using the image on the flash drive using the `-f` parameter (see subsection 5.1.1 for more details), e.g.:

```
./exupdate3.sh -f /mnt/udisk/EX32update_latest.tar.gz
```



## 5 Parameters

### 5.1 Parameters Explained

#### 5.1.1 Parameters Concerning Update Image Selection

If none of the following parameters are set then the script is going to try to detect the device type and download the latest version of the matching image from our server.

The first two parameters just concern what image is going to be downloaded from our servers, the last two are about using a different source altogether.

**--model <MODEL>**

For default automatic download mode, set model (or generation) to `<MODEL>` instead of letting script detect it (dangerous!); default is detecting it.

**-r, --version <VERSION>**

For default automatic download mode, download version `<VERSION>` of update image; default is 'latest'.

**-u, --url <URL>**

Download image from `<URL>` and apply it instead of using automatic download mode, overrides `--model` and `-r/--version`.

**-f, --file <FILE>**

Use local update image and apply it instead of using automatic download mode, overrides `-r/--version` and `-u/--url`.

#### 5.1.2 Parameters Controlling Update Procedure

**-k, --keep-config**

Keep configuration and rules (flows) and do not ask, default is asking.

**-o, --overwrite-config**

Overwrite (or even reset) configuration and rules (flows) and do not ask, default is asking.

**--no-tidying**

Do not attempt to tidy the boot images folder before update (not recommended unless in special cases like TFTP boot). The default is to remove unused boot images from the boot images folder, in order to keep it as small as possible.

**--super-tidying**

Delete all existing boot images before update (dangerous!).

**--tmp-dir [FOLDER]**

Do not use the default directory for downloading and instead use the current folder or a specified one instead.

If the directory does not exist, one is created and mounted as a RAM FS (this is also the default).

**--ignore-filename**

When using `-f/--file` or `-u/--url` ignore the file name except for checking the file ending unless update format was specified using `--update-format`.

**--ignore-dir**

Whether to skip the check on whether the folder in which the unpacking should start (flash directory) looks about right. Relevant if e.g. the flash has been wiped and the device then booted from TFTP. Default behavior would be to only unpack if the file layout looks right, e.g. if there is a `uImage` file inside the `boot` folder.

**--auto-reboot**

Reboot automatically after completion of the unpacking stage instead of expecting some user input first.

### 5.1.3 Other Parameters

**-q, --quiet**

Do not output much except for errors and prompts.

**-v, --verbose**

Be verbose, e.g. output all files being unpacked.

**-h, --help**

Show a help text similar to this chapter here.

## 5.2 Parameter Examples

### 5.2.1 General Usage

Update with image automatically downloaded from our server:

```
./exupdate3.sh [--model <MODEL>] [-r <VERSION>] ...
```

Update with image downloaded from custom http server:

```
./exupdate3.sh -u <URL> ...
```

Update using a local file (e.g. from a flash drive or one transferred using TFTP):

```
./exupdate3.sh -f <PATH> ...
```

## 5.2.2 Specific Examples

Example of simple update to the latest version (using automatic download mode) where configuration is kept and every file being unpacked is listed:

```
./exupdate3.sh -k -v
```

Example of update from own internal server, replacing all config:

```
./exupdate3.sh -o -u http://192.168.0.42:8000/EX313_latest.tar.gz
```

Applying image file that has been downloaded previously using tftp and has a non-standard name:

```
./exupdate3.sh -f update.tar.gz --ignore-filename
```

## 6 Common Errors

### 6.1 Command Incomplete

#### 6.1.1 Problem

A command in the Update Procedure section lead to an output like one of the following:

```
% Command incomplete.
```

```
% Unknown Command.
```

#### 6.1.2 Solution

Commands were invoked in the incorrect shell. Please see section 3.

### 6.2 Bad Address

#### 6.2.1 Problem

Script fails and displays amongst others output like:

```
wget: bad address 'www.cubro.net'
```

#### 6.2.2 Solution

Your device has no connection to the internet or the DNS is not resolving, please check your IP and DNS server settings (see section subsection 3.3).

### 6.3 Not Found

#### 6.3.1 Problem

Running “`exupdate3.sh`” does not work and instead error messages similar to one of the following are shown:

```
-sh: ./exupdate3.sh: not found
```

```
: not found 2:  
: not found 4:  
: not found 7:  
: not found 105:  
exupdate3.sh: line 257: syntax error: unexpected "elif" (expecting "then")
```

For the first case it could be that it might be that the script was not made executable, i.e. “`chmod +x exupdate3.sh`” was not run. If it was and the error message still shows or the second error message shows then this probably means that the file has DOS style file endings with carriage return characters in addition to the new line characters, in this case a command like “`sed -i "$(printf 's/\r//g')" exupdate3.sh`” has to be run in order to remove those characters.