

REPOSITORY BASED ROUTEROS SCRIPT DISTRIBUTION

Christian Hesse

ABOUT ME



- Christian "eworm" Hesse
- born in 1982 in Oberhausen, Germany
- still live there
- wife and two daughters

WORKING FOR BCW GRUPPE



- Server administration
- Networking
- Security

OPEN SOURCE & ARCH LINUX



- Open Source enthusiast since ~ 2000
- Arch Linux since 2010
- TU since January 2015
- Developer since June 2016

ROUTERBOARD

- Bought my first RouterBoard in February 2013
- Loved it for...

NEARLY EVERYTHING!

- Functionality
- Flexible configuration
- Great CLI
- Scripting capabilities

SCRIPTS

THE FIRST ONE

email-backup:

```
/ system backup save  
/ tool e-mail send to=mail@eworm.de \  
  subject="backup from MikroTik" body=backup \  
  file=backup.backup
```

- simple commands
- one after another

TIME GOES BY...

... and you buy your next RouterBoard.

THE SECOND ONE

email-backup:

```
:local Identity [ / system identity get name ];  
/ system backup save name=$Identity;  
/ tool e-mail send to=mail@eworm.de \  
    subject=("backup from " . $identity) body=backup \  
    file=($Identity . ".backup");
```

- use substitution to add identity

THE THIRD ONE

email-backup:

```
:local Email "mail@eworm.de";

:local Identity [ / system identity get name ];
/ system backup save name=$Identity;
/ tool e-mail send to=$Email \
    subject=("backup from " . $identity) body=backup \
    file=($Identity . ".backup");
```

- add configuration at top
- you can copy and paste the bottom

THE NEXT STEP

global-config:

```
:global Email "mail@eworm.de";
```

email-backup:

```
:global Email;  
  
:local Identity [ / system identity get name ];  
/ system backup save name=$Identity;  
/ tool e-mail send to=$Email \  
    subject=("backup from " . $identity) body=backup \  
    file=($Identity . ".backup");
```

- split configuration to a separate script

PUBLISH

Hey, we have a webserver!

WHAT'S NEXT?

RouterOS scripting can...

- ... download from webserver
- ... alter its own configuration

MANAGE ITSELF

Introduce a script for script management:

- get names of local scripts
- download from webserver
- replace local script if it differs

PUT IT TOGETHER:

Repository based RouterOS script distribution

INSTALLATION

⇒ We start with a clean system

- Live demo

INSTALL CERTIFICATES

Security first!

```
/ tool fetch dst-path="letsencrypt.pem" \  
  ("https://git.eworm.de/cgit.cgi/routeros-scripts/" . \  
  "plain/certs/letsencrypt.pem");  
/ certificate import file-name=letsencrypt.pem passphrase="";
```

- Live demo

INSTALL SCRIPTS

```
:foreach Script in={ "global-config";  
                    "global-functions";  
                    "script-updates" } do={  
  / system script add name=$Script source=(  
    [ / tool fetch \  
    check-certificate=yes-without-crl \  
    ("https://git.eworm.de/cgit.cgi/routeros-scripts/" . \  
    "plain/" . $Script) output=user as-value ] ->"data");  
}
```

- Live demo

MODIFY CONFIGURATION

```
/ system script edit global-config source;
```

- Live demo

IMPORT GLOBAL VARIABLES

Now...

```
/ system script {  
  run global-config;  
  run global-functions;  
}
```

- Live demo

IMPORT GLOBAL VARIABLES

... and after reboot.

```
/ system scheduler {  
  add name=global-config start-time=startup \  
    on-event=global-config;  
  add name=global-functions start-time=startup \  
    on-event=global-functions;  
}
```

- Live demo

UPDATE SCRIPTS

```
/ system script run script-updates;
```

- Live demo

THAT'S IT!

Repository based RouterOS
script distribution is set up.

WHAT'S IN THE REPOSITORY?

There are some useful scripts.

Let's install some and have a look!

BACK TO THE ROOTS...

Create empty script email-backup:

```
/ system script add name=email-backup;
```

... and fill with content:

```
/ system script run script-updates;
```

- Live demo

BACK TO THE ROOTS...

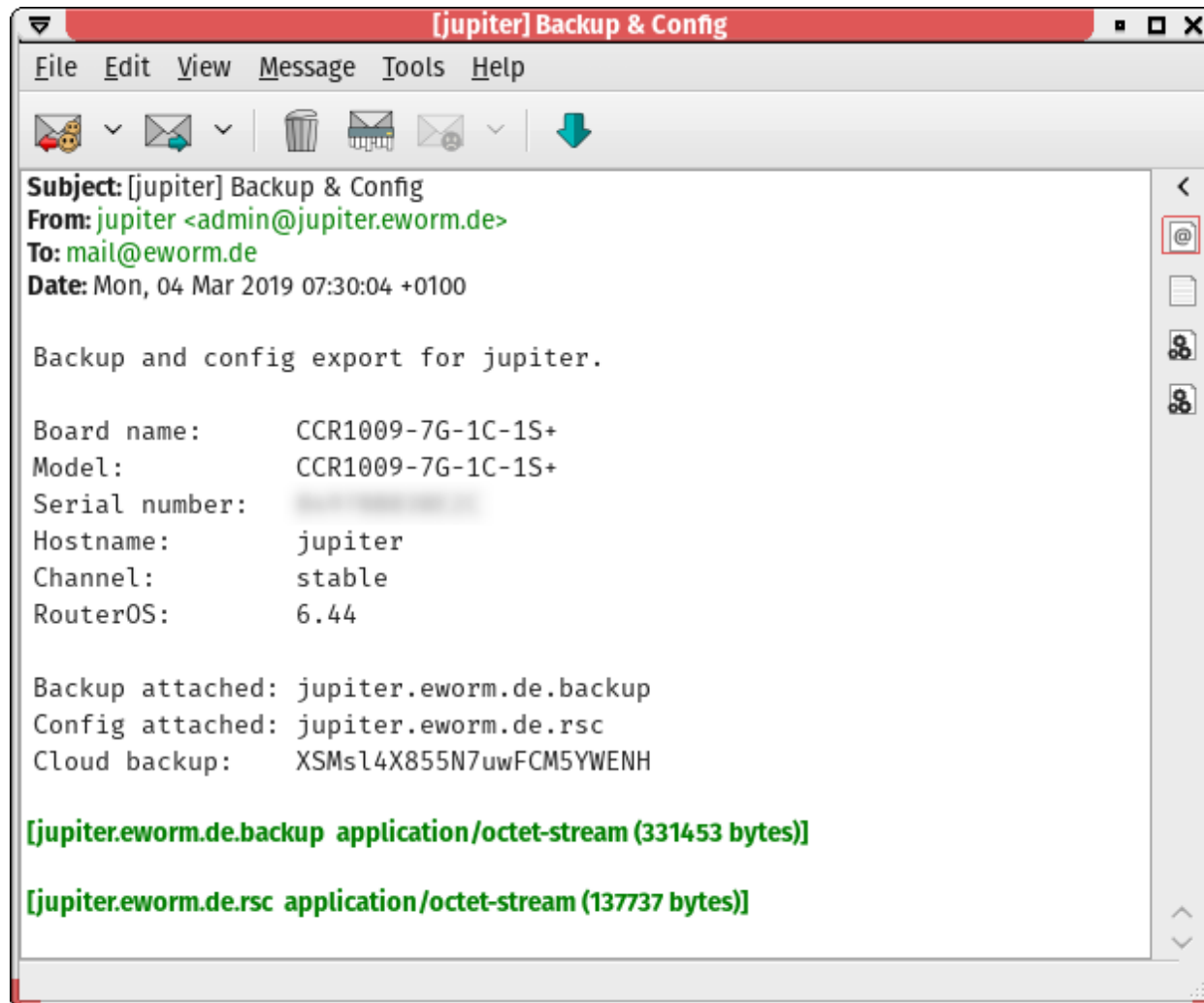
⇒ Remember to configure!

... and use:

```
/ system script run email-backup;
```

... or run from scheduler.

THE RESULT



CHECK FOR UPDATES

Install check-routeros-update:

```
/ system script add name=check-routeros-update;  
/ system script run script-updates;
```

... and schedule:

```
/ system scheduler add on-event=check-routeros-update \  
    name=check-routeros-update interval=1d;
```

- Live demo

CHECK FOR UPDATES

... or run from terminal:

```
/ system script run check-routeros-update;
```

⇒ Start your update interactively!

- Live demo

CHECK FOR UPDATES

Or even use the auto-update feature by configuring `SafeUpdateUrl` in `global-config`.

DHCP AND DNS HELPERS

```
/ system script {  
  add name=collect-wireless-mac.local;  
  add name=dhcp-to-dns;  
  add name=lease-script;  
  run script-updates;  
}
```

... and activate:

```
/ ip dhcp-server set lease-script=lease-script [ find ];
```

- Live demo, please connect to "MUM-EU19"

MODE-BUTTON

```
/ system script {  
  add name=mode-button-event;  
  add name=mode-button-scheduler;  
  add name=leds-toggle-mode;  
  run script-updates;  
}
```

... and activate:

```
/ system routerboard mode-button \  
  set enabled=yes on-event=mode-button-event;
```

- Live demo

AND A LOT MORE... LIKE:

- check-certificates
- daily-psk
- gps-track
- rotate-ntp
- sms-action & sms-forward
- check-lte-firmware-upgrade & unattended-lte-firmware-upgrade
- ...

WHERE DO YOU FIND IT?

<https://git.eworm.de/cgit.cgi/routeros-scripts/about/>

<https://github.com/eworm-de/routeros-scripts>

<https://gitlab.com/eworm-de/routeros-scripts>

FINALLY

PLEASE...

- ... use it!
- ... clone or fork!
- ... send your patches!
- ... send your feedback!

**NOW IT'S TIME FOR YOUR
QUESTIONS...**

THANK YOU!



Christian Hesse <mail@eworm.de>