CHARON Linux Utilities - Users Guide

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Purpose of this document

This document is the user’s guide of the “Charon Linux utilities” scripts.

These scripts are designed to:

- **Monitor the Charon guests log file in order to alert**
    - on removal of the dongle license key or
    - for all INFO, WARN and ERROR messages found (depending on the error level setting)
- **Alert on license approaching termination**
- **Manage start/stop guests at server boot with services and customized shutdown commands**:
    - clean shutdown of the guests at charon server shutdown
    - clean shutdown of one guest at will using customized shutdown scripts (using 'ssh', 'expect' or any customized tool)
- **Provide menu driven options** like:
    - Connection to guests console
    - Display license contents, update license with send C2V, apply V2C options
    - Send configuration and log files by mail
    - Gather charon server information: Hardware, Operating System, Storage, Network interfaces, Charon version, Utilities version

Introduction

Important note

This document applies to Linux Utilities kit version 38 minimum dated 14-Jan-2015.

Kit download

To download the kit, you must issue a request via email to the Stromasys support team: support@stromasys.com

Prerequisites

- Basic knowledge of Unix commands
- Basic knowledge of Charon product
- Charon qualified versions:
    - Charon-AXP v4.4 build 14707
    - Charon-AXP v4.5 build 15505 minimum
    - Charon-VAX v4.6 build 16502 minimum
- Scripts have been tested and validated on the following Linux distributions/versions:
    - Fedora 17-20
        - ⚠️ Due to changes in service management with Fedora, clean shutdown of the emulated machines (guests) at Linux server shutdown is not functional with the current release.
    - Red Hat Enterprise Linux Server release 6.2 to 6.5
- The following softwares have to be installed of the Charon server:
    - telnet (mandatory)
    - expect (recommended if ssh cannot be used to execute shutdown commands from the console)
    - evince (recommended for reading online documentation)
    - sendmail (mandatory)
    - screen (mandatory)
    - firefox
- All described operations will have to be performed on the Charon Linux server and logged on as '**root**' (no other user supported)
- Charon-AXP and Charon-VAX installations are supported when installed in **`/opt/charon`** only
- Mail service must have been configured

Conventions

Throughout the document(s) these conventions are followed:

Notation	Description
$	The dollar sign in interactive examples indicates an operating system prompt for VMS. The dollar sign can also indicate non superuser prompt for UNIX / Linux.
#	The number sign represents the superuser prompt for UNIX / Linux.
>	The right angle bracket in interactive examples indicates an operating system prompt for Windows command (cmd.exe).
`User input`	Bold monospace type in interactive examples indicates typed user input.
<**`path`**>	Bold monospace type enclosed by angle brackets indicates command parameters and parameter values.
`Output`	Monospace type in interactive examples, indicates command response output.
[ ]	In syntax definitions, brackets indicate items that are optional.
...	In syntax definitions, a horizontal ellipsis indicates that the preceding item can be repeated one or more times.
`dsk0`	Italic monospace type, in interactive examples, indicates typed context dependent user input.

↵	This symbol represents the Enter key without typed user input. Used, for example, to tell the user to select the default value by pressing enter.

The following definitions apply:

Term	Description
Host	The system on which the emulator runs, also called the charon server
Guest	The emulated system, in which the Tru64 or VMS system runs

Note related to display/edit options

Some menu options will allow you to display or edit files using available editors (if installed) between:

Editor	Interface	Description
gedit	Graphical	Windows notepad like
emacs	Graphical	Windows notepad like, advanced
nano	Text	Basic text editor
vi	Text	Advanced users

Select the one you prefer or refer to 'man pages' for more information on available ones.

Note related to emails

There are 2 kinds of emails:

- Results: some menu options will allow you to send results via email (example: license display, log and configuration files). The recipient will then be unique
- Alerts: by default, the alert script will send alerts via email and 'wall' notifications (this can be customized). A recipient list can be defined in this case

ℹ Do not use Stromasys email address to send results directly, for example to support@stromasys.com. The sender will be unknown to us, it is then recommended to send results to yourself first and to forward us the mail you received.

⚠ Both require 'sendmail' to be installed and configured.

Setup

Installation

The tools are provided in a tar file that must be extracted into the /opt/charon/utils folder.

- If the folder does not exist, by default created at Charon installation, create it and copy the tar file in this directory, here we assume the tar file was downloaded in the /charon folder:

  ```
  # mkdir -p /opt/charon/utils
  # cp /charon/charon_linux_utils.kit<number>.tar /opt/charon/utils
  ```

- Extract the files from the tar file to the Charon installation directory, subdirectory ‘utils’

  ```
  # cd /opt/charon/utils
  # tar –xf charon_linux_utils.kit<number>.tar .
  ```

- All scripts can be configured using a menu. In order to activate the ‘menu’ command, execute the following commands:

  ```
  # ./menusetup
  ```

- The setup will check first your terminal settings
  - if set to VT100 you will not be able to continue until you set the TERM value to VT200, dtterm or xterm (see how to here: Terminal settings)

- Mandatory packages installation will be checked (telnet, screen, etc..)
  - if one package is missing you will not be able to continue

- If telnet is installed, you will be prompted to force the mode to character to avoid some input issues while connected to the guests console

- Recommended packages installation will be checked (expect, evince)
  - if one package is missing you will be able to continue, installation of these packages can be done later if needed

- The 'menu' alias will be created, this will be the command you'll use to access the menu

- Recursive jobs will be added in the crontab file:
  - if the crontab file does not exist, it will be automatically filled
  - if it already exists, you will be prompted to update it via the selected editor: at first time leave the editor without any update, a check will be performed and will add the missing entries. You'll then be rerouted to the crontab editor to check

- Emails alerts parameters will now have to be filled
  - select between HTML or pure TEXT emails
  - customize emails footer: you can add here your disclaimer, information on Charon server or any information you think useful
  - enter the recipients list, one recipient per line
  - select the alert level from guests log files: 0 = none, 1 = informational+warning+error entries, 2 = warning+error entries, 3 = error entries only

- When the setup is completed either log out to activate the 'menu' alias or execute the following command:

  ```
  # . /etc/profile.d/charon_menu*
  ```

Menu options

Table of Contents

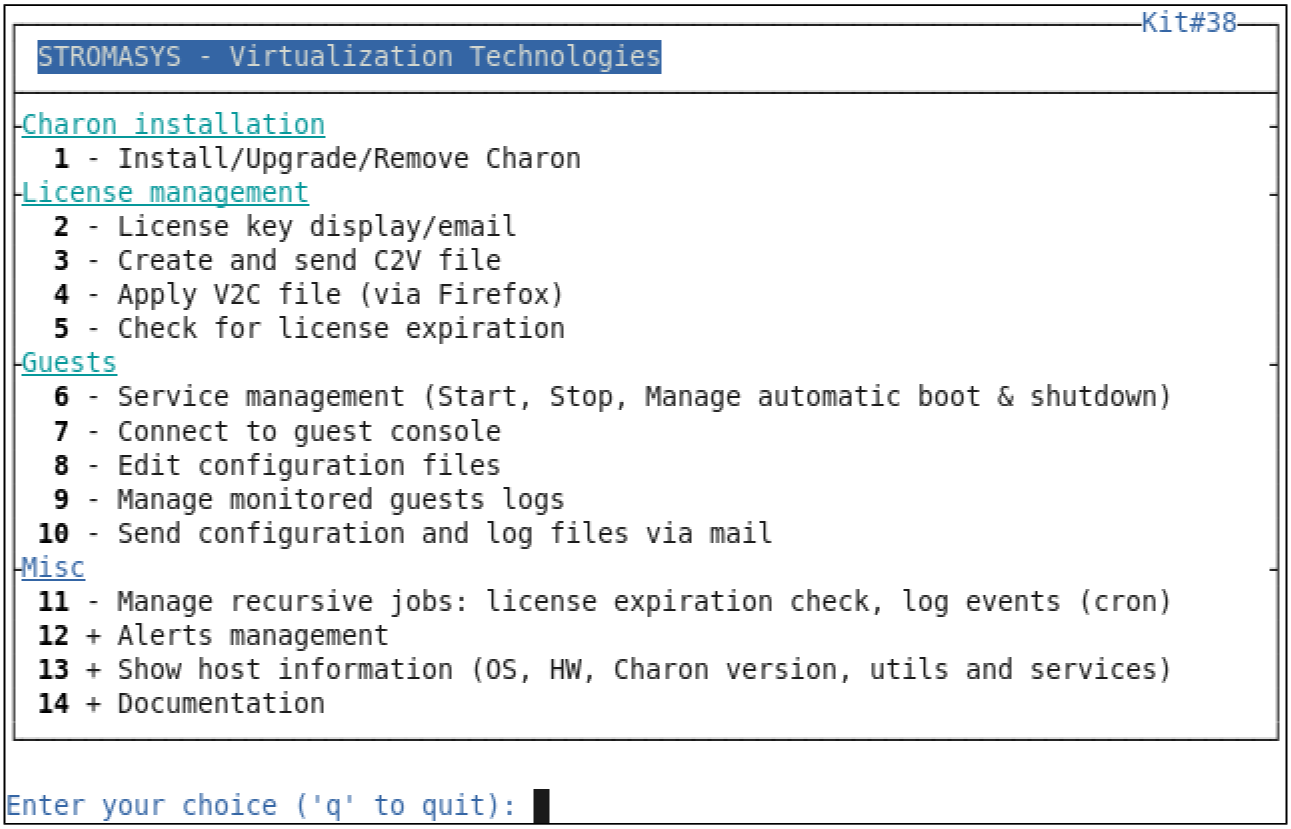
- Menu launcher
- Configuration
- Menu Options

Menu launcher

Execute:

```
# menu
```

Display:



```
                                                                  Kit#38
 STROMASYS - Virtualization Technologies

Charon installation
   1 - Install/Upgrade/Remove Charon
License management
   2 - License key display/email
   3 - Create and send C2V file
   4 - Apply V2C file (via Firefox)
   5 - Check for license expiration
Guests
   6 - Service management (Start, Stop, Manage automatic boot & shutdown)
   7 - Connect to guest console
   8 - Edit configuration files
   9 - Manage monitored guests logs
  10 - Send configuration and log files via mail
Misc
  11 - Manage recursive jobs: license expiration check, log events (cron)
  12 + Alerts management
  13 + Show host information (OS, HW, Charon version, utils and services)
  14 + Documentation


Enter your choice ('q' to quit):
```

Configuration

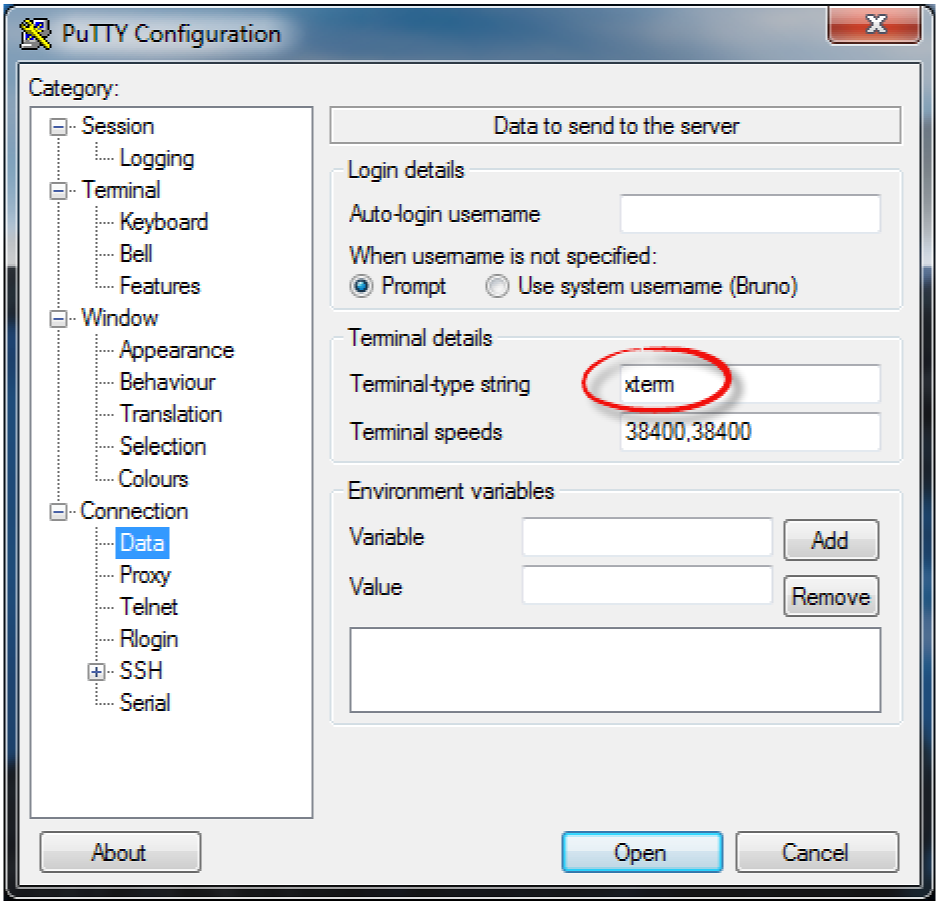
If the menu does not correctly display line drawing, change the terminal settings. If set to vt100 for example, you will see lowercase characters in place of menu borders.

To correct this, enter the following commands:

```
# echo $TERM
vt100
# TERM=vt200
# export TERM
# menu
```

Notes:

- New `TERM` value can also be set to **`xterm`**
- If you're using putty, you'll maybe have to force the **Terminal-type string**:



Data to send to the server

Login details

Auto-login username

When username is not specified:

● Prompt ○ Use system username (Bruno)

Terminal details

Terminal-type string: xterm

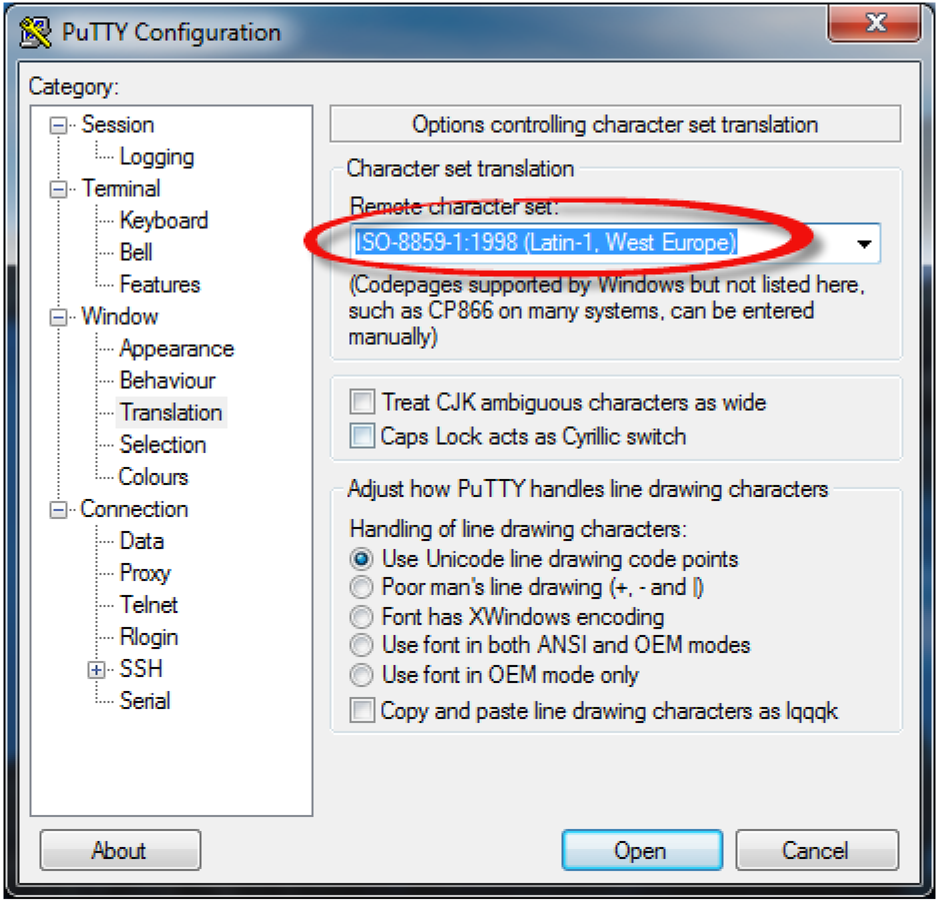
Terminal speeds: 38400,38400

Environment variables

Variable

Value

and maybe **Remote character set** parameter:



Options controlling character set translation

Character set translation

Remote character set:

ISO-8859-1:1998 (Latin-1, West Europe)

(Codepages supported by Windows but not listed here, such as CP866 on many systems, can be entered manually)

□ Treat CJK ambiguous characters as wide

□ Caps Lock acts as Cyrillic switch

Adjust how PuTTY handles line drawing characters

Handling of line drawing characters:

● Use Unicode line drawing code points

○ Poor man's line drawing (+, - and |)

○ Font has XWindows encoding

○ Use font in both ANSI and OEM modes

○ Use font in OEM mode only

□ Copy and paste line drawing characters as lqqqk

Menu Options

- Install/Upgrade/Remove Charon
- License key display/email
- Create and send C2V file
- Apply V2C file (via Firefox)
- Check for license expiration
- Service management (Start, Stop, Manage automatic boot & shutdown)
    - Service management - Update guests list
    - Service management - Start/stop guests
    - Service management - View guest log file
    - Service management - View guest manager log file
    - Service management - Install or update service
    - Service management - Create/Edit guest stop script
    - Service management - Connect to guest console
    - Service management - Edit configuration files
    - Service management - Manage monitored guests logs
- Connect to guest console
- Edit configuration files
- Manage monitored guests logs
- Send configuration and log files via mail
- Manage recursive jobs: license expiration check, log events (cron)
- Alerts management
- Show host information (OS, HW, Charon version, utils and services)
- Documentation

Install/Upgrade/Remove Charon

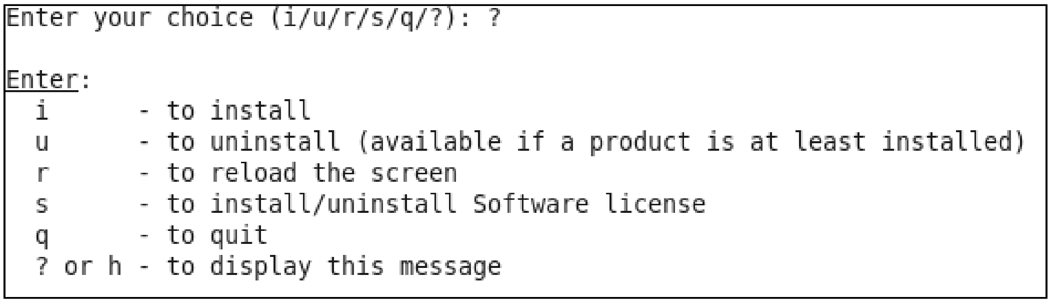
Description

This option is designed to perform easy installation and uninstallation of Charon. You have just to provide the .tar.gz file (kit) location, or .tar or the folder where you extracted the kit if you did and the tool will install all packages. You can also provide a software license kit location if any, .tar or folder, the script will also perform the setup.

The script uses 2 files to store the Charon kit folder and software license kit folder if used. See chapter "Technical part - Scripts and files description" for more.

Notes:

- Zipped kits will be unzipped automatically (.tar.gz file)
- .tar files will be removed once extracted into their destination folder
- If the kit is provided by a .md5sum file and this file is present in the same folder as the kit, the md5sum check will be automatically performed.
- To display the options available, type "?" and press enter:



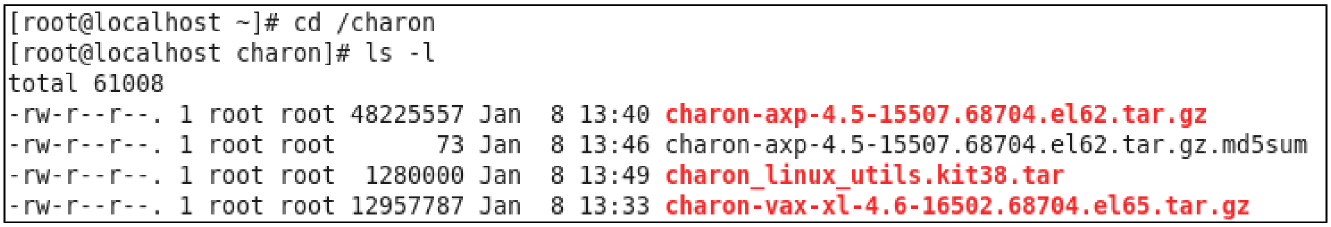
```
Enter your choice (i/u/r/s/q/?): ?

Enter:
  i      - to install
  u      - to uninstall (available if a product is at least installed)
  r      - to reload the screen
  s      - to install/uninstall Software license
  q      - to quit
  ? or h - to display this message
```

- ℹ To upgrade Charon product, you need to stop running emulated machines (AXP or VAX), uninstall the current version and install the new one.
- ⚠ To remove Charon product, you must ensure there is no running emulated machine related to the product: a check for running processes will be done before uninstallation

Fresh installation example

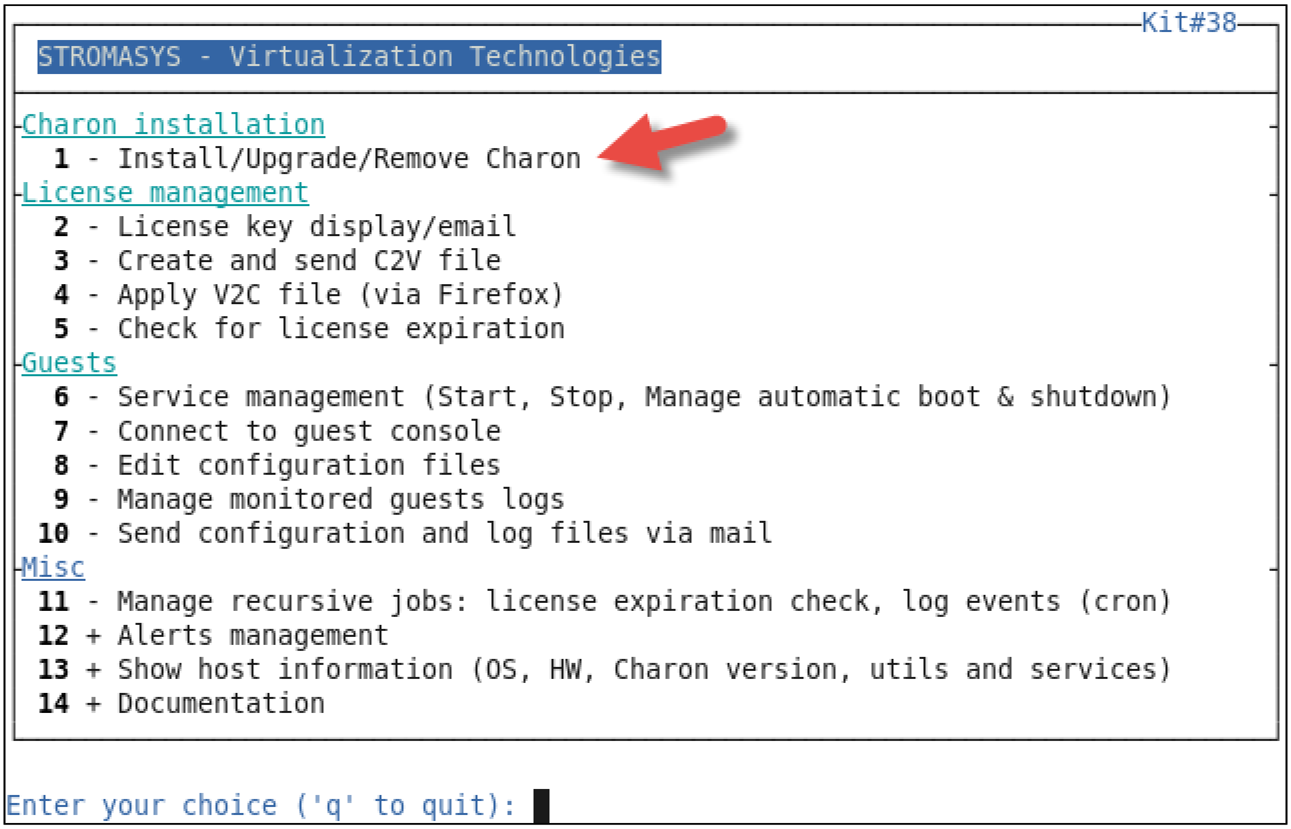
Context:

- OS is Red Hat Enterprise Linux 6.4
- We will install Charon-AXP V4.5 Build 155-07 and Charon-VAX Build 165-02
- License key is based on USB dongle
- We assume Charon and the Linux utilities have been downloaded to the /charon folder:



```
[root@localhost ~]# cd /charon
[root@localhost charon]# ls -l
total 61008
-rw-r--r--. 1 root root 48225557 Jan  8 13:40 charon-axp-4.5-15507.68704.el62.tar.gz
-rw-r--r--. 1 root root       73 Jan  8 13:46 charon-axp-4.5-15507.68704.el62.tar.gz.md5sum
-rw-r--r--. 1 root root  1280000 Jan  8 13:49 charon_linux_utils.kit38.tar
-rw-r--r--. 1 root root 12957787 Jan  8 13:33 charon-vax-xl-4.6-16502.68704.el65.tar.gz
```

Execute the "menu" command and select option 1:



```
                                                                       Kit#38
 STROMASYS - Virtualization Technologies

Charon installation
  1 - Install/Upgrade/Remove Charon
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 14 + Documentation

Enter your choice ('q' to quit):
```
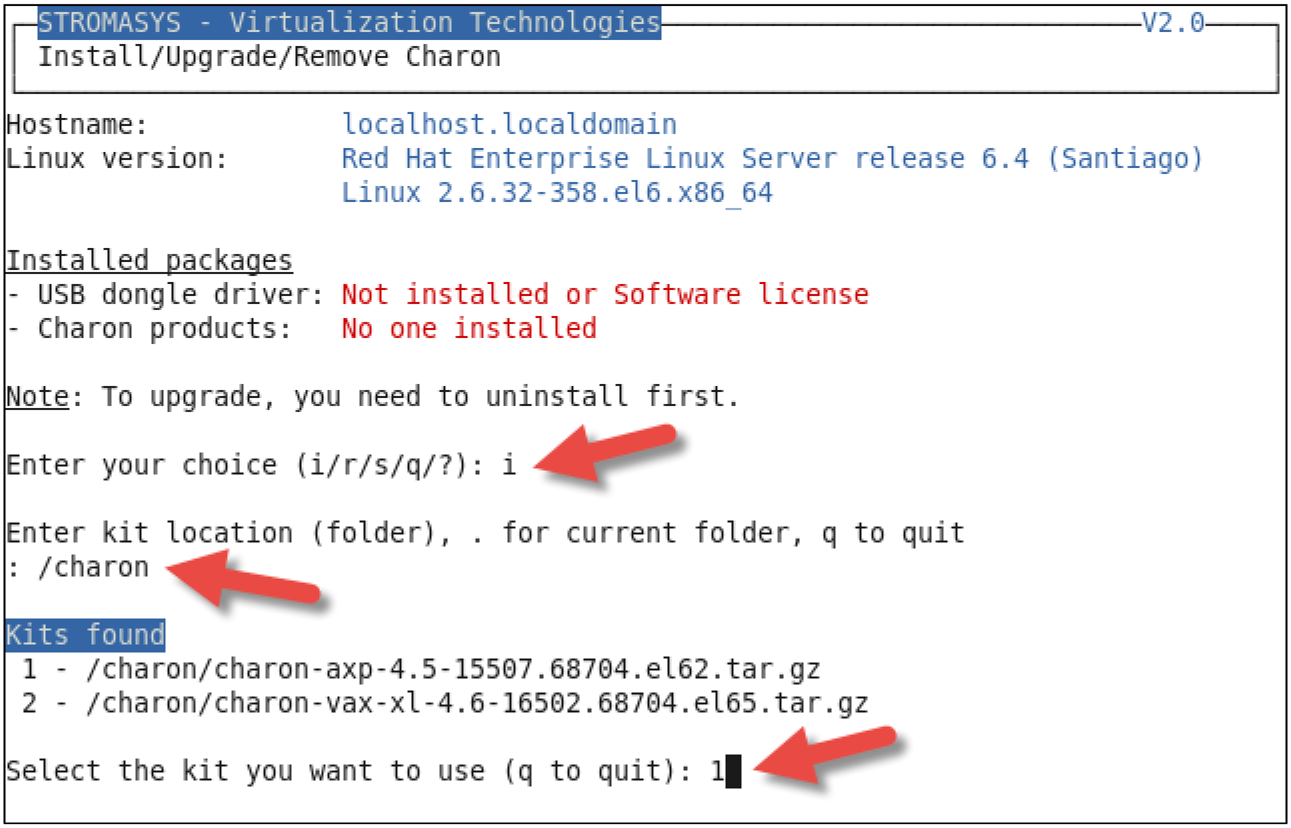
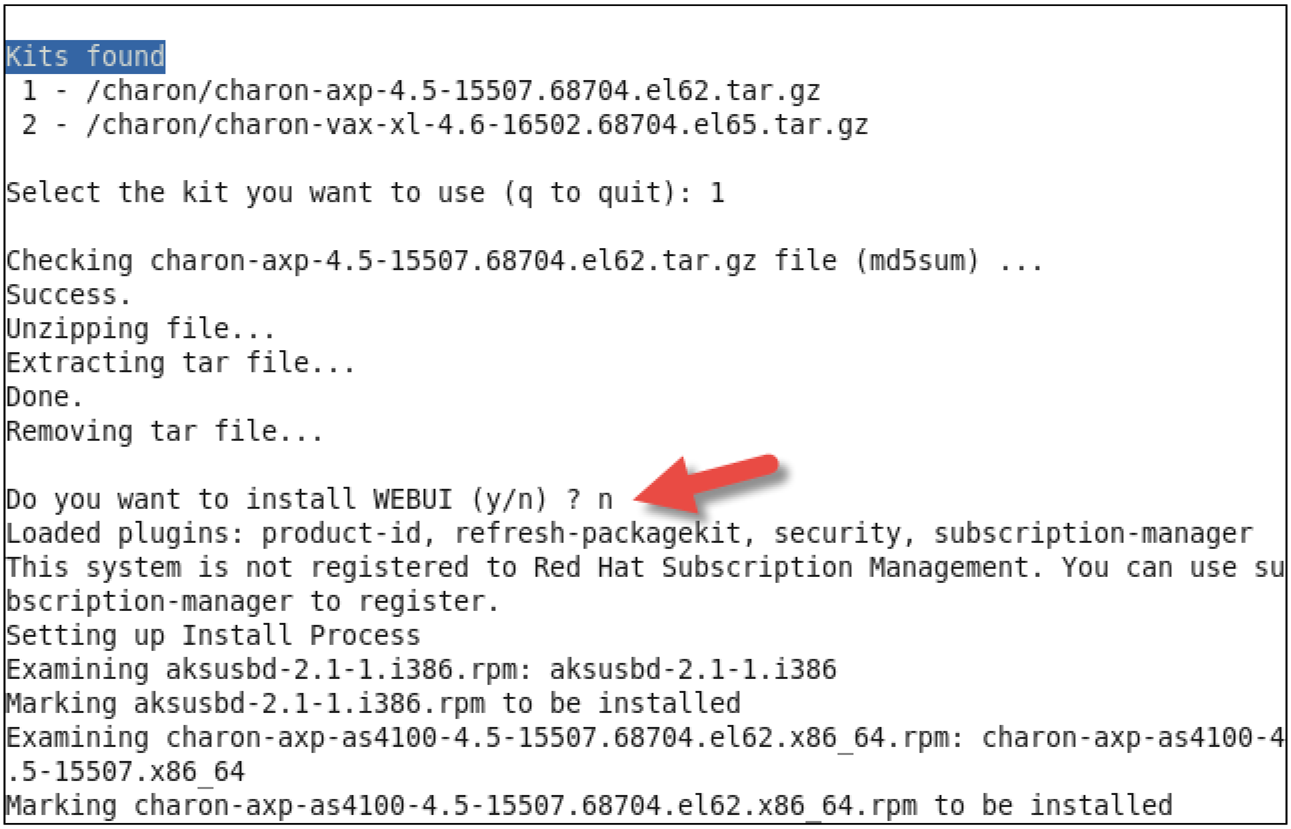

For a fresh installation the setup does not know where you use to store the charon kit so enter the kit location and select the kit you want to install:



```
STROMASYS - Virtualization Technologies                              V2.0
 Install/Upgrade/Remove Charon

Hostname:             localhost.localdomain
Linux version:        Red Hat Enterprise Linux Server release 6.4 (Santiago)
                      Linux 2.6.32-358.el6.x86_64

Installed packages
- USB dongle driver:  Not installed or Software license
- Charon products:    No one installed

Note: To upgrade, you need to uninstall first.

Enter your choice (i/r/s/q/?): i

Enter kit location (folder), . for current folder, q to quit
: /charon

Kits found
 1 - /charon/charon-axp-4.5-15507.68704.el62.tar.gz
 2 - /charon/charon-vax-xl-4.6-16502.68704.el65.tar.gz

Select the kit you want to use (q to quit): 1
```

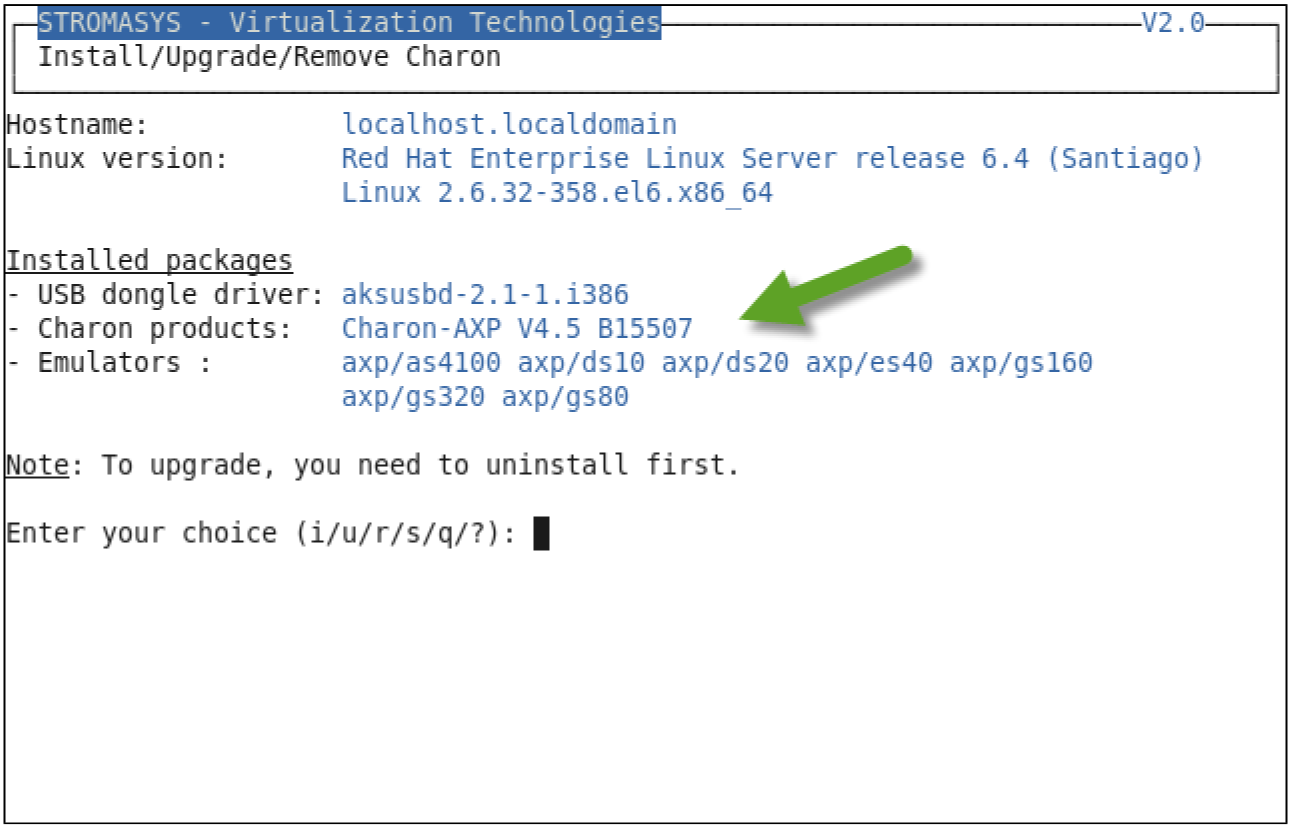
The kit will then be unzipped, extracted and installed. In this example, we decide not to install WEBUI

ⓘ Installation of WEBUI requires additional packages



```
Kits found
 1 - /charon/charon-axp-4.5-15507.68704.el62.tar.gz
 2 - /charon/charon-vax-xl-4.6-16502.68704.el65.tar.gz

Select the kit you want to use (q to quit): 1

Checking charon-axp-4.5-15507.68704.el62.tar.gz file (md5sum) ...
Success.
Unzipping file...
Extracting tar file...
Done.
Removing tar file...

Do you want to install WEBUI (y/n) ? n
Loaded plugins: product-id, refresh-packagekit, security, subscription-manager
This system is not registered to Red Hat Subscription Management. You can use su
bscription-manager to register.
Setting up Install Process
Examining aksusbd-2.1-1.i386.rpm: aksusbd-2.1-1.i386
Marking aksusbd-2.1-1.i386.rpm to be installed
Examining charon-axp-as4100-4.5-15507.68704.el62.x86_64.rpm: charon-axp-as4100-4
.5-15507.x86_64
Marking charon-axp-as4100-4.5-15507.68704.el62.x86_64.rpm to be installed
```

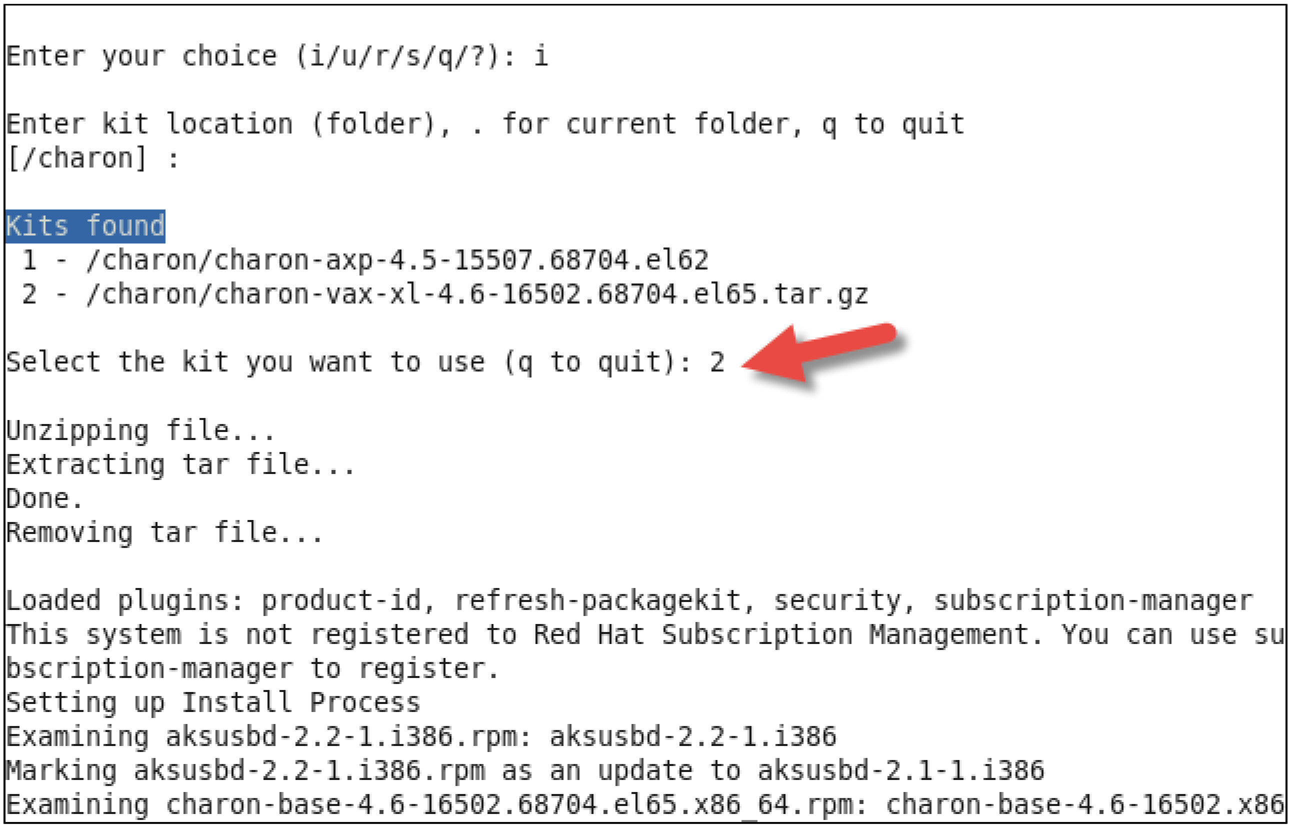
Charon-AXP is now installed as show below:



```
 STROMASYS - Virtualization Technologies                                 V2.0
 Install/Upgrade/Remove Charon

Hostname:             localhost.localdomain
Linux version:        Red Hat Enterprise Linux Server release 6.4 (Santiago)
                      Linux 2.6.32-358.el6.x86_64

Installed packages
- USB dongle driver:  aksusbd-2.1-1.i386
- Charon products:    Charon-AXP V4.5 B15507
- Emulators :         axp/as4100 axp/ds10 axp/ds20 axp/es40 axp/gs160
                      axp/gs320 axp/gs80

Note: To upgrade, you need to uninstall first.

Enter your choice (i/u/r/s/q/?):
```

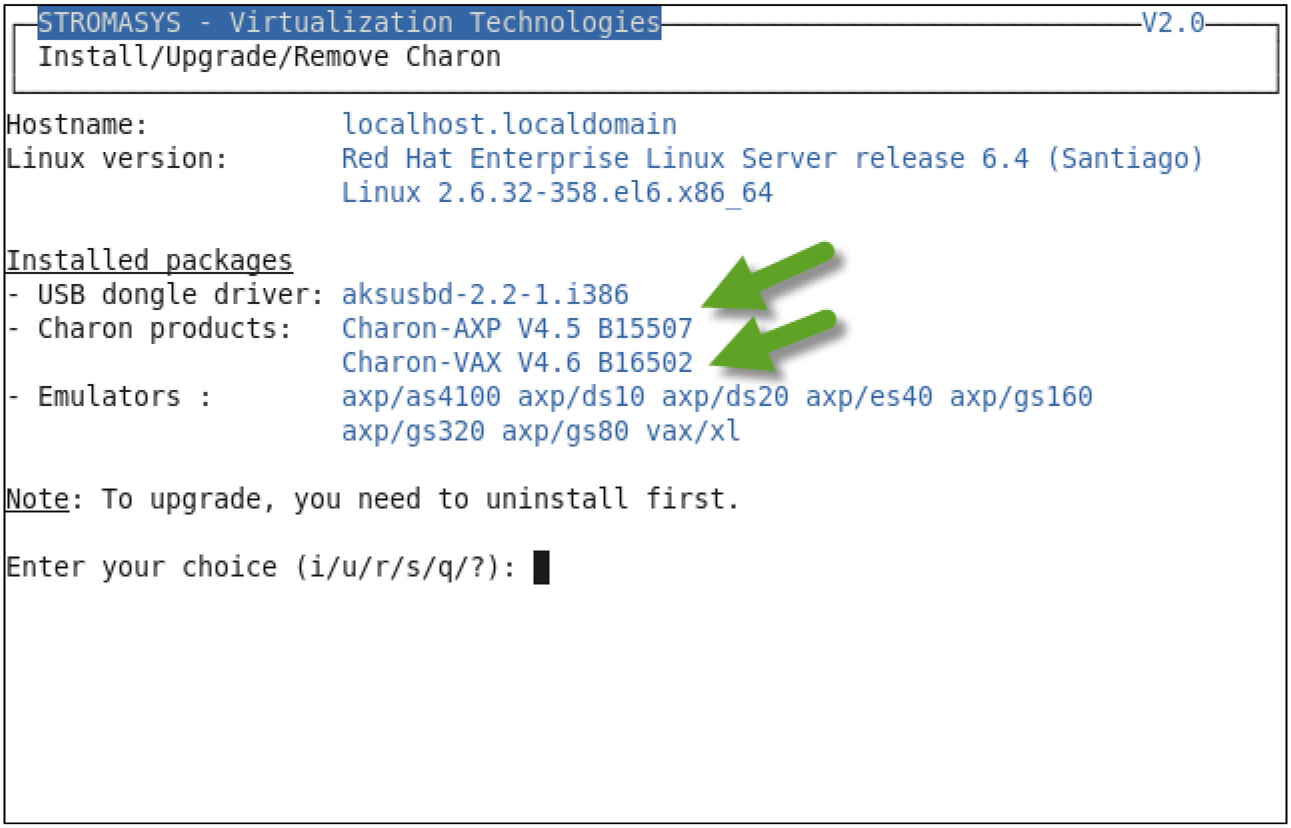
We can now proceed with the installation of Charon-VAX:

The program remembers the folder where you stored the kit during installation so you will have just to press enter when asking for the kit location at next installation



```
Enter your choice (i/u/r/s/q/?): i

Enter kit location (folder), . for current folder, q to quit
[/charon] :

Kits found
 1 - /charon/charon-axp-4.5-15507.68704.el62
 2 - /charon/charon-vax-xl-4.6-16502.68704.el65.tar.gz

Select the kit you want to use (q to quit): 2

Unzipping file...
Extracting tar file...
Done.
Removing tar file...

Loaded plugins: product-id, refresh-packagekit, security, subscription-manager
This system is not registered to Red Hat Subscription Management. You can use su
bscription-manager to register.
Setting up Install Process
Examining aksusbd-2.2-1.i386.rpm: aksusbd-2.2-1.i386
Marking aksusbd-2.2-1.i386.rpm as an update to aksusbd-2.1-1.i386
Examining charon-base-4.6-16502.68704.el65.x86_64.rpm: charon-base-4.6-16502.x86
```

We can now leave the installation menu or perform uninstallation if needed.



```
┌STROMASYS - Virtualization Technologies────────────────────────────V2.0──┐
│ Install/Upgrade/Remove Charon                                           │
└─────────────────────────────────────────────────────────────────────────┘
Hostname:                localhost.localdomain
Linux version:           Red Hat Enterprise Linux Server release 6.4 (Santiago)
                         Linux 2.6.32-358.el6.x86_64

Installed packages
- USB dongle driver:     aksusbd-2.2-1.i386
- Charon products:       Charon-AXP V4.5 B15507
                         Charon-VAX V4.6 B16502
- Emulators :            axp/as4100 axp/ds10 axp/ds20 axp/es40 axp/gs160
                         axp/gs320 axp/gs80 vax/xl

Note: To upgrade, you need to uninstall first.

Enter your choice (i/u/r/s/q/?):
```

License key display/email

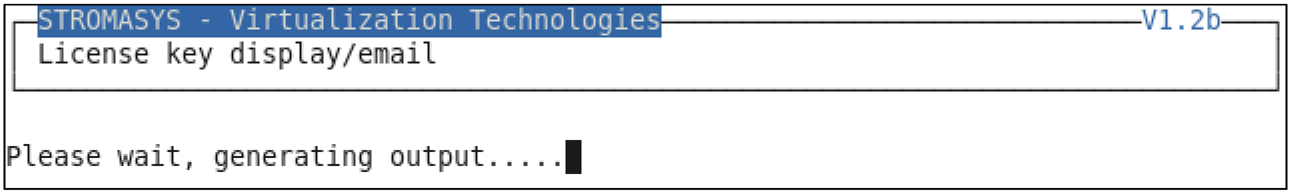
Description

This option will allow you to display the license content.

ℹ This option will work if you are logged in via 'ssh' whereas the "hasp_srm_view" program while executed interactively will not (dongle not seen while running over 'ssh').

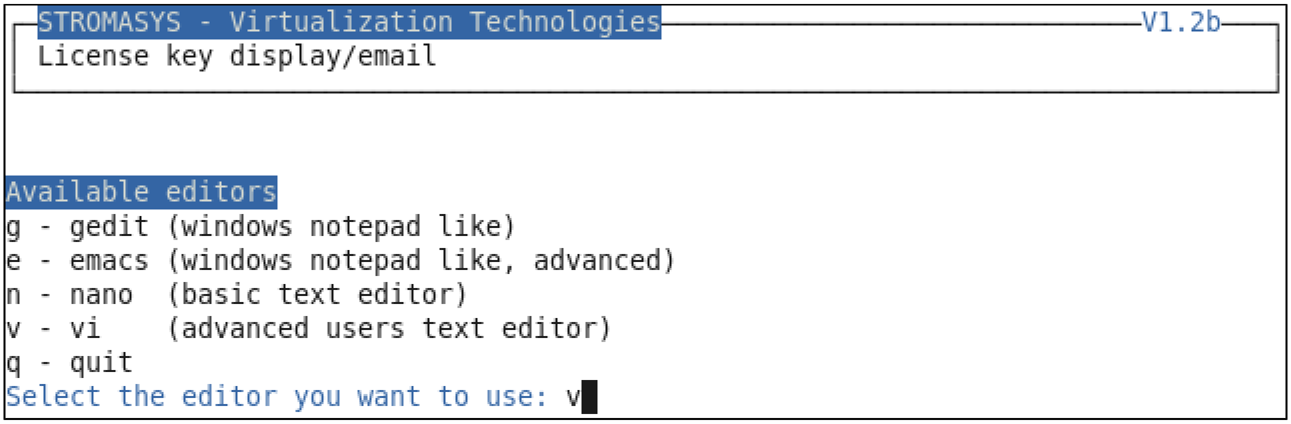
One displayed, the program will allow you to send the result via email.

Example



```
STROMASYS - Virtualization Technologies                                      V1.2b
 License key display/email


Please wait, generating output.....
```

...



```
STROMASYS - Virtualization Technologies                                      V1.2b
 License key display/email



Available editors
g - gedit (windows notepad like)
e - emacs (windows notepad like, advanced)
n - nano  (basic text editor)
v - vi    (advanced users text editor)
q - quit
Select the editor you want to use: v
```

ℹ If you decide to send the result via email, you will receive one with subject: "[CHARON] View license HASP_SRM_VIEW"

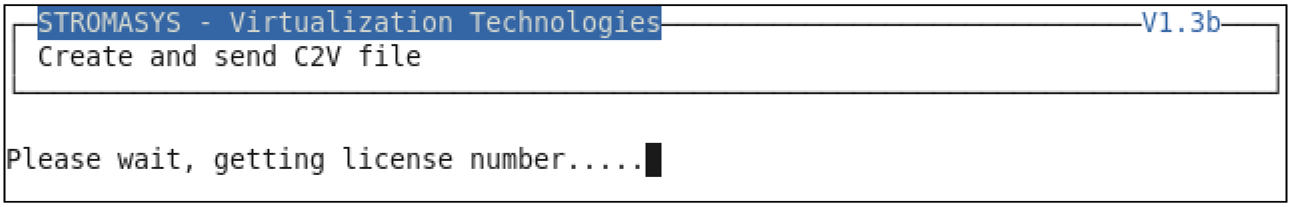
Create and send C2V file

Description

This option creates a C2V file to be sent to Stromasys in order to update your license.

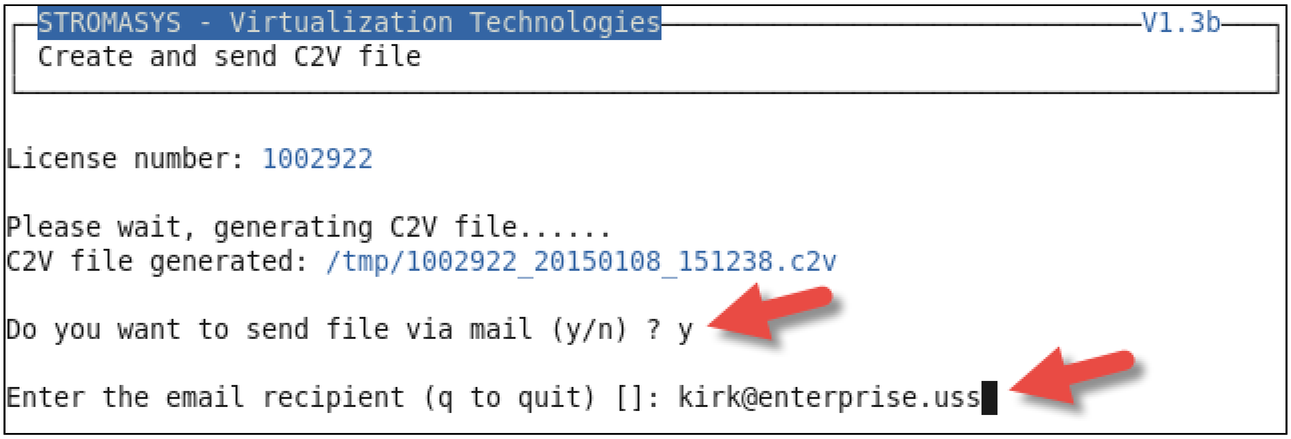
Send it first to yourself and not directly to Stromasys as mentionned here

Example



```
STROMASYS - Virtualization Technologies                                V1.3b
 Create and send C2V file


Please wait, getting license number.....
```

...



```
STROMASYS - Virtualization Technologies                                V1.3b
 Create and send C2V file


License number: 1002922

Please wait, generating C2V file......
C2V file generated: /tmp/1002922_20150108_151238.c2v

Do you want to send file via mail (y/n) ? y

Enter the email recipient (q to quit) []: kirk@enterprise.uss
```

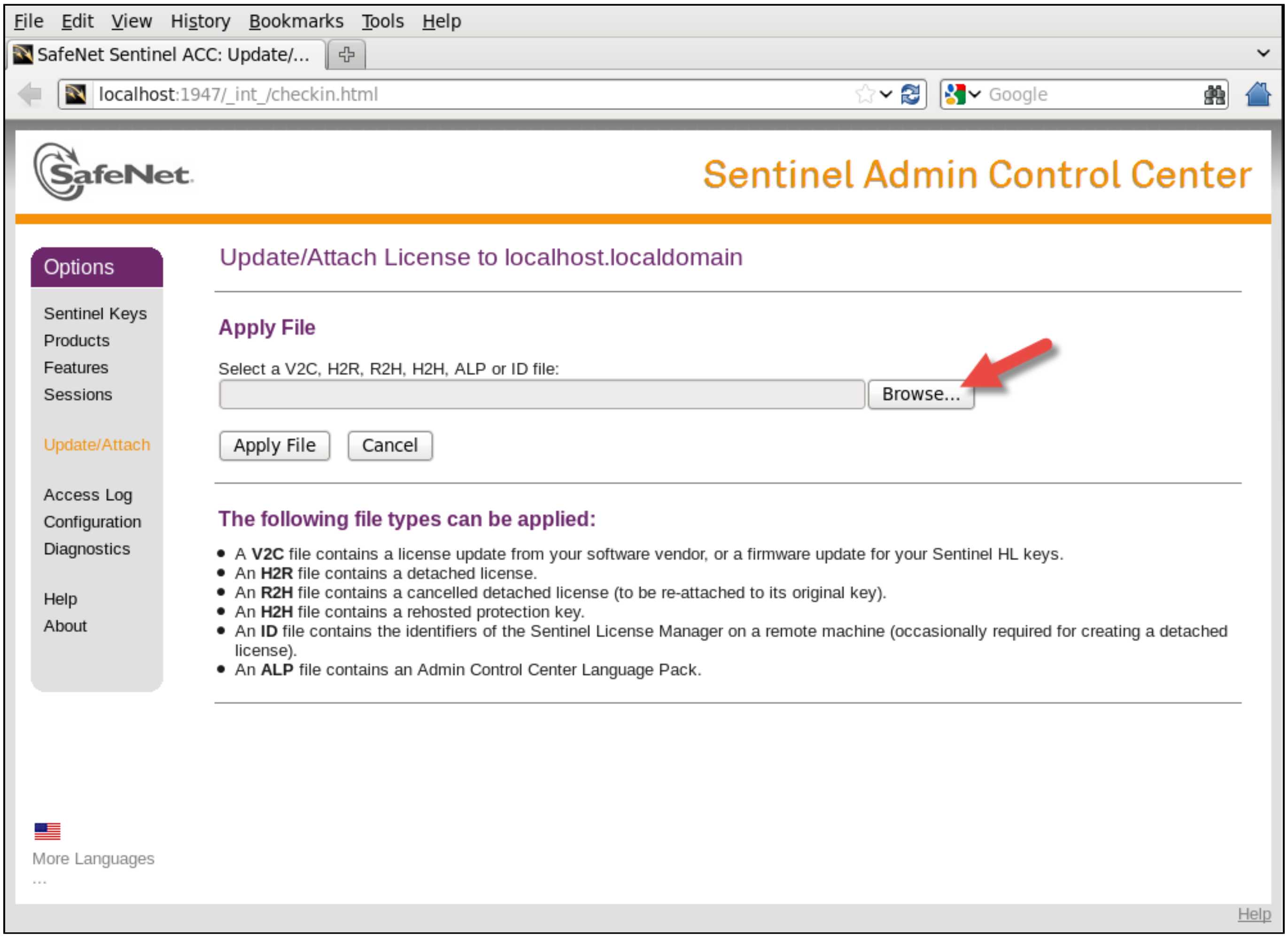
You will then receive an email with subject: "[CHARON] C2V file / License *xxxxxxx*"

Apply V2C file (via Firefox)

Description

This option opens Firefox Web browser (DISPLAY and TERM must be set) in order to apply the V2C file you received from Stromasys. This file will apply your updated license.

Example



Update/Attach License to localhost.localdomain

Apply File

Select a V2C, H2R, R2H, H2H, ALP or ID file:

The following file types can be applied:

- A **V2C** file contains a license update from your software vendor, or a firmware update for your Sentinel HL keys.
- An **H2R** file contains a detached license.
- An **R2H** file contains a cancelled detached license (to be re-attached to its original key).
- An **H2H** file contains a rehosted protection key.
- An **ID** file contains the identifiers of the Sentinel License Manager on a remote machine (occasionally required for creating a detached license).
- An **ALP** file contains an Admin Control Center Language Pack.

Check for license expiration

Description

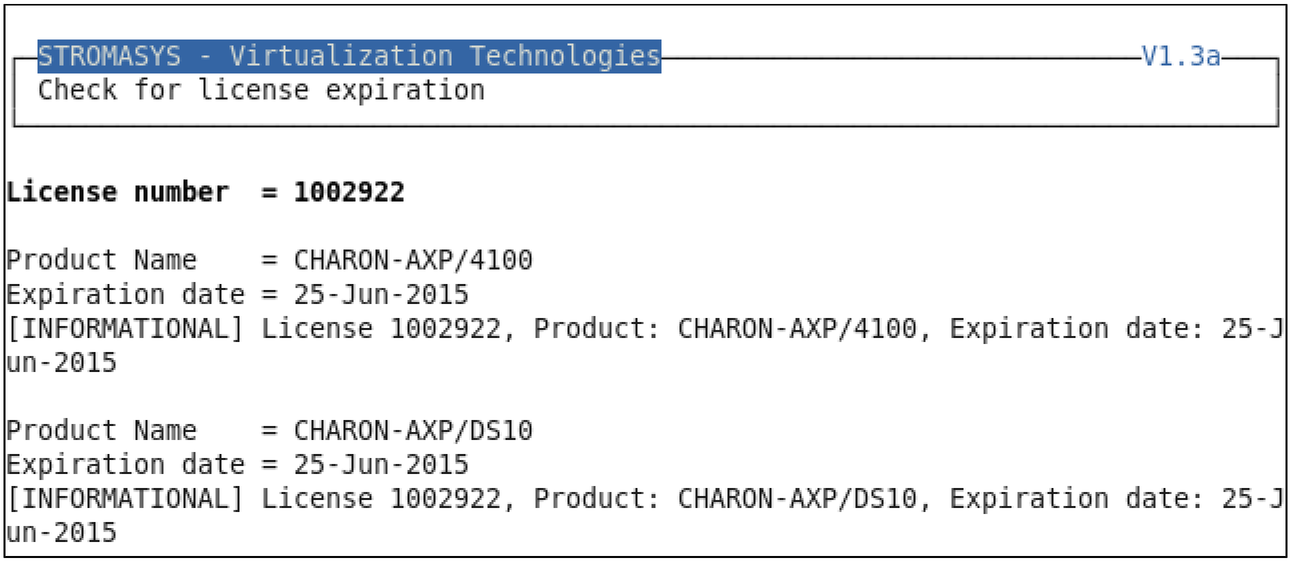
This option checks the license expiration dates interactively.

This check is also performed automatically, by default everyday at 09:00 AM, and starts sending alerts 15 days before expiration.

Alert levels are defined as follows:

Days before expiration	Level
More than 7	INFORMATIONAL
Between 4 and 7	MINOR
Between 2 and 3	MAJOR
Less than 2	CRITICAL

Example



```
┌STROMASYS - Virtualization Technologies───────────────V1.3a┐
│Check for license expiration                               │
└───────────────────────────────────────────────────────────┘

License number  = 1002922

Product Name    = CHARON-AXP/4100
Expiration date = 25-Jun-2015
[INFORMATIONAL] License 1002922, Product: CHARON-AXP/4100, Expiration date: 25-J
un-2015

Product Name    = CHARON-AXP/DS10
Expiration date = 25-Jun-2015
[INFORMATIONAL] License 1002922, Product: CHARON-AXP/DS10, Expiration date: 25-J
un-2015
```

Service management (Start, Stop, Manage automatic boot & shutdown)

Table of Contents

- Description
- Menu description
- Menu options

Description

Guests are managed as a service. This allows for starting and stopping guests on user or system request (Linux server boot & shutdown).

⚠ Clean service stop is not currently available with Fedora, available only for Red Hat.

The service works with a guests list containing the HW emulator name, configuration file and, optionally, the auto_boot on server startup parameter:

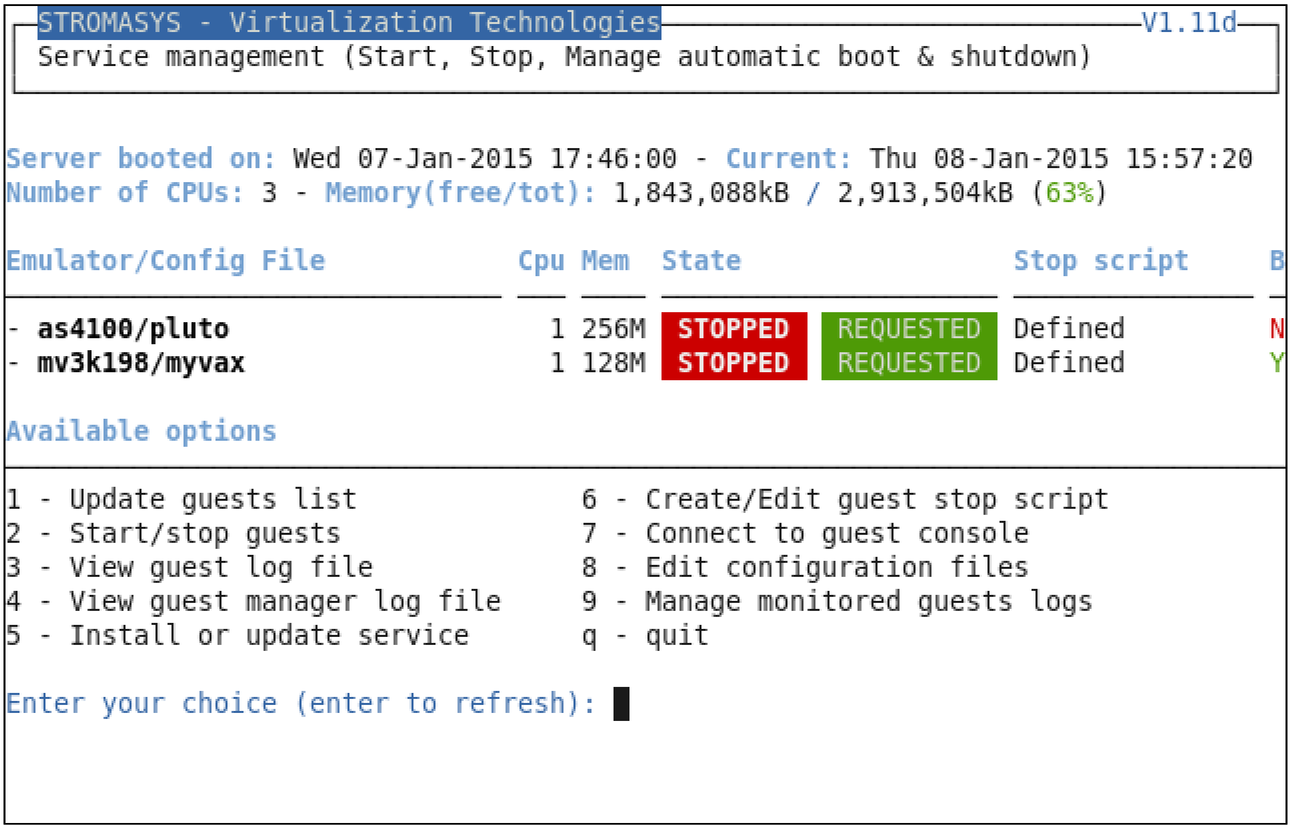
- Startup: the HW emulator is executed in detached mode (using '-d' parameter) and then requires the console to be set as virtual serial line.
  - Connection to the console will be performed using telnet on defined localhost / port. If there is more than one guest on the server, guests are started in parallel.
  - Before the guest starts, the network interfaces used will be checked and all the offload parameters will be set offline

- Shutdown: a common shutdown script can be created for guests shutdown. See "Service management - Create/Edit guest stop script" for details.
  - If the script does not exist, the HW emulator is killed without proper guest shutdown.
  - If the script exists, it executes the customer defined scripts to perform a proper shutdown (using 'ssh' or 'expect' tool for example). If the HW emulator is still running after execution, the stop operation is considered as failed so the script must stop the emulator either by sending a "power off" at SRM prompt (AXP) or F6 key (VAX) with 'expect' or just by killing the process
  - If there is more than one guest on the server, guests are stopped in sequential mode based on their order in the guests list (order can be modified)

Menu description

- The first part of the menu displays **server information** like server boot time, current time (at display), number of CPUs and Memory Free / Total.
- The second part displays the **list of emulated machines** (guests) managed. Column details:
  - Emulator/Config File: emulator used with its configuration file name (shortened)
  - CPU: displays the number of CPUs:
    - for VAX: always 1
    - for AXP: based on configuration files settings (set n_of_cpus ...). If the information is not found, using default value for the selected hardware, "-" is displayed instead.
  - Mem: displays the amount of memory defined for the guest
  - State: can be either RUNNING, STARTING, STARTING/ALL (if all guests have been started at the same time), STOPPED.
    - If the guest is in STOPPED state, an additional information will be displayed:
      - REQUESTED: the service has been stopped by user request or has not been started on Linux server boot due to boot parameter set to off
      - FAILURE: the guest process failed
  - Stop script: displays the status of the stop script used to stop perform a clean shutdown of the guest. Can be:
    - Defined: the script exists and a case has been added for the specified configuration file
    - Case not set : the script exists but does not relate to the specified configuration file
    - Not found: the script has not been created. ⚠ In this case, a service stop request will induce a kill of the emulator process
  - B: this columns displays the Boot no server startup value, yes or no.
- The third part displays the available options that are detailed below.

Menu display example:



```
┌STROMASYS - Virtualization Technologies──────────────────────────────V1.11d──┐
│ Service management (Start, Stop, Manage automatic boot & shutdown)          │
└─────────────────────────────────────────────────────────────────────────────┘

Server booted on: Wed 07-Jan-2015 17:46:00 - Current: Thu 08-Jan-2015 15:57:20
Number of CPUs: 3 - Memory(free/tot): 1,843,088kB / 2,913,504kB (63%)

Emulator/Config File             Cpu Mem  State                Stop script    B
________________________________ ___ ___  ____________________ _______________ _
- as4100/pluto                     1 256M STOPPED   REQUESTED  Defined         N
- mv3k198/myvax                    1 128M STOPPED   REQUESTED  Defined         Y

Available options
________________________________________________________________________________
1 - Update guests list                 6 - Create/Edit guest stop script
2 - Start/stop guests                  7 - Connect to guest console
3 - View guest log file                8 - Edit configuration files
4 - View guest manager log file        9 - Manage monitored guests logs
5 - Install or update service          q - quit

Enter your choice (enter to refresh): 
```

Menu options

- Service management - Update guests list
- Service management - Start/stop guests
- Service management - View guest log file
- Service management - View guest manager log file
- Service management - Install or update service
- Service management - Create/Edit guest stop script
- Service management - Connect to guest console
- Service management - Edit configuration files
- Service management - Manage monitored guests logs

Service management - Update guests list

Description

This option allows you to add guests, remove, enable/disable start at server boot or change the stop order.

Add guest

Available emulated hardware are displayed based on installed kits. You can display available hardware you can use based on your license by entering "v".

Select the emulator you want to add based on the "Available emulated hardware" list.

You can then enter the name of the configuration file you previously edited or clone (c) an existing one based on the list you can display (l).

⚠ Once cloned, the configuration file must be edited to change disks, network, etc..

ℹ Some checks are performed to see you didn't use the same network interfaces or same console ports

Remove guest

ℹ Before removing the guest, you must ensure the guest has been stopped. A check will automatically be performed before removal

ℹ If the guest log is monitored, you will have to remove the log from the monitored logs list

Enable/Disable start at server boot

Use this option is you want (default) or do not want a guest to be started at server boot

Edit guests lists (for stop order)

Use this option to change the order of managed guests.

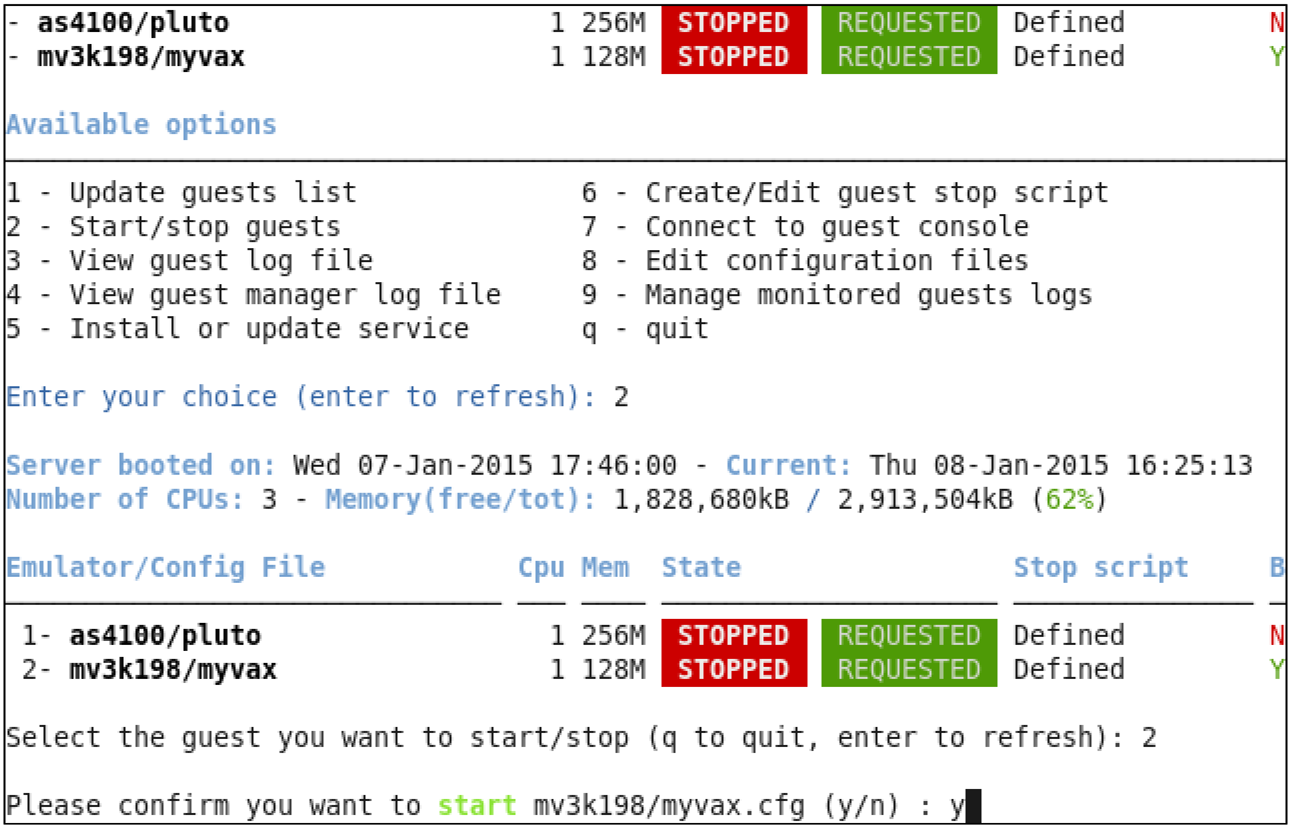
Service management - Start/stop guests

Description

This option allows you to start and stop managed guests.

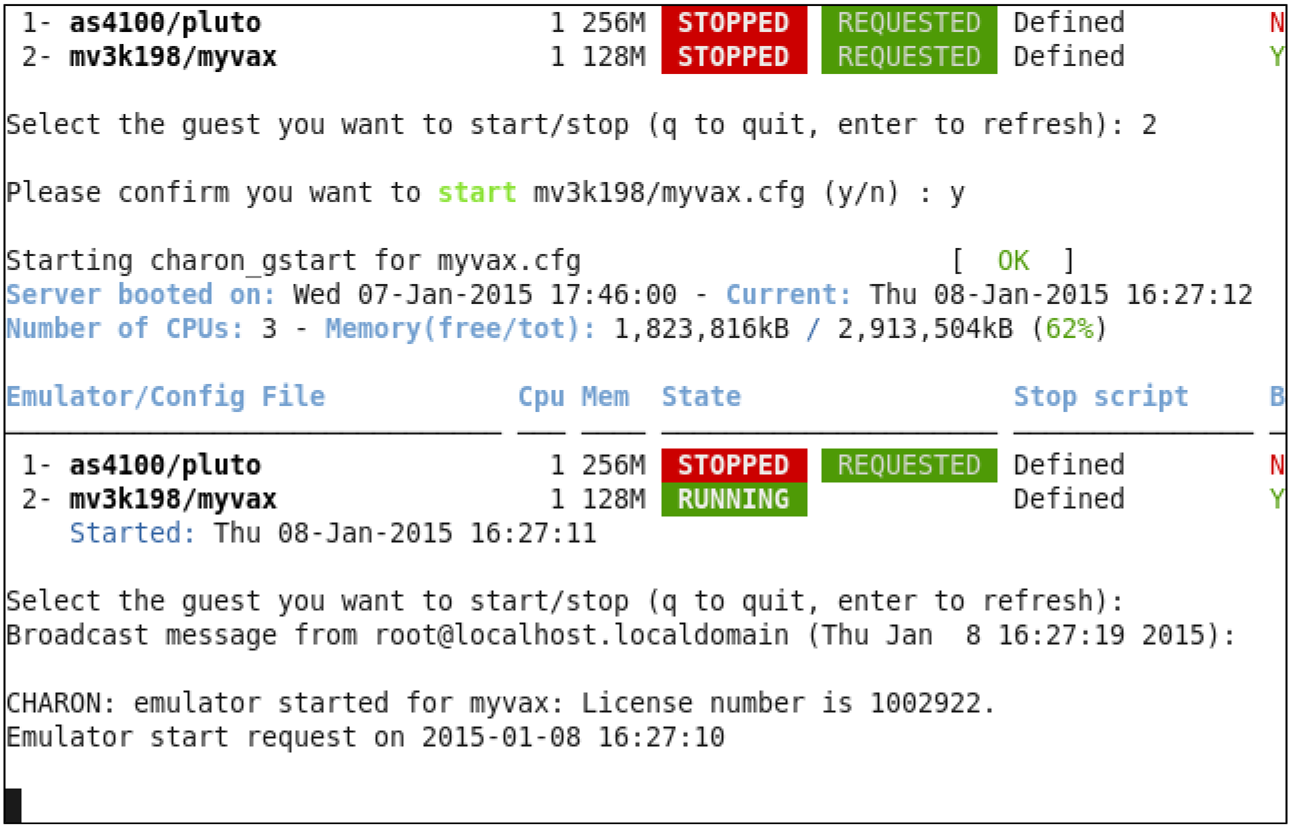
Example

We will start here the MicroVax 3100-98 system named "myvax":



```
- as4100/pluto                    1 256M  STOPPED   REQUESTED  Defined        N
- mv3k198/myvax                   1 128M  STOPPED   REQUESTED  Defined        Y

Available options
────────────────────────────────────────────────────────────────────────────────
1 - Update guests list               6 - Create/Edit guest stop script
2 - Start/stop guests                7 - Connect to guest console
3 - View guest log file              8 - Edit configuration files
4 - View guest manager log file      9 - Manage monitored guests logs
5 - Install or update service        q - quit

Enter your choice (enter to refresh): 2

Server booted on: Wed 07-Jan-2015 17:46:00 - Current: Thu 08-Jan-2015 16:25:13
Number of CPUs: 3 - Memory(free/tot): 1,828,680kB / 2,913,504kB (62%)

Emulator/Config File            Cpu Mem  State                 Stop script    B
─────────────────────────────── ─── ──── ───────────────────── ────────────── ─
 1- as4100/pluto                  1 256M  STOPPED   REQUESTED  Defined        N
 2- mv3k198/myvax                 1 128M  STOPPED   REQUESTED  Defined        Y

Select the guest you want to start/stop (q to quit, enter to refresh): 2

Please confirm you want to start mv3k198/myvax.cfg (y/n) : y
```

By default 'wall' notification messages will be sent:



```
 1- as4100/pluto                  1 256M  STOPPED   REQUESTED  Defined         N
 2- mv3k198/myvax                 1 128M  STOPPED   REQUESTED  Defined         Y

Select the guest you want to start/stop (q to quit, enter to refresh): 2

Please confirm you want to start mv3k198/myvax.cfg (y/n) : y

Starting charon_gstart for myvax.cfg                       [  OK  ]
Server booted on: Wed 07-Jan-2015 17:46:00 - Current: Thu 08-Jan-2015 16:27:12
Number of CPUs: 3 - Memory(free/tot): 1,823,816kB / 2,913,504kB (62%)

Emulator/Config File            Cpu Mem   State                  Stop script     B
_______________________________ ___ ____  _____________________  _______________ _
 1- as4100/pluto                  1 256M  STOPPED   REQUESTED  Defined         N
 2- mv3k198/myvax                 1 128M  RUNNING              Defined         Y
    Started: Thu 08-Jan-2015 16:27:11

Select the guest you want to start/stop (q to quit, enter to refresh):
Broadcast message from root@localhost.localdomain (Thu Jan  8 16:27:19 2015):

CHARON: emulator started for myvax: License number is 1002922.
Emulator start request on 2015-01-08 16:27:10
```

Service management - View guest log file

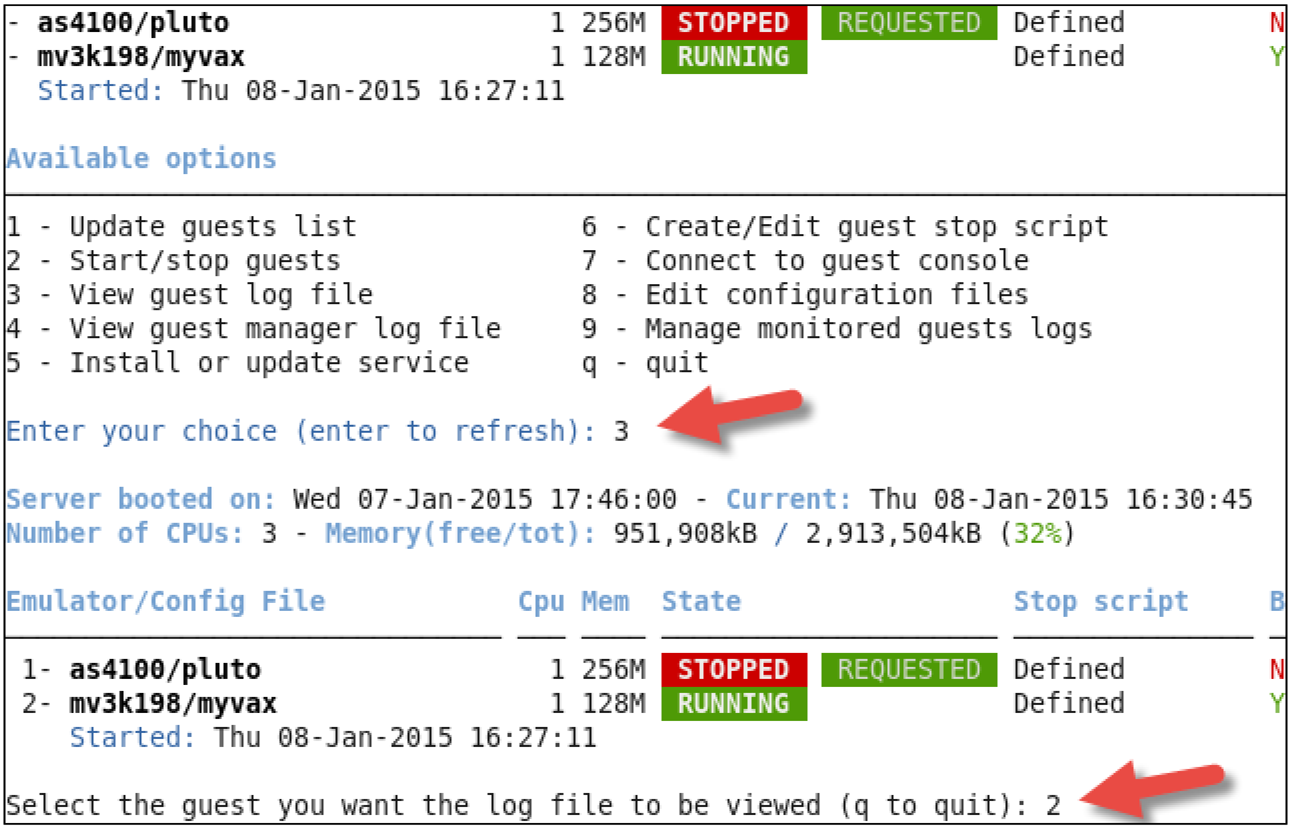
Description

This option allows you to view the log files for a specified guest.

ⓘ Rotating log files are not supported. Log files are automatically archived, whatever the log_method parameter is set in the configuration file, at guest start.

The logs are kept for 60 days by default. See "Manage recursive jobs: license expiration check, log events (cron)" to change settings

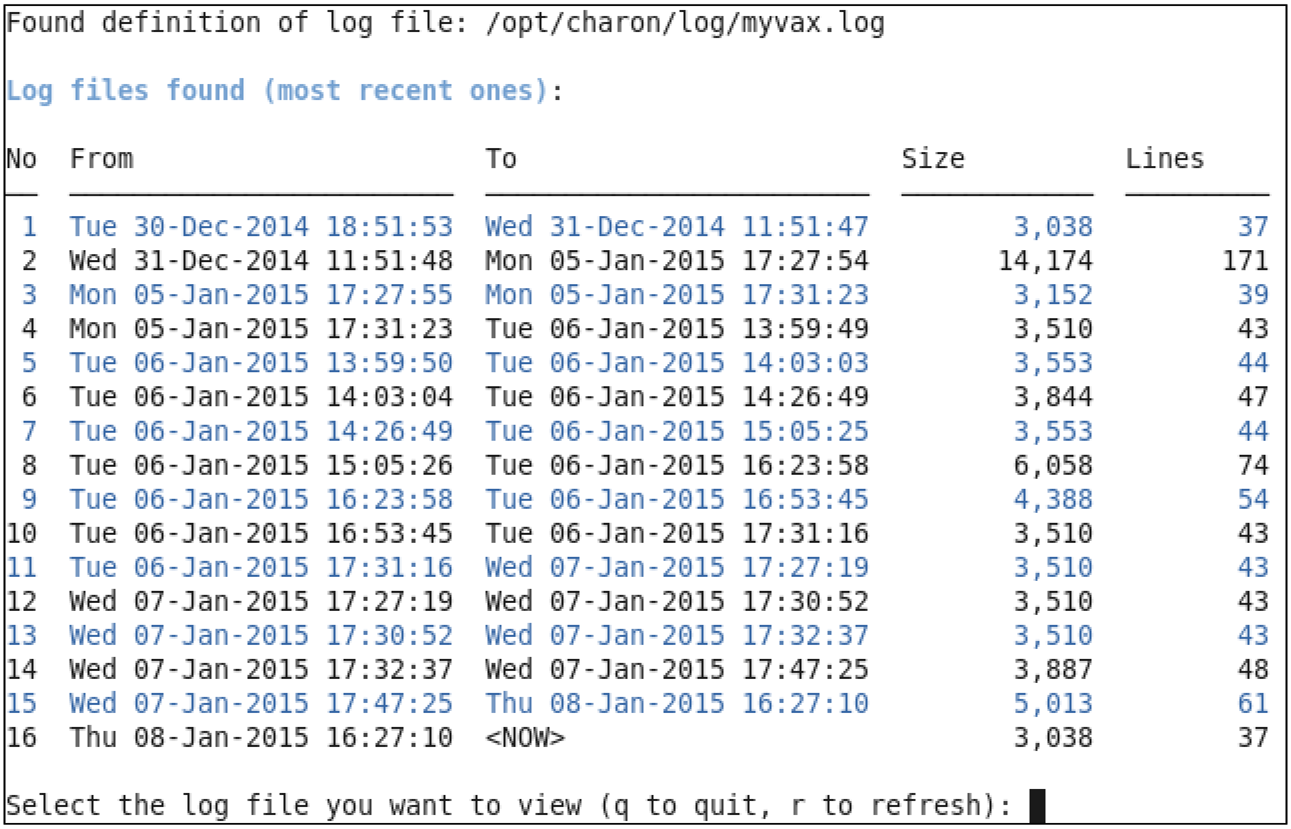
Example



```
- as4100/pluto                  1 256M STOPPED   REQUESTED  Defined      N
- mv3k198/myvax                 1 128M RUNNING              Defined      Y
  Started: Thu 08-Jan-2015 16:27:11

Available options
________________________________________________________________________________
1 - Update guests list              6 - Create/Edit guest stop script
2 - Start/stop guests               7 - Connect to guest console
3 - View guest log file             8 - Edit configuration files
4 - View guest manager log file     9 - Manage monitored guests logs
5 - Install or update service       q - quit

Enter your choice (enter to refresh): 3

Server booted on: Wed 07-Jan-2015 17:46:00 - Current: Thu 08-Jan-2015 16:30:45
Number of CPUs: 3 - Memory(free/tot): 951,908kB / 2,913,504kB (32%)

Emulator/Config File           Cpu Mem  State                Stop script     B
______________________________ ___ ___  ____________________ _______________ _
 1- as4100/pluto                 1 256M STOPPED   REQUESTED  Defined         N
 2- mv3k198/myvax                1 128M RUNNING              Defined         Y
    Started: Thu 08-Jan-2015 16:27:11

Select the guest you want the log file to be viewed (q to quit): 2
```

You can then select the file you want to view.

Only 16 most recent ones are displayed



```
Found definition of log file: /opt/charon/log/myvax.log

Log files found (most recent ones):

No  From                      To                        Size          Lines
--  ------------------------  ------------------------  ------------  ---------
 1  Tue 30-Dec-2014 18:51:53  Wed 31-Dec-2014 11:51:47         3,038         37
 2  Wed 31-Dec-2014 11:51:48  Mon 05-Jan-2015 17:27:54        14,174        171
 3  Mon 05-Jan-2015 17:27:55  Mon 05-Jan-2015 17:31:23         3,152         39
 4  Mon 05-Jan-2015 17:31:23  Tue 06-Jan-2015 13:59:49         3,510         43
 5  Tue 06-Jan-2015 13:59:50  Tue 06-Jan-2015 14:03:03         3,553         44
 6  Tue 06-Jan-2015 14:03:04  Tue 06-Jan-2015 14:26:49         3,844         47
 7  Tue 06-Jan-2015 14:26:49  Tue 06-Jan-2015 15:05:25         3,553         44
 8  Tue 06-Jan-2015 15:05:26  Tue 06-Jan-2015 16:23:58         6,058         74
 9  Tue 06-Jan-2015 16:23:58  Tue 06-Jan-2015 16:53:45         4,388         54
10  Tue 06-Jan-2015 16:53:45  Tue 06-Jan-2015 17:31:16         3,510         43
11  Tue 06-Jan-2015 17:31:16  Wed 07-Jan-2015 17:27:19         3,510         43
12  Wed 07-Jan-2015 17:27:19  Wed 07-Jan-2015 17:30:52         3,510         43
13  Wed 07-Jan-2015 17:30:52  Wed 07-Jan-2015 17:32:37         3,510         43
14  Wed 07-Jan-2015 17:32:37  Wed 07-Jan-2015 17:47:25         3,887         48
15  Wed 07-Jan-2015 17:47:25  Thu 08-Jan-2015 16:27:10         5,013         61
16  Thu 08-Jan-2015 16:27:10  <NOW>                            3,038         37

Select the log file you want to view (q to quit, r to refresh):
```

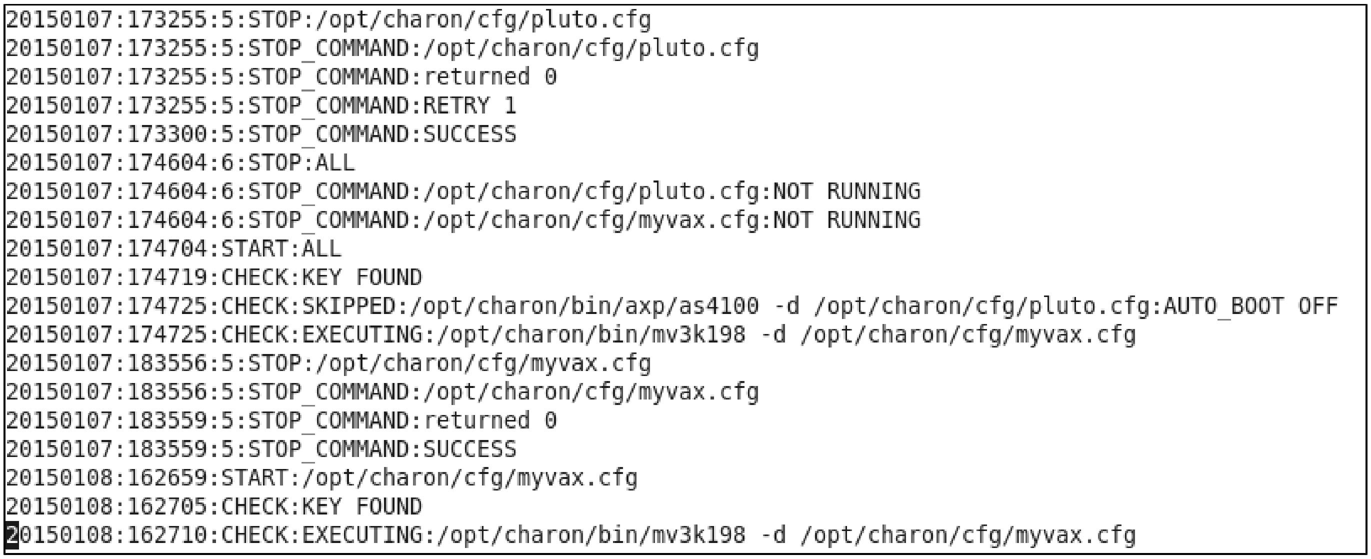
- 'From' date is either based on first event line including a date found in the log file or on file creation time
- 'To' date is based on time the file was archived (renamed before guest start)

Service management - View guest manager log file

Description

This option is mainly used for debugging, it displays the log file of the service manager (start & stop sequences initiated, checks, etc...)

Example:



```
20150107:173255:5:STOP:/opt/charon/cfg/pluto.cfg
20150107:173255:5:STOP_COMMAND:/opt/charon/cfg/pluto.cfg
20150107:173255:5:STOP_COMMAND:returned 0
20150107:173255:5:STOP_COMMAND:RETRY 1
20150107:173300:5:STOP_COMMAND:SUCCESS
20150107:174604:6:STOP:ALL
20150107:174604:6:STOP_COMMAND:/opt/charon/cfg/pluto.cfg:NOT RUNNING
20150107:174604:6:STOP_COMMAND:/opt/charon/cfg/myvax.cfg:NOT RUNNING
20150107:174704:START:ALL
20150107:174719:CHECK:KEY FOUND
20150107:174725:CHECK:SKIPPED:/opt/charon/bin/axp/as4100 -d /opt/charon/cfg/pluto.cfg:AUTO_BOOT OFF
20150107:174725:CHECK:EXECUTING:/opt/charon/bin/mv3k198 -d /opt/charon/cfg/myvax.cfg
20150107:183556:5:STOP:/opt/charon/cfg/myvax.cfg
20150107:183556:5:STOP_COMMAND:/opt/charon/cfg/myvax.cfg
20150107:183559:5:STOP_COMMAND:returned 0
20150107:183559:5:STOP_COMMAND:SUCCESS
20150108:162659:START:/opt/charon/cfg/myvax.cfg
20150108:162705:CHECK:KEY FOUND
20150108:162710:CHECK:EXECUTING:/opt/charon/bin/mv3k198 -d /opt/charon/cfg/myvax.cfg
```

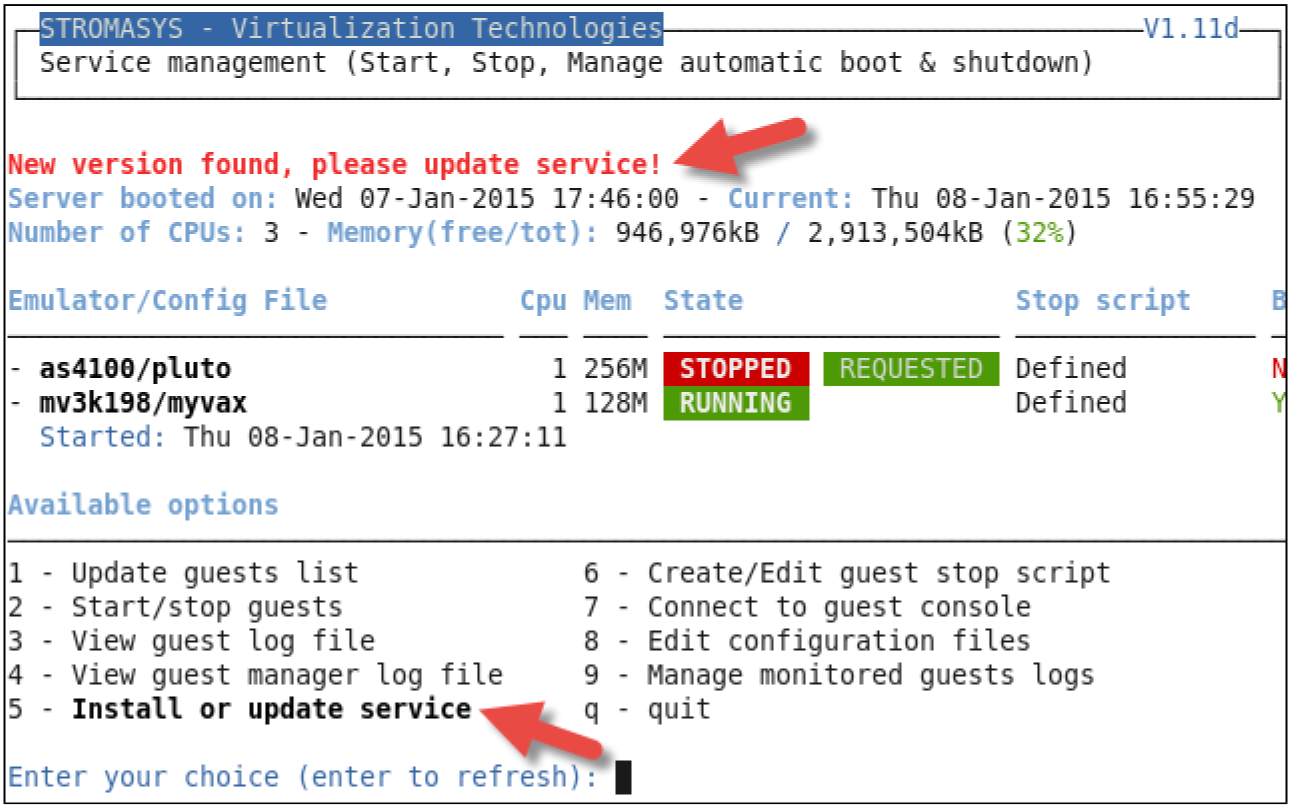
Service management - Install or update service

Description

This option allows you to install (after fresh install) or update guests management service (for kit upgrade).

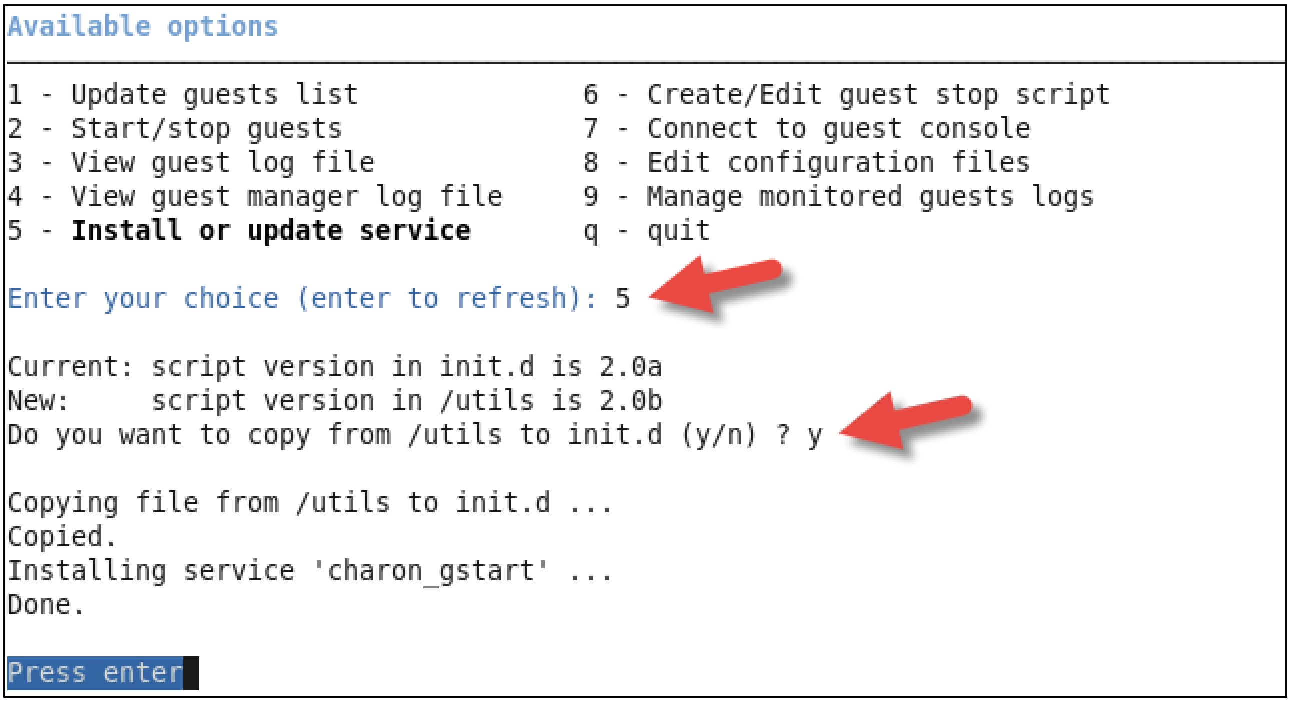
Service update does not require guests shutdown & restart

Example



```
STROMASYS - Virtualization Technologies                                   V1.11d
 Service management (Start, Stop, Manage automatic boot & shutdown)

New version found, please update service!
Server booted on: Wed 07-Jan-2015 17:46:00 - Current: Thu 08-Jan-2015 16:55:29
Number of CPUs: 3 - Memory(free/tot): 946,976kB / 2,913,504kB (32%)

Emulator/Config File             Cpu Mem  State                 Stop script     B
- as4100/pluto                     1 256M STOPPED  REQUESTED    Defined         N
- mv3k198/myvax                    1 128M RUNNING               Defined         Y
  Started: Thu 08-Jan-2015 16:27:11

Available options

1 - Update guests list                6 - Create/Edit guest stop script
2 - Start/stop guests                 7 - Connect to guest console
3 - View guest log file               8 - Edit configuration files
4 - View guest manager log file       9 - Manage monitored guests logs
5 - Install or update service         q - quit

Enter your choice (enter to refresh):
```

In this case, the current version 2.0a will be replaced by the 2.0b:



```
Available options
________________________________________________________________________________
1 - Update guests list              6 - Create/Edit guest stop script
2 - Start/stop guests               7 - Connect to guest console
3 - View guest log file             8 - Edit configuration files
4 - View guest manager log file     9 - Manage monitored guests logs
5 - Install or update service       q - quit

Enter your choice (enter to refresh): 5

Current: script version in init.d is 2.0a
New:     script version in /utils is 2.0b
Do you want to copy from /utils to init.d (y/n) ? y

Copying file from /utils to init.d ...
Copied.
Installing service 'charon_gstart' ...
Done.

Press enter
```

Service management - Create/Edit guest stop script

Description

This option will allow you to edit the stop script that will be executed at service shutdown.

If the script does not exist, it will generated automatically based on existing guests and will by default do nothing.

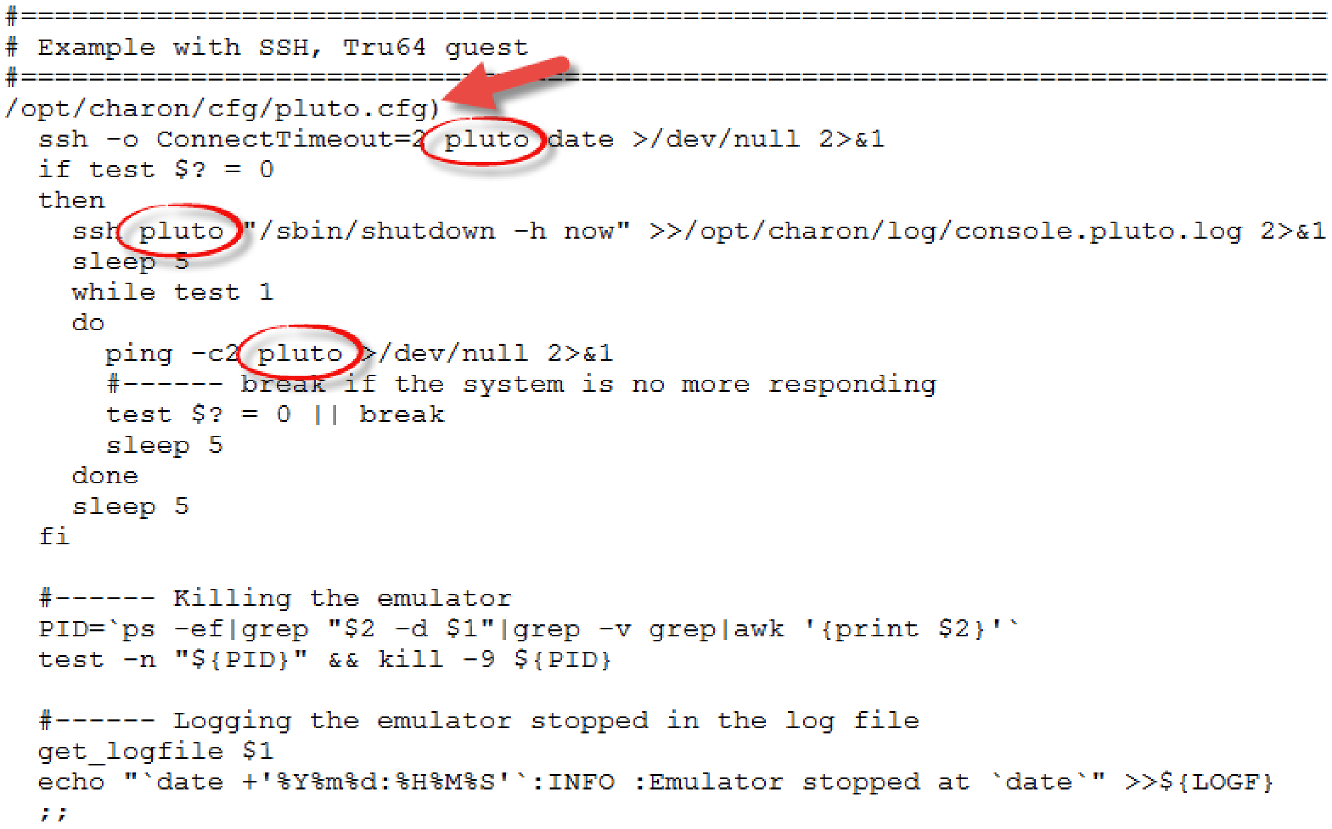
You will have either to add your own shutdown scripts or to get examples provided in the 'charon_gstart.stop.example' script located in the '/opt/charon/utils' folder. Examples are provided for clean shutdown using 'ssh' or 'expect' thanks to the 'guest_shutdown.exp' script

Explanation on the example file

Example with SSH, Tru64 or VMS guest

You will have to create an ssh trust between the Charon Linux server and the Tru64 guest in order to use this option.

- Update the configuration file name
- Replace the existing hostname 'pluto' by your Tru64 guest hostname

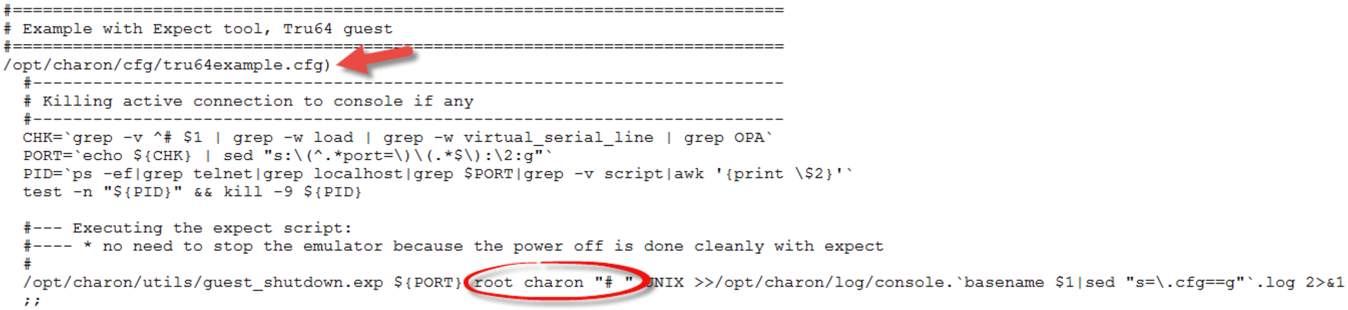


```
#=============================================================================
# Example with SSH, Tru64 guest
#=============================================================================
/opt/charon/cfg/pluto.cfg)
  ssh -o ConnectTimeout=2 pluto date >/dev/null 2>&1
  if test $? = 0
  then
    ssh pluto "/sbin/shutdown -h now" >>/opt/charon/log/console.pluto.log 2>&1
    sleep 5
    while test 1
    do
      ping -c2 pluto >/dev/null 2>&1
      #------ break if the system is no more responding
      test $? = 0 || break
      sleep 5
    done
    sleep 5
  fi

  #------ Killing the emulator
  PID=`ps -ef|grep "$2 -d $1"|grep -v grep|awk '{print $2}'`
  test -n "${PID}" && kill -9 ${PID}

  #------ Logging the emulator stopped in the log file
  get_logfile $1
  echo "`date +'%Y%m%d:%H%M%S'`:INFO :Emulator stopped at `date`" >>${LOGF}
  ;;
```

Example with Expect tool, Tru64 guest

The 'guest_shutdown.exp' script can perform operations to log off user connected on the console, enter a username/password to login, execute the shutdown command and detect the SRM prompt to issue the 'power off' command (AXP) or send the F6 key (VAX) if enabled. Note any existing connection to the console will be killed before executing the expect script.

- Update the configuration file name
- Replace the user, password and shell prompt by the corresponding one (shell prompt is used to determine if a user is logged on the console)

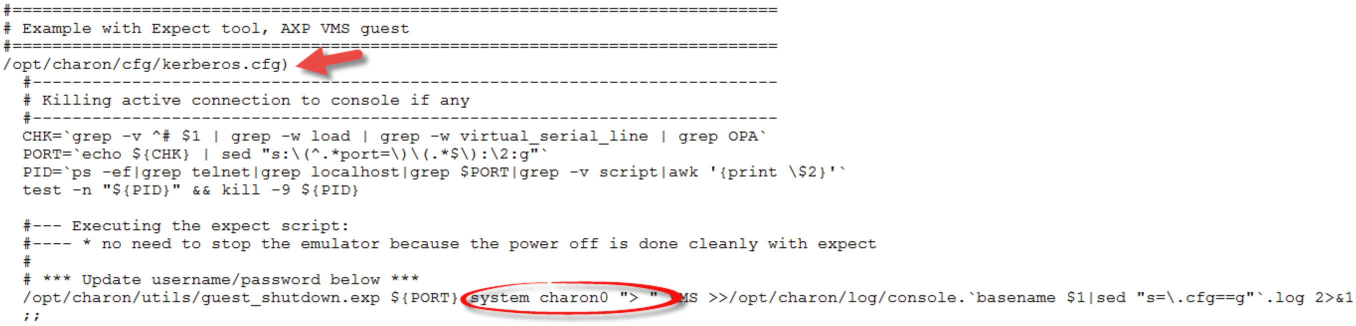


```
#==============================================================================
# Example with Expect tool, Tru64 guest
#==============================================================================
/opt/charon/cfg/tru64example.cfg)
  #----------------------------------------------------------------------------
  # Killing active connection to console if any
  #----------------------------------------------------------------------------
  CHK=`grep -v ^# $1 | grep -w load | grep -w virtual_serial_line | grep OPA`
  PORT=`echo ${CHK} | sed "s:\(^.*port=\)\(.*$\):\2:g"`
  PID=`ps -ef|grep telnet|grep localhost|grep $PORT|grep -v script|awk '{print \$2}'`
  test -n "${PID}" && kill -9 ${PID}

  #--- Executing the expect script:
  #---- * no need to stop the emulator because the power off is done cleanly with expect
  #
  /opt/charon/utils/guest_shutdown.exp ${PORT} root charon "# " UNIX >>/opt/charon/log/console.`basename $1|sed "s=\.cfg==g"`.log 2>&1
  ;;
```

Example with Expect tool, AXP VMS guest

The 'guest_shutdown.exp' script can perform operations to log off user connected on the console, enter a username/password to login, execute the shutdown command and detect the SRM prompt to issue the 'power off' command (AXP) or send the F6 key (VAX) if enabled. Note any existing connection to the console will be killed before executing the expect script.

- Update the configuration file name
- Replace the user, password and shell prompt by the corresponding one (shell prompt is used to determine if a user is logged on the console)



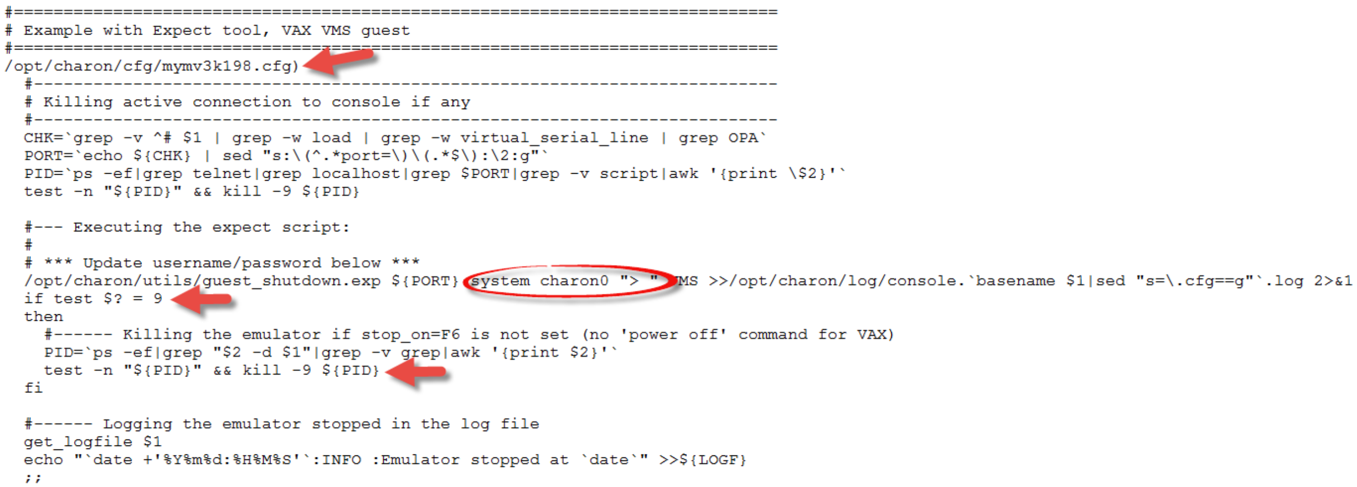
```
#==============================================================================
# Example with Expect tool, AXP VMS guest
#==============================================================================
/opt/charon/cfg/kerberos.cfg)
  #----------------------------------------------------------------------------
  # Killing active connection to console if any
  #----------------------------------------------------------------------------
  CHK=`grep -v ^# $1 | grep -w load | grep -w virtual_serial_line | grep OPA`
  PORT=`echo ${CHK} | sed "s:\(^.*port=\)\(.*$\):\2:g"`
  PID=`ps -ef|grep telnet|grep localhost|grep $PORT|grep -v script|awk '{print \$2}'`
  test -n "${PID}" && kill -9 ${PID}

  #--- Executing the expect script:
  #---- * no need to stop the emulator because the power off is done cleanly with expect
  #
  # *** Update username/password below ***
  /opt/charon/utils/guest_shutdown.exp ${PORT} system charon0 "> " VMS >>/opt/charon/log/console.`basename $1|sed "s=\.cfg==g"`.log 2>&1
  ;;
```

Example with Expect tool, VAX VMS guest

The 'guest_shutdown.exp' script can perform operations to log off user connected on the console, enter a username/password to login, execute the shutdown command and detect the SRM prompt to issue the 'power off' command (AXP) or send the F6 key (VAX) if enabled. Note any existing connection to the console will be killed before executing the expect script.

- Update the configuration file name
- Replace the user, password and shell prompt by the corresponding one (shell prompt is used to determine if a user is logged on the console)

The F6 key can be enabled or not in the configuration file. The expect script will send it if the 'power off' command fails and if the operation fails will exit with return code 9 meaning the emulator process will have to be killed.



```
#=============================================================================
# Example with Expect tool, VAX VMS guest
#=============================================================================
/opt/charon/cfg/mymv3k198.cfg)
  #---------------------------------------------------------------------------
  # Killing active connection to console if any
  #---------------------------------------------------------------------------
  CHK=`grep -v ^# $1 | grep -w load | grep -w virtual_serial_line | grep OPA`
  PORT=`echo ${CHK} | sed "s:\(^.*port=\)\(.*$\):\2:g"`
  PID=`ps -ef|grep telnet|grep localhost|grep $PORT|grep -v script|awk '{print \$2}'`
  test -n "${PID}" && kill -9 ${PID}

  #--- Executing the expect script:
  #
  # *** Update username/password below ***
  /opt/charon/utils/guest_shutdown.exp ${PORT} system charon0 "> " VMS >>/opt/charon/log/console.`basename $1|sed "s=\.cfg==g"`.log 2>&1
  if test $? = 9
  then
    #------ Killing the emulator if stop_on=F6 is not set (no 'power off' command for VAX)
    PID=`ps -ef|grep "$2 -d $1"|grep -v grep|awk '{print $2}'`
    test -n "${PID}" && kill -9 ${PID}
  fi

  #------ Logging the emulator stopped in the log file
  get_logfile $1
  echo "`date +'%Y%m%d:%H%M%S'`:INFO :Emulator stopped at `date`" >>${LOGF}
  ;;
```

Service management - Connect to guest console

Description

This option is also available from the main menu.

Please follow this link: **Connect to guest console**

Service management - Edit configuration files

Description

This option is also available from the main menu.

Please follow this link: **Edit configuration files**

Service management - Manage monitored guests logs

Description

This option is also available from the main menu.

Please follow this link: **Manage monitored guests logs**

Connect to guest console

Description

This option will allow you to connect to the guests consoles.

Notes:

- The session will be recorded in a log file:
    - If 'set OPA0 log=' is found in the configuration file (not available with all Charon versions), the log will be stored in the temporary folder: '/tmp/console.<configuration file name shortened>.log'. Note this file will be overwritten for each session. It is just kept for information as the console log is managed by the Charon emulator itself.
    - If not found, the file will be located in '/opt/charon/log/console.<configuration file name shortened>.log'
- If 'stop_on' and/or 'break_on' features are enabled in the configuration file, this will be reminded before starting the telnet session
- To leave the telnet session, press the escape character which is by default **CTRL** + **]** . This character can be changed in the /root/.telnetrc file by defining the 'set escape' parameter:
  Example:

  ```
  # cat /root/.telnetrc
  DEFAULT
    mode char
    set escape ²
  #
  ```

  Pressing the escape key will lead you to the 'telnet> ' prompt. To leave the session, enter 'quit'
- If a connection to the console is active from the server, you will be prompted to kill the previous one.
- Emulator termination check:
    - For AXP, if the 'power off' command is detected (or shortened command), the guest STOP state will be set to REQUESTED
    - If the emulator is no more running when you leave the session, you will have to confirm that is requested or not
- The console port number is displayed per guest. If a port number is used more than once, an alert will be displayed

Autoconnect feature

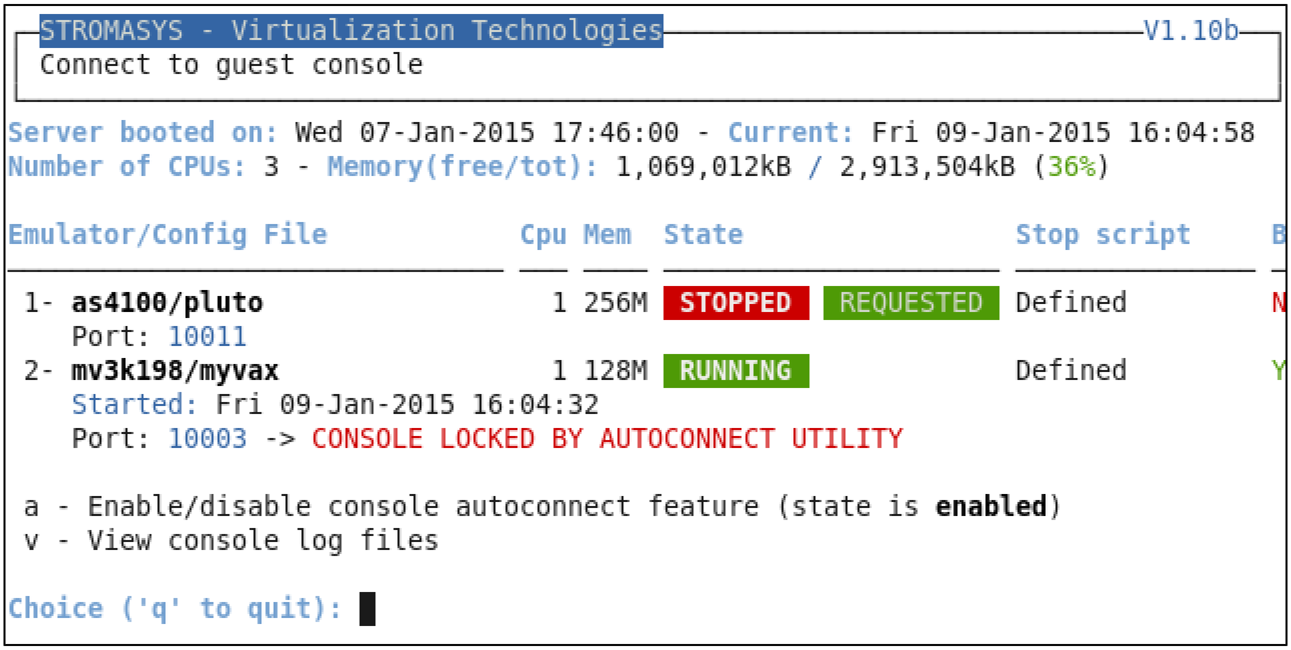
This feature has been implemented to prevent from buffer issues with old Charon-AXP versions where a connection to the console had to be active for the guest not to be blocked (hang). This could prevent from booting the system.

Advantage of this feature is it will record console output for Charon products versions that have not the console log feature implemented and activated: every 1 minute, a crontab job (/opt/charon/utils/charon_console_autoconnect) will check if a connection to the console is active or not. If not, a telnet session will be engaged in the background.

This feature can also be disabled from this menu.

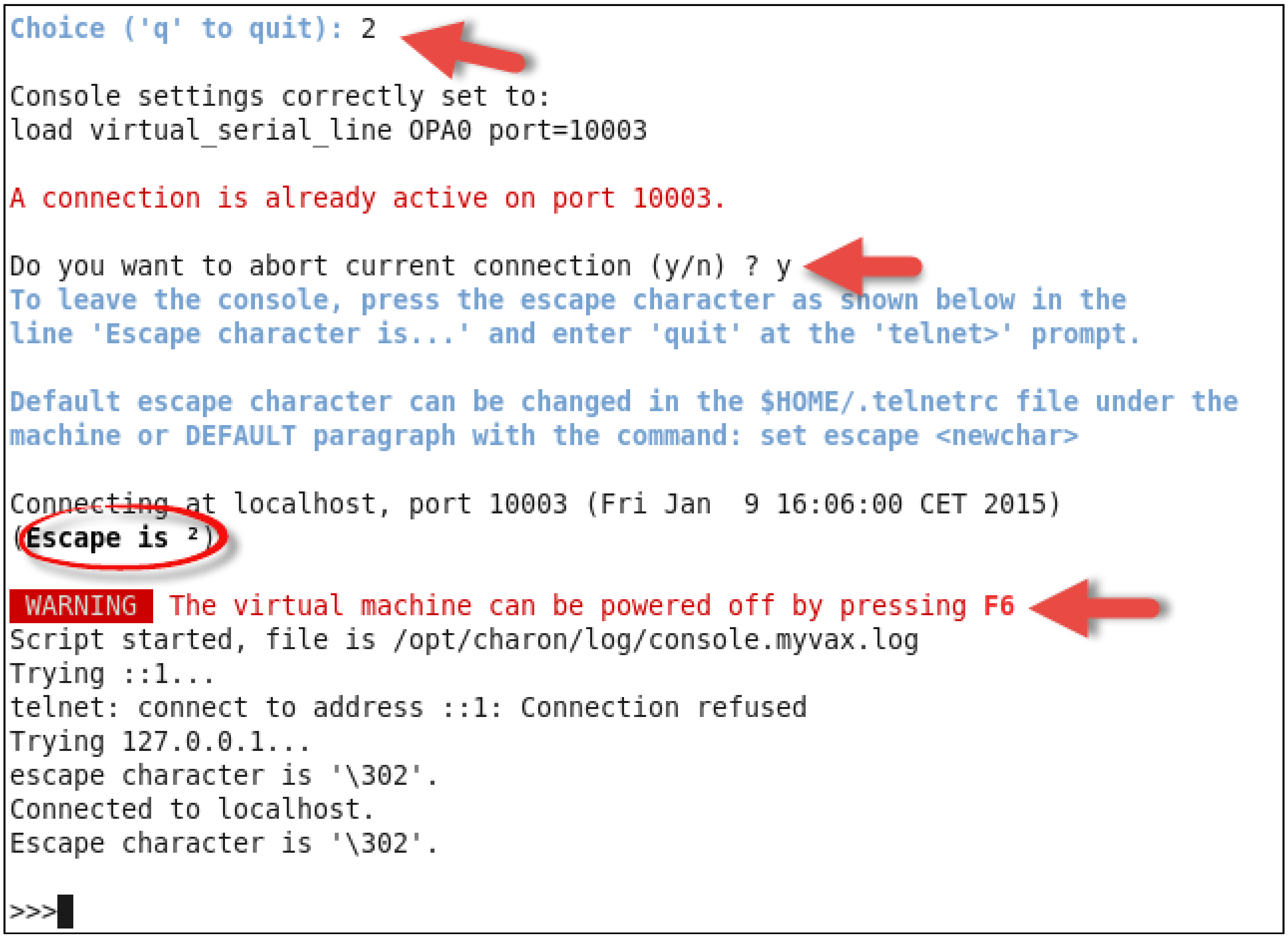
This feature is automatically disabled for the guest that have activated console log recording with the 'set OPA0 log=' option.

Example



```
STROMASYS - Virtualization Technologies                             V1.10b
 Connect to guest console

Server booted on: Wed 07-Jan-2015 17:46:00 - Current: Fri 09-Jan-2015 16:04:58
Number of CPUs: 3 - Memory(free/tot): 1,069,012kB / 2,913,504kB (36%)

Emulator/Config File            Cpu Mem  State                  Stop script    B

 1- as4100/pluto                  1 256M STOPPED  REQUESTED     Defined        N
    Port: 10011
 2- mv3k198/myvax                 1 128M RUNNING                Defined        Y
    Started: Fri 09-Jan-2015 16:04:32
    Port: 10003 -> CONSOLE LOCKED BY AUTOCONNECT UTILITY

 a - Enable/disable console autoconnect feature (state is enabled)
 v - View console log files

Choice ('q' to quit):
```

We can see here the console is already locked by the autoconnect utility. We will now connect to the running VAX and kill the active session:



```
Choice ('q' to quit): 2

Console settings correctly set to:
load virtual_serial_line OPA0 port=10003

A connection is already active on port 10003.

Do you want to abort current connection (y/n) ? y
To leave the console, press the escape character as shown below in the
line 'Escape character is...' and enter 'quit' at the 'telnet>' prompt.

Default escape character can be changed in the $HOME/.telnetrc file under the
machine or DEFAULT paragraph with the command: set escape <newchar>

Connecting at localhost, port 10003 (Fri Jan  9 16:06:00 CET 2015)
(Escape is ²)

WARNING The virtual machine can be powered off by pressing F6
Script started, file is /opt/charon/log/console.myvax.log
Trying ::1...
telnet: connect to address ::1: Connection refused
Trying 127.0.0.1...
escape character is '\302'.
Connected to localhost.
Escape character is '\302'.

>>>
```

Edit configuration files

Description

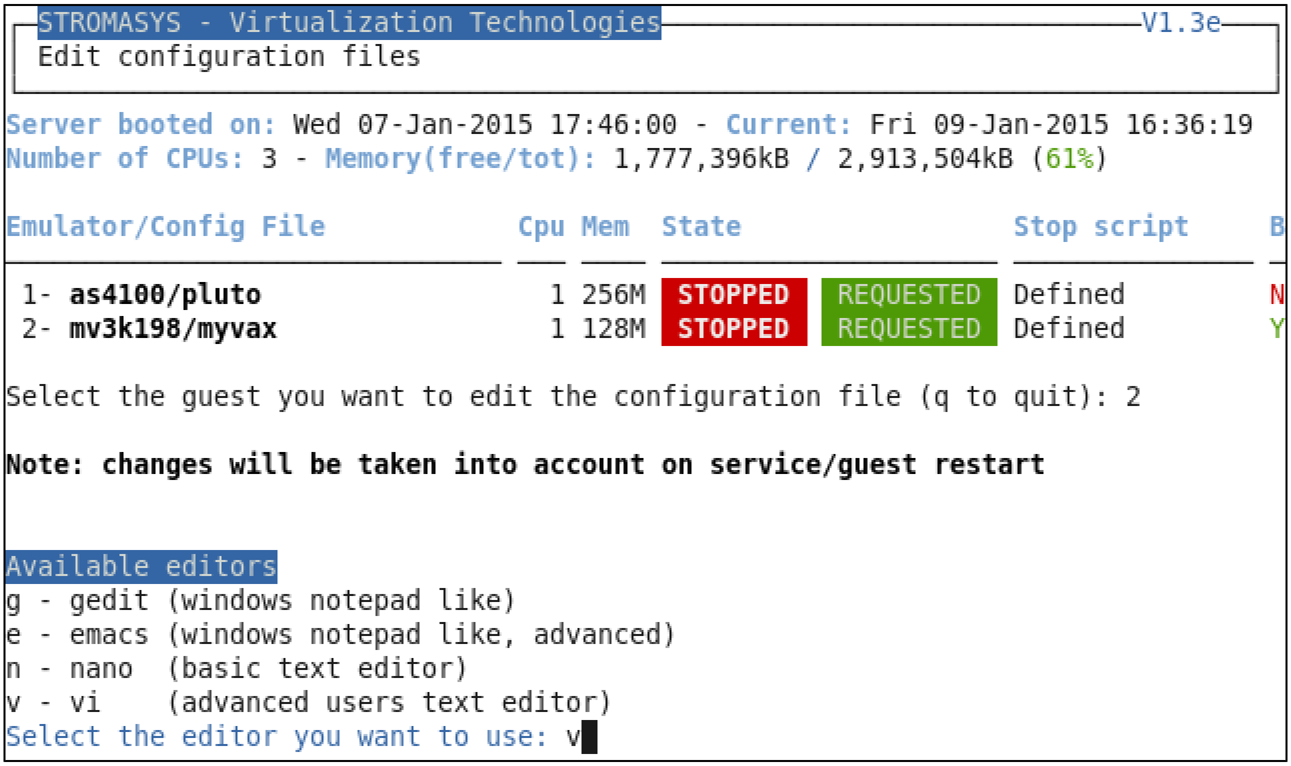
This option will allow you to edit the configuration file(s).

Notes:

- Changes will be applied on emulator restart
- Some checks will be performed on network interface upon exit:
  - Does the network interface exist ? failure / no
  - Has it an assigned IP address ? failure / yes
  - Is NM_CONTROLLED parameter set to 'no' for the interface(s) used ?
  - Is ONBOOT parameter set to 'no' for this interface ?
- All offload parameters will be switched off automatically at guest start.

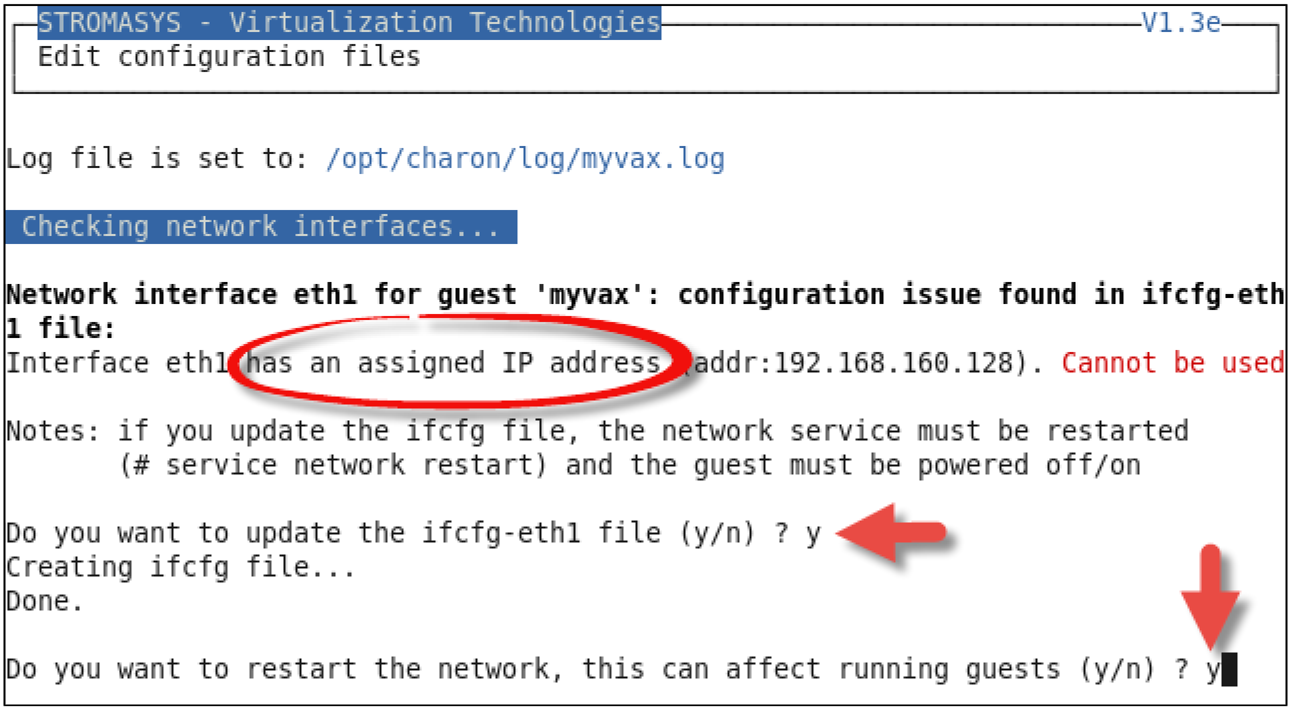
Example

We will here add a network interface, eth1, to our emulated vax machine:

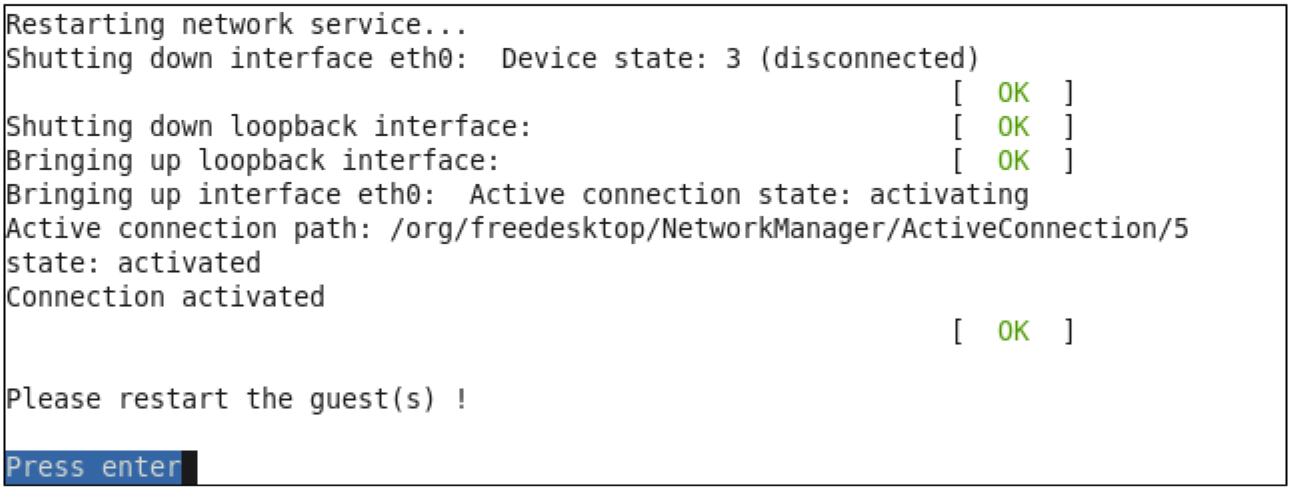


```
┌STROMASYS - Virtualization Technologies──────────────────────V1.3e─┐
│ Edit configuration files                                          │
└───────────────────────────────────────────────────────────────────┘
Server booted on: Wed 07-Jan-2015 17:46:00 - Current: Fri 09-Jan-2015 16:36:19
Number of CPUs: 3 - Memory(free/tot): 1,777,396kB / 2,913,504kB (61%)

Emulator/Config File           Cpu Mem  State                Stop script    B
______________________________ ___ ____ ____________________ _____________  _
 1- as4100/pluto                 1 256M  STOPPED  REQUESTED  Defined        N
 2- mv3k198/myvax                1 128M  STOPPED  REQUESTED  Defined        Y

Select the guest you want to edit the configuration file (q to quit): 2

Note: changes will be taken into account on service/guest restart


Available editors
g - gedit (windows notepad like)
e - emacs (windows notepad like, advanced)
n - nano  (basic text editor)
v - vi    (advanced users text editor)
Select the editor you want to use: v
```

When the editor will be closed, in our case 'vi', some checks will be performed on network interfaces:

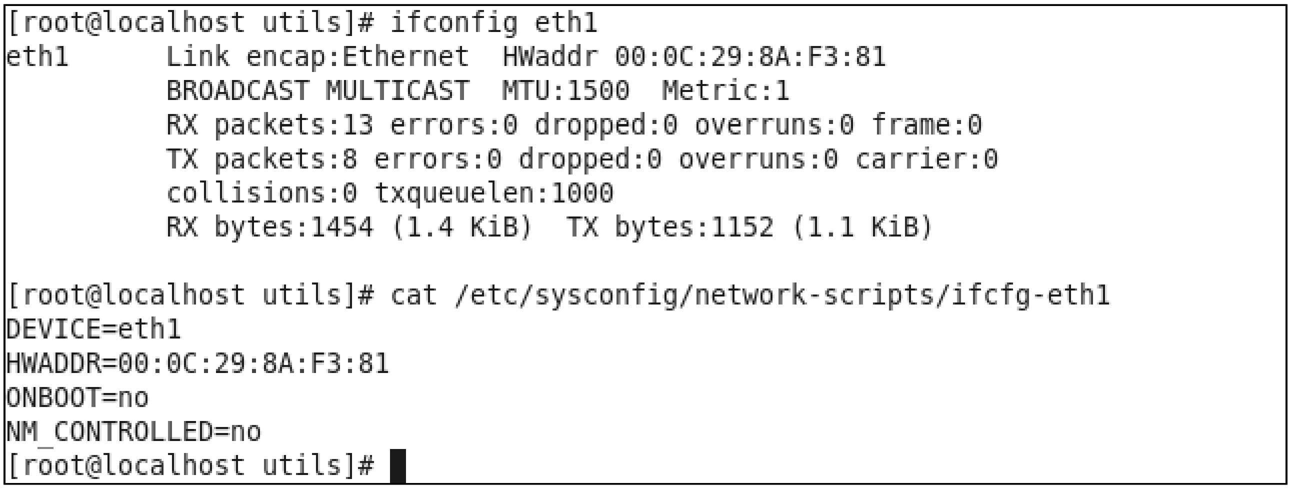


```
STROMASYS - Virtualization Technologies                              V1.3e
 Edit configuration files

Log file is set to: /opt/charon/log/myvax.log

 Checking network interfaces...

Network interface eth1 for guest 'myvax': configuration issue found in ifcfg-eth
1 file:
Interface eth1 has an assigned IP address (addr:192.168.160.128). Cannot be used

Notes: if you update the ifcfg file, the network service must be restarted
       (# service network restart) and the guest must be powered off/on

Do you want to update the ifcfg-eth1 file (y/n) ? y
Creating ifcfg file...
Done.

Do you want to restart the network, this can affect running guests (y/n) ? y
```



```
Restarting network service...
Shutting down interface eth0:  Device state: 3 (disconnected)
                                                           [  OK  ]
Shutting down loopback interface:                          [  OK  ]
Bringing up loopback interface:                            [  OK  ]
Bringing up interface eth0:  Active connection state: activating
Active connection path: /org/freedesktop/NetworkManager/ActiveConnection/5
state: activated
Connection activated
                                                           [  OK  ]

Please restart the guest(s) !

Press enter
```

We can now see 'eth1' has no more IP address and it's configuration file has been updated:



```
[root@localhost utils]# ifconfig eth1
eth1      Link encap:Ethernet  HWaddr 00:0C:29:8A:F3:81
          BROADCAST MULTICAST  MTU:1500  Metric:1
          RX packets:13 errors:0 dropped:0 overruns:0 frame:0
          TX packets:8 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:1454 (1.4 KiB)  TX bytes:1152 (1.1 KiB)

[root@localhost utils]# cat /etc/sysconfig/network-scripts/ifcfg-eth1
DEVICE=eth1
HWADDR=00:0C:29:8A:F3:81
ONBOOT=no
NM_CONTROLLED=no
[root@localhost utils]# 
```

Reminder: All offload parameters for this interface will be switched off automatically at guest start.

Manage monitored guests logs

Description

A service can be defined in order to monitor the guests log files to look for key removal messages (based on interval defined on the dongle) and/or informational, warning and error messages. It also monitors in parallel the /var/log/messages file to detect dongle removal (immediate mode).

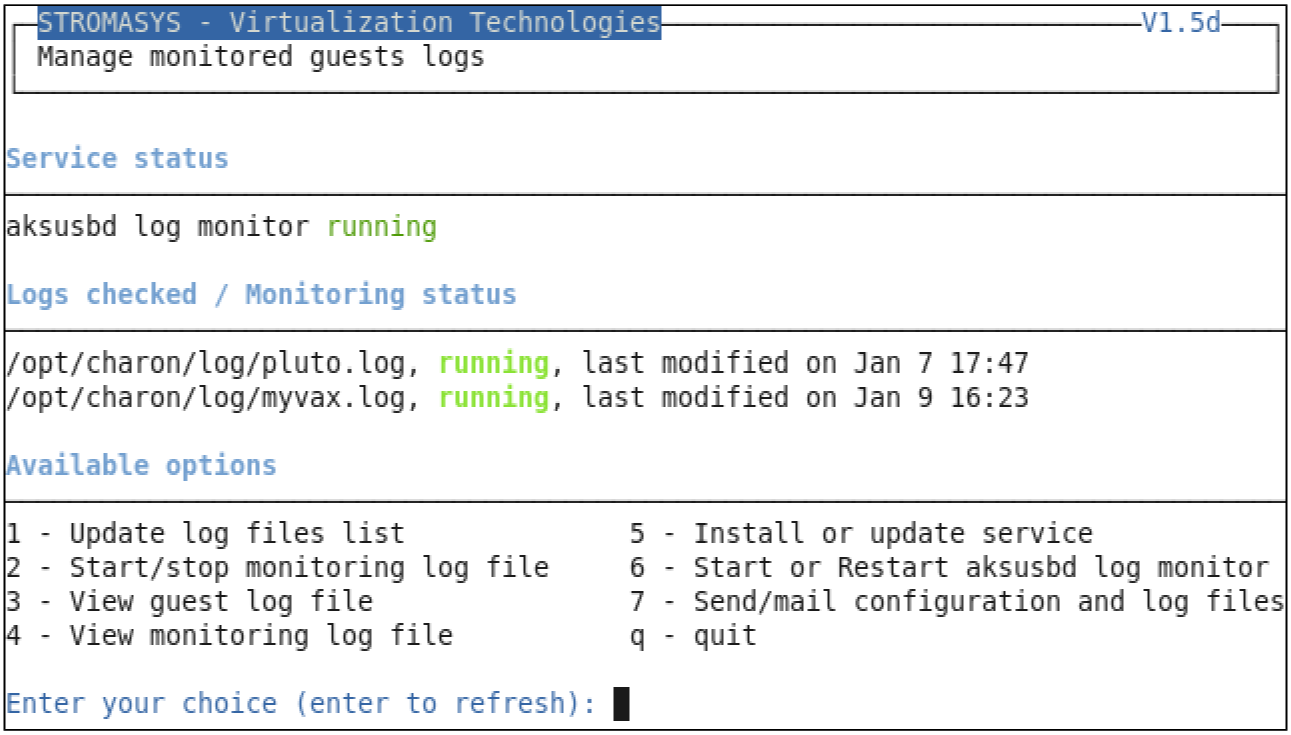
The service works with a list of log files to be monitored.

⚠ The log file name must be defined with full path within the configuration file. Rotating log files are not supported.

Management

This option offers the possibility to edit the log file list, start/stop monitoring for a guest, view the guest log file, view the monitoring log file, install or update service for guests log monitoring and to start/restart the aksusb log monitoring (/var/log/messages)

Example:



```
STROMASYS - Virtualization Technologies                              V1.5d
 Manage monitored guests logs


Service status

aksusbd log monitor running

Logs checked / Monitoring status

/opt/charon/log/pluto.log, running, last modified on Jan 7 17:47
/opt/charon/log/myvax.log, running, last modified on Jan 9 16:23

Available options

1 - Update log files list             5 - Install or update service
2 - Start/stop monitoring log file    6 - Start or Restart aksusbd log monitor
3 - View guest log file               7 - Send/mail configuration and log files
4 - View monitoring log file          q - quit

Enter your choice (enter to refresh):
```

Notes:

- The list is automatically filled with the log files found in the configuration files for guests defined with the Service management (Start, Stop, Manage automatic boot & shutdown) menu option when selecting the "Update log files list" option.
- The install/update service option will just restart the log monitoring service and not the guest.
- The aksusbd log monitoring will look into the '/var/log/messages' log file and will send an alert on dongle removal and dongle detected quite immediately
- The guests log monitoring:
  - will send alerts when information, warning and error messages will be detected depending on the alert level defined at Alerts management - Select guests log alert level. Note alerts will be send in a bulk email message by default: one alert every 1 minute based on crontab entry settings for '`/opt/charon/utils/charon_logevent`' (see Manage recursive jobs: license expiration check, log events (cron))
  - It will also send alerts on guest start and clean stop.
  - Dongle removal and detection alert messages will be sent based on license check interval defined with the license (default is 1 hour).
- ℹ If you remove a guest from the "Service management - Update guests list" option, you will have to stop the log monitoring service for the corresponding log file and remove it from the list

Send configuration and log files via mail

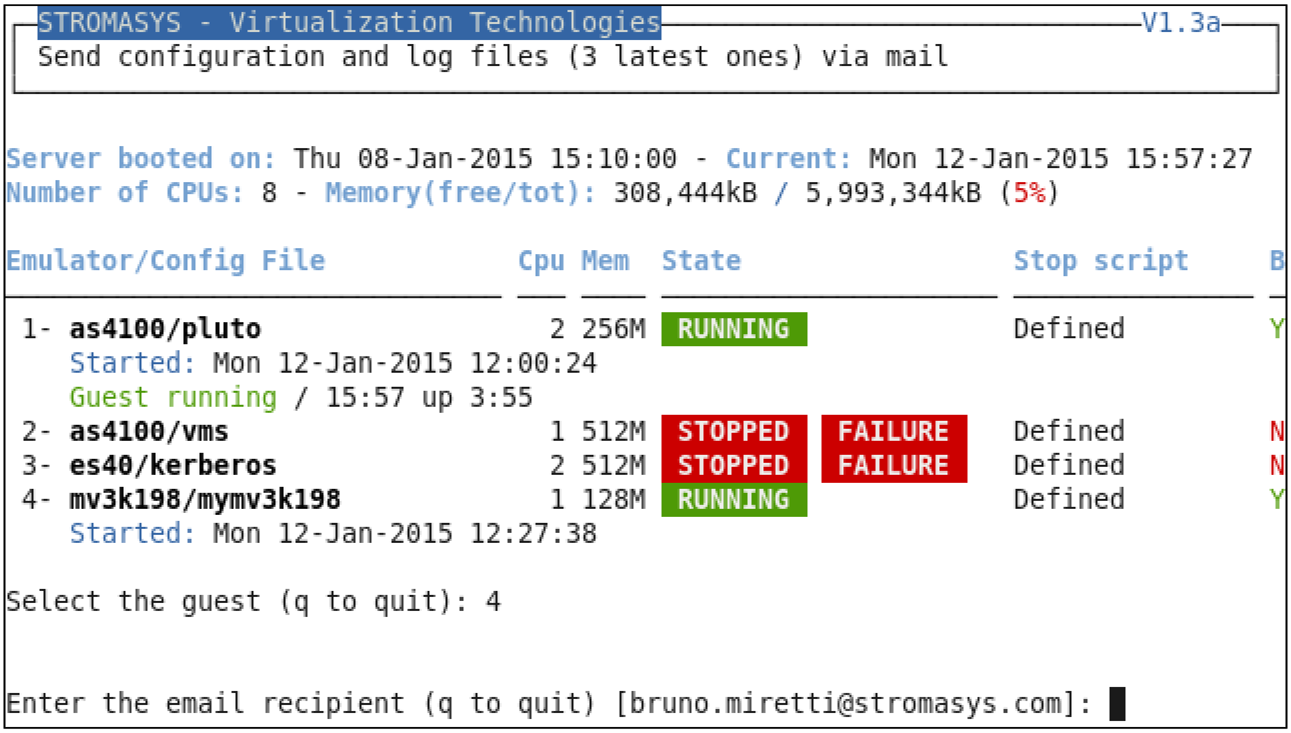
Description

This option offers the possibility to send configuration and log file from the select guest to an email recipient.

Notes:

- Only for guests defined in the Service management (Start, Stop, Manage automatic boot & shutdown) menu option
- Do not send these files directly to our support team otherwise the sender will not be recognized by our ticketing tool: first send it to you then forward it to our support team
- The 3 most recent log files will be included in the email
- Email subject will be "\[CHARON] Configuration and log files for XXXX" where "XXXX" represents the shortened configuration file name.
- Configuration and log files will be displayed within the message body and will also be attached to the email.

Example



```
STROMASYS - Virtualization Technologies                                 V1.3a
 Send configuration and log files (3 latest ones) via mail


Server booted on: Thu 08-Jan-2015 15:10:00 - Current: Mon 12-Jan-2015 15:57:27
Number of CPUs: 8 - Memory(free/tot): 308,444kB / 5,993,344kB (5%)

Emulator/Config File            Cpu Mem  State                 Stop script    B

 1- as4100/pluto                  2 256M  RUNNING               Defined        Y
    Started: Mon 12-Jan-2015 12:00:24
    Guest running / 15:57 up 3:55
 2- as4100/vms                    1 512M  STOPPED  FAILURE      Defined        N
 3- es40/kerberos                 2 512M  STOPPED  FAILURE      Defined        N
 4- mv3k198/mymv3k198             1 128M  RUNNING               Defined        Y
    Started: Mon 12-Jan-2015 12:27:38

Select the guest (q to quit): 4


Enter the email recipient (q to quit) [bruno.miretti@stromasys.com]:
```

Manage recursive jobs: license expiration check, log events (cron)

Description

This options opens the ‘crontab’ root file in order to schedule those recursive jobs with ‘vi’ editor or if installed, with the ‘nano’ editor, or, if possible, with the ‘gedit’ graphical editor (Windows notepad like) or ‘emacs’.

Notes:

- Alerts will be sent using the common alert script, see chapter Alerts management - Update/reinstall common alert script
- License expiration alert levels are explained here: Check for license expiration
- If the ‘crontab’ file does not exist, it is initialized with comments in order to facilitate settings like this:

```
# root crontab
#------------------------------------------------------------------------------
# Syntax:
#
# *    *    *    *    * command to execute
# |    |    |    |    |
# |    |    |    |    |
# |    |    |    |    +----- day of week (0 - 6) (0 to 6 are Sunday to Saturday, or use names)
# |    |    |    +---------- month (1 - 12)
# |    |    +--------------- day of month (1 - 31)
# |    +-------------------- hour (0 - 23)
# +------------------------- min (0 - 59)
#
# Checks for license expiration: runs everyday at 09:00 with alert set to 15 days before expiration
0 9 * * * /opt/charon/utils/charon_expchk 15
#
# Monitor unrequested guests stop
* * * * * /opt/charon/utils/charon_mongstop
#
# Log events report
* * * * * /opt/charon/utils/charon_logevent
#
# Console autoconnect utility
* * * * * /opt/charon/utils/charon_console_autoconnect

# Logs archiving utility (each Monday 00:00)
0 0 * * 1 /opt/charon/utils/charon_logarchive -keep=60 -zip
```

Expiration check alert (charon_expchk)

Note the expiration check alert is displayed by default 7 days before expiration, 15 days in the default crontab settings.

This number of days can be changed using parameter 1 as number of days

Example for 21 days, running everyday at 08:00AM and 04:00PM (16:00):

```
0 8,16 * * * /opt/charon/utils/charon_expchk 21
```

More details on crontab at: http://en.wikipedia.org/wiki/Crontab

The ‘-nomail’ parameter makes the script to run and just check if the key can be read: if not or if a timeout reading is detected, the aksusbd drivers are restarted.

Monitor abnormal termination of the guests (charon_mongstop)

This job is active by default, it is recommended not to prevent it from running. It's goal is to send alerts if a guest has been stopped whereas it was not requested.

Log events (charon_logevent)

This job is active by default, it is recommended not to prevent it from running. It's goal is to scan for events in the guests active log files and send alerts based on alert level defined by the administrator.

Console autoconnect (charon_console_autoconnect)

This utility will check if the guest is running: if the console log is not defined in the configuration file (set OPA0 log=xxx), it will check no one is connected to the console via “telnet localhost <*port*>”. If no one if connected, it will connect to the console via the ‘screen’ command and will record the console output

Note: if you want to connect to the console, via Connect to guest console menu option, you will have the option to kill the active one and then connect interactively.

Logs archiving utility

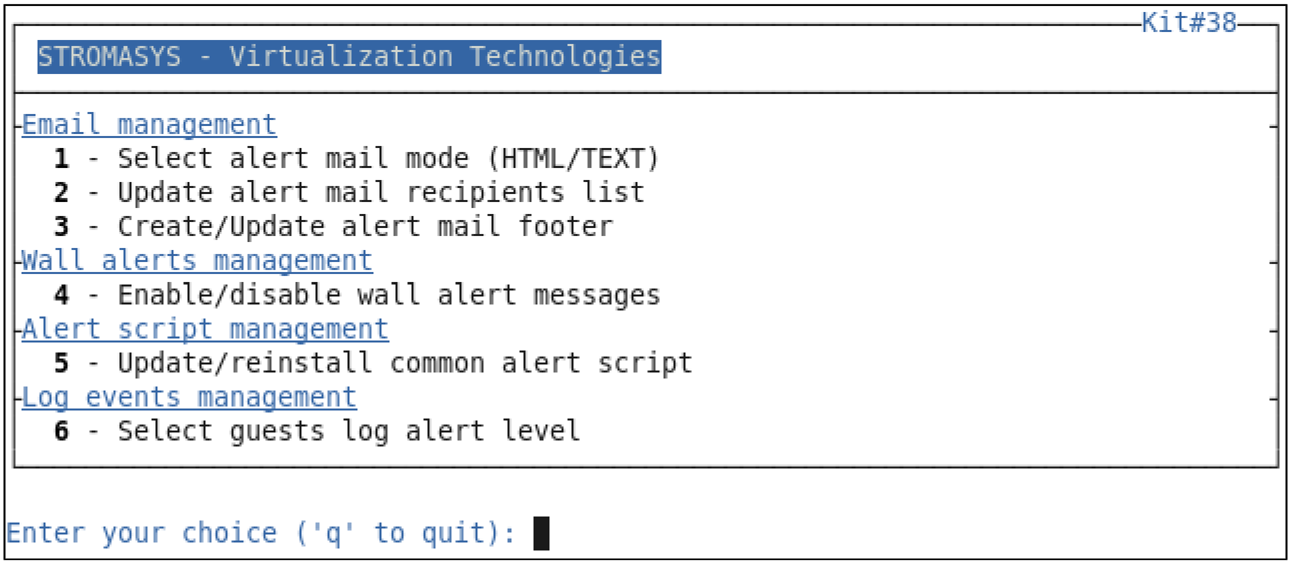
This utility will archive services log files and guests console log files.

Default from the crontab entry is to keep files for 60 days and then zip older log files. Zipped files will be kept for 6 months

Alerts management

Description

This option will allow you to change alert management settings as shown below:



```
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 STROMASYS - Virtualization Technologies

Email management
   1 - Select alert mail mode (HTML/TEXT)
   2 - Update alert mail recipients list
   3 - Create/Update alert mail footer
Wall alerts management
   4 - Enable/disable wall alert messages
Alert script management
   5 - Update/reinstall common alert script
Log events management
   6 - Select guests log alert level

Enter your choice ('q' to quit):
```
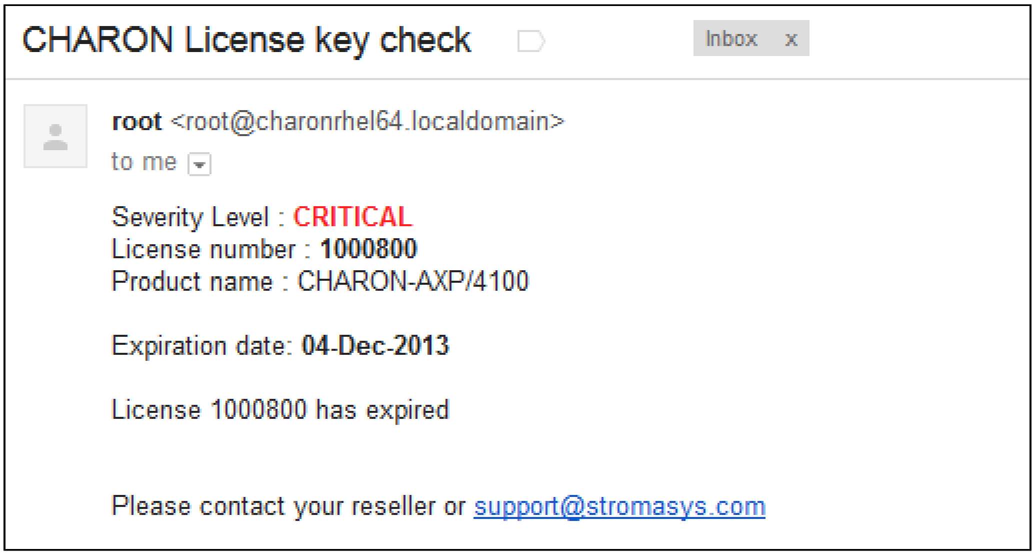

Settings

Select alert mail mode (HTML/TEXT)

Alerts are by default sent in HTML format. With some mail clients, HTML mails are not correctly displayed or even rejected. This option is used to switch between HTML format and pure TEXT format.

HTML mail example:



CHARON License key check

root <root@charonrhel64.localdomain>
to me

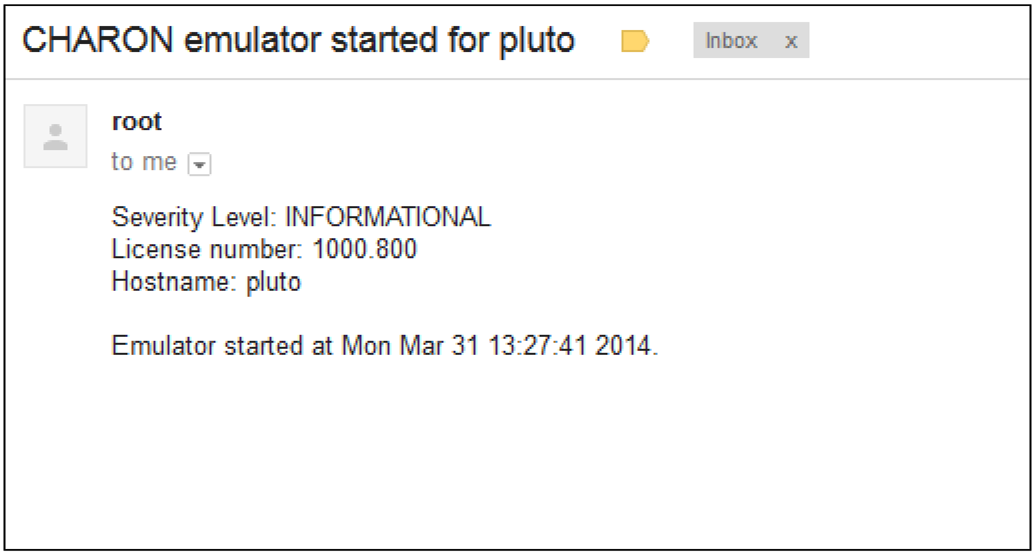
Severity Level : CRITICAL
License number : **1000800**
Product name : CHARON-AXP/4100

Expiration date: **04-Dec-2013**

License 1000800 has expired

Please contact your reseller or support@stromasys.com

TEXT mail example:



CHARON emulator started for pluto

Severity Level: INFORMATIONAL
License number: 1000.800
Hostname: pluto

Emulator started at Mon Mar 31 13:27:41 2014.

Update alert mail recipients list

All alerts coming from monitoring scripts and checks scripts are sent using a common alert script which by default sends a ‘wall’ message to all connected users and an email to the recipient list that can be customized using this option

It is edited using ‘vi’ editor or if installed, the ‘nano’ editor, or, if possible, the ‘gedit’ graphical editor (Windows notepad like) or ‘emacs’.

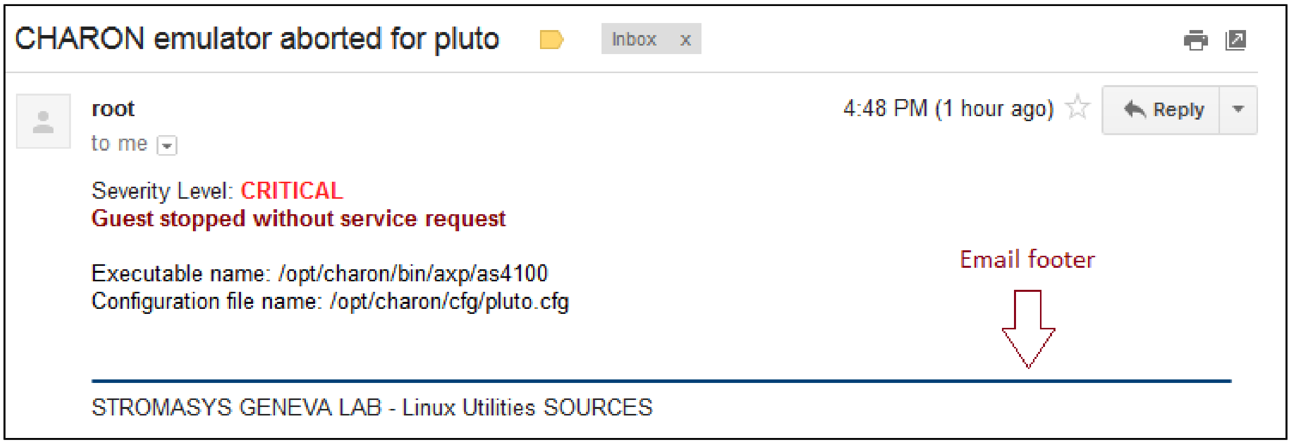
Notes:

- No comments allowed
- No blank lines
- One recipient per line

Create/update alert mail footer

Used to add comments at the end of the mail. HTML tags like new line, font and bold can be added within the file, in case the format is switched to TEXT, these tags will be automatically removed from the text mail.

Example:



CHARON emulator aborted for pluto

Severity Level: CRITICAL
Guest stopped without service request

Executable name: /opt/charon/bin/axp/as4100
Configuration file name: /opt/charon/cfg/pluto.cfg

STROMASYS GENEVA LAB - Linux Utilities SOURCES

Enable/disable wall alert messages

Alert are by default sent via email (sendmail) and also warns the connected user via a wall message.

This option enables or disables these wall messages.

Update/reinstall common alert script

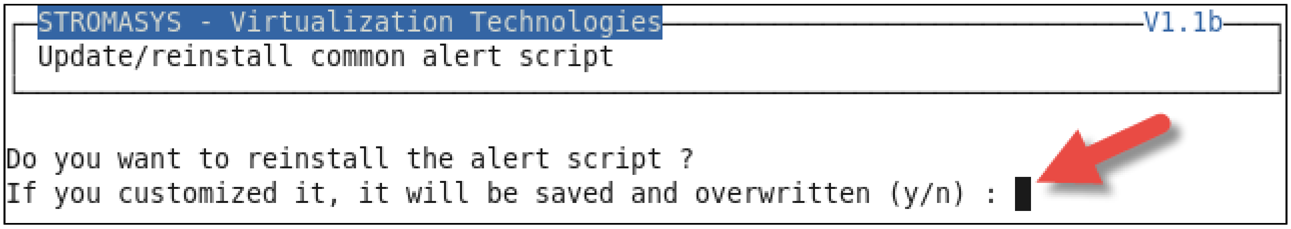
All alerts coming from monitoring scripts and checks scripts are sent using a common alert script.

If this script does not exist, it is initialized by copying an example provided.

If it exists and is different from the original one, you are invited to reinitialize it from the default one:

- use this if you did not change the original script file and you updated the Linux Utilites kit
- do not use this if you customized your own alert script

Example:



```
STROMASYS - Virtualization Technologies                                V1.1b
Update/reinstall common alert script


Do you want to reinstall the alert script ?
If you customized it, it will be saved and overwritten (y/n) :
```

This script can be customized to send alerts the way you want, adding for example commands to link with your monitoring tool. It is based on an alert code passed as parameter 1. All other parameters are information used to send alerts by default with a ‘wall ‘ command and an email sent to the alert mail recipients list described above. The script uses templates in order to send emails and wall messages (templates/*.mail and templates/*.wall files)

It is edited using ‘vi’ editor or, if possible, the ‘gedit’ graphical editor (Windows notepad like).

Parameter1 can be the following:

Parameter 1	Severity	Description
ABORTED	CRITICAL	Guest has stopped without user or service request
AKSUSBFAIL	CRITICAL	If the dongle is detected as removed whereas it is disconnected, the askusb daemons are restarted. If the restart fails after 15 tries, this message is sent
BOOTDUPL	WARNING	Tried to start a guest that is already running or a guest is found more than once in the guests list
BOOTNOTFND	CRITICAL	The file containing the guests to start is empty or not found
EMULSTART	INFORMATIONAL	Emulator has been started
EXPCHK	CRITICAL, MAJOR, MINOR, INFORMATION	The license is about to expire
FOUND	INFORMATIONAL	License dongle found at startup
HASPWARN	CRITICAL	Warning messages found in the license, guests cannot start
IFCFGADDR	CRITICAL	The network interface defined in the configuration has already an assigned IP address, cannot be used for guest
IFCFGCRIT	CRITICAL	One parameter in the ifcfg-eth*N* file is not configured correctly (mandatory value)
IFCFGUNKN	CRITICAL	The interface name defined in the configuration file is not valid (not found with 'ifconfig <eth>' command)
IFCFGWARN	WARNING	One parameter in the ifcfg-eth*N* file is not configured correctly (recommended value)
INVALID	CRITICAL	Invalid configuration on dongle to start the guest
NOTFOUND	CRITICAL	The guests have not been able to start at boot due to dongle disconnected
REMOVED	CRITICAL	Dongle has been removed: the guest sees the dongle as disconnected and will stop after the defined interval if the dongle is not replaced

REMOVRESET	ERROR	Dongle seen as removed whereas not disconnected (aksusb driver failure). In this case the USB is reset and drivers are restarted (⚠ Not valid if the dongle is a network dongle and then located on another server)
STOPPED	CRITICAL	Guest has been stopped, reasons explained in parameters 4, 5 and 6
STOPPEDREQ	INFORMATIONAL	Guest has been stopped, requested by user or shutdown
TESTMAIL	INFORMATIONAL	Used to test email mode when setting HTML or pure TEXT
TOEXIT	CRITICAL	The guest is about to exit, reasons explained in parameters 4 and 5
USBDISCONNECT	MAJOR	Dongle has been removed (immediate detection)

Select guests log alert level

Select the alert level to send alerts when events are found in the guest log file:

Level	Information	Warning	Error
0	☒	☒	☒
1	✓	✓	✓
2	☒	✓	✓
3	☒	☒	✓

Requires the charon_logevent entry activated in the crontab file => menu option 5 - Manage recursive jobs: license expiration check, log events (cron)

ℹ This does not affect guest startup alerts. You will receive alerts when a guest starts whatever the level is

Show host information (OS, HW, Charon version, utils and services)

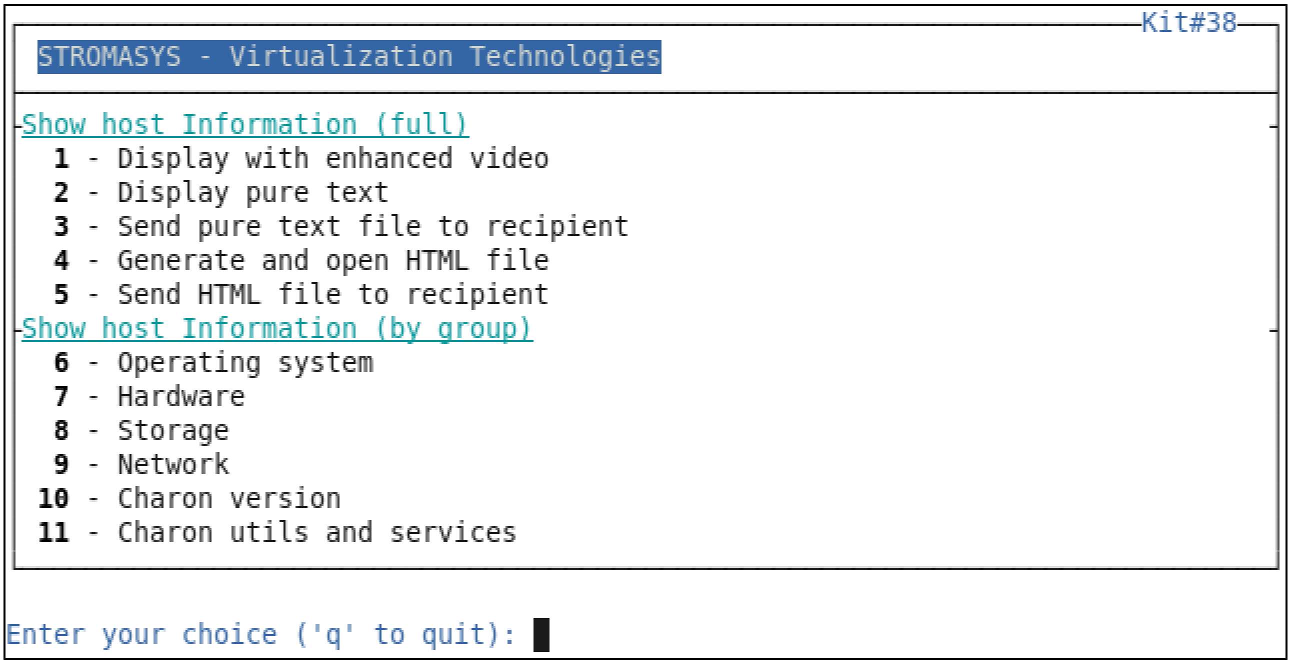
Description

Opens a submenu that provides information on the running Charon server:

- Hostname
- Operating system name, kernel version, uptime
- Hardware: CPU, memory, USB devices
- Storage: file systems
- Network interfaces
- Charon version: programs found and installed packages
- Charon utils and services: scripts version, services status, content of configuration files
- Current kit version/date with an option to view release notes

Output can be displayed directly, sent to html file and opened with Firefox or sent via email

Menu options list



```
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Show host Information (full)
  1 - Display with enhanced video
  2 - Display pure text
  3 - Send pure text file to recipient
  4 - Generate and open HTML file
  5 - Send HTML file to recipient
Show host Information (by group)
  6 - Operating system
  7 - Hardware
  8 - Storage
  9 - Network
 10 - Charon version
 11 - Charon utils and services


Enter your choice ('q' to quit):
```

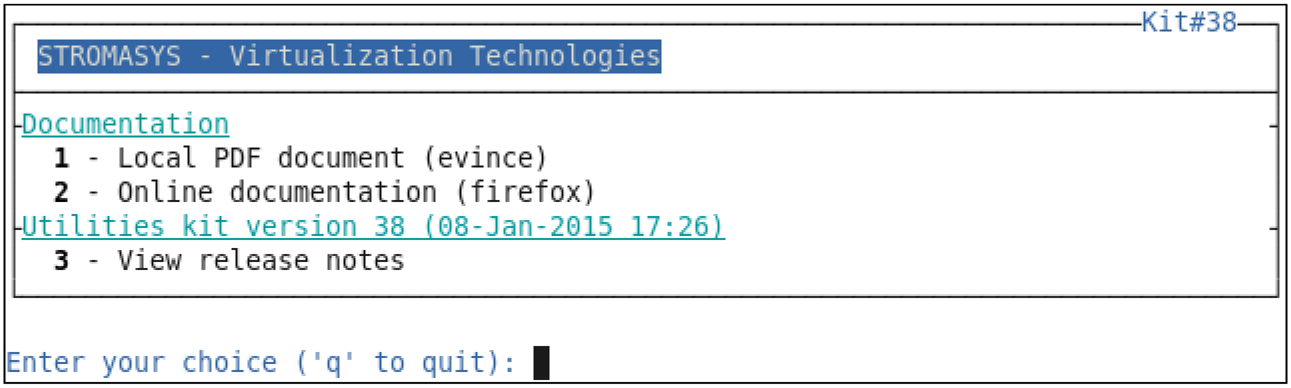
Documentation

Description

This option will open:

- either the attached PDF document using 'evince'
- or will lead you to the online documentation via 'Firefox'
- or will allow you to read the release notes (text file via 'more')

Menu options



```
                                                                        Kit#38
 STROMASYS - Virtualization Technologies

Documentation
  1 - Local PDF document (evince)
  2 - Online documentation (firefox)
Utilities kit version 38 (08-Jan-2015 17:26)
  3 - View release notes


Enter your choice ('q' to quit):
```

Technical part

Scripts and files description

All scripts and files are located in the /opt/charon/utils folder except for .charon* files. The "Custom" column below indicates the file will not be overwritten with new kit installation/upgrade.

File	Type	Custom	Description
charon_check.alertcmd	Shell script	✓	Common script file used for alerts. If it does not exist, it is cloned from the example file (see below)
charon_check.alertcmd.example	Shell script		Example of common script file used for alerts. By default alerts are 'wall' and 'mailx' based
charon_check.mailfooter	Data file	✓	Contains the mail footer used to send email alerts (see above)
charon_check.mailto	Data file	✓	Contains the mail recipients list used to send email alerts (see above)
charon_common	Shell script		Script file including common variables and functions
charon_common_menu	Shell script		Script file including common variables and functions for menus
charon_console_autoconnect	Shell script		Script executed in the crontab file to connect to the guests console if no user is already connected, records all console output
charon_expchk	Shell script		License expiration check or key reading check with '-nomail' parameter
charon_gstart	Shell script		Manages start/stop of the guests, defined as a service
charon_gstart.boot	Data file	✓	Contains the guests list for start/stop: HW emulator and configuration file
charon_gstart.chkrun	Shell script	✓	Optional script, user made, used to display status of the guest by the guest start menu (charon_menu_gstart)
charon_gstart.chkrun.example	Shell script		Example for the one one above
charon_gstart.stop	Shell script	✓	Optional script that enables the customer to insert proper guests shutdown commands (based on 'ssh' or 'expect' tool for example). This script is generated on user request.
charon_gstart.stop.example	Shell script		Example for the script above including 'ssh' and 'expect' usage for VMS and Tru64 operating systems.
charon_linux_utils.kit*XX*.tar	Tar file		Contains the full Linux utils kit where XX represents the kit number.
charon_linux_utils.pdf	Document		This document file
charon_logarchive	Shell script		Manage services and guests console logs archiving
charon_logchk	Shell script		Manages guests log monitoring, defined as a service
charon_logchk.list	Data file	✓	Contains the list of guests log files to monitor
charon_logevent	Shell script		Check for new events in the guests log files and sends alerts depending on the selected level
charon_menu_alertcmd	Shell script		Menu: alert script editing
charon_menu_alert.dat	Data file		Contains the options list for the alerts menu

charon_menu_c2v	Shell script		Menu: creates and send C2V file
charon_menu_console	Shell script		Menu: connection to guest console
charon_menu_cron	Shell script		Menu: edit crontab for license expiration check
charon_menudoc.dat	Data file		Contains the options list for the Documentation submenu
charon_menu_editcfg	Shell script		Menu: edit guests configuration file
charon_menu_gstart	Shell script		Menu: guests start/stop management, install service, edit guests list, etc…
charon_menu_hostinfo	Shell script		Menu: host information report management
charon_menuhostinfo.dat	Data file		Contains the options list for the Host information submenu
charon_menu_logchk	Shell script		Menu: guests log monitoring management
charon_menu_logevent	Shell script		Menu: selection for the of guests logs alert level
charon_menu_mailfooter	Shell script		Menu: customize alerts email footer
charon_menu_mailmode	Shell script		Menu: selection of the alert emails mode, HTML or pure TEXT
charon_menu_mailto	Shell script		Menu: mail recipients list management
charon_menumain.dat	Data file		Contains the options list for the main menu
charon_menu_sendlogs	Shell script		Menu: send configuration and log files via email
charon_menu_showlic	Shell script		Menu: show license content
charon_menu_walloff	Shell script		Menu: enable/disable alert wall messages
charon_mongstop	Shell script		Monitors abnormal termination of the services (guests)
charon_setup	Shell script		Charon installation/upgrade/remove script
charon_showhostinfo	Shell script		Gather Charon server information
events	Folder		Contains the events found in guests log files that will be sent via mail. Contains only events detected since last charon_logevent script execution (crontab)
fixgedit	Shell script		Prevents from gedit command to display garbage messages. Execute this script before like this: # . /opt/charon/utils/fixgedit
guest_shutdown.exp	Expect script		This ‘expect’ script contains sequence for Tru64 and VMS shutdown. See explanation in the Tricks and Tips chapter
kit.version	Data file		Contains kit version and release date (updated by the maketar script below)
menu_mod.pl	Perl script		Menu display based on data file
menusetup	Shell script		Kit installation script, setup the ‘menu’ command
MyTput.pm	Perl module		Contains enhanced display commands used by menu_mod.pl

pluto.cfg.example	Data file		Configuration file used for guests tests
release-notes	Text file		Release notes
requests	Folder		Contains flag files that determines the guest has been stopped properly (requested stop). If the guest is stopped and the file does not exist, it indicates an abnormal termination of the guest Flag files are empty and have the following name: configuration file name + ".stop" (example: pluto.cfg.stop)
ssh-linux-openvms-setup.readme	Text file		Tips on how to create ssh trust between Linux and Openvms
ssh-linux-tru64-setup.readme	Text file		Tips on how to create ssh trust between Linux and Tru64
templates	Folder		Contains templates used to send alerts via ‘mailx’ and ‘wall’
$HOME/.charonconslogdir	Data file	✓	Location for the console log file can be changed by placing the desired folder name in this file. Default is /opt/charon/log folder if this file is not created
$HOME/.charonkitfolder	Data file	✓	Contains the Charon kit location provided at installation
$HOME/.charonlogevent	Data file	✓	Contains the alert level selected for guests log files events
$HOME/.charonmailmode	Data file	✓	Contains mail mode used to send email alerts, either HTML (default if the file does not exist) or TEXT. Used by charon_check.alertcmd script
$HOME/.charonsoftlicfolder	Data file	✓	Contains the software license kit location (where the dinst and dunst script files are located)
$HOME/.charon.autoconnect	Data file	✓	Console autoconnect enabled (contains 1) or disabled (contains 0)
$HOME/.charon.recipient	Data file	✓	Contains the email recipient selected when sending hasp_srm_view output, C2V file or host information html report
$HOME/.charon.lastrecipient	Data file	✓	Contains the last email recipient used for the above options in order to prevent from typing again the email address

Notes:

- Menu data files format is detailed using the following command:

```
# /opt/charon/utils/menu_mod.pl -fd
```

Manual services management

There are 2 services that can be installed:

- charon_gstart: guests start/stop
- charon_logchk: log monitoring

Request	Command
Services list	`# chkconfig –list | grep ^Charon`
Prevent service to start at boot	`# chkconfig <service> off`
Enable service start at boot	`# chkconfig <service> on`

Start or Stop service	# **service** *<service>* **start** # **service** *<service>* **stop** Without supplemental parameter, all guests or logs monitoring are stopped To stop a dedicated guest, add the configuration file name To stop a dedicated log file monitoring, add the log file name Files can be truncated to their name only, directory and extension will be automatically completed Example: # **service charon_gstart stop pluto** # **service charon_gstart stop /opt/charon/cfg/pluto.cfg**
Service status	# **service** *<service>* **status**
Remove service	# **chkconfig –del** *<service>*

On Fedora Linux, it is recommended to add the parameter ‘-–skip-systemctl’ when using the service command.

Example:

```
# service -–skip-systemctl charon_gstart stop pluto
```

Tips and Tricks

‘vi’ text editor

Notes:

- When typing text, press ESC once finished. In case you’re blocked, press also ESC before executing commands described below
- ‘vi’ is case sensitive

Request	Command
To quit without saving	Press ‘:’ then enter ‘q!’
To quit with saving	Press ‘:’ then enter ‘x’ or ‘wq’
Go to top of file	Press ‘:’ then enter ‘0’
Go to last line	Press ‘G’
Search pattern	Press ‘/’ then enter your search text. Press then ‘n’ for next (forward) or ‘N’ for backward
Remove current character	Press ‘x’
Insert text	Press ‘i’ (press ESC once text completed)
Insert line	Press ‘o’ for a line below cursor, ‘O’ for a line above cursor (press ESC once text completed)
Delete a line	Press ‘dd’

‘gedit’ graphical editor

‘gedit’ is a graphical text editor, users familiar with Windows notepad should not encounter difficulties to use it.

Request	Command
To quit	close the window by clicking on the cross top right corner
Save file	Press <CTRL-S>

‘nano’ text editor

‘nano’ is a basic text editor, very simple to use and displaying available commands at the bottom of the screen. For example, to leave ‘nano’ , use ^X (press CTRL + X)

How to setup ‘ssh’ trusts between Linux and Tru64

Notes

- The prompts will tell you where to execute the commands, Tru64# (root user) or Linux# (root user)
- Remember Linux/Unix is case sensitive
- If hosts are not knows by each other, fill the /etc/hosts file (using .vi. or .nano. for example)

- Generate the key

```
Linux# cd /root/.ssh
Linux# ssh-keygen -t dsa
Linux# ssh-keygen -e -f id_dsa.pub > tru64host.pub
```

- Copy the *tru64host***.pub** file, or use copy/paste, in the **/.ssh2** folder on the Tru64 host
- Define the **authorization** file:

```
Tru64# cd /.ssh2
Tru64# echo "Key tru64host.pub" >> authorization
```

- Initialize the first ssh connection (answer 'yes' to confirm)

```
Linux# ssh tru64host date
```

then retry the same command to verify the trust is working.

How to setup ‘ssh’ trusts between Linux and VMS

Notes

- The prompts will tell you where to execute the commands, VMS# (system user) or Linux# (root user)
- Remember Linux/Unix is case sensitive, VMS is not
- Linux: if VMS host is not known, add it to **/etc/hosts** (using .vi. or .nano. for example)
- VMS: if Linux is not known, add it using: $ **UCX SET HOST LINUX /ADDR=***xx.xx.xx.xx*

- Enable SSH on the VMS server:

```
VMS$ SET DEF SYS$LOGIN
VMS$ @TCPIP$CONFIG
```

Select then:

- `Option 3 - Server components then enable and start service SSH, option 19`
- then `Option 2 - Enable & Start service on this node`

```
...
* Create a new default server host key? YES: YES
     Creating private key file: TCPIP$SSH_DEVICE:TCPIP$SSH.SSH2]HOSTKEY
     Creating public key file: TCPIP$SSH_DEVICE:TCPIP$SSH.SSH2]HOSTKEY.PUB
...
```

- If VMS has to connect to Linux, configure the SSH CLIENT:

```
...
* Do you want to configure SSH CLIENT [NO]: YES
...
```

Select then:

- `Option 2 - Enable & Start service on this node`
- `Exit with E twice`

- Copy these files from the default SSH user for the SYSTEM one:

```
VMS$ SET DEF SYS$LOGIN
VMS$ CREATE/DIR [.SSH2]
VMS$ COPY TCPIP$SSH_DEVICE:[TCPIP$SSH.SSH2]HOSTKEY [.SSH2]
VMS$ COPY TCPIP$SSH_DEVICE:[TCPIP$SSH.SSH2]HOSTKEY.PUB [.SSH2]
VMS$ COPY TCPIP$SSH_DEVICE:[TCPIP$SSH.SSH2]SSH2_CONFIG [.SSH2]
VMS$ EDIT [.SSH2]SSH2_CONFIG
```

⚠ Uncomment: **`BatchMode      yes`**

⚠ Find and set: **`AllowedAuthentications               publickey, password`**

- Generate the key and convert it to be readable by VMS

```
...
* Do you want to configure SSH CLIENT [NO]: YES
...

Linux# ssh-keygen -t dsa (then 3 times Enter with default values)
Linux# ssh-keygen -e -f /root/.ssh/id_dsa.pub > /root/.ssh/linux.pub
```

- Copy the file **`/root/.ssh/`*`linux`*`.pub`**, or use copy/paste, to the VMS system in the **`SYS$SYSROOT:[SYSMGR.SSH2]`** directory

- Copy the **hostkey.pub** file from the VMS system to the Linux one:

```
Linux# ssh system@VMS "type [.SSH2]HOSTKEY.PUB" >/root/.ssh/VMS.orig.pub
```

⚠ Enter **YES** then the VMS system password

- Import the VMS public key and add it to the authorized keys:

```
Linux# ssh-keygen -i -f /root/.ssh/VMS.orig.pub >/root/.ssh/VMS.pub
Linux# cat /root/.ssh/VMS.pub >>/root/.ssh/authorized_keys
```

- Define the VMS identification file:

```
VMS$ SET DEF SYS$SYSLOGIN
VMS$ SET DEF SYS$SYSROOT:[.SSH2]
VMS$ OPEN/WRITE TMP IDENTIFICATION.
VMS$ WRITE TMP "IDKEY HOSTKEY"
VMS$ CLOSE TMP
```

⚠ Do not forget the dot at the end of the identification file name

- On the VMS system add the Linux key to the authorized keys:

```
VMS$ SET DEF SYS$SYSLOGIN
VMS$ SET DEF SYS$SYSROOT:[.SSH2]
VMS$ OPEN/WRITE TMP AUTHORIZATION.
VMS$ WRITE TMP "KEY LINUX.PUB"
VMS$ CLOSE TMP
```

⚠ Do not forget the dot at the end of the authorization file name

- Perform tests (examples)

Charon server name "charon", vms system name "pluto":

```
charon# ssh system@pluto "show system"
OpenVMS V7.3-2 on node PLUTO 27-SEP-2013 11:50:14.37 Uptime 0 19:20:07
Pid Process Name State Pri I/O CPU Page flts Pages
00000201 SWAPPER HIB 16 0 0 00:00:02.55 0 0
00000204 LANACP HIB 14 70 0 00:00:00.05 109 135
...
```

Shutdown guests with Expect tool

Introduction

In case SSH cannot be used to perform clean shutdown of the guests, the ‘expect’ tool can be used to connect to the console and perform the login operation then execute the shutdown command.

ℹ In that case the password is sent without encryption.

To facilitate use of ‘expect’ for shutdown, an example is provided in the script 'guest_shutdown.exp' located in the /opt/charon/utils folder. It is recommended not to use directly this script but to create a copy if you plan to customize the script, otherwise it could be overwritten with new distribution kit.

⚠ Console locked: one must kill any ‘telnet’ session connected to the localhost/port (this is not done inside the expect script) before using the expect script

This script can handle the following situations:

- Guest console not connected
  - Expect: ‘Username: ’ (VMS) or ‘login: ‘ (Tru64)
  - Action: An interactive session will be initiated based on <user> and <password> provided
- Guest console with user connected
  - Expect: *prompt*
  - This user must have privileges to perform shutdown
  - Action: Depending on the Operating system parameter (see <opsys> below), the shutdown command will be sent
- Guest console at SRM prompt
  - Expect: ‘>>>’ (so works with VAX and Alpha with ‘P00>>>’)
  - Action: A 'power off' command will be issued. If it does not succeed the F6 key will be sent (must be enabled within the configuration file). If the F6 key did not stop the emulator the script will exit with error code 9 meaning you will have to kill the emulator process yourself. Examples are provided within the '/opt/charon/utils/charon_gstart.stop.example' file.

Script usage

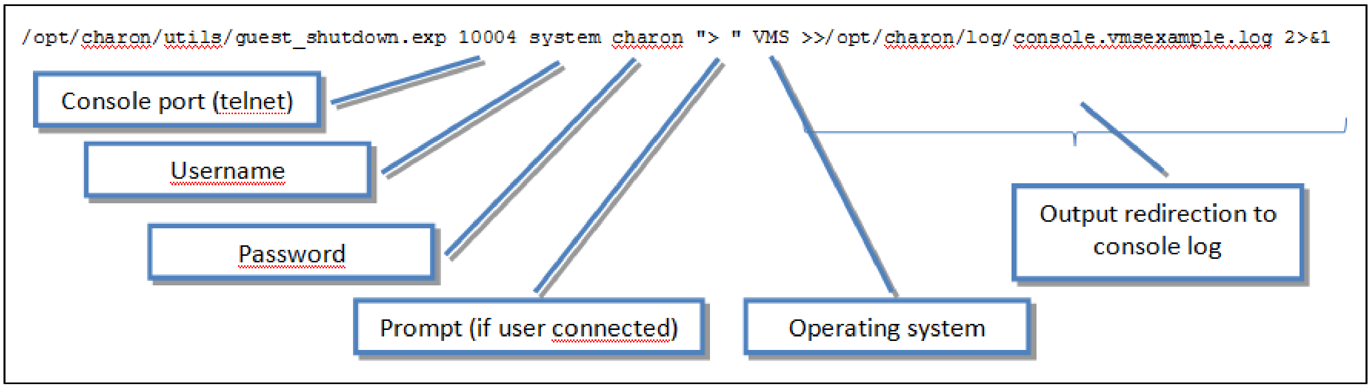
Usage:

```
# path/script <port> <user> <password> <prompt> <opsys>
```

Parameters:

Parameter	Description
<port>	telnet port number (example: 10003)
<user>	username for login (must be able to perform shutdown)
<password>	password
<prompt>	shell prompt (including end space)
<opsys>	VMS or UNIX

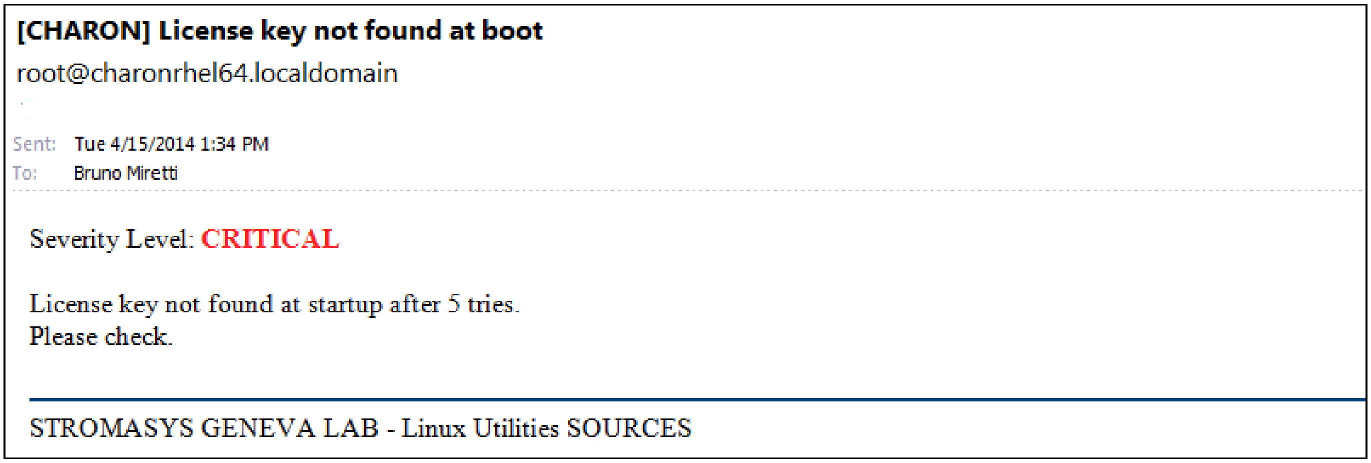
Example: (example is given in charon_gstart.stop.example)



```
/opt/charon/utils/guest_shutdown.exp 10004 system charon "> " VMS >>/opt/charon/log/console.vmsexample.log 2>&1
```

Alert emails examples

License dongle not present



[CHARON] License key not found at boot

root@charonrhel64.localdomain

Sent: Tue 4/15/2014 1:34 PM
To: Bruno Miretti

Severity Level: CRITICAL

License key not found at startup after 5 tries.
Please check.

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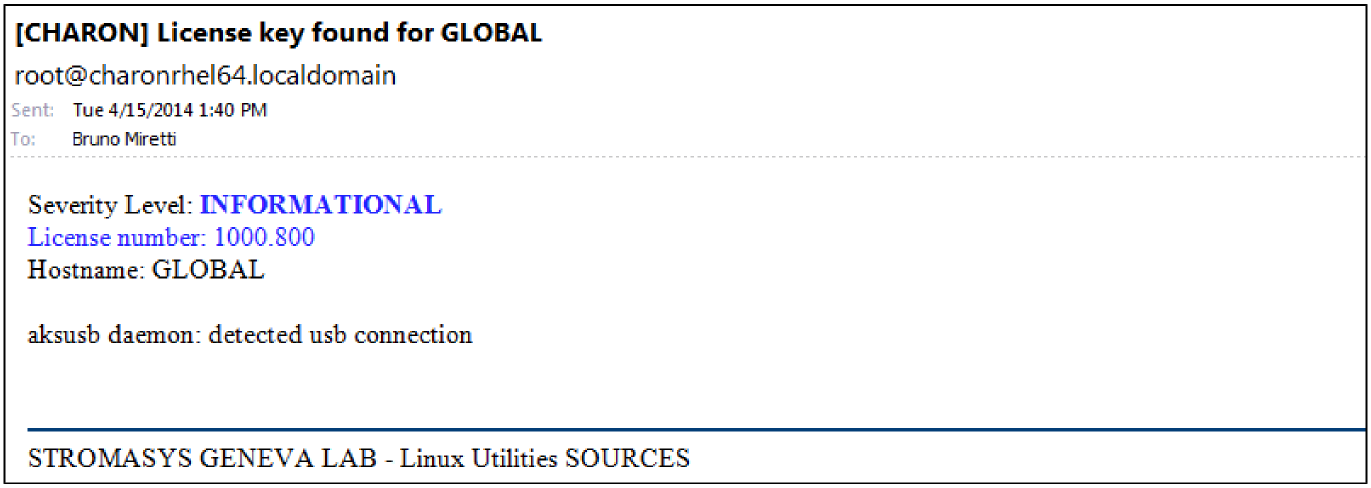
License dongle now connected



[CHARON] License key found for GLOBAL

root@charonrhel64.localdomain

Sent: Tue 4/15/2014 1:40 PM
To: Bruno Miretti

Severity Level: INFORMATIONAL
License number: 1000.800
Hostname: GLOBAL

aksusb daemon: detected usb connection

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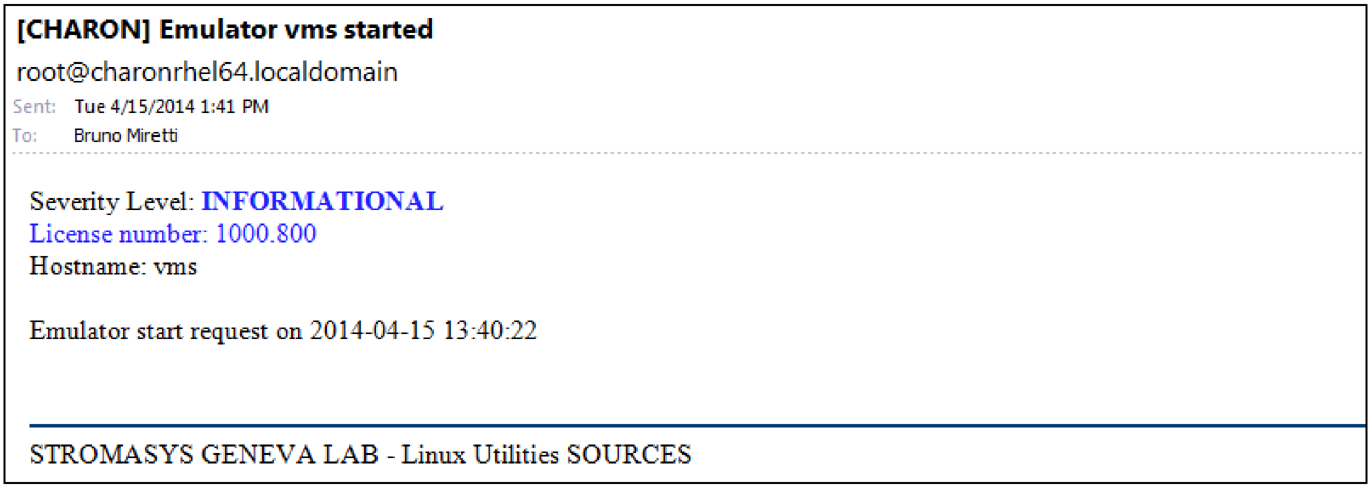
Emulator start information



[CHARON] Emulator vms started

root@charonrhel64.localdomain

Sent: Tue 4/15/2014 1:41 PM

To: Bruno Miretti

Severity Level: **INFORMATIONAL**
License number: 1000.800
Hostname: vms

Emulator start request on 2014-04-15 13:40:22

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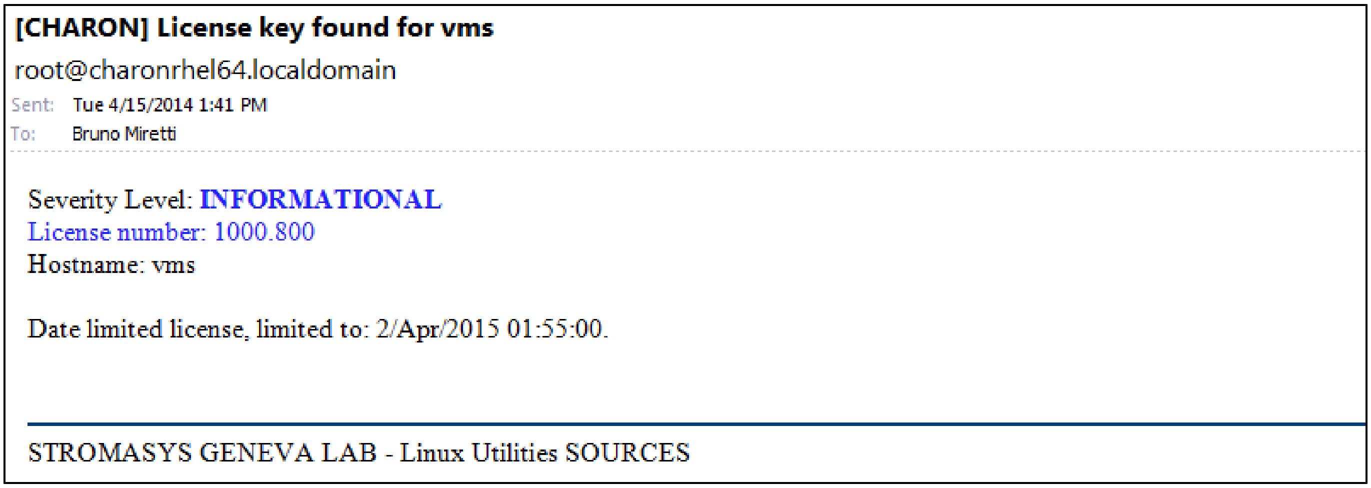
Emulator start - License information



[CHARON] License key found for vms

root@charonrhel64.localdomain

Sent: Tue 4/15/2014 1:41 PM

To: Bruno Miretti

Severity Level: **INFORMATIONAL**
License number: 1000.800
Hostname: vms

Date limited license, limited to: 2/Apr/2015 01:55:00.

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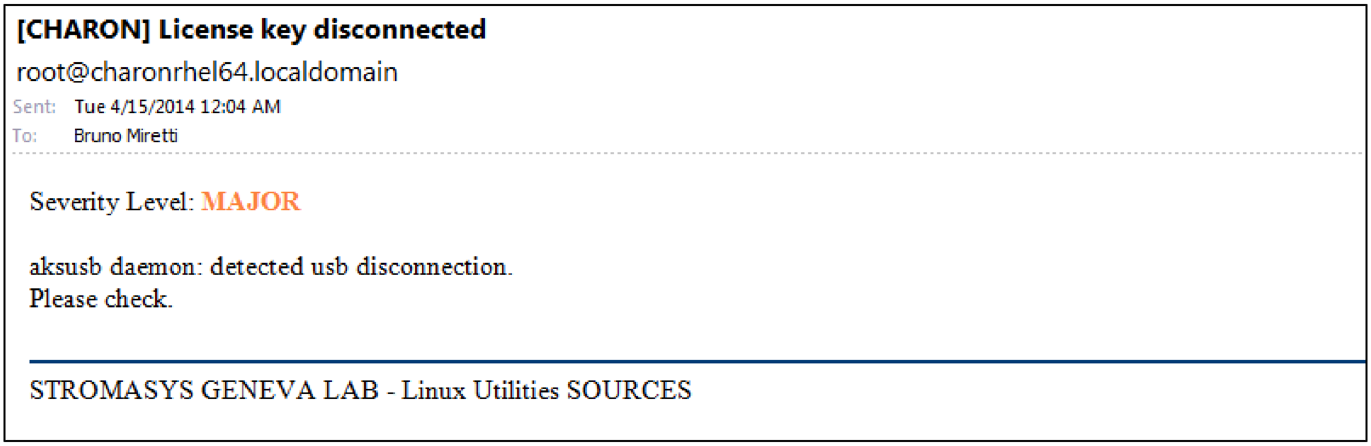
Dongle disconnection: immediate detection



[CHARON] License key disconnected

root@charonrhel64.localdomain

Sent: Tue 4/15/2014 12:04 AM

To: Bruno Miretti

Severity Level: **MAJOR**

aksusb daemon: detected usb disconnection.
Please check.

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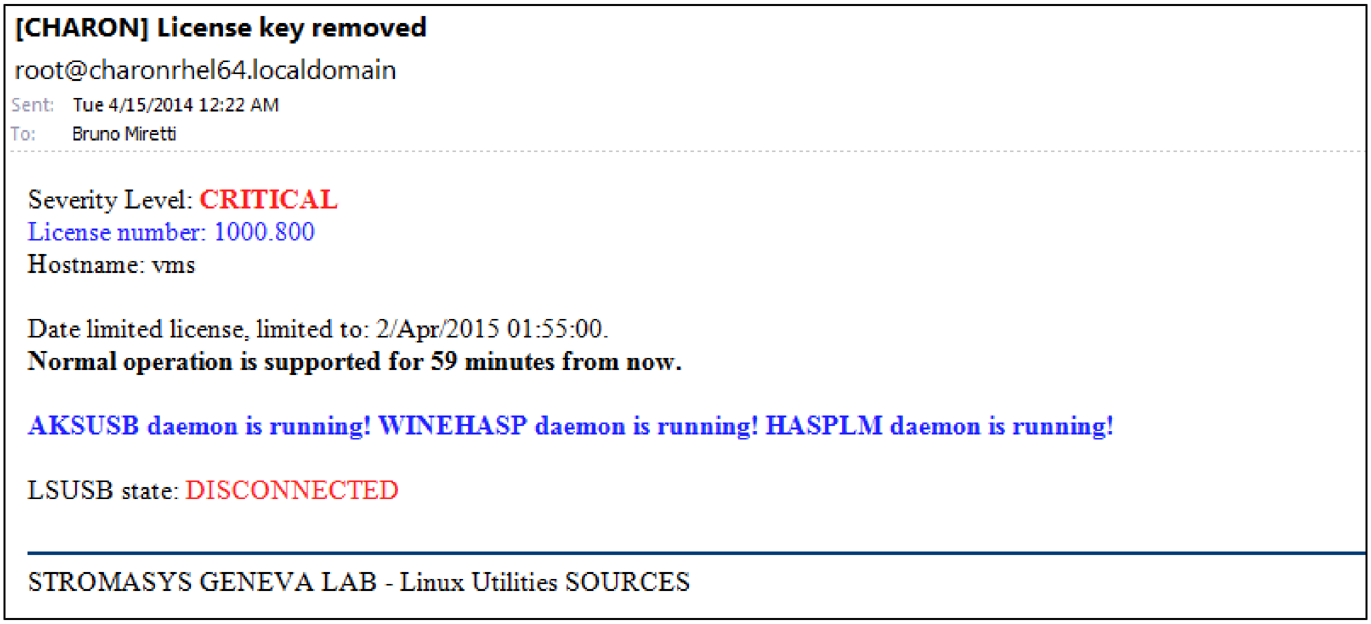
Dongle disconnection: emulator detection based on check interval



[CHARON] License key removed

root@charonrhel64.localdomain

Sent: Tue 4/15/2014 12:22 AM

To: Bruno Miretti

Severity Level: **CRITICAL**

License number: 1000.800

Hostname: vms

Date limited license, limited to: 2/Apr/2015 01:55:00.

Normal operation is supported for 59 minutes from now.

AKSUSB daemon is running! WINEHASP daemon is running! HASPLM daemon is running!

LSUSB state: DISCONNECTED

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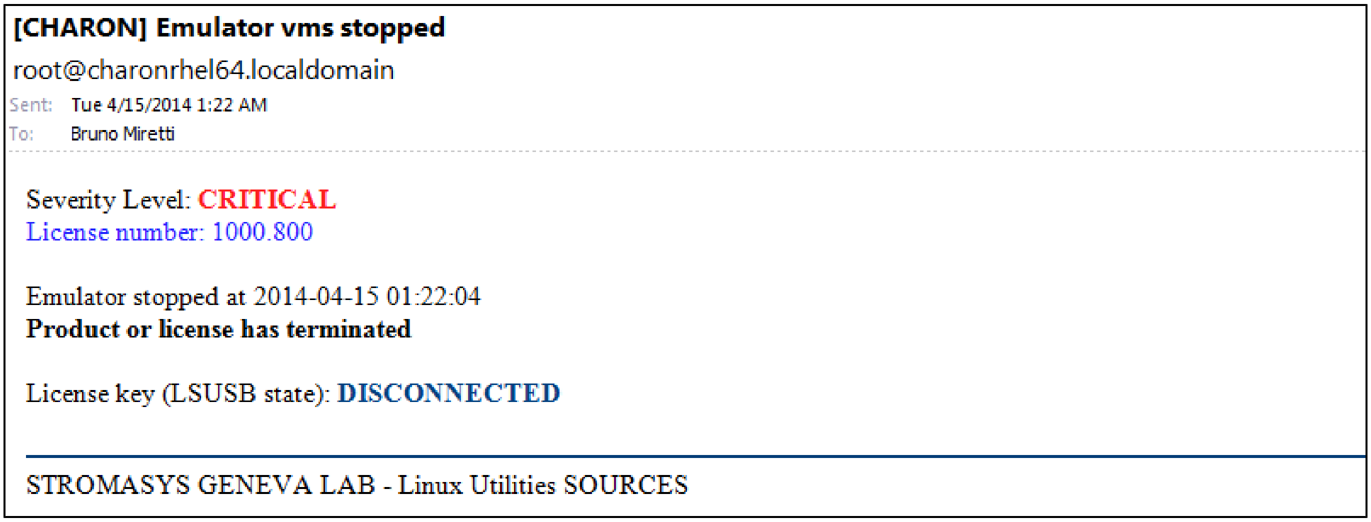
Emulator stopped - no action taken



[CHARON] Emulator vms stopped

root@charonrhel64.localdomain

Sent: Tue 4/15/2014 1:22 AM

To: Bruno Miretti

Severity Level: **CRITICAL**

License number: 1000.800

Emulator stopped at 2014-04-15 01:22:04

Product or license has terminated

License key (LSUSB state): **DISCONNECTED**

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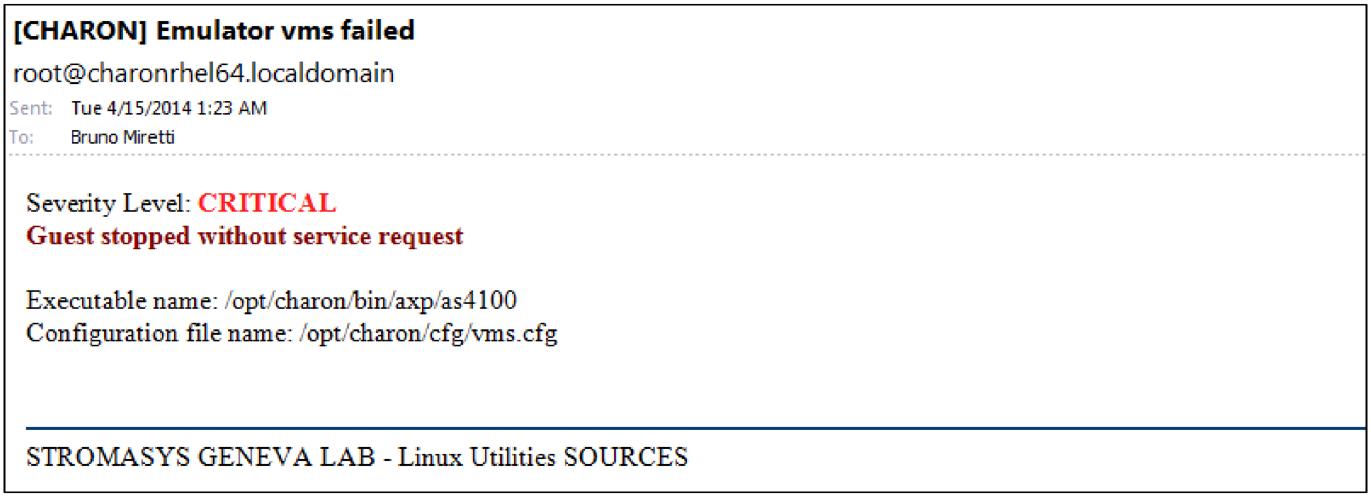
Emulator unrequested stop detection



[CHARON] Emulator vms failed

root@charonrhel64.localdomain

Sent: Tue 4/15/2014 1:23 AM

To: Bruno Miretti

Severity Level: CRITICAL

Guest stopped without service request

Executable name: /opt/charon/bin/axp/as4100

Configuration file name: /opt/charon/cfg/vms.cfg

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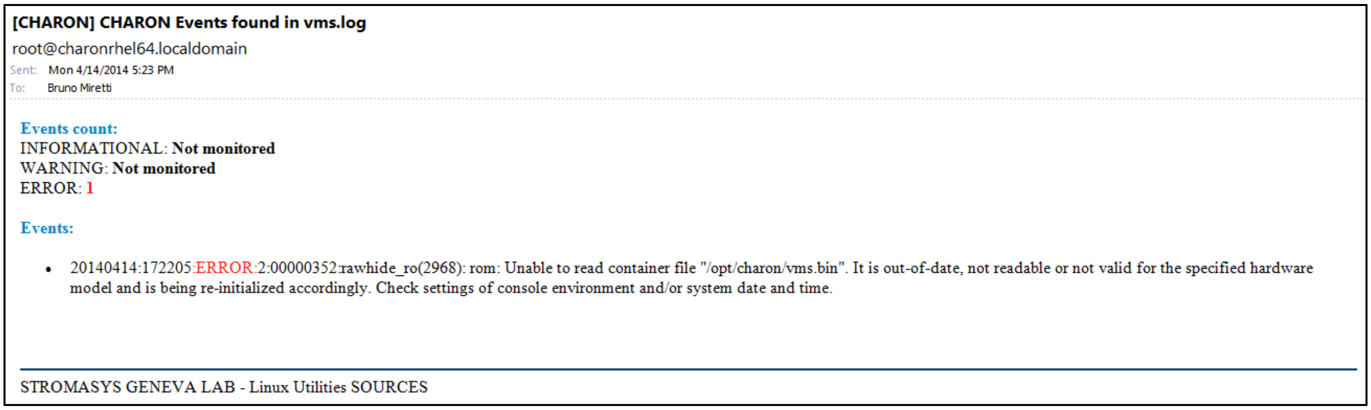
Errors found in the emulator's log file



[CHARON] CHARON Events found in vms.log

root@charonrhel64.localdomain

Sent: Mon 4/14/2014 5:23 PM

To: Bruno Miretti

Events count:

INFORMATIONAL: **Not monitored**

WARNING: **Not monitored**

ERROR: **1**

Events:

- 20140414:172205:ERROR:2:00000352:rawhide_ro(2968): rom: Unable to read container file "/opt/charon/vms.bin". It is out-of-date, not readable or not valid for the specified hardware model and is being re-initialized accordingly. Check settings of console environment and/or system date and time.

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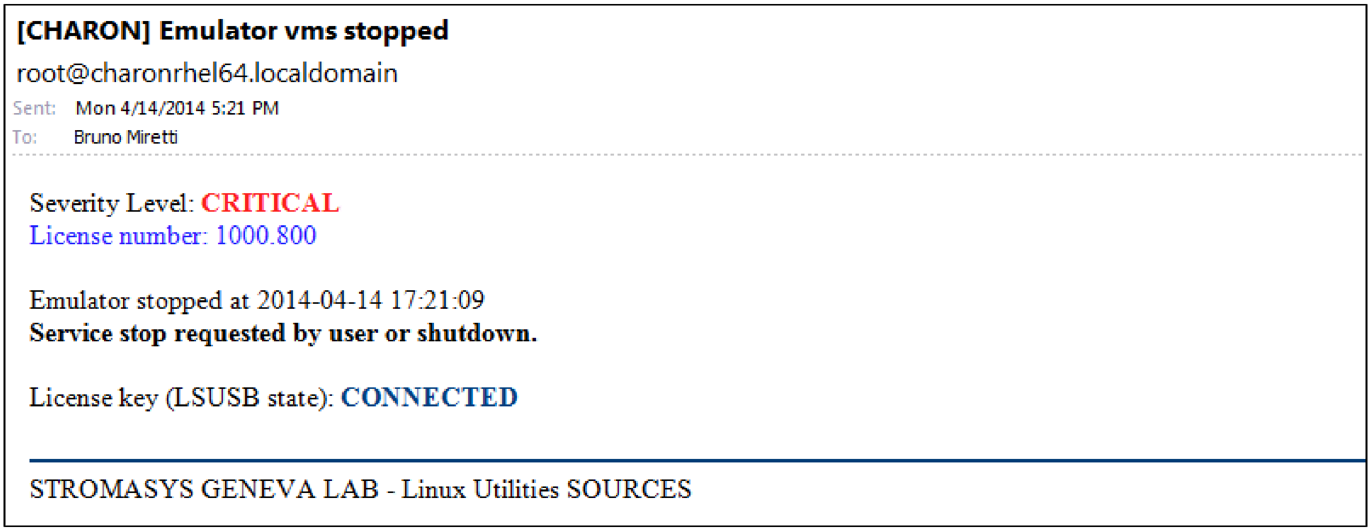
Emulator stopped by user request



[CHARON] Emulator vms stopped

root@charonrhel64.localdomain

Sent: Mon 4/14/2014 5:21 PM

To: Bruno Miretti

Severity Level: CRITICAL

License number: 1000.800

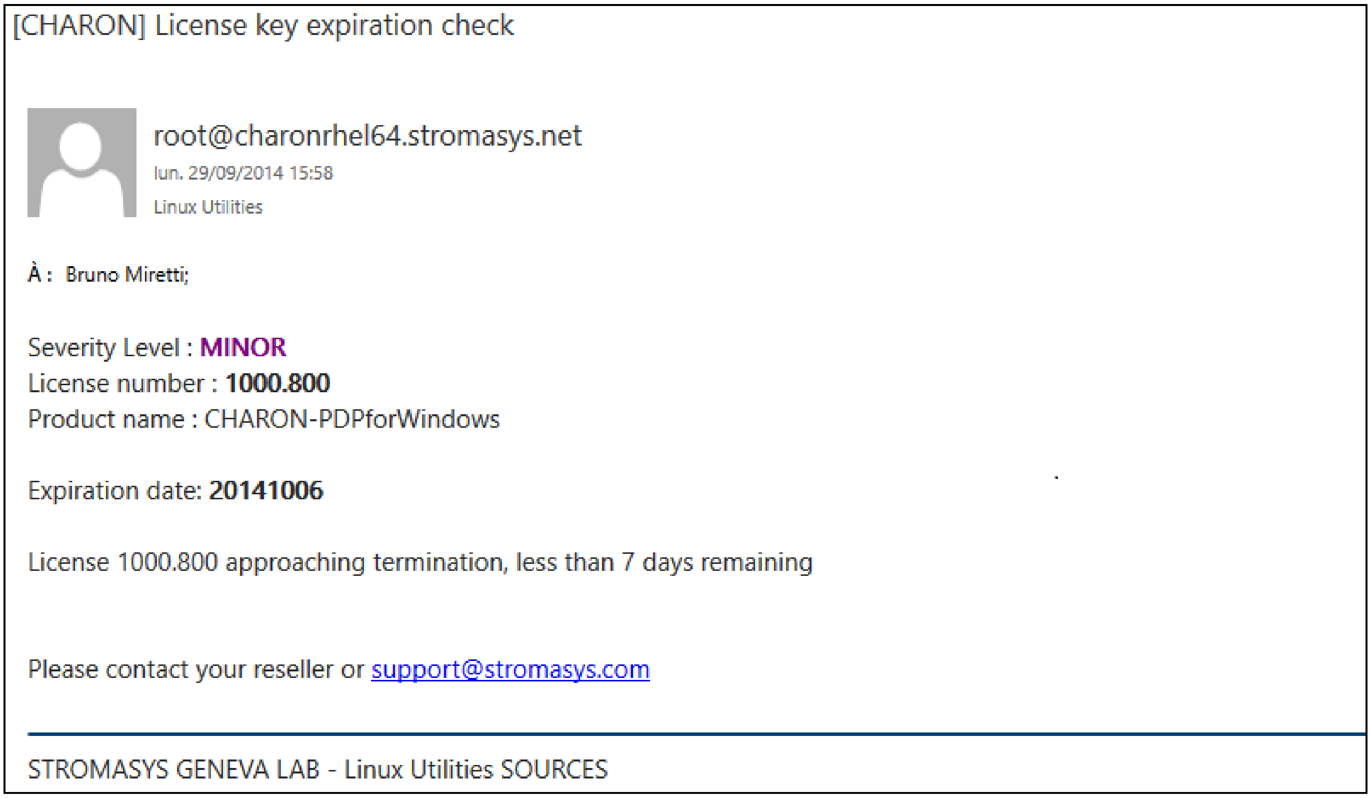
Emulator stopped at 2014-04-14 17:21:09

Service stop requested by user or shutdown.

License key (LSUSB state): **CONNECTED**

STROMASYS GENEVA LAB - Linux Utilities SOURCES

License expiration check



[CHARON] License key expiration check

root@charonrhel64.stromasys.net
lun. 29/09/2014 15:58
Linux Utilities

À : Bruno Miretti;

Severity Level : **MINOR**
License number : **1000.800**
Product name : CHARON-PDPforWindows

Expiration date: **20141006**

License 1000.800 approaching termination, less than 7 days remaining

Please contact your reseller or support@stromasys.com

STROMASYS GENEVA LAB - Linux Utilities SOURCES

Quick Setup Guide

Description

This article will list the operations to be performed to make your emulator running with the Charon Linux Utilities.

Steps

- Create a folder to store the Charon products and Charon Linux Utilities kits
  Example:

  ```
  # mkdir /charon
  ```

- Download the kits from the ftp site using 'ftp' or 'FileZilla' for example.
  Note: To install ftp, you can:
  - either use the following command (Red Hat and Fedora):

    ```
    # yum install ftp
    ```

  - or mount the Linux installation disc (Red Hat), open the "Packages" folder and either double click on the 'ftp-*.rpm' file (GUI) or use the "yum install" command.
    Example:

    ```
    # yum install "/media/RHEL_6.4 x86_64 Disc 1/Packages/ftp-0.17-53.el6.x86_64.rpm"
    ```

- Install the Charon Linux Utilities as described in the "Setup" page.

- Check the license can be read using the "License key display/email" menu option 2

- Prepare your configuration file(s) or use the clone utility available from the "Service management - Update guests list" menu (see further).

- Create your vdisk files using the "mkdskcmd" command if needed.
  Example:

  ```
  # mkdskcmd -o /data/vms0_rz28.dsk -d rz28
  ```

- Use the "Service management - Update guests list" from the "Service management (Start, Stop, Manage automatic boot & shutdown)" menu option 6 to add your new emulator (guest)
  - First install the service, option "5 - Install or update service"
  - ℹ The network interface parameter file will be updated automatically. Offload parameters will be set offline at guest startup
  - Optionally, use option "3 - Enable/Disable start at server boot" to prevent the guest from starting automatically when the Linux server is booted

- Add the corresponding log file to the monitored guest logs list using the "Manage monitored guests logs" menu option 9
  - First install the service, option "5 - Install or update service"
  - Use option "1 - Update log files list". This will add automatically the log corresponding to the newly added guest

- Connect to the guest console using the "Connect to guest console" menu option 7 and install or restore the operating system (guest must be running)

- You can remove the USB dongle to verify the dongle removal is identified by the askusbd log monitor service:
  - if you did not disable the 'wall' alerts from the "Alerts management" menu option 12 then "4 - Enable/disable wall alert messages" , you should receive an immediate 'wall' message
  - if the mail has been correctly configured, you will receive an alert with subject: "[CHARON] License key disconnected"