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Version : 19A

Escape Light Platform

### **1. Introduction**

The Goal of this document is to describe the main steps of Escape Light Platform Installation. It will required to have good notions of Linux (Red Hat) installation and administration. Basic notions of database administration will be a most in a second time. Basic notion of VirtualBox Software also. Otherwise, it is mandatory to know the Bios password (if there is one) and the system password (root or Windows administrator according to the case).

#### BE CAREFUL:

This document describes the Escape Light Simulation platform installation under Virtual Machines; the software currently used is Oracle VirtualBox. Some package of this software is licensed and require the can to buy license according to usage: а https://www.virtualbox.org/wiki/Licensing\_FAQ . We will install only the following package: VirtualBox base package and VirtualBox Guest Additions. But for specific reason, you could need the VirtualBox Extended Pack which can require some fees. So please verify this point with your software department.

### 2. Platform

Infrastructure view:



- 4 virtual machines (VMs) are created on a physical machine.
- Physical hardware must be compliant with the performance required: 4 VMs means CPU, memory, disks. We recommend: core i7/16Go/500Go SSD
- Space disk required by the platform (4 x Virtual machines) is around 35 Go, so please verify you have around 50 Go available;
- Physical hardware must be compliant with the virtualization technology. BIOS parameters should be activated. For example on HP ZBook machine :
  - Virtualization Technology (VTx)
  - Virtualization Technology for Directed I/O (VTd)



Date : 26/06/2020

Version : 19A

Escape Light Platform

At least, some Windows installation policies like "Virtualization-based security" can disrupt VirtualBox usage. In this case, you need to verify this parameter is set to "Not Enabled". You find it via the "Local Group Policy Editor".

Another point is the "Windows Hypervisor Platform"; this parameter must be uncheck (off). You can find it via a "Search: <u>Turn Windows features on or off</u>"

Some software (like Antivirus), can also disrupt the VirtualBox usage.

#### Architecture view:



- The Ground server is also a NFS server to store Data simulation
- IPAS server use Oracle XE software and is in charge of the Data preparation
- The Pilot Working Position is also a Feed position



Version: 19A

Escape Light Platform

### 3. Platform installation

### 3.1 Repository

#### What you need?

- VirtualBox software for Windows 10, CentOS 6 and CentOS 7 (VirtualBox\_Software)
- Ground server, Ipas server, CWP, PWP VM image (EscapePltfVmImages)
- The documentation

### Where download that?



USB Stick

### EUROCONTROL FTP



### 3.2 Pre-installation → BIOS parameters

According to your machine model, the way to access to the BIOS parameters can be different (Esc, F8 or F10...).

In the "Advanced" parameters, please activate the virtualisation parameter(s). According to your model of machine, the name of this setting change. For HP ZBook machine: VT-x and VT-d

### 3.3 Installation

Case 1: you have a Windows 10 machine

- 1. Open a Windows session as administrator account
- 2. Plug the USB Stick or copy directories from FTP site (or Google Drive)
- 3. Open a file Explorer : 2 share drive are appearing (NTFS\_PKG and EscapeLight-19A); you just need to use EscapeLight-19A share
- 4. Select the directory VirtualBox (on the EscapeLight-19A share)
- 5. Install VirtualBox Software → execute VirtualBox-6.1.4-136177-Win.exe
- 6. Import the Virtual machines images:
  - a. Open "File" and "Import Appliance"
  - b. Select your image (From the EscapeLight-19A\EscapePltfVmImages directory): empgrd01-ACE19A-CentOS7u7.ova
  - c. Click on the "Next" Button
  - d. Indicate the folder of your future machine
  - e. About the "MAC Address Policy": select "Include all network adapter MAC addresses"
  - f. Validate via the button: Import

File name: Escape\_Light\_Pltf\_Installation-guide-v5-3.docx Page 3 of 10



Version : 19A

Escape Light Platform

Repeat this action (6) for all images:

- empipas01-ACE19A-CentOS7u7.ova
- empcwp01-ACE19A-CentOS7u7.ova
- emppilfeed01-ACE19A-CentOS7u7.ova

Case 2: you have a Linux machine (CentOS/RedHat)

- 1. Open a linux session as root account
- 2. Plug the USB Stick
- 3. The USB stick should be automatically mounted (otherwise please mount it; be careful: there are 2 devices to be mounted)
- 4. If only the NTFS\_PKG is mounted. That's means, you don't have still installed NTFS package to allow the Linux machine to mount NTFS Filesystem. So please install it:
  - a. On the NTFS\_PKG share, you will find NTFS rpm
  - b. In /media directory, execute : rpm –ivh ntfs-3g-2017.3.23.el<version>.x86\_64.rpm
    c. Reboot
  - Now, your machine should be able to mount the A19A-COS7U7share drive
- Install VirtualBox Software → execute: rpm –ivh /<mount point>/ A19A-COS7U7 /VirtualBox\_Software/VirtualBox-6.1-6.1.4-136177-el<6/7>-1.x86\_64.rpm → choose the version (6 or 7) corresponding to your OS!
- 6. Launch VirtualBox executing: ./usr/bin/virtualbox
- 7. Import the Virtual machines images:
  - a. Click on "File" and "Import Appliance"
  - Select your image for GRD server first (From the /media/ A19A-COS7U7\EscapePltfVmImages directory): empgrd01-ACE19A-CentOS7u7.ova
  - c. Click on the "Next" Button
  - d. Indicate the folder of your future machine (e.g. /data/VirtualBox)
  - e. About the "MAC Address Policy": select "Include all network adapter MAC addresses"
  - f. Validate via the button: Import

Repeat this action (6) for all images:

- empipas01-ACE19A-CentOS7u7.ova
- empcwp01-ACE19A-CentOS7u7.ova
- emppilfeed01-ACE19A-CentOS7u7.ova

### 4. Before starting Escape Supervision

Before launching Escape Supervision (after having launched the 3 VMs (empgrd01, empcwp01, emppil01)), you need to verify/adapt the displays/screens resolutions:

- empgrd01  $\rightarrow$  virtual screen 1 : 1920x1080
- empcwp01 → virtual screen 1 : 1920x1080
- emppil01 → virtual screen 1 : 1680x1050 and virtual screen 2 : 1920x1080

For emppil01, that's mandatory the virtual screen 2 resolution was bigger than the virtual screen 1 resolution.





Date : 26/06/2020

Version : 19A

Escape Light Platform

### 5. FAQ

#### Why I have a network error message during the first start?

This kind of message can appear when you start the VM for the first time:



That is due to the fact that the network interface name available on your machine is different from the one included in the image. You just need to adapt it:

- 1. Select the "Change Network Settings" button
- 2. Validate the proposition  $\rightarrow$  press the "OK" button

General	Network
System	Adapter 1         Adapter 2         Adapter 3         Adapter 4
Display	✓ Enable Network Adapter
Storage	Attached to: Bridged Adapter 💌
Þ Audio	Name: enp0s31f6
P Network	▶ A <u>d</u> vanced
Serial Ports	
ŷ USB	
Shared Folders	
User Interface	



Date : 26/06/2020

Version : 19A

Escape Light Platform

#### Why the VM doesn't want to start $\rightarrow$ Non-compliant settings: resource

In the case where you install the VMs provided by EUROCONTROL on a physical host with not enough resources (CPU, memory...), the virtual machines can just alert you about the fact the physical resources are not sufficient or the VM may simply not start. This kind of message can appear:



In this case, stop the machine if it has been started, open the setting (VirtualBox Menu): An alert message appears at the bottom of the window when your mouse is on the "Alert icon":

System	Basig Agranced Description Disk Encryption
5 Storage	Name empgr01.4CE194-Cent057u7
🕠 Audio	Type Unax 22
Network	<u>Version:</u> Unux 2.6/3.x/4.x (64-bit) ♥
Serial Po	//
Shared F	vidlers
1 User Inte	vrface
	System: Hotherboard page: Nore that 50% of the host computer's memory (3.79 GB) is assigned to the virtual machine. There might not be enough memory left for the host operating system. Please consider
	selecting a smaller amount.
	Invalid settings detected
em: Motherboard page: than 50% of the host computer's memory	(3.79 GB) is assigned to the virtual machine. There might not be enough memory left for the host operating system. Please consider
ting a smaller amount.	the second se

You just need to adapt the VM settings to your physical resources.

File name: Escape\_Light\_Pltf\_Installation-guide-v5-3.docx Page 6 of 10



Date : 26/06/2020

Version : 19A

Escape Light Platform

In the following example, you can see the memory allocation is superior to the mid of the global memory (orange zone). In this case, the machine can start without any change (just with warning).

If the memory would have been in the red zone, then the <u>VM couldn't start</u>!

		empgrd01-ACE19A-CentOS7u7 - Settings ×
	General	System
	System	Motherhoard Brosseser Acceleration
	Display	Base Memory:
$\mathbf{\Sigma}$	Storage	
Þ	Audio	Boot Order: D Paid Disk
₽	Network	Floppy Network
	Serial Ports	Chipset: PIIX3
Ø	USB	Pointing Davids: PS/2 Maura
	Shared Folders	Extended Eastures: 77 Easter 1/0 ABIC
	User Interface	Extended Features: In Enable FI (special OSes only)
		Hardware Clock in UTC Time
		Invalid settings detected

### Be careful: Escape requires a minimal hardware configuration to run correctly!



Date : 26/06/2020

Version: 19A

Escape Light Platform

Why my VM doesn't want to start?  $\rightarrow$  Non-compliant settings: USB3 Error

You shouldn't have this error:



But if there is, you just need to change the USB type selected on your VM settings.

- 1. Close this windows à click "OK"
- 2. Select the VM and open the settings You should have the following screenshot with the Warning icon: Invalid Settings, when your mouse is put on this icon, you can see the Warning message

•	General	
System Display Storage Audio Network Serial Ports	Basig     Advanced     Description     Disk Encryption       Name:     empgrd01-ACE19A-CentOS7u7 1       Type:     Linux       Version:     Linux 2.6 / 3.x / 4.x (64-bit)	•
USB Shared Folders User Interface	USB page: USB 2.0/3.0 is currently enabled for this virtual machine. However, this requires the <i>Or</i> <i>Virtual Rev Extension Pack</i> to be installed. Please install the Extension Pack from the Virt	<i>acle VM</i> ualBox
	download site or disable LISB 2.0/3.0 to be able to start the machine.	



Version : 19A

- Escape Light Platform
- 3. So, you need to select the USB menu and select USB 1.1 type instead of USB3.0 type.

empgroot-ACEISA-	cencorur i · seungs	1	
General	USB		
System	Enable USB Controller		
Display	USB 1.1 (OHCI) Controller		
Storage	USB 3.0 (XHCI) Controller		
Storage .	Coo Device Fitters		16
Audio			G
Network			4
Serial Ports			1
SB USB			2 12
Shared Folders			
User Interface			
		OK Cano	el

4. Click "OK" and start the VM

### How to change the Keyboard type?

According to your keyboard type, you may need to change the language of it. To do that:

- 1. Open a terminal
- 2. Execute the command (as root): system-config-keyboard



Version: 19A

Escape Light Platform

#### How to activate the second "screen" of emppil01?

Depending on the exercise, it can happen that emppil01 VM should have 2 screens (one for the Hybrid and one for the Pilot).

If your VM is not configured with 2 screens, you just need:

- to select the "View menu"
- And the Virtual Screen 2, you can "Enable" it;  $\rightarrow$  do it.

