

H3C G2 服务器 Windows/Linux/VMware 系统下 SSACLI 配置阵列

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一. 适用范围与注意事项

- 本文档旨在说明 H3C G2 系列服务器不同系统下使用 Smart Storage Administrator (SSA) CLI 工具配置阵列的方法，并以 R4800 G2 服务器为例进行配置步骤说明。
- 实际情况是否适用本文档，请通过下面导航链接进行确认：
<https://zhiliao.h3c.com/Theme/details/208527>
- 本文所述过程基于 HDM Advanced License，可在 HDM 的 Information -> Overview 下查看当前 License Type 是否为 HDM Advanced，若不是 HDM Advanced，则该主机将无法使用远程控

制台，本文中所涉及的 HDM 远程控制台部分可替换使用服务器外接显示器、键鼠与 U 盘。



➤ 提示：

本文档中的信息（包括产品，软件版本和设置参数）仅作参考示例，具体操作与目标需求设置请以实际为准。

本文档不定期更新维护，请以发布的最新版本为准。

二. 配置准备

1. 下载 Smart Storage Administrator (SSA) CLI 工具

- Windows 下载链接：[Smart Storage Administrator \(SSA\) CLI for Windows 64-bit for Gen9/Gen10/Gen10 Plus Controllers | HPE Support](#)
- Linux 下载链接：[64 位 Linux 版 Smart Storage Administrator \(SSA\) CLI | HPE Support](#)
- VMware 下载链接：
 - ESXi 6.5: [Smart Storage Administrator \(SSA\) CLI for VMware 6.5 | HPE Support](#)
 - ESXi 6.7: [Smart Storage Administrator \(SSA\) CLI for VMware 6.7 | HPE Support](#)
 - ESXi 7.0: [Smart Storage Administrator \(SSA\) CLI for ESXi 7.0 | HPE Support](#)

2. 连接 HDM 与启用远程控制台

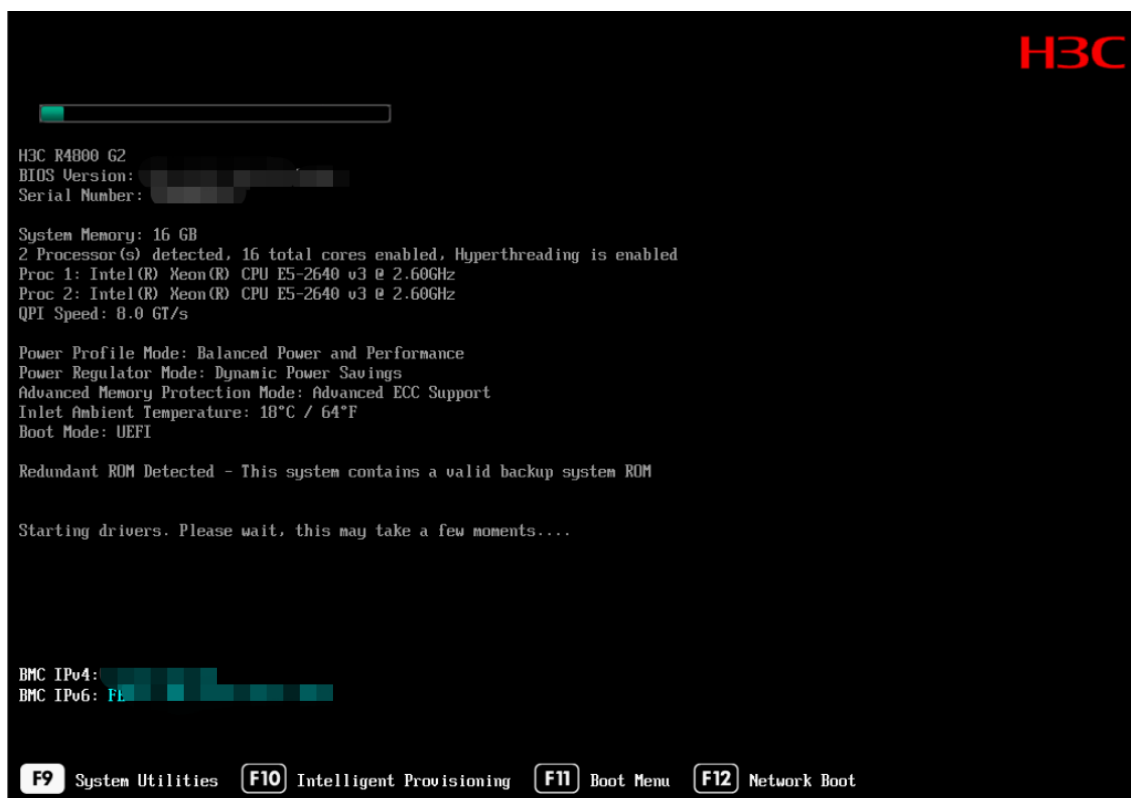
具体方法请参考：<https://zhiliao.h3c.com/Theme/details/216337>

三. 配置步骤

1. 进入 BIOS 开启板载阵列卡 RAID 功能，若非板载阵列卡可跳过该步骤，直接从第二部分访问系统开始。

注：B140i 系列阵列卡仅可在 Windows 系统下通过 SSACLI 配置阵列。

- 1) 重启服务器，自检界面按 **F9** 进入 BIOS。



2) 确认当前引导模式。

选择 System Configuration -> BIOS/Platform Configuration(RBSU) -> Boot Options, 确认当前启动模式为 UEFI, 若不是请修改成 UEFI 模式。

注: 此阵列卡 RAID 功能仅支持 UEFI 模式。

System Utilities

System Configuration

One-Time Boot Menu
Embedded Applications
System Information
System Health

Exit and resume system boot
Reboot the System

Select Language [English]

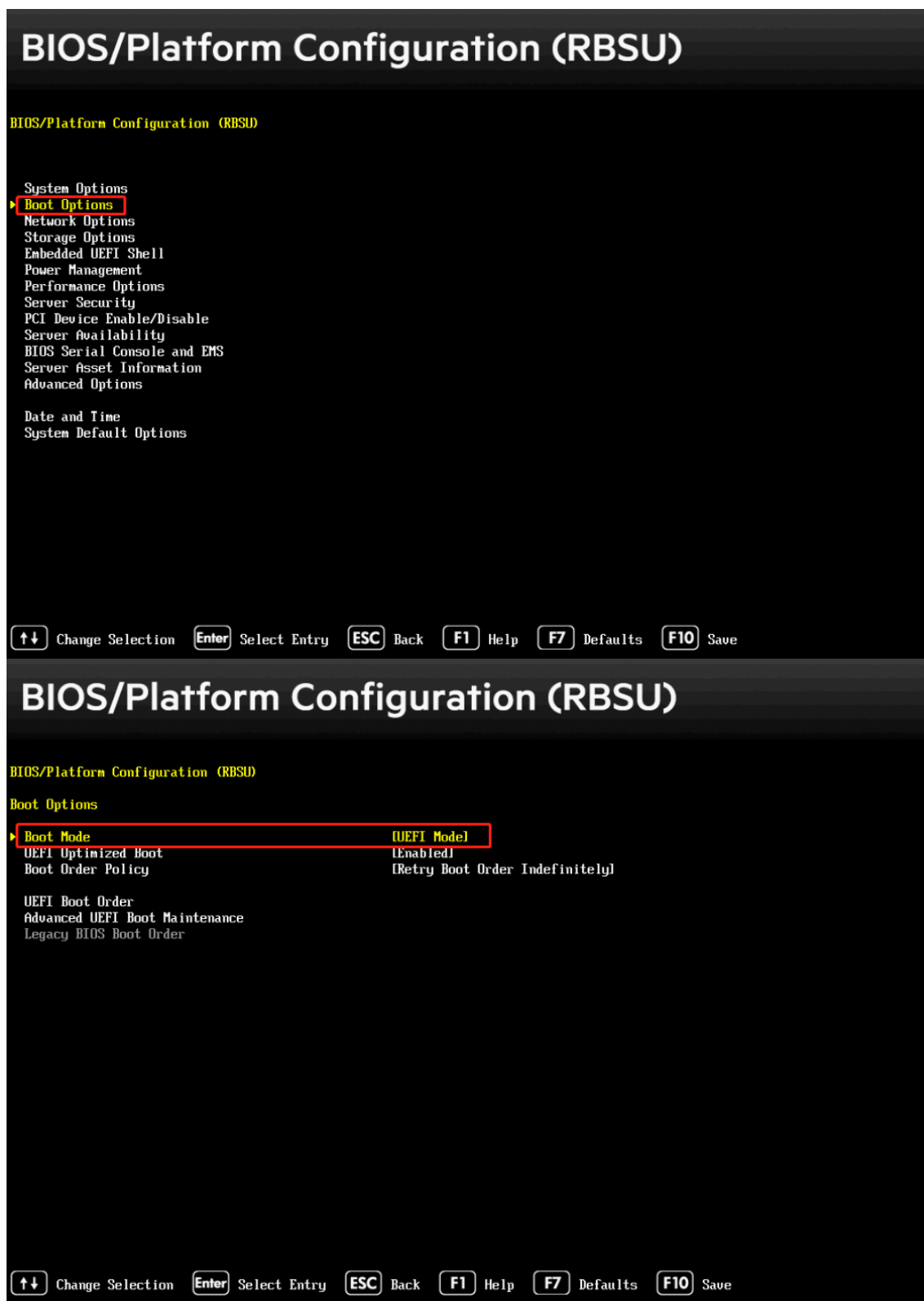
↑↓ Change Selection Enter Select Entry ESC Exit F1 Help F7 Defaults

System Configuration

BIOS/Platform Configuration (RBSU)

BMC Configuration Utility
Embedded LOM 1 Port 1 : HP Ethernet 1Gb 4-port 331i Adapter - NIC
Embedded LOM 1 Port 2 : HP Ethernet 1Gb 4-port 331i Adapter - NIC
Embedded LOM 1 Port 3 : HP Ethernet 1Gb 4-port 331i Adapter - NIC
Embedded LOM 1 Port 4 : HP Ethernet 1Gb 4-port 331i Adapter - NIC
Slot 3 : Smart Array P840 Controller

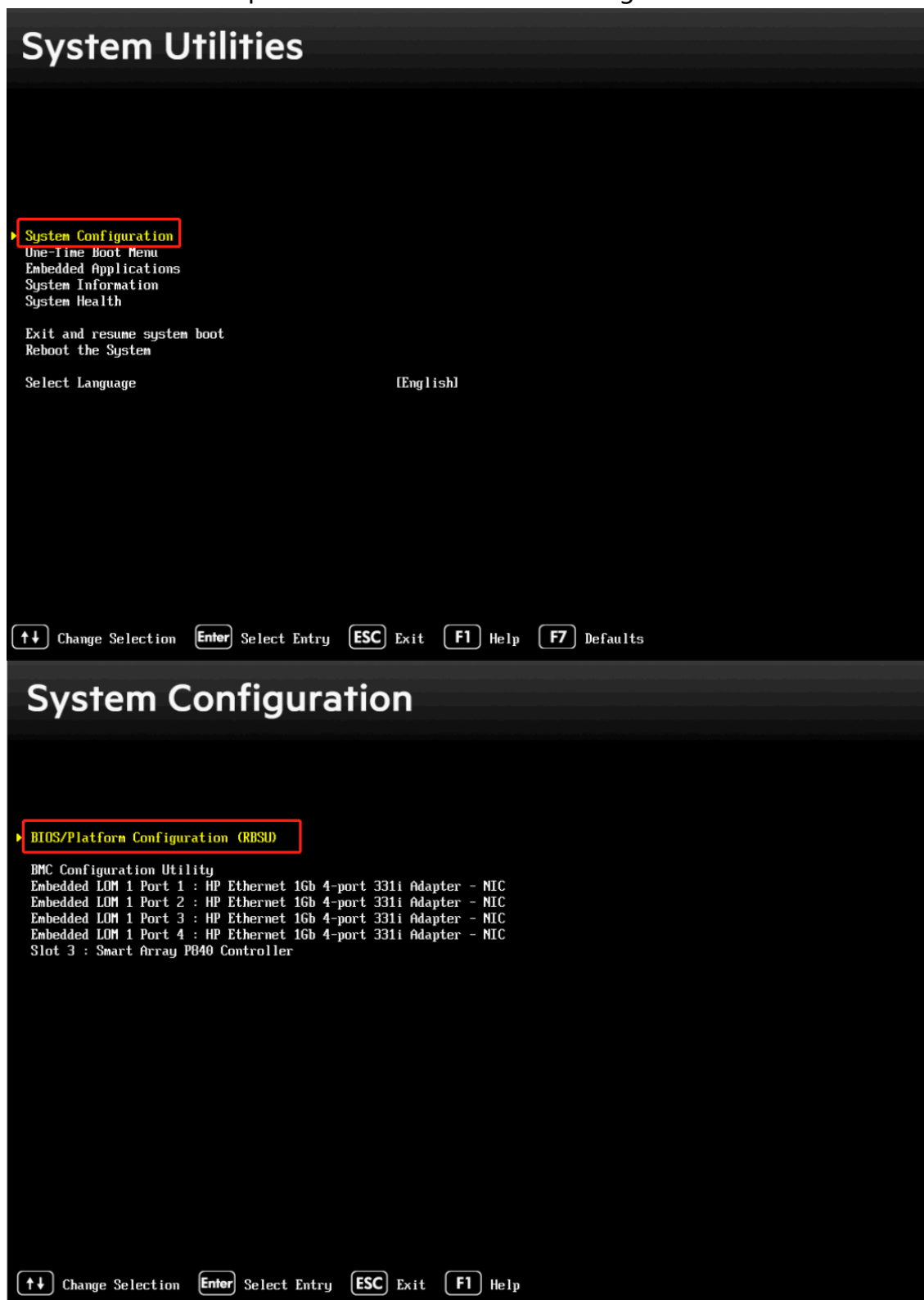
↑↓ Change Selection Enter Select Entry ESC Exit F1 Help



3) 开启 B140i 的阵列功能。

将板载 SATA 控制器的模式修改成 Dynamic Smart Array RAID Support, 按 “Y” 确认, 退出重启生效。

System Configuration -> BIOS/Platform Configuration (RBSU) -> System Options
-> SATA Controller Options -> Embedded SATA Configuration



BIOS/Platform Configuration (RBSU)

BIOS/Platform Configuration (RBSU)

System Options

- Boot Options
- Network Options
- Storage Options
- Embedded UEFI Shell
- Power Management
- Performance Options
- Server Security
- PCI Device Enable/Disable
- Server Availability
- BIOS Serial Console and EMS
- Server Asset Information
- Advanced Options

- Date and Time
- System Default Options

↑↓ Change Selection Enter Select Entry ESC Back F1 Help F7 Defaults F10 Save

BIOS/Platform Configuration (RBSU)

BIOS/Platform Configuration (RBSU)

System Options

- Serial Port Options
- USB Options
- Processor Options
- SATA Controller Options
- Virtualization Options
- Boot Time Optimizations
- Memory Operations

↑↓ Change Selection Enter Select Entry ESC Back F1 Help F7 Defaults F10 Save

BIOS/Platform Configuration (RBSU)

BIOS/Platform Configuration (RBSU)

System Options → SATA Controller Options

► Embedded SATA Configuration
SATA Secure Erase

[Enable SATA AHCI Support]
[Disabled]

Enable SATA AHCI Support
Enable Dynamic Smart Array RAID Support

↑↓ Change Selection Enter Select Entry ESC Back F1 Help F7 Defaults F10 Save

BIOS/Platform Configuration (RBSU)

BIOS/Platform Configuration (RBSU)

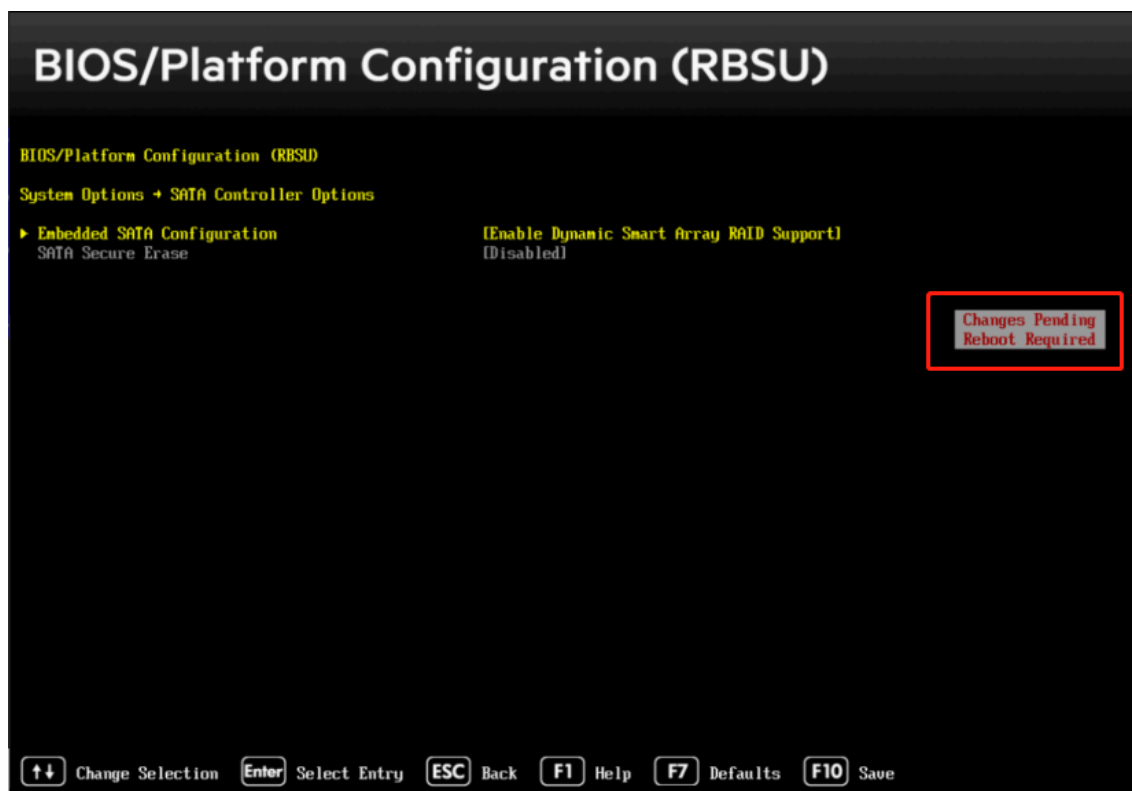
System Options → SATA Controller Options

► Embedded SATA Configuration
SATA Secure Erase

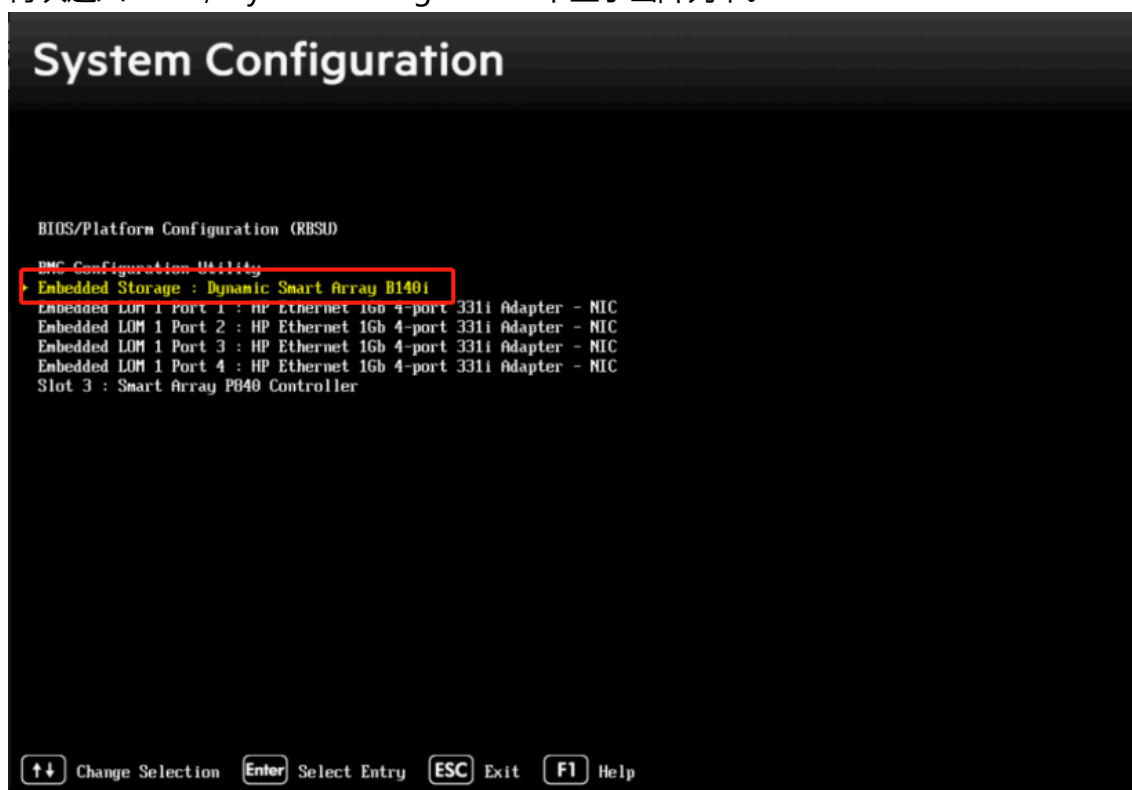
[Enable Dynamic Smart Array RAID Support]
[Disabled]

Changes are pending. Do you want to save changes and exit?
Press 'Y' to save and exit, 'N' to discard and exit,
'ESC' to cancel.

↑↓ Change Selection Enter Select Entry ESC Back F1 Help F7 Defaults F10 Save



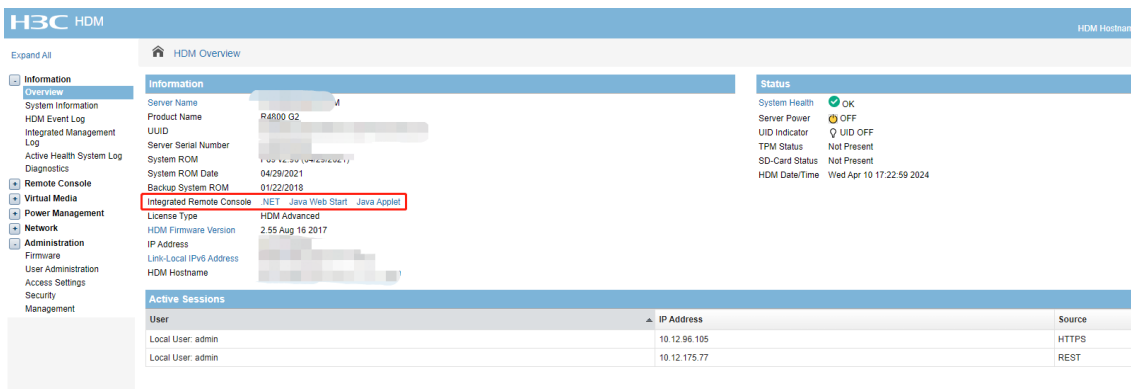
4) 再次进入 BIOS，System Configuration 下显示出阵列卡。



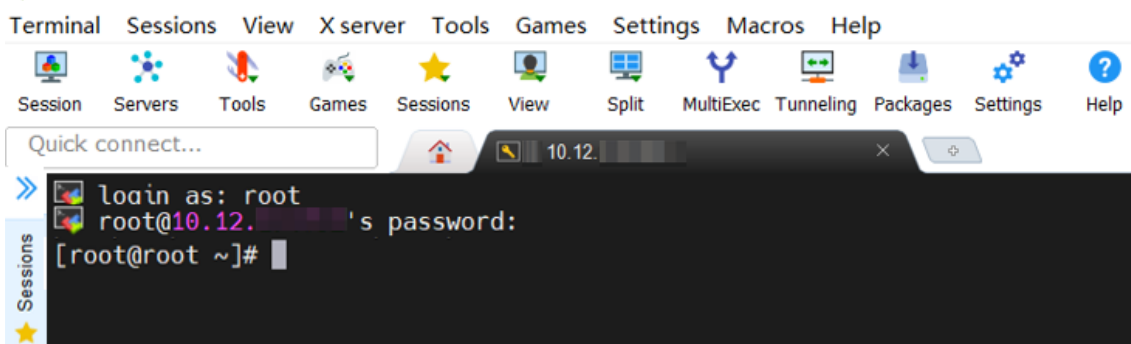
2. 访问系统

2.1 通过 HDM 启用远程控制台访问系统 (Windows Server, Linux, VMware ESXi)

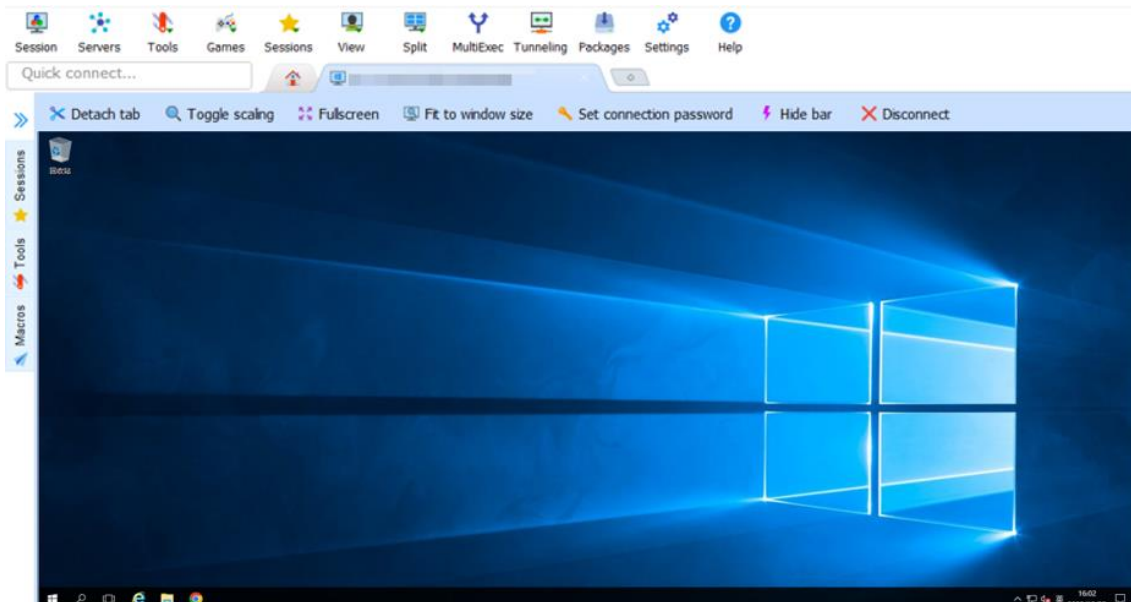
HDM 页面 Information -> Overview 的 Integrated Remote Console 选项，或页面左侧 Remote Console 导航可启用远程控制台。



2.2 通过第三方 SSH 工具访问系统 (Linux, VMware ESXi)



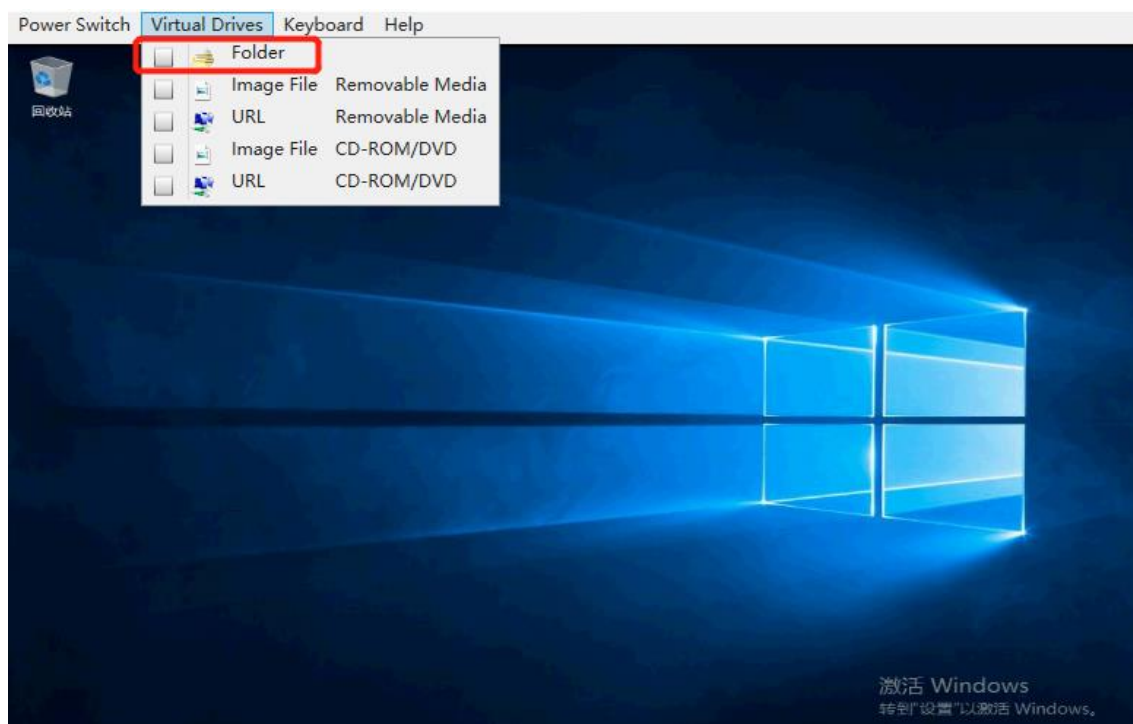
2.3 通过远程桌面或第三方 RDP 工具访问系统 (Windows Server)



3. 将 Smart Storage Administrator (SSA) CLI 工具保存到系统下

3.1 Windows Server

3.1.1 通过 HDM 启用远程控制台将工具挂载到系统下

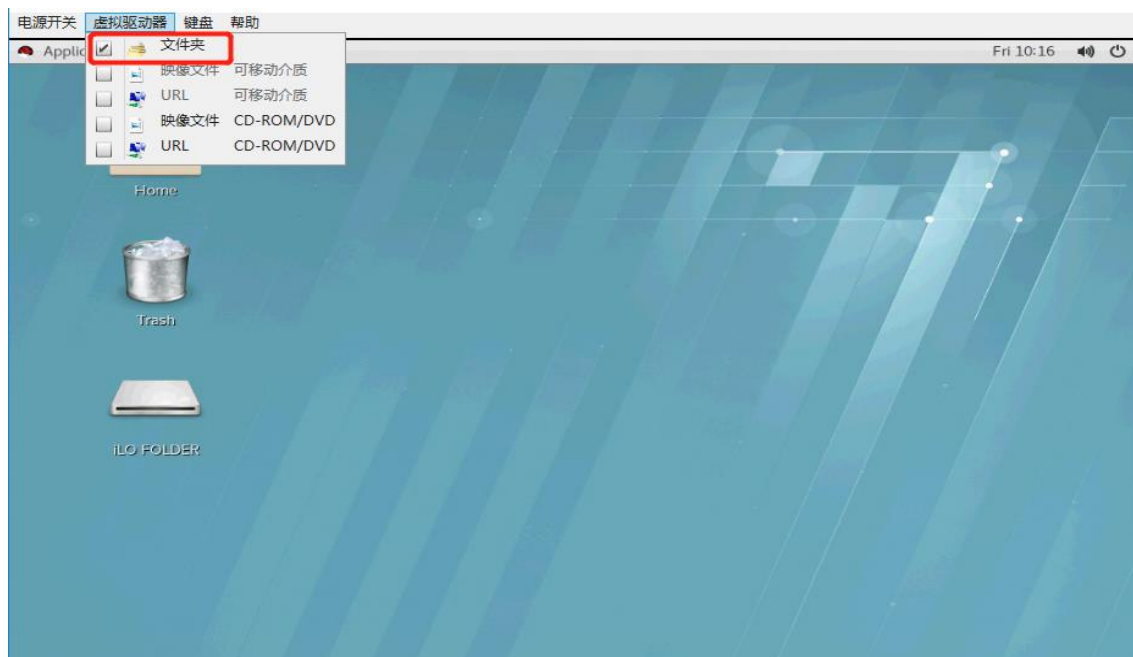


3.1.2 通过 U 盘将文件挂载到系统下

U 盘接入服务器后，在系统下直接访问挂载点。

3.2 Linux

3.2.1 通过 HDM 启用远程控制台将工具挂载到系统下



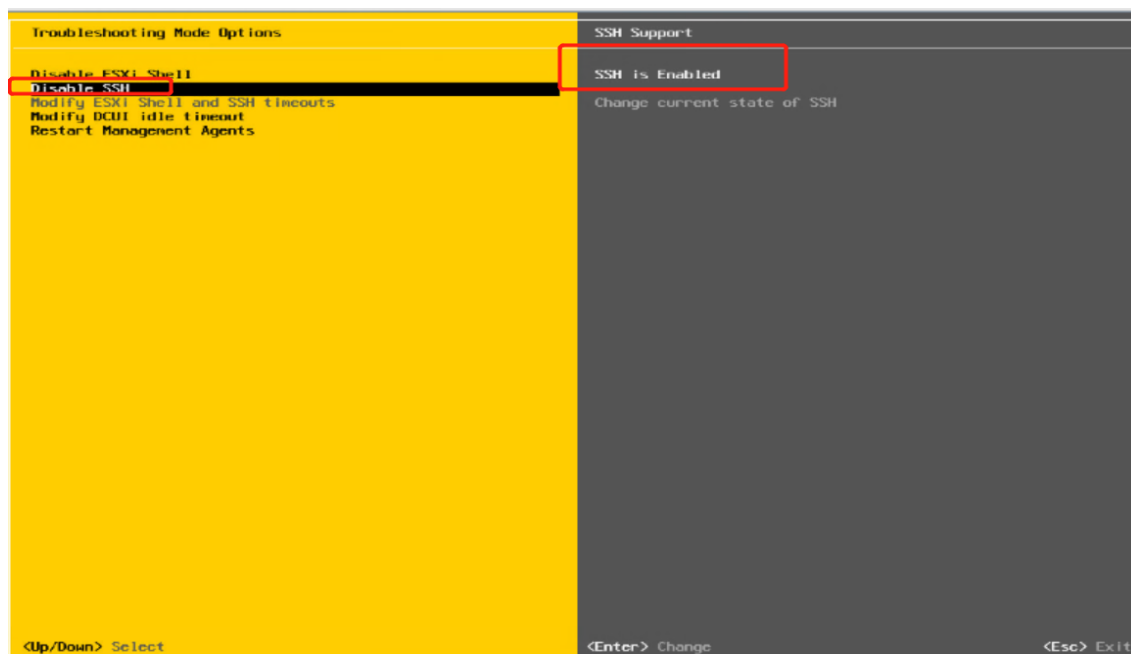
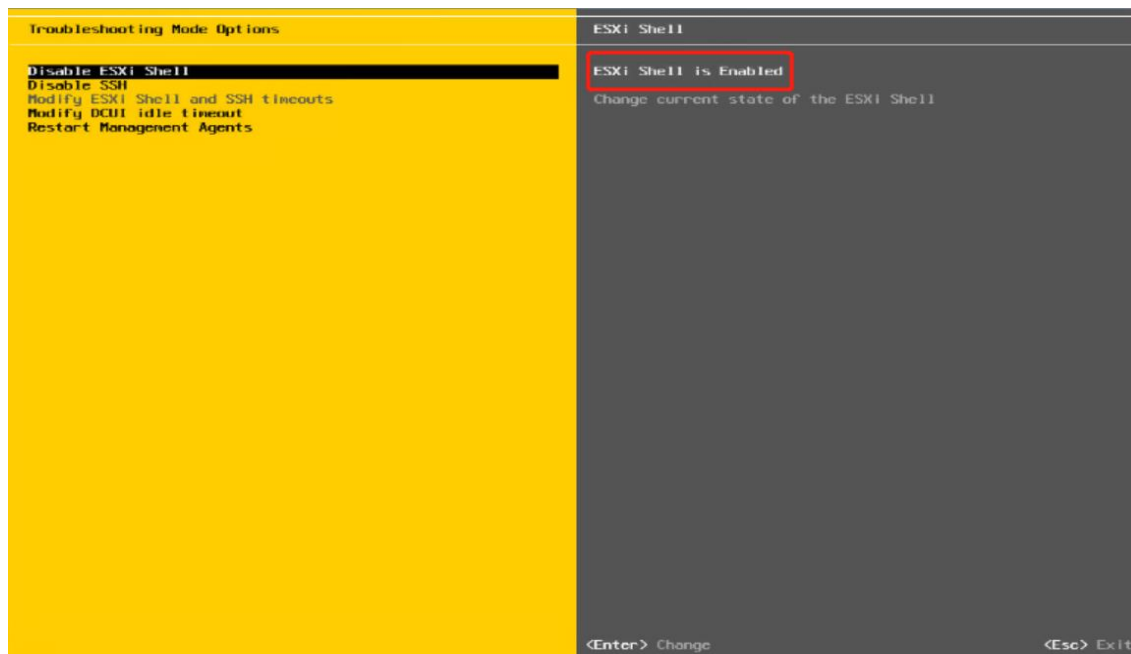
3.2.2 通过 U 盘将文件挂载到系统下

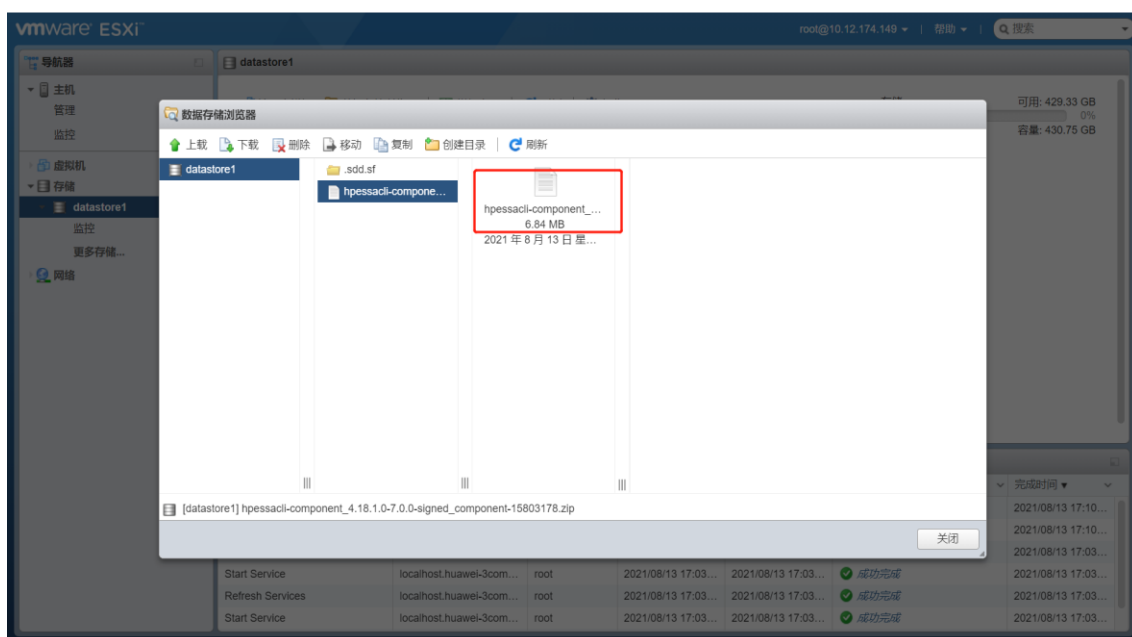
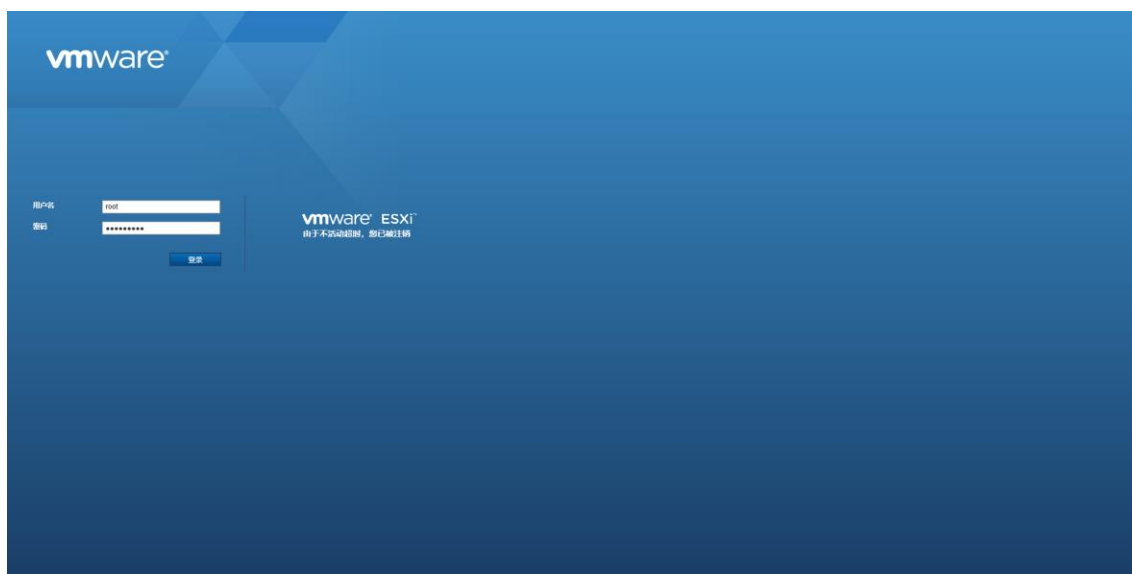
U 盘接入服务器后，在系统下通过 mount 命令挂载。

3.2.3 通过第三方 SSH 工具将文件保存到系统下，参考第三方工具使用说明。

3.3 VMware ESXi

3.3.1 启用 Shell 并通过 Web Client 将文件保存到系统下



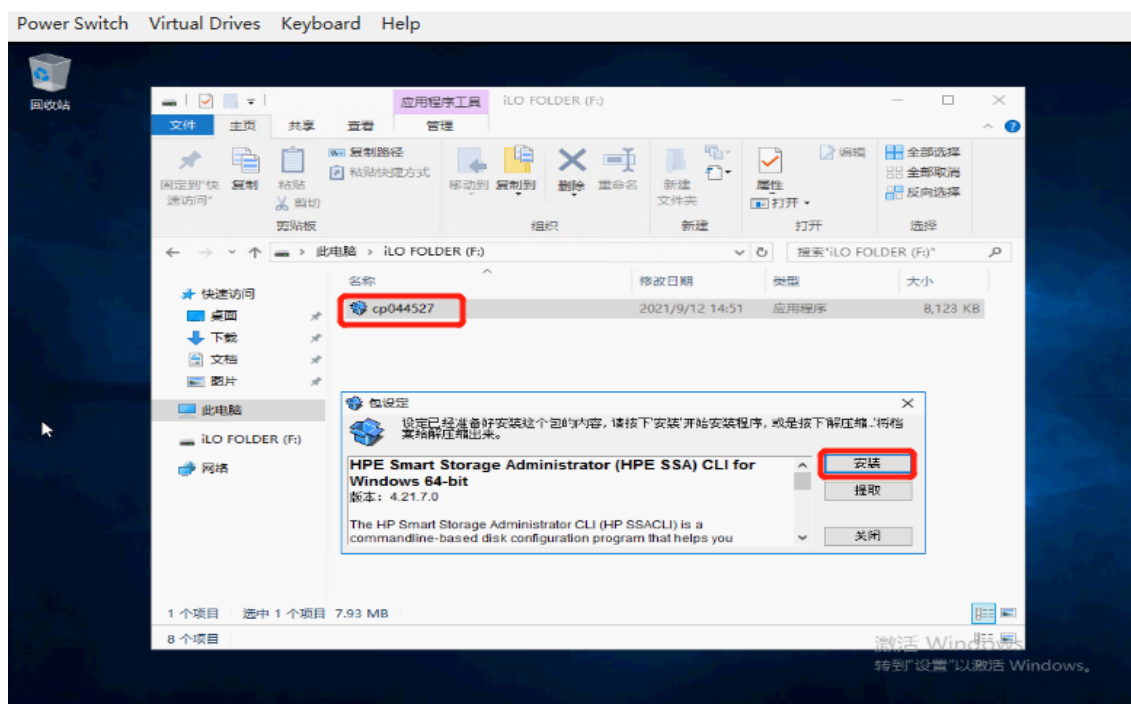


3.3.2 通过第三方 SSH 工具将文件保存到系统下 参考第三方工具使用说明。

4. 安装 Smart Storage Administrator (SSA) CLI

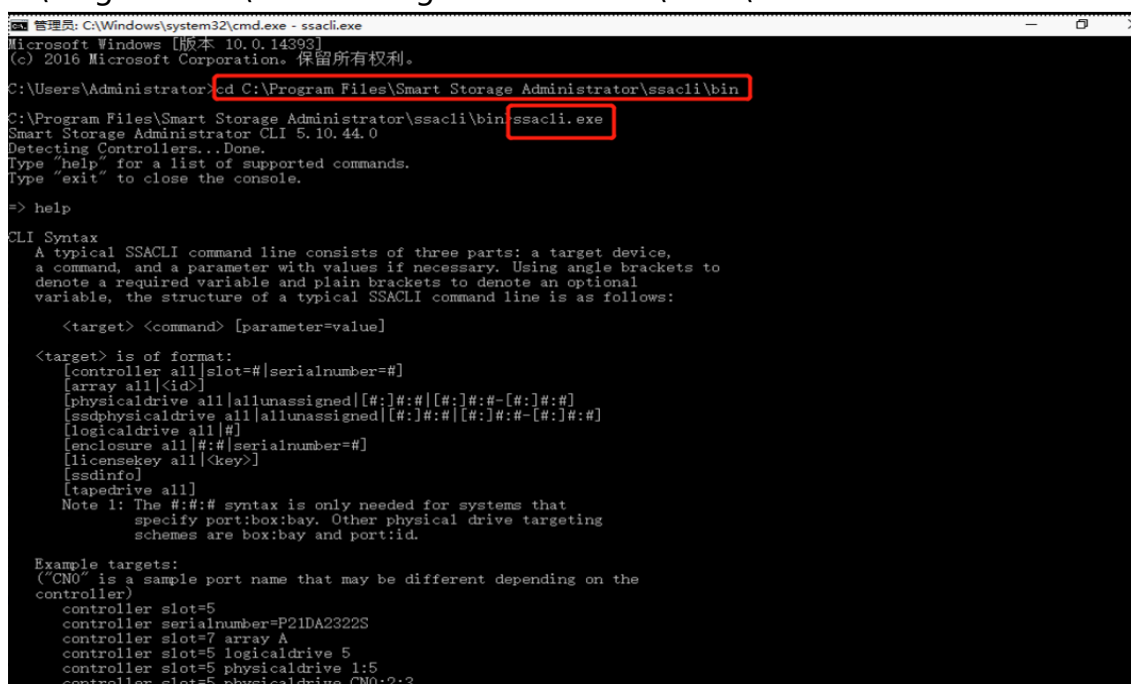
4.1 Windows Server

1) 双击开始安装 SSACLI 工具。



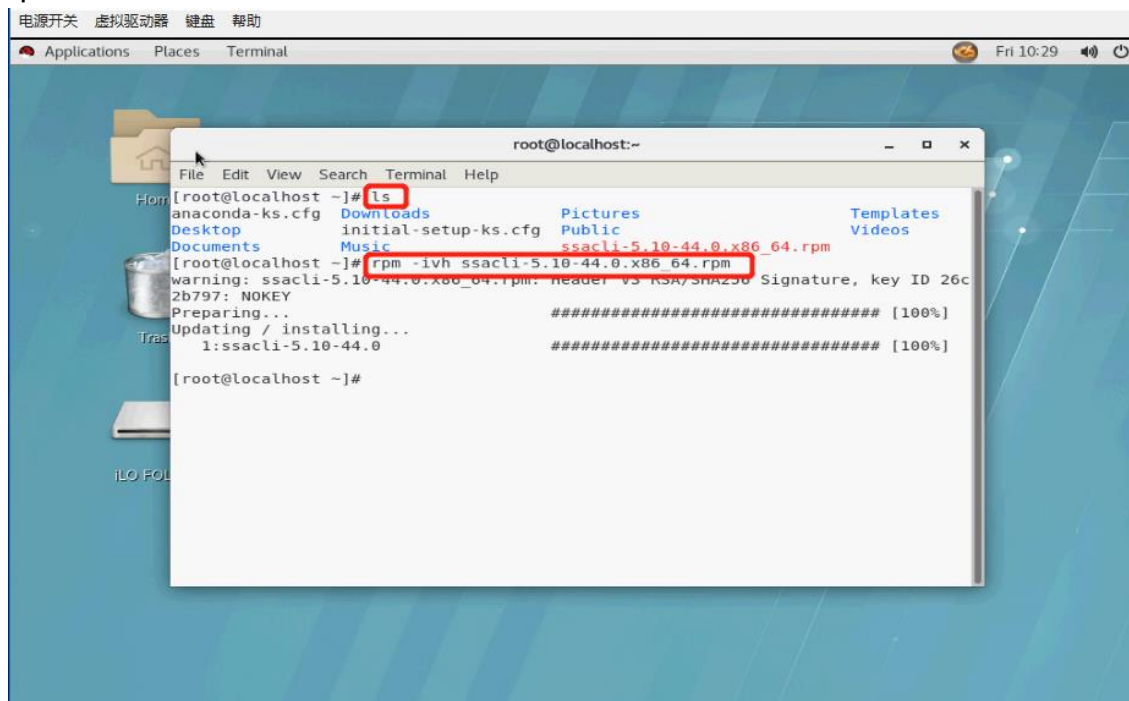
2) 进入到默认安装路径，打开 Smart Storage Administrator CLI 工具。

C:\Program Files\Smart Storage Administrator\ssaccli\bin



4.2 Linux

1) rpm -ivh 安装 ssaccli 工具。



2) 输入 ssaccli 启动。

```

[root@localhost ~]# ssaccli
Smart Storage Administrator CLI 4.21.7.0
Detecting Controllers...Done.
Type "help" for a list of supported commands.
Type "exit" to close the console.

=>
  
```

4.3 VMware ESXi

1) esxcli software vib install -v [软件包所在的绝对路径] [.vib 文件名] 进行安装。

```

[root@localhost:~] uname -a
VMkernel localhost.huawei-3com.com 6.5.0 #1 SMP Release build-13932383 Jun  7 2019 21:08:10 x86_64 x86_64 x86_64 ESXi
[root@localhost:~] ls
HPE_bootbank_hpsaccli-4.21.7.0-6.5.0.4240417.hpe-4.vib  productLocker
altbootbank                                             sbin
bin                                                     scratch
bootbank                                               store
bootpart.gz                                           tardisks
dev                                                    tardisks.noauto
etc                                                    tmp
lib                                                    usr
lib64                                                  var
locker                                                 vmfs
mbr                                                    vmimages
opt                                                    vmupgrade
proc

[root@localhost:~] esxcli software vib install -v /HPE_bootbank_hpsaccli-4.21.7.0-6.5.0.4240417.hpe-4.vib
Installation Result
Message: The update completed successfully, but the system needs to be rebooted for the changes to be effective.
Reboot Required: true
VIBs Installed: HPE_bootbank_hpsaccli_4.21.7.0-6.5.0.4240417.hpe
VIBs Removed:
VIBs Skipped:
[root@localhost:~]
  
```

2) 进入默认安装路径下。

```

[root@localhost:~] cd /opt/smartstorageadmin/ssaccli/bin
[root@localhost:/opt/smartstorageadmin/ssaccli/bin]
  
```

5. 获取阵列卡编号、逻辑盘编号和物理盘编号（系统命令通用）

1) ctrl alt show status 查看阵列卡编号槽位。

Windows/Linux

```
=> ctrl slot=0 ld all show
HPE Smart Array [REDACTED] in Slot 0 (Embedded)
Array A
    logicaldrive 1 (1.09 TB, RAID 0, OK)
```

VMware

```
[root@localhost:/opt/smartstorageadmin/ssaccli/bin] ./ssaccli ctrl all show status
HPE Smart Array [REDACTED] in Slot 0 (Embedded)
Controller Status: OK
Cache Status: OK
Battery/Capacitor Status: OK
```

- 2) ctrl slot=0 ld all show 查看逻辑盘编号。

```
=> ctrl slot=0 ld all show
HPE Smart Array [REDACTED] in Slot 0 (Embedded)
Array A
    logicaldrive 1 (1.09 TB, RAID 0, OK)
```

- 3) ctrl slot=0 pd all show 查看物理盘编号。

```
=> ctrl slot=0 pd all show
HPE Smart Array [REDACTED] in Slot 0 (Embedded)
Array A
    physicaldrive 1I:3:1 (port 1I:box 3:bay 1, SAS HDD, 1.2 TB, OK)
Unassigned
    physicaldrive 1I:3:2 (port 1I:box 3:bay 2, SAS HDD, 1.2 TB, OK)
    physicaldrive 1I:3:3 (port 1I:box 3:bay 3, SAS HDD, 1.2 TB, OK)
    physicaldrive 1I:3:4 (port 1I:box 3:bay 4, SAS HDD, 1.2 TB, OK)
```

6. 创建与删除阵列

6.1 创建阵列

- 1) 例如用 1I:3:2 这块盘创建阵列 B，阵列级别为 raid0。

ctrl slot=0 create type=ld drives=1I:3:2 raid=0

```
=> ctrl slot=0 create type=ld drives=1I:3:2 raid=0
Warning: One or more selected drives are currently exposed to the OS. This
action will cause the physical drive(s) to be removed from the
operating system. Continue? (y/n)y
```

- 2) 创建成功。

```
=> ctrl slot=0 pd all show
HPE Smart Array [REDACTED] in Slot 0 (Embedded)
Array A
    physicaldrive 1I:3:1 (port 1I:box 3:bay 1, SAS HDD, 1.2 TB, OK)
Array B
    physicaldrive 1I:3:2 (port 1I:box 3:bay 2, SAS HDD, 1.2 TB, OK)
Unassigned
    physicaldrive 1I:3:3 (port 1I:box 3:bay 3, SAS HDD, 1.2 TB, OK)
    physicaldrive 1I:3:4 (port 1I:box 3:bay 4, SAS HDD, 1.2 TB, OK)
=>
```

6.2 删除阵列

ctrl slot=0 array B delete forced 删除阵列 B。

```
=> ctrl slot=0 array B delete forced
Warning: Deleting an array can cause other array letters to become renamed.
        E.g. Deleting array A from arrays A,B,C will result in two remaining
        arrays A,B ... not B,C
=> ctrl slot=0 pd all show
HPE Smart Array [REDACTED] in Slot 0 (Embedded)

Array A

    physicaldrive 1I:3:1 (port 1I:box 3:bay 1, SAS HDD, 1.2 TB, OK)

Unassigned

    physicaldrive 1I:3:2 (port 1I:box 3:bay 2, SAS HDD, 1.2 TB, OK)
    physicaldrive 1I:3:3 (port 1I:box 3:bay 3, SAS HDD, 1.2 TB, OK)
    physicaldrive 1I:3:4 (port 1I:box 3:bay 4, SAS HDD, 1.2 TB, OK)
```

7. 创建与删除热备

两种模式热备盘区别：

Dedicated (专用)：在更换发生故障的数据驱动器时，必须使用备用驱动器上的数据进行重建。在专用模式下，一个备用驱动器可以专用于多个阵列。

Auto-Replace Drives (自动更换驱动器)：发生故障的数据驱动器的备用驱动器自动变为更换数据驱动器。当更换备用驱动器时，数据驱动器不需要重建。在自动更换模式下，备用驱动器无法在阵列之间共享。

7.1 创建热备

7.1.1 创建 dedicated 专用热备。

ctrl slot=0 array B add spares=1I:3:4 sparetype=dedicated

```
=> ctrl slot=0 array B add Spares=1I:3:4 sparetype=dedicated
=> ctrl slot=0 ld all show
HPE Smart Array [REDACTED], Slot 0 (Embedded)

Array A

    logicaldrive 1 (1.09 TB, RAID 0, OK)

Array B

    logicaldrive 2 (1.09 TB, RAID 1, OK)

=> ctrl slot=0 pd all show
HPE Smart Array P816i-a SR Gen10 in Slot 0 (Embedded)

Array A

    physicaldrive 1I:3:1 (port 1I:box 3:bay 1, SAS HDD, 1.2 TB, OK)

Array B

    physicaldrive 1I:3:2 (port 1I:box 3:bay 2, SAS HDD, 1.2 TB, OK)
    physicaldrive 1I:3:3 (port 1I:box 3:bay 3, SAS HDD, 1.2 TB, OK)
    physicaldrive 1I:3:4 (port 1I:box 3:bay 4, SAS HDD, 1.2 TB, OK, spare)
```

7.1.2 创建 auto-replace 自动替换热备。

ctrl slot=0 array B add spares=1I:3:4 sparetype=auto-replace

```
=> ctrl slot=0 array B add Spares=1I:3:4 sparetype=auto-replace
Error: Available options are:
        dedicated
        autoreplace

=> ctrl slot=0 array B add Spares=1I:3:4 sparetype=autoreplace
Warning: Any existing spare drives of a different spare type will be removed.
Continue? (y/n)y

=> ctrl slot=0 pd all show

HPE Smart Array [REDACTED] Slot 0 (Embedded)

  Array A

    physicaldrive 1I:3:1 (port 1I:box 3:bay 1, SAS HDD, 1.2 TB, OK)

  Array B

    physicaldrive 1I:3:2 (port 1I:box 3:bay 2, SAS HDD, 1.2 TB, OK)
    physicaldrive 1I:3:3 (port 1I:box 3:bay 3, SAS HDD, 1.2 TB, OK)
    physicaldrive 1I:3:4 (port 1I:box 3:bay 4, SAS HDD, 1.2 TB, OK, auto replace spare)
```

7.2 删除热备。

ctrl slot=0 array B remove spares=1I:3:4 删除阵列 B 的热备盘。

```
=> ctrl slot=0 array B remove spares=1I:3:4
=> ctrl slot=0 pd all show

HPE Smart Array [REDACTED] in Slot 0 (Embedded)

  Array A

    physicaldrive 1I:3:1 (port 1I:box 3:bay 1, SAS HDD, 1.2 TB, OK)

  Array B

    physicaldrive 1I:3:2 (port 1I:box 3:bay 2, SAS HDD, 1.2 TB, OK)
    physicaldrive 1I:3:3 (port 1I:box 3:bay 3, SAS HDD, 1.2 TB, OK)

  Unassigned

    physicaldrive 1I:3:4 (port 1I:box 3:bay 4, SAS HDD, 1.2 TB, OK)
```