

# Ovation的总线卡初始化固件补遗

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## 1 前言

Ovation新的FF/DP/VP/ELC等卡件使用了相同的ARM9主板，有时候我们希望将这些卡件恢复到出厂状态，就需要将卡件的固件初始化，具体步骤可以参考KBA957，目前版本为R3。本文主要补充一些注意事项，并附上过程的截图，以供参考。

## 2 器材准备

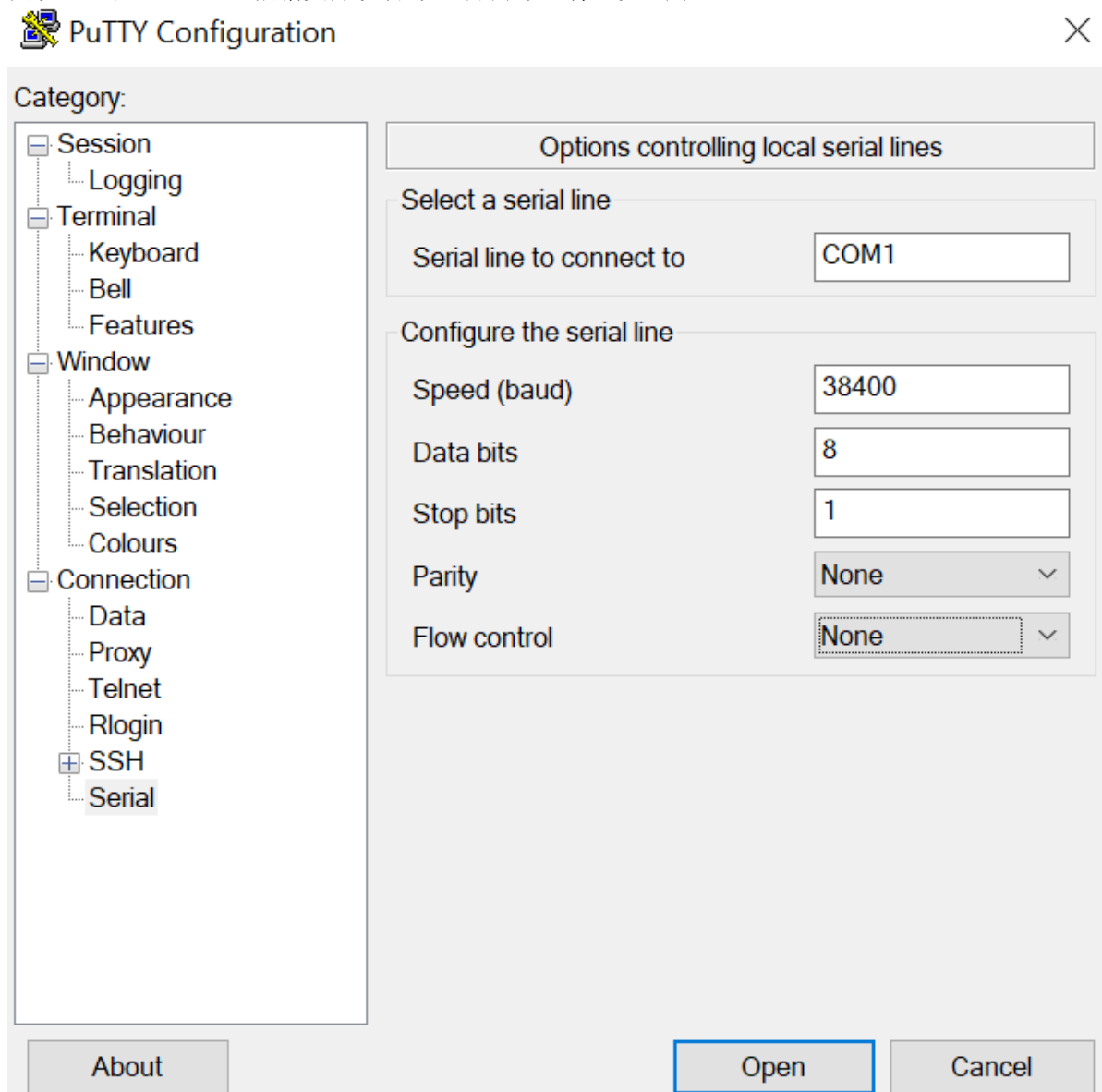
需要一台电脑，安装FTP服务器软件，KBA957推荐使用FileZilla FTP Server或者Cerberus FTP Server。如果是Windows 10，需要关闭防火墙或者将FTP的21端口加入许可列表。安装配置完成后，将网卡IP地址设置为192.168.254.3，KBA957上给出的地址是192.9.200.200，KBA也说明IP地址是可以随意修改的，不过由于目前遇到的卡件大多默认设置的IP地址为192.168.254.1，且指向192.168.254.3，所以将电脑的网卡地址设置为192.168.254.3更方便。FTP服务器的访问账户和密码均设置为csb。

接下来将KBA957中KBA957-ELC-BUS-Repair.zip文件解压缩，将子目录ftproot/ELC下的内容拷贝到FTP服务器根目录中，FTP服务器设置具体参考KBA957。配置完成后，测试一下FTP服务是否可以正常使用。再找一台电脑，配置IP为192.168.254.1，连接FTP服务器电脑后，使用FTP客户端或者直接使用浏览器访问ftp://192.168.254.1，看是否能访问到固件文件。

接下来就是使用专用串口线连接卡件（卡件需要开盖）；同时将网线连接到卡件网口，这里需要注意，由于现在很多笔记本电脑不再配置网口，需要使用外接USB网卡，部分外接USB网卡不兼容Ovation卡件的网口，判断方法就是电脑连接卡件网口后，卡件上电后网口指示灯闪烁，即可以正常使用，否则需要更换其他USB网卡。

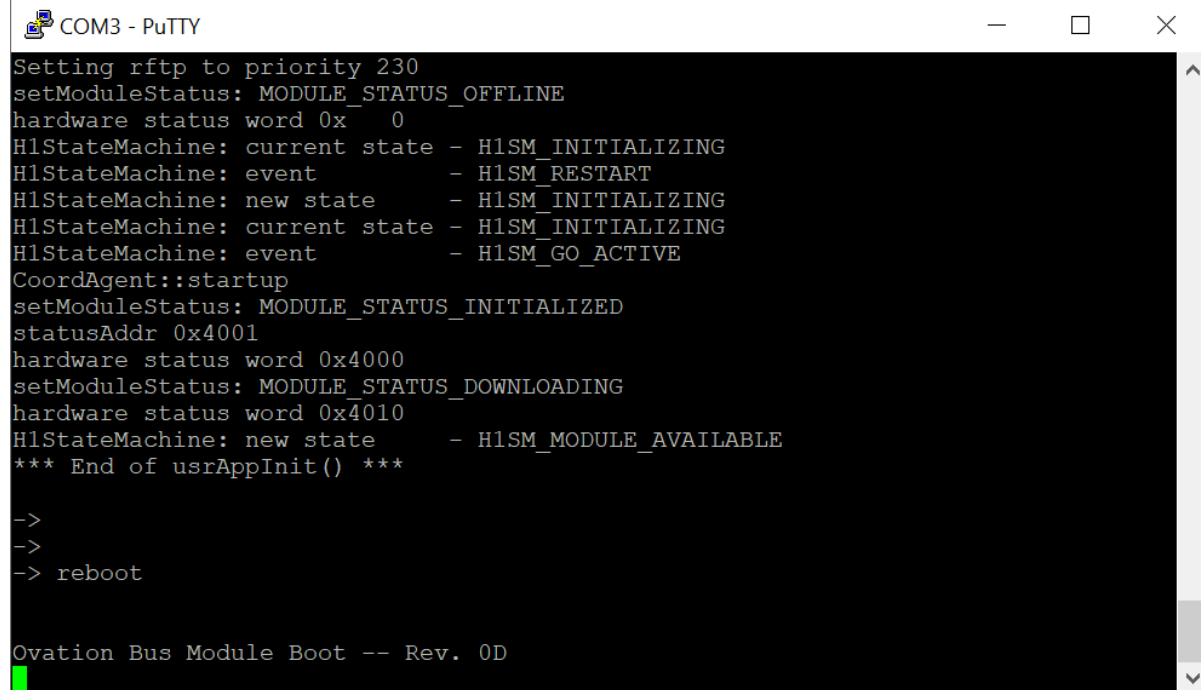
### 3 初始化固件的步骤

接下来就要使用终端软件连接卡件了，这里我们使用putty软件，putty软件可以在putty.org官网下载。当然也可以使用HyperTerminal之类的其他软件。putty软件按照下图设置，注意COM口根据实际设备号正确填写，端口设置为38400-8-N-1：



连上后，如果卡件已经在启动过程中，会出现很多信息，并直到显示提示符->，我们可以输入reboot命令直接重启卡件，等待'Ovation Bus Module Boot – Rev. 0D'的信息出现，提示如

下图所示:

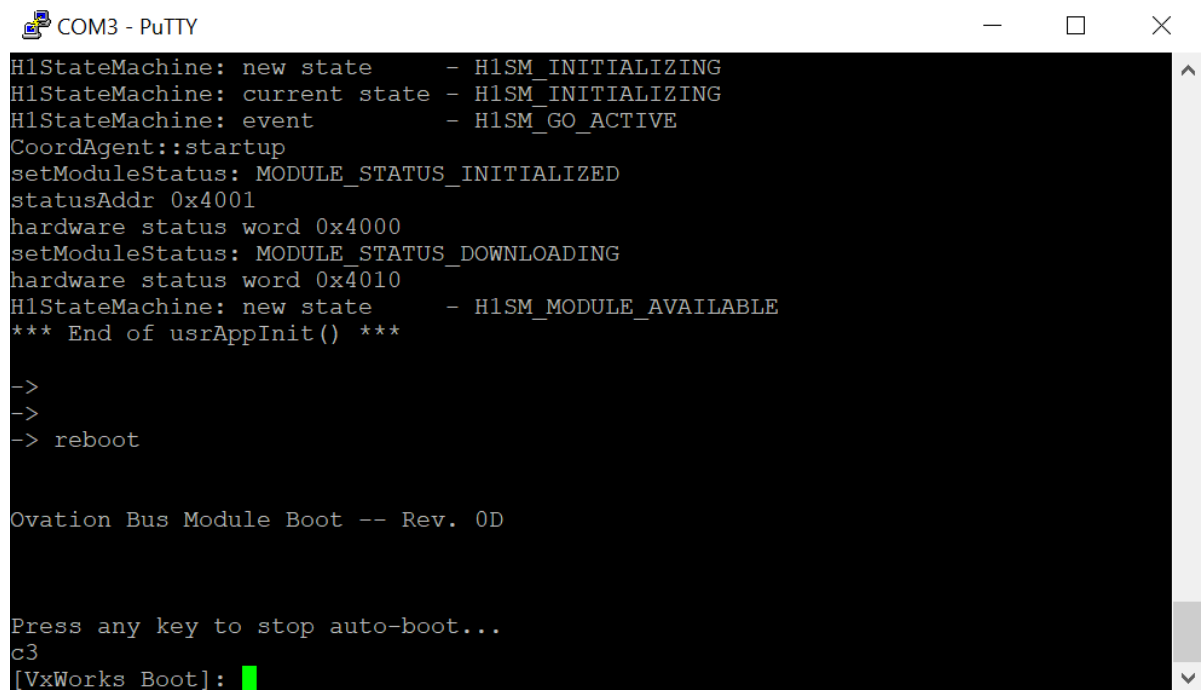


```
COM3 - PuTTY
Setting rftp to priority 230
setModuleStatus: MODULE_STATUS_OFFLINE
hardware status word 0x  0
HlStateMachine: current state - HlSM_INITIALIZING
HlStateMachine: event       - HlSM_RESTART
HlStateMachine: new state    - HlSM_INITIALIZING
HlStateMachine: current state - HlSM_INITIALIZING
HlStateMachine: event       - HlSM_GO_ACTIVE
CoordAgent::startup
setModuleStatus: MODULE_STATUS_INITIALIZED
statusAddr 0x4001
hardware status word 0x4000
setModuleStatus: MODULE_STATUS_DOWNLOADING
hardware status word 0x4010
HlStateMachine: new state    - HlSM_MODULE_AVAILABLE
*** End of usrAppInit() ***

->
->
-> reboot

Ovation Bus Module Boot -- Rev. 0D
```

接下来，马上会出来'Press any key to stop auto-boot'信息，这时按任意键停止启动过程，否则就要等到再次出现提示符->后再reboot了。启动过程停止后，会出现提示信息[VxWorks Boot]:



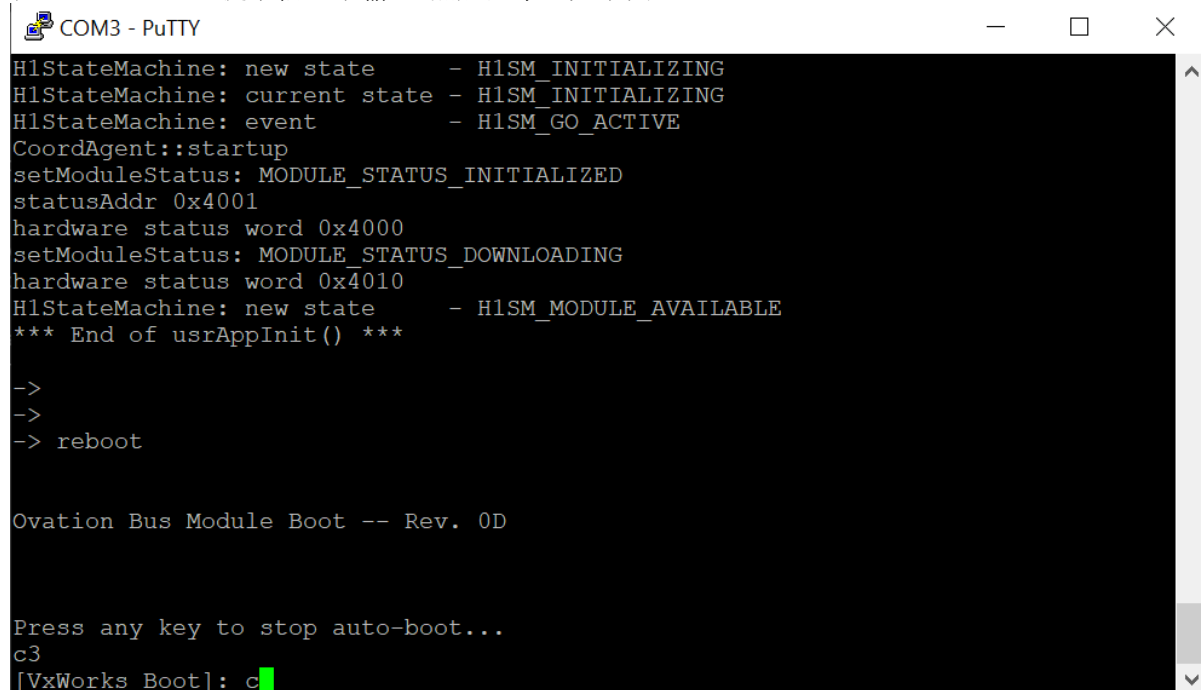
```
COM3 - PuTTY
H1StateMachine: new state      - H1SM_INITIALIZING
H1StateMachine: current state - H1SM_INITIALIZING
H1StateMachine: event         - H1SM_GO_ACTIVE
CoordAgent::startup
setModuleStatus: MODULE_STATUS_INITIALIZED
statusAddr 0x4001
hardware status word 0x4000
setModuleStatus: MODULE_STATUS_DOWNLOADING
hardware status word 0x4010
H1StateMachine: new state      - H1SM_MODULE_AVAILABLE
*** End of usrAppInit() ***

->
->
-> reboot

Ovation Bus Module Boot -- Rev. 0D

Press any key to stop auto-boot...
c3
[VxWorks Boot]:
```

在VxWorks Boot提示信息下输入c然后回车，如下图：



```
COM3 - PuTTY
H1StateMachine: new state      - H1SM_INITIALIZING
H1StateMachine: current state - H1SM_INITIALIZING
H1StateMachine: event         - H1SM_GO_ACTIVE
CoordAgent::startup
setModuleStatus: MODULE_STATUS_INITIALIZED
statusAddr 0x4001
hardware status word 0x4000
setModuleStatus: MODULE_STATUS_DOWNLOADING
hardware status word 0x4010
H1StateMachine: new state      - H1SM_MODULE_AVAILABLE
*** End of usrAppInit() ***

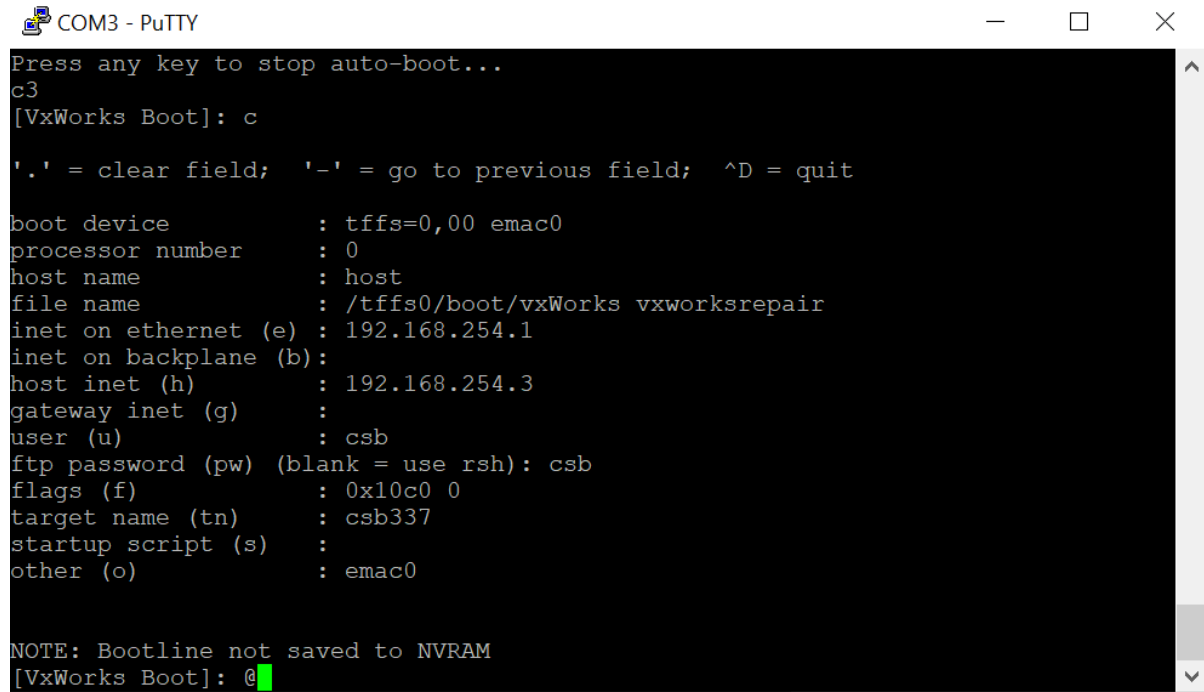
->
->
-> reboot

Ovation Bus Module Boot -- Rev. 0D

Press any key to stop auto-boot...
c3
[VxWorks Boot]: c
```

这样会进入卡件引导配置界面，如下图所示修改配置，不需要修改的配置直接回车，全部配

置完成后会回到[VxWors Boot]:提示信息，然后输入@ 回车，让卡件按照新的配置重新引导：



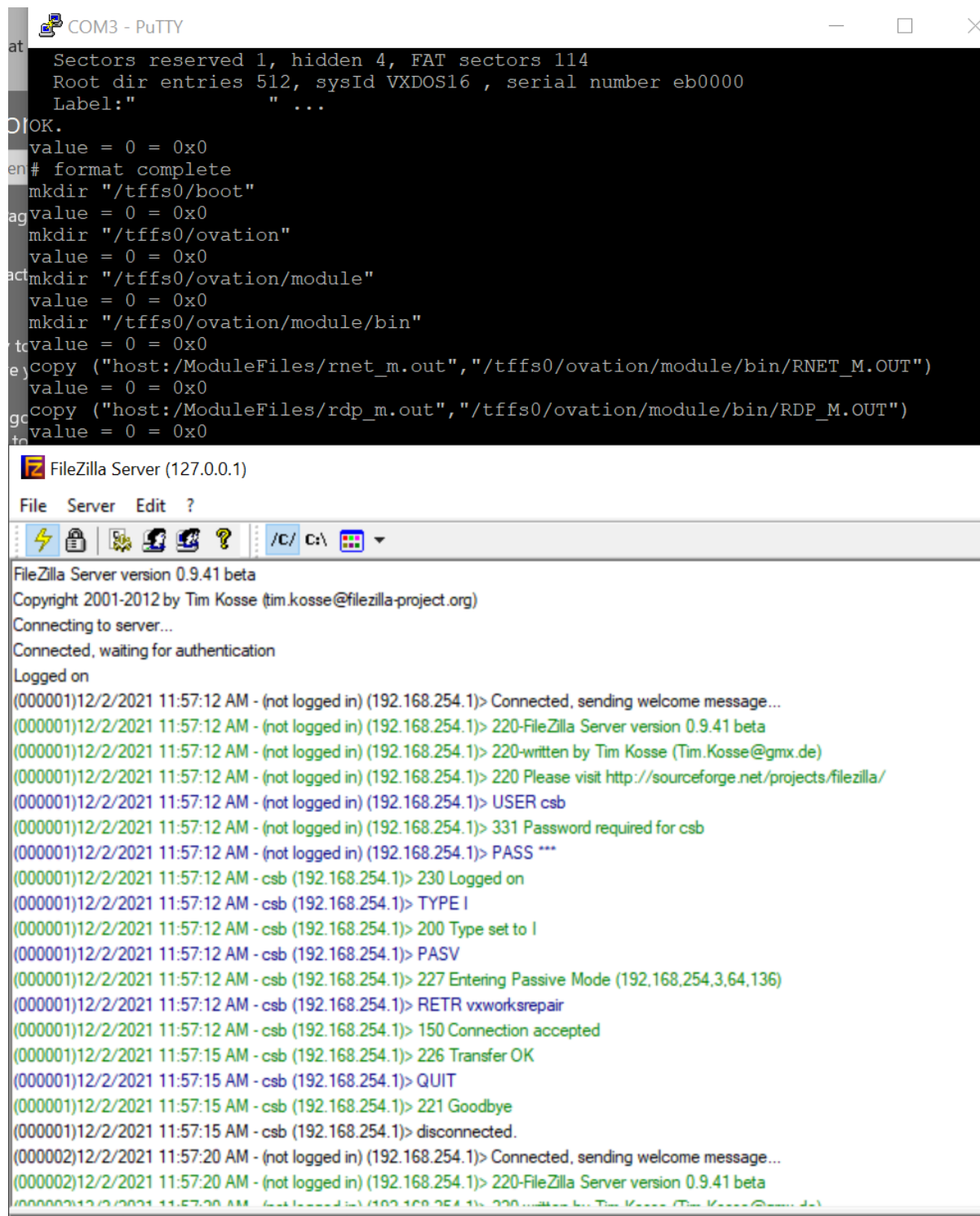
```
COM3 - PuTTY
Press any key to stop auto-boot...
c3
[VxWorks Boot]: c

'.' = clear field; '-' = go to previous field; ^D = quit

boot device      : tffs=0,00 emac0
processor number  : 0
host name        : host
file name        : /tffs0/boot/vxWorks vxworksrepair
inet on ethernet (e) : 192.168.254.1
inet on backplane (b): 192.168.254.3
host inet (h)    : 192.168.254.3
gateway inet (g) :
user (u)         : csb
ftp password (pw) (blank = use rsh): csb
flags (f)        : 0x10c0 0
target name (tn) : csb337
startup script (s) :
other (o)        : emac0

NOTE: Bootline not saved to NVRAM
[VxWorks Boot]: @
```

如果成功的话，putty就会出现如下的提示信息，另外可以在FTPServer中看到卡件正在下载服务器中的初始固件的文件。



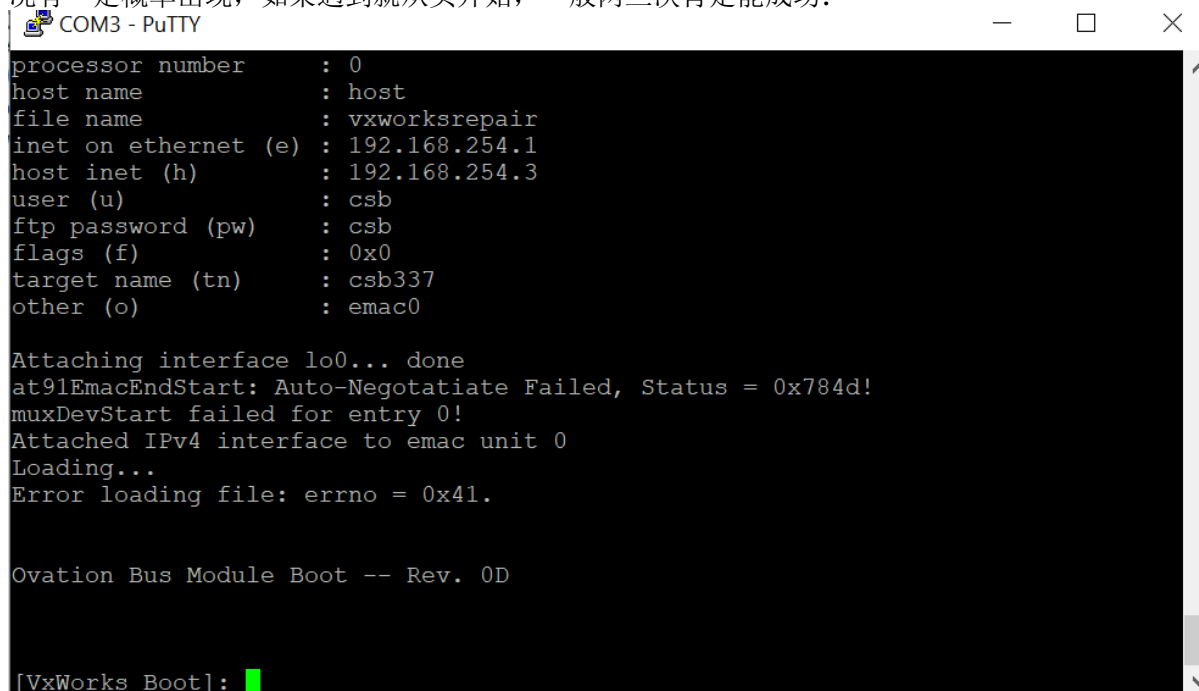
The screenshot shows a Windows desktop with two windows. The top window is a PuTTY terminal titled 'COM3 - PuTTY'. It displays the output of a disk formatting process, including sector counts, root directory entries, and the creation of a FAT file system. The bottom window is the FileZilla Server application, version 0.9.41 beta. It shows the server's status, including connection logs for a user named 'csb' who has successfully logged in and is now in passive mode.

```

at Sectors reserved 1, hidden 4, FAT sectors 114
   Root dir entries 512, sysId VXDOS16 , serial number eb0000
   Label: " " ...
OK.
value = 0 = 0x0
en# format complete
   mkdir "/tffs0/boot"
   value = 0 = 0x0
   mkdir "/tffs0/ovation"
   value = 0 = 0x0
   mkdir "/tffs0/ovation/module"
   value = 0 = 0x0
   mkdir "/tffs0/ovation/module/bin"
   value = 0 = 0x0
   copy ("host:/ModuleFiles/rnet_m.out", "/tffs0/ovation/module/bin/RNET_M.OUT")
   value = 0 = 0x0
   copy ("host:/ModuleFiles/rdp_m.out", "/tffs0/ovation/module/bin/RDP_M.OUT")
   value = 0 = 0x0
FileZilla Server (127.0.0.1)
File  Server  Edit  ?
FileZilla Server version 0.9.41 beta
Copyright 2001-2012 by Tim Kosse (tim.kosse@filezilla-project.org)
Connecting to server...
Connected, waiting for authentication
Logged on
(000001)12/2/2021 11:57:12 AM - (not logged in) (192.168.254.1)> Connected, sending welcome message...
(000001)12/2/2021 11:57:12 AM - (not logged in) (192.168.254.1)> 220-FileZilla Server version 0.9.41 beta
(000001)12/2/2021 11:57:12 AM - (not logged in) (192.168.254.1)> 220-written by Tim Kosse (Tim.Kosse@gmx.de)
(000001)12/2/2021 11:57:12 AM - (not logged in) (192.168.254.1)> 220 Please visit http://sourceforge.net/projects/filezilla/
(000001)12/2/2021 11:57:12 AM - (not logged in) (192.168.254.1)> USER csb
(000001)12/2/2021 11:57:12 AM - (not logged in) (192.168.254.1)> 331 Password required for csb
(000001)12/2/2021 11:57:12 AM - (not logged in) (192.168.254.1)> PASS ***
(000001)12/2/2021 11:57:12 AM - csb (192.168.254.1)> 230 Logged on
(000001)12/2/2021 11:57:12 AM - csb (192.168.254.1)> TYPE I
(000001)12/2/2021 11:57:12 AM - csb (192.168.254.1)> 200 Type set to I
(000001)12/2/2021 11:57:12 AM - csb (192.168.254.1)> PASV
(000001)12/2/2021 11:57:12 AM - csb (192.168.254.1)> 227 Entering Passive Mode (192,168,254,3,64,136)
(000001)12/2/2021 11:57:12 AM - csb (192.168.254.1)> RETR vxworksrepair
(000001)12/2/2021 11:57:12 AM - csb (192.168.254.1)> 150 Connection accepted
(000001)12/2/2021 11:57:15 AM - csb (192.168.254.1)> 226 Transfer OK
(000001)12/2/2021 11:57:15 AM - csb (192.168.254.1)> QUIT
(000001)12/2/2021 11:57:15 AM - csb (192.168.254.1)> 221 Goodbye
(000001)12/2/2021 11:57:15 AM - csb (192.168.254.1)> disconnected.
(000002)12/2/2021 11:57:20 AM - (not logged in) (192.168.254.1)> Connected, sending welcome message...
(000002)12/2/2021 11:57:20 AM - (not logged in) (192.168.254.1)> 220-FileZilla Server version 0.9.41 beta
(000002)12/2/2021 11:57:20 AM - (not logged in) (192.168.254.1)> 220-written by Tim Kosse (Tim.Kosse@gmx.de)

```

这一步也有可能不成功，出现如下图的报错信息，且FTP Server没有相应的下载信息，这种情况有一定概率出现，如果遇到就从头开始，一般两三次肯定能成功：



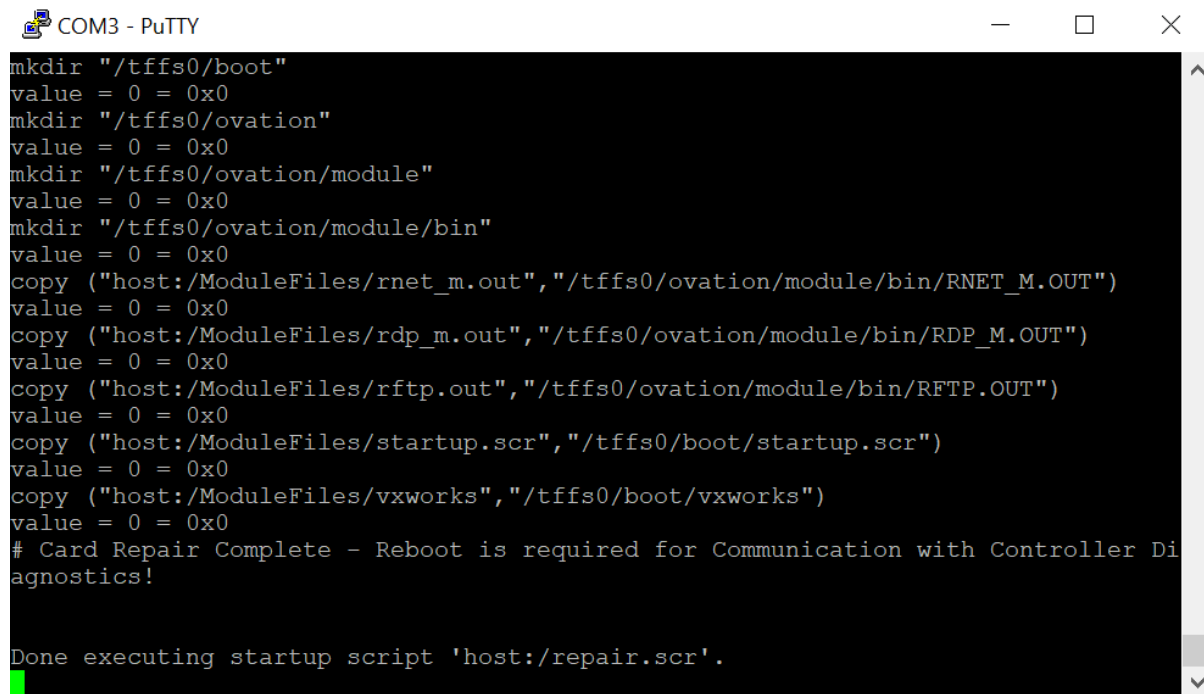
```
COM3 - PuTTY
processor number      : 0
host name             : host
file name             : vxworksrepair
inet on ethernet (e) : 192.168.254.1
host inet (h)        : 192.168.254.3
user (u)             : csb
ftp password (pw)    : csb
flags (f)            : 0x0
target name (tn)     : csb337
other (o)            : emac0

Attaching interface lo0... done
at91EmacEndStart: Auto-Negotiate Failed, Status = 0x784d!
muxDevStart failed for entry 0!
Attached IPv4 interface to emac unit 0
Loading...
Error loading file: errno = 0x41.

Ovation Bus Module Boot -- Rev. 0D

[VxWorks Boot]:
```

如果成功的话，需要耐心等待几分钟，直到putty中出现Card Repair Complete的信息，如下图。完成后，建议重新插拔卡件，等待卡件启动成功后，就可以在Controller Diagnostics中重新下载固件给初始化的卡件。这一步也是有可能失败的，如果等了很长时间不出来Card Repair Complete，那不要急于插拔卡件，应该输入回车，等待出现提示符->，然后输入reboot，软重启卡件，然后重新开始配置。



```
COM3 - PuTTY
mkdir "/tffs0/boot"
value = 0 = 0x0
mkdir "/tffs0/ovation"
value = 0 = 0x0
mkdir "/tffs0/ovation/module"
value = 0 = 0x0
mkdir "/tffs0/ovation/module/bin"
value = 0 = 0x0
copy ("host:/ModuleFiles/rnet_m.out","/tffs0/ovation/module/bin/RNET_M.OUT")
value = 0 = 0x0
copy ("host:/ModuleFiles/rdp_m.out","/tffs0/ovation/module/bin/RDP_M.OUT")
value = 0 = 0x0
copy ("host:/ModuleFiles/rftp.out","/tffs0/ovation/module/bin/RFTP.OUT")
value = 0 = 0x0
copy ("host:/ModuleFiles/startup.scr","/tffs0/boot/startup.scr")
value = 0 = 0x0
copy ("host:/ModuleFiles/vxworks","/tffs0/boot/vxworks")
value = 0 = 0x0
# Card Repair Complete - Reboot is required for Communication with Controller Diagnostics!

Done executing startup script 'host:/repair.scr'.
```