



# Information Sheet IS10011C

## VS Series – Recovering / Installing the Operating System

(For Software Version 2.x)

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# IS10011C: VS Series - Recovering / Installing the Operating System

## INFORMATION SHEET

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### 1.0 INTRODUCTION

This document describes how to recover / install the operating system (OS) of a VS series FM transmitter. This may be performed as part of an upgrade procedure or in the event that corruption of the OS has occurred.

### 1.1 Equipment Affected

This procedure applies to all VS series transmitters running software 2.x.

### 1.2 Responsibility for Implementation of Procedure

This procedure should be carried out by qualified station maintenance personnel who are familiar with VS series transmitters.

### 1.3 Scheduling

This procedure should be performed only when directed by a software upgrade procedure or when corruption of the OS has occurred. The transmitter will need to be "off air" during this procedure.

### 1.4 Manpower Requirements

Implementing these instructions will require approximately 60 minutes.

### 1.5 Special Tools/Test Equipment

- USB flash drive, formatted to FAT32 (for download of OS recovery files).
- PC or laptop to serially connect to the transmitter
- DB9 straight-through serial cable with a male connection for the transmitter end

### 1.6 Publications Affected

This modification does not affect the VS series documentation.

### NOTE

*This procedure will erase the user database. Only the default "Nautel" user will be valid with no password required. Before proceeding, record user settings such as user accounts, logs, SNMP configuration, email configuration, time zone, notifications and playlists to ensure they can be restored after the procedure is complete. Refer to the transmitter's Operations and Maintenance Manual to locate these settings.*



## 2.0 RECOVERING THE OS

- (a) Using a PC or laptop with a web browser, go to <http://www3.nautel.com>. Select Directory **VS\_Series/OS Recovery**.
- (b) Select Directory **Ver 2.0.1**.
- (c) Download the zip file found in the directory.
- (d) Extract the contents of the zip file to the root directory of a USB flash drive.
- (e) Connect a PC or laptop, via the serial port, to the **RDS/RBDS** port (A1J5A) on the rear panel of the transmitter.
- (f) Using your PC or laptop, download putty.exe from <http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html>. Choose the first download in the list and save it to your desktop.
- (g) Double click the PuTTY.exe icon and configure for the settings shown in Figure 1. Select Serial for Connection type. Enter the appropriate COM port in the Serial line field. Enter 115200 in the Speed field. Click **Open**.

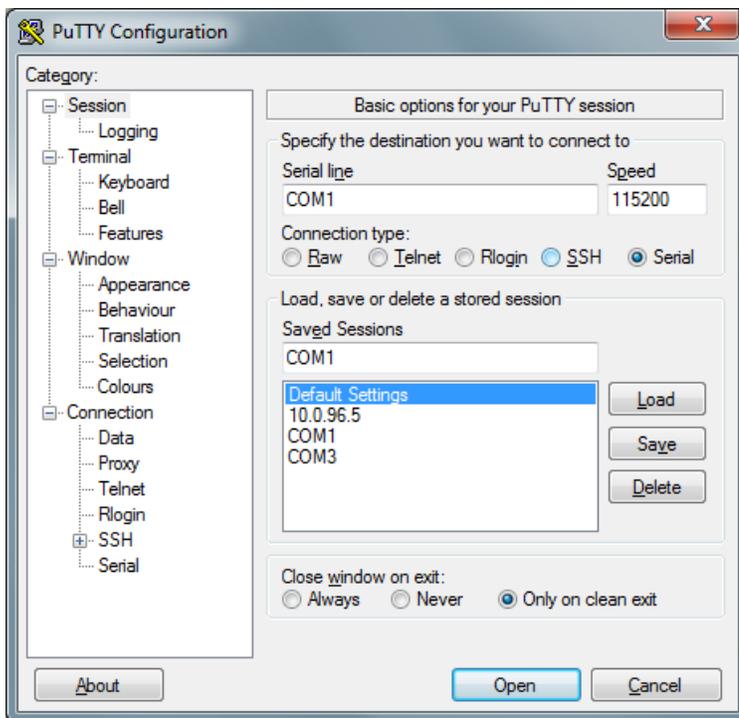
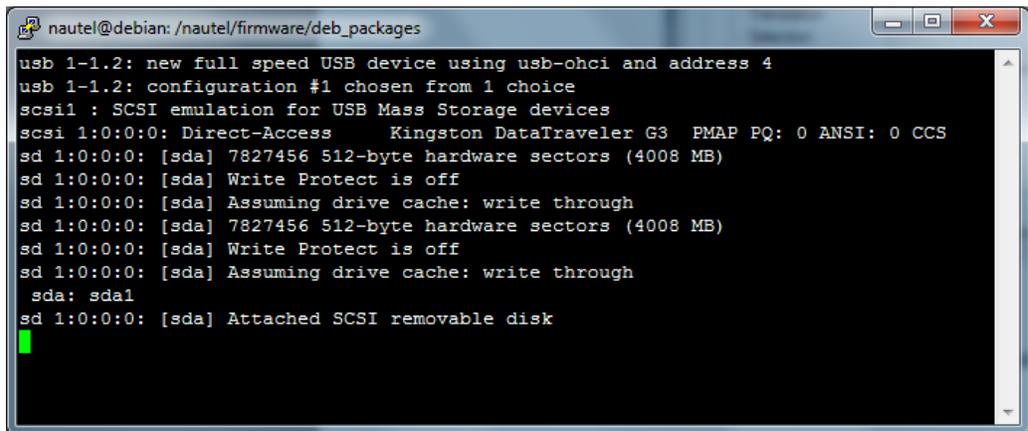


Figure 1: PuTTY terminal emulation configuration settings

- (h) Using the transmitter's front panel UI, navigate to the Main Menu -> Local/Remote screen and select **Local**.



- (i) Using the transmitter's front panel UI, navigate to the Main Menu -> System Settings -> Console Select screen and select ARM Console. Press the center checkmark button to save the selection.
- (j) Using the transmitter's front panel UI, navigate to the Main Menu -> System Settings -> Arm Watchdog screen. Use the up and down buttons to select **Disabled** (*PuTTY will now communicate with the ARM serial console*). Press the center checkmark button to save the selection.
- (k) Remove any USB devices that are connected to the transmitter.
- (l) Plug the USB flash drive used in step (d) into the top USB port (A1J8B) on the rear of the transmitter, located immediately below the LAN port. The PuTTY terminal screen should indicate the detection of the USB drive (see Figure 2).
- (m) Using the transmitter's front panel UI, navigate to the Main Menu -> System Settings -> OS Recovery screen, which should display the word **Cancel**. Press the UI's up arrow key to change the selection to **Force OS Recovery**. Press the center checkmark button to initiate the process.
- (n) The VS transmitter's front panel does not indicate the OS Recovery process. PuTTY.exe allows observation of the process and provides notification when the process is complete. See Figures 3, 4 and 5.



```
nautel@debian: /nautel/firmware/deb_packages
usb 1-1.2: new full speed USB device using usb-ohci and address 4
usb 1-1.2: configuration #1 chosen from 1 choice
scsi1 : SCSI emulation for USB Mass Storage devices
scsi 1:0:0:0: Direct-Access          Kingston DataTraveler G3   PMAP PQ: 0 ANSI: 0 CCS
sd 1:0:0:0: [sda] 7827456 512-byte hardware sectors (4008 MB)
sd 1:0:0:0: [sda] Write Protect is off
sd 1:0:0:0: [sda] Assuming drive cache: write through
sd 1:0:0:0: [sda] 7827456 512-byte hardware sectors (4008 MB)
sd 1:0:0:0: [sda] Write Protect is off
sd 1:0:0:0: [sda] Assuming drive cache: write through
sda: sda1
sd 1:0:0:0: [sda] Attached SCSI removable disk
```

Figure 2: PuTTY terminal screen – USB drive detection



```

nautel@debian: /nautel/firmware/deb_packages

NAND ID: 9590DC2C

Nautel ARM Bootloader Version 1.4
(Apr 16 2010 - 13:47:01)

Current PC is at 0x08000B34
Testing SDRAM: 1/0.. DQMx.. Ax/BAx..
SDRAM test OK!

Hit a key to enter menu (3s timeout)....
Checking for stage 2 loader ...not found.
Starting NAND FALLBACK boot ...
NAND copy zImage to 0x80080000 ...
NAND copy initrd to 0x80800000 ...
NAND copy ATAGS to 0x80002000 ...

Starting kernel ...
Uncompressing Linux..... done, booting the kernel.

```

Figure 3: PuTTY terminal screen - recovery process initiated

```

nautel@debian: /nautel/firmware/deb_packages

rtc-lpc32xx rtc-lpc32xx: setting system clock to 2004-07-22 22:42:55 UTC (1090536175)
)
RAMDISK: Compressed image found at block 0
EXT4-fs warning (device ram0): ext4_fill_super: extents feature not enabled on this
filesystem, use tune2fs.

EXT4-fs: ram0: not marked OK to use with test code.
VFS: Mounted root (ext2 filesystem).
Freeing init memory: 124K
Mount proc
Mount sys
Export PATH:/usr/sbin
Found /dev/sda1
Mounting USB Device
mount: /dev/sda1 is not a valid block device
USB not mounted sleeping for 5 seconds ...
scsi 0:0:0:0: Direct-Access Kingston DataTraveler G3 PMAP PQ: 0 ANSI: 0 CCS
sd 0:0:0:0: [sda] 7827456 512-byte hardware sectors (4008 MB)
sd 0:0:0:0: [sda] Write Protect is off
sd 0:0:0:0: [sda] Assuming drive cache: write through
sd 0:0:0:0: [sda] 7827456 512-byte hardware sectors (4008 MB)
sd 0:0:0:0: [sda] Write Protect is off
sd 0:0:0:0: [sda] Assuming drive cache: write through
 sda: sda1
sd 0:0:0:0: [sda] Attached SCSI removable disk
Found /dev/sda1
Mounting USB Device
Successfully mounted usb.

*****
* sys_install.sh *
*****

*****
* Parse MAC Address *
*****

Test Addr: [7864320]

```

USB Drive Mounting

Figure 4: PuTTY terminal screen - USB drive mounting

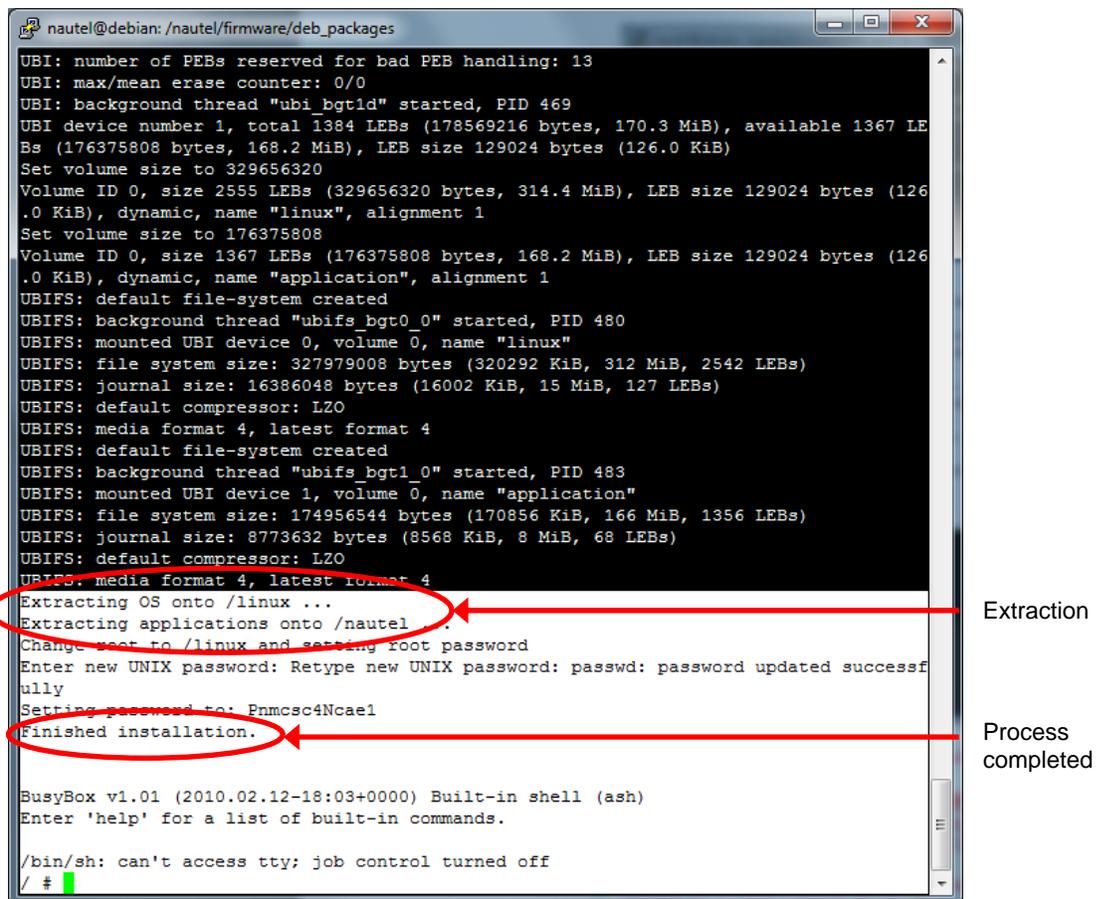


- (o) Once the USB drive is mounted (see Figure 4), the extraction process should commence (see Figure 5). **NOTE:** The extraction process takes approximately 25 minutes to complete.

NOTE

*If the USB drive fails to mount (indicated by PuTTY syntax "USB drive failed to mount, sleeping for 5 sec..."; unplug the USB drive and then plug it in again.*

- (p) The OS recovery process is complete when "Finished Installation" appears on the screen (see Figure 5).
- (q) Reboot the transmitter by cycling its ac power (off, then on). Remove the USB flash drive and disconnect the serial port connection. This completes the OS Recovery procedure.
- (r) Using the transmitter's front panel UI, navigate to the ARM Watchdog function and set to **Enabled**.
- (s) Return the transmitter to remote control operation, if necessary.



```
nautel@debian: /nautel/firmware/deb_packages
UBI: number of PEBs reserved for bad PEB handling: 13
UBI: max/mean erase counter: 0/0
UBI: background thread "ubi_bgt1d" started, PID 469
UBI device number 1, total 1384 LEBs (178569216 bytes, 170.3 MiB), available 1367 LEBs (176375808 bytes, 168.2 MiB), LEB size 129024 bytes (126.0 KiB)
Set volume size to 329656320
Volume ID 0, size 2555 LEBs (329656320 bytes, 314.4 MiB), LEB size 129024 bytes (126.0 KiB), dynamic, name "linux", alignment 1
Set volume size to 176375808
Volume ID 0, size 1367 LEBs (176375808 bytes, 168.2 MiB), LEB size 129024 bytes (126.0 KiB), dynamic, name "application", alignment 1
UBIFS: default file-system created
UBIFS: background thread "ubifs_bgt0_0" started, PID 480
UBIFS: mounted UBI device 0, volume 0, name "linux"
UBIFS: file system size: 327979008 bytes (320292 KiB, 312 MiB, 2542 LEBs)
UBIFS: journal size: 16386048 bytes (16002 KiB, 15 MiB, 127 LEBs)
UBIFS: default compressor: LZO
UBIFS: media format 4, latest format 4
UBIFS: default file-system created
UBIFS: background thread "ubifs_bgt1_0" started, PID 483
UBIFS: mounted UBI device 1, volume 0, name "application"
UBIFS: file system size: 174956544 bytes (170856 KiB, 166 MiB, 1356 LEBs)
UBIFS: journal size: 8773632 bytes (8568 KiB, 8 MiB, 68 LEBs)
UBIFS: default compressor: LZO
UBIFS: media format 4, latest format 4
Extracting OS onto /linux ...
Extracting applications onto /nautel ...
Change root to /linux and setting root password
Enter new UNIX password: Retype new UNIX password: passwd: password updated successfully
Setting password to: Pnmcsc4Ncae1
Finished installation.

BusyBox v1.01 (2010.02.12-18:03+0000) Built-in shell (ash)
Enter 'help' for a list of built-in commands.

/bin/sh: can't access tty; job control turned off
/ #
```

Extraction

Process completed

Figure 5: OS recovery completion screen



NOTE

*Once the OS Recovery is complete, the user database is reset, therefore only the default "Nautel" user is valid with no password required.*

*Refer to the transmitter's Operations and Maintenance Manual to re-establish lost user settings including: user accounts, logs, SNMP configuration, email configuration, time zone, notifications and playlists.*

*Before connecting remotely via the AUI, clear your web browser's cache to remove any obsolete AUI files.*

**If you have any questions or require additional assistance, please contact Nautel's Customer Service Department at:**

**Telephone: 1-902-823-5100**  
**Email: [support@nautel.com](mailto:support@nautel.com)**

