

White Paper:
Upgrading CPU's for non-ACPI Compliant
Systems (W2K/3)

Document Version 1.2

RTFM Education

Beyond the Manual... with Mike Laverick

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ESX Version:

2.x

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Audience:

Enthusiast to Hotshot

Style:

Bit techy with some humour, not a po-faced article. I use unhappy faces ☹ to flag up events and experiences that are less than pleasant. I use a happy face 😊 to flag up something which is very advantageous.

Objectives:

The white paper deals with the errors you might have with Citrix Remapped Driver Letters feature with P2V'd Citrix MetaFrame/Presentation Server

Disclaimers & Acknowledgements:

In this document I express some personal opinions – which may disagree with – this you right. But please don't "flame" me with your disagreements! On the other hand if you feel that there is technical error in this document – then I implore you to tell me so. I don't want to be responsible for any disseminating misinformation in any of my RTFM Guides or White Papers!

Fixing the Drive Letter problem in Citrix Metaframe Presentation Server (Windows 2000)

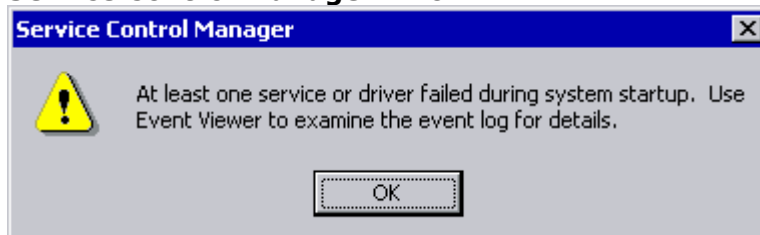
- Currently, some P2V products like LeoStream does not correctly handle the cloning of server which drives have been remapped as if often the case in Citrix Metaframe XP
- You might be able to fix this problem without reference to this guide. Some 3rd Partition management tools can fix this problem by merely booting from a CD and modifying the partitions with a drop-down list. Example of software that maybe able to do this is:
 - Paragon Partition Manager 7 Server Edition
 - PowerQuest's Partition Magic
 - POverQuest's Volume Manger
- You may also find that templates you have created using Microsoft's Sysprep natively suffer from the same problem
 - If this is the case. Stop reading this guide NOW..
 - Well, not just yet – read these bullet points below ☺
 - Give up on Sysprep as your method of changing the SID in Windows
 - Use instead NewSID from <http://www.sysinternals.com>
 - This changes the SID without destroying the GUID information that links the ID of your partitions to the driver letters assigned to them
- If the above is not your issue – and your problem is with a P2V'd Citrix MetaFrame / Presentation Server – then press on with this guide.
- Basically what happens is re-mapped drives revert from M: N: O: to C: D: E: and the logon process fails as the server cannot locate the ctxgina.dll file. This ctxgina.dll is replacement of the Microsoft Graphical Identification and Authentication (msgina.dll) and allows Citrix to handle "pass-through" authentication events
- This was the original drive letter assignments

Volume	Layout	Type	File ...	Status	Capacity	Free S...	% Free	Faul...
OS (M:)	Partition	Basic	NTFS	Healthy (System)	4.01 GB	693 MB	16 %	no
GHOST (P:)	Partition	Basic	FAT32	Healthy	16.94 GB	15.46 GB	91 %	no
DATA2 (O:)	Partition	Basic	NTFS	Healthy	16.95 GB	16.89 GB	99 %	no
DATA1 (N:)	Partition	Basic	NTFS	Healthy	29.91 GB	29.83 GB	99 %	no

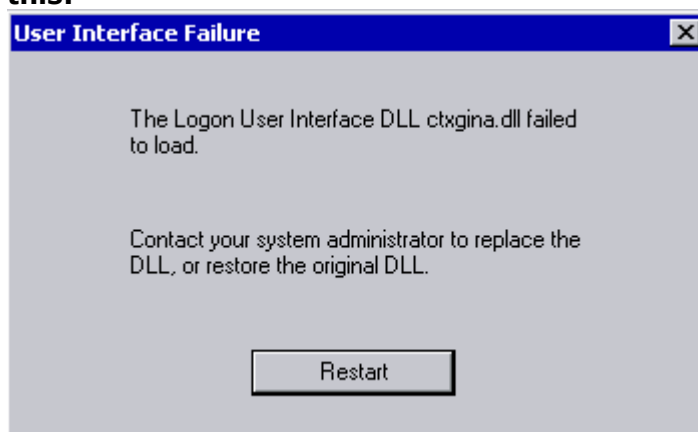
Disk 0 Basic 33.91 GB Online	OS (M:) 4.01 GB NTFS Healthy (System)	DATA1 (N:) 29.91 GB NTFS Healthy
Disk 1 Basic 33.90 GB Online	DATA2 (O:) 16.95 GB NTFS Healthy	GHOST (P:) 16.95 GB FAT32 Healthy
CDRom 0 CDRom (Q:) Online		

- After the restore – the system thinks the drives are C: D: E: F: G:
- This produces these errors:

Service Control Manager Error



In the case of Citrix Metaframe XP you can get error messages like this:



On a standard Windows machine you find you can logon but explore.exe does not load correctly – and you get logged out. Even when you try safe mode you find you cannot logon.

You may also get a dialog box indicating that Windows cannot find

particular files. The dialog box will generally have references to drive letters used previously such as M:\WINNT

- I've found using the same registry tools on the same OS is easier. So if the problem machine is W2K based, use a W2K server to connect it remotely
- When doing this across the network RegEdit is favoured over RegEdt32 – as this allows you to rename values/keys rather than just delete them. However, if you don't have network communications you will HAVE to use RegEdt32
- These instructions come from this [MS KB 223188](#) Article "**How To Restore the System/Boot Drive Letter in Windows**"
- If you have network communications then you can attach use RegEdit to connect remotely to that server and correct the registry
 - If the computer is networked but not part of a domain, you may need to map a connection to the machines IPC\$ share using that computer's local administrator credentials before being able to attach using Regedit.exe or Regedt32.exe as described below to make changes.
 - To permit a logon and/or change the boot volume drive letter back to its originally assigned letter, use any of the following methods:

```
net use \\remote_machine_name\IPC$ /user:administrator *
```

- In this case we don't have network communications. We need to connect to the registry remotely - this is going to be a little bit tricky - because the original IP address may have been lost in the P>V/Template Restore process. I've tried using a DHCP Server on the network and the Virtual Machine does seem to want to acquire an IP address...
 - This means we can't logon and we can't connect remotely.... Bummer!
 - So what we have to do is attach the Virtual Disk to a functioning Virtual Machine (a la "helper" VM) – and then loaded up the Registry as Hive (File) directly. I got these instructions from [JSI FAQ 0182](#) Article "**Off-line Registry editing**"
1. **Attach the problem Virtual Machine's disk to an existing functioning Virtual Machine with the SAME operating system**
 2. On a functional machine, use **Start, Run and RegEdt32**

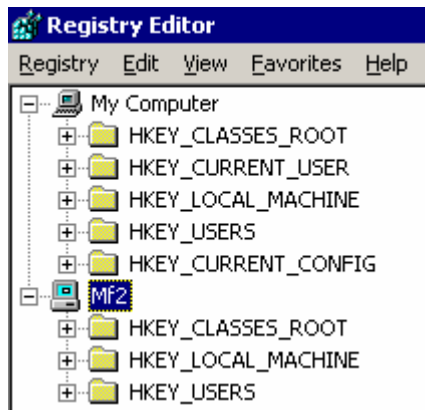
Note:

If you doing this remotely through the network do the following

Regedit

Choose **Registry** and **Connect Network Registry**

Type in the NETBIOS computer name or browse to your "failing machine" like so,



3. Select **HKEY_LOCAL Machine**, and Choose **Registry** and **Load Hive**

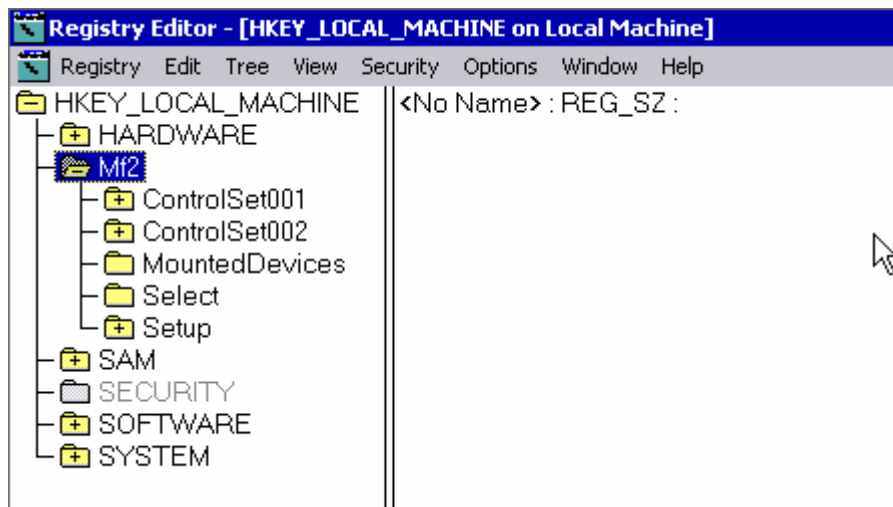
Note:

The Load Hive option ONLY appears in RegEdt32 – and only when you select HKEY_Local Machine

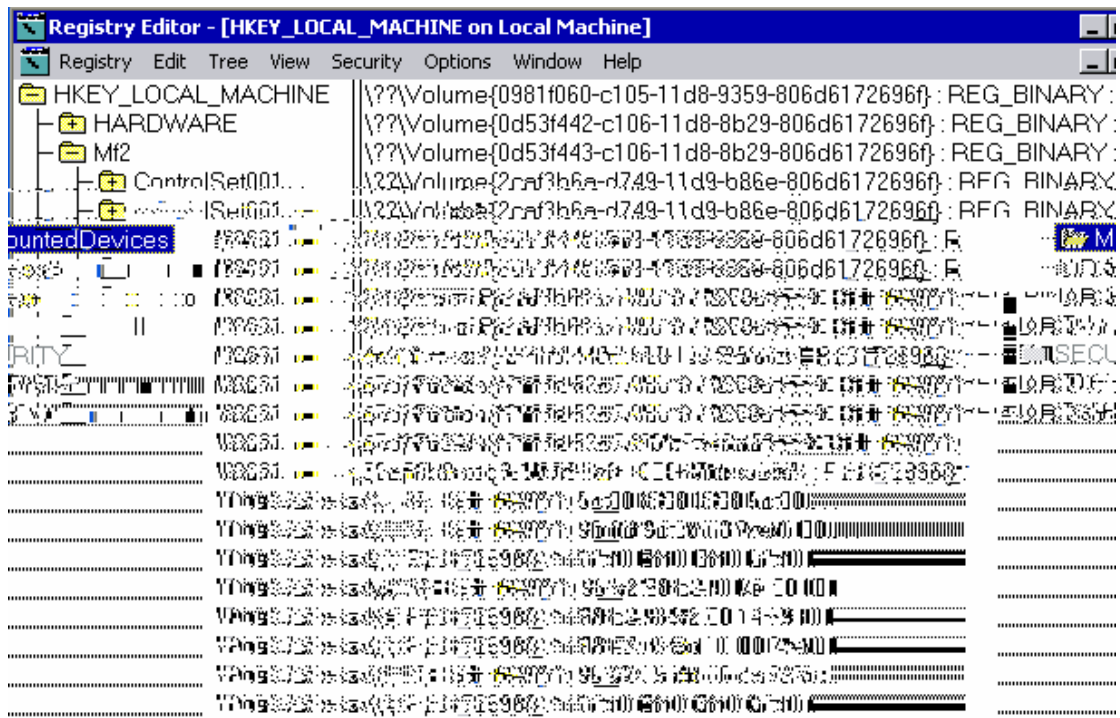
REPEAT:

YOU MUST SELECT HKEY_LOCAL MACHINE TO GET THE LOAD HIVE OPTION IN THE REGISTRY

4. **Browse to the problem Virtual Disk**, to `?:\Winnt\System32\Config` and Select **System** and Choose **Open**
5. In the **Key Name dialog**, **type a friendly name to identify the loaded registry** – such as **MF2** like so:



6. Browse to `\ HKEY_LOCAL_MACHINE\SYSTEM\MountedDevices`, and you should see something like this:



Note:

The long numbers are GUID values which MS assigns as unique value to id the partitions to which the drive letters are assigned. Originally, our C: drive was M:, and D: was N: and so on. We need the references to the GUID values. So the correct GUID value for Disk0/Partition0 is in the capture \DosDevices\C: 5c 00 3f.

We need to copy this GUID, and overwrite the GUID for the M: Drive which is incorrectly set as 98 b2 98

7. **Double-Click \Dos\Devices\C: and copy the hex value**
8. **Double-Click \Dos\Devices\M: and paste the hex value**
9. Delete the value \Dos\Devices\C:

Note:

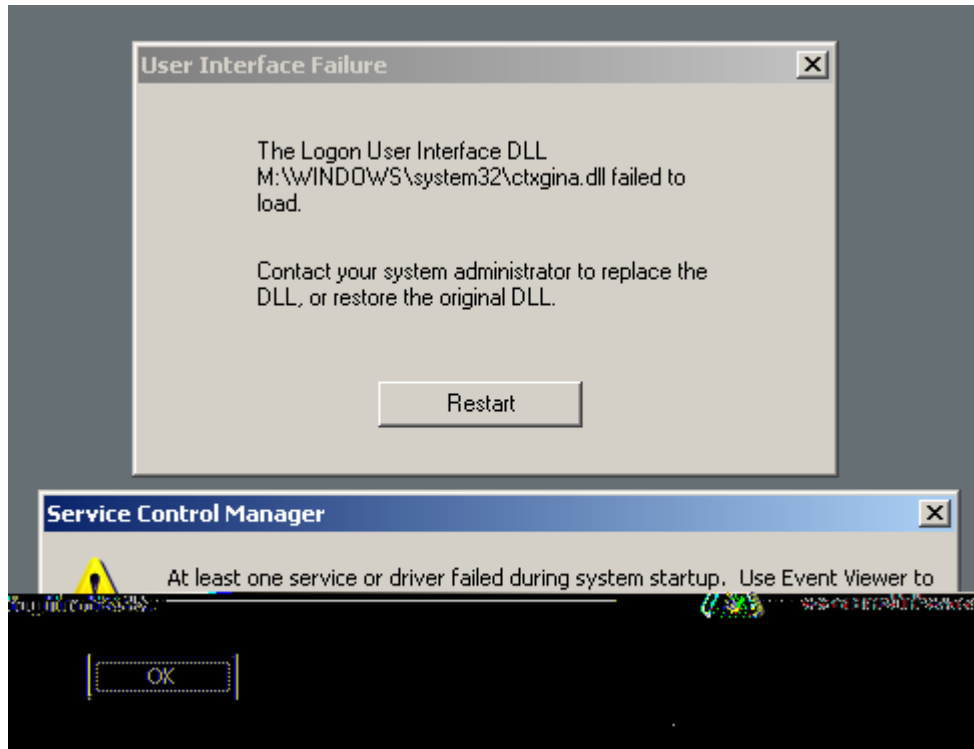
We can repeat this for the D: Drive (which is now the CD-ROM). Copy the GUID for the D: drive and paste over the value for N: Drive. Delete the reference to D: O: P: and Q: drives. These drives were not included when we ran the P>V

10. **Select the name you assigned to the Hive when you opened, it my case MF1**
11. In the **RegEdt32** menu, and **Choose Registry** and **Unload Hive** and Choose **Yes**, to **Unload the Hive**
12. Close the **Regedt32/Regedit** tool
13. **Shutdown** the Server helper...
14. **Detach** the fixed boot disk from the helper...
15. **Power up** the Citrix VM

Fixing the Drive Letter problem in Citrix Metaframe Presentation Server (W2K3/Citrix)

Note:

- Problems with remapped drives and Citrix surface if your running under Windows 2003
- The error looks exactly the same with the server not able to find ctxgina.dll because the registry expect to find the file on M: when there server partition table has reverted back to:



The failing service is probably the imaservice failing for the same reason.

- More or Less the SAME registry process can be done with Windows 2003 – but it is *slightly* different on this flavour of Windows.
1. **Attach the problem Virtual Disk to an existing functioning Virtual Machine with Windows 2003**
 2. On a functional machine, use **Start, Run and RegEdt32**
 3. Select **HKEY_LOCAL Machine**, and Choose **File** and **Load Hive**

Note:

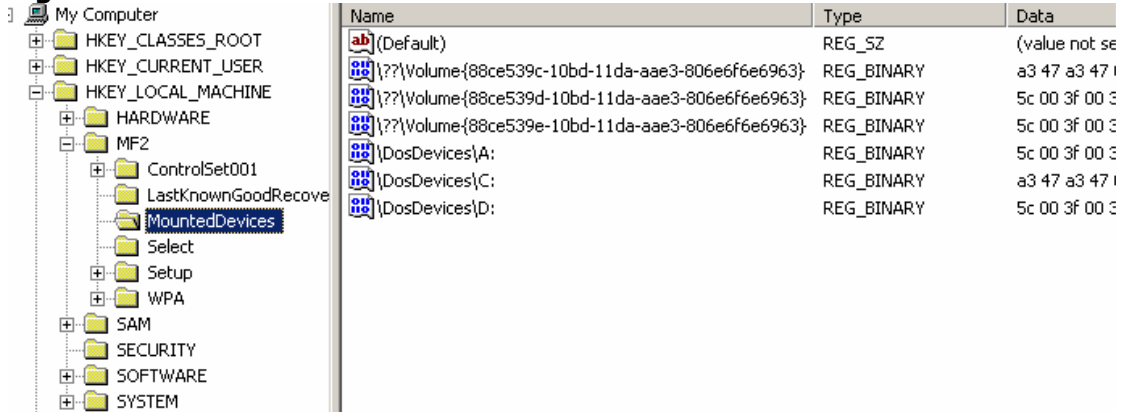
The Load Hive option ONLY appears in RegEdt32 – and only when you select HKEY_Local Machine

REPEAT:

YOU MUST SELECT HKEY_LOCAL MACHINE TO GET THE LOAD HIVE OPTION IN THE REGISTRY

4. **Browse to the problem Virtual Disk**, to **?:\Winnt\System32\Config** and Select **System** and Choose **Open**
5. In the **Load Hive** dialog, **type a "Key Name"** to identify the loaded registry – such as **MF2** like so:

Figure 1:

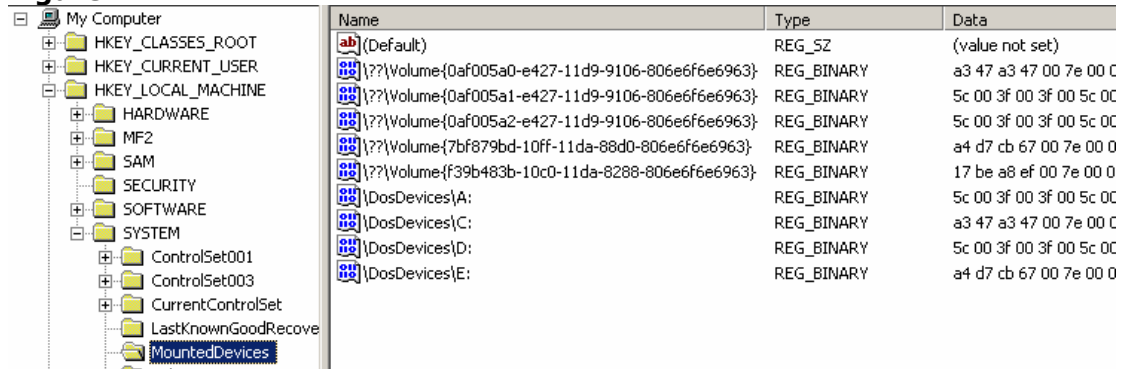


Note:

This is the screen dump of the registry of the Citrix server with the problem hard-drives – notice instead of A: M: and N: the system has reverted back to A: C: D:

6. Expand **HKEY_LOCAL_MACHINE** (the P2V “helper”) and Navigate to **\System\MountedDevices**

Figure 2:



Note:

This windows shows the P2V “Helpers” A: C: D: drive. The E: drive is the boot disk from the failing server from which have just loaded the old “system” hive.

Note:

Notice how the “data” for \Dos\Devices\E: in Figure2 is different to \Dos\Devices\C: in Figure1. \Dos\Devices\E: begins a4 d7 cb 67 00 7e 00 whereas \Dos\Devices\C: in Figure1 begins a3 47 a3 47

Note:

Our problem two-fold - the that registry for MF2 should read \Dos\Devices\M: and should have the new data from \Dos\Devices\E: which begins a4 d7 cb 67

Note:

There are many ways of carrying out the following correction. Not least a piece of paper and writing down the hex-decimal values. Personally, I like to Export the good values to a file Reg file – open up the Reg file in

14. Select `\Dos\Devices\C:` and press **[Delete]**

Warning:

Please, Please, Please make sure your doing this in the right portion of the registry. The one you loaded up with Load Hive. Not the portion of the registry which is helper. If you do this on the wrong part of the registry this will "shaft" the machine.

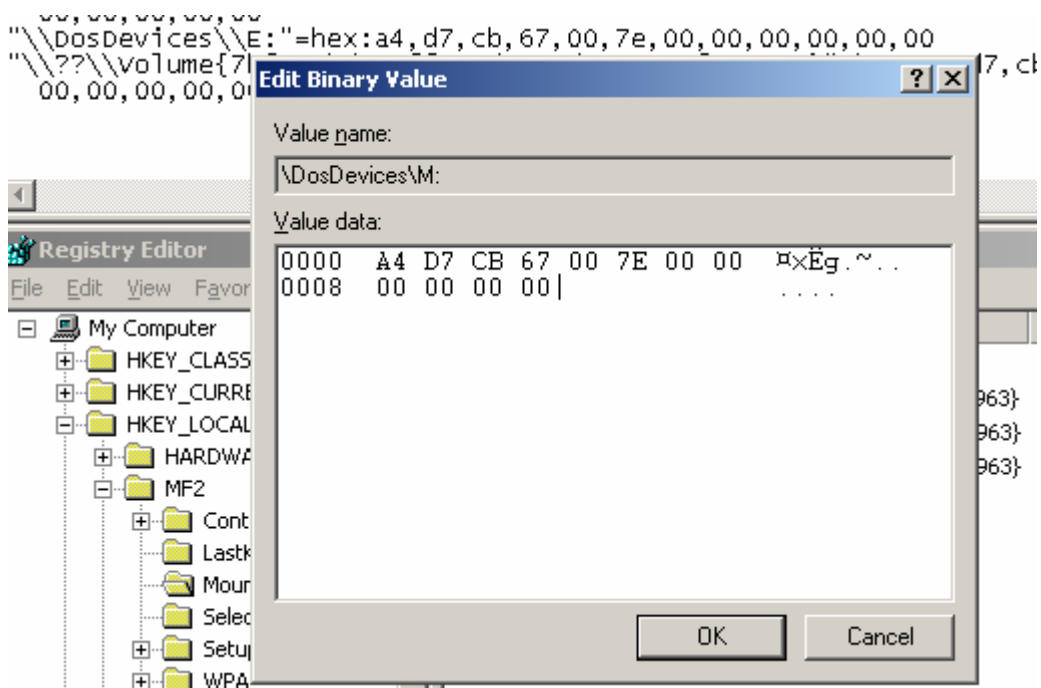
Yes, here in the UK "shaft" is a technical term ☺

15. Choose **Yes**, to the **Confirm Value Delete** dialog box

16. In the **Regedit Window** choose, **Edit, New, Binary Value** and type:

`\Dos\Devices\M:` and press **[Enter]**

17. **Double-click at this new created registry entry** – and type in the hexadecimal values you see in notepad to the dialog box like so:



18. Click **OK**

19. **Click MF2**, and choose File, Unload Hive – and choose Yes to Confirm Unload Hive

20. **Shutdown** the Server helper...

21. **Detach** the fixed boot disk from the helper...

22. **Power up** the Citrix VM

Note:

You will have some post-configuration to do after you have logged into the Citrix MetaFrame Presentation Server. Such as correcting D: to N:

Remove stale devices/drivers

Confirm IP settings & domain membership

Confirm Zone Membership, qfarm /load values, and if the server has acquired a license

You should also find that the server detects the disk as new drive:



and that you will have to install a "driver"

