



grass valley

A **BELDEN** BRAND

MORPHEUS UX

INSTALLING SSL CERTIFICATES

Engineering Manual Supplement

Issue 1, Rev. 1

2020-06-24

www.grassvalley.com

FCC Compliance

In order to comply with FCC/CFR47: Part 15 regulations, it is necessary to use high-quality triple-screened Media or Monitor cable assemblies with integrated ferrite suppression at both ends.

Patent Information

This product may be protected by one or more patents.

For further information, please visit: www.grassvalley.com/patents/

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A Grass Valley manual may have been revised to reflect changes made to the product during its manufacturing life. Thus, different versions of a manual may exist for any given product. Care should be taken to ensure that one obtains the proper manual version for a specific product serial number.

Information in this document is subject to change without notice and does not represent a commitment on the part of Grass Valley.

Warranty information is available from the Legal Terms and Conditions section of Grass Valley's website (www.grassvalley.com).

Title	Morpheus UX Engineering Manual Supplement
Part Number	Issue 1, Rev. 1
Revision	2020-06-24, 08:56

Important Safety Information

This section provides important safety guidelines for operators and service personnel. Specific warnings and cautions appear throughout the manual where they apply. Please read and follow this important information, especially those instructions related to the risk of electric shock or injury to persons.

Symbols and Their Meanings



Indicates that dangerous high voltage is present within the equipment enclosure that may be of sufficient magnitude to constitute a risk of electric shock.



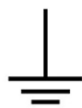
Indicates that the user, operator or service technician should refer to the product manuals for important operating, maintenance, or service instructions.



This is a prompt to note the fuse rating when replacing fuses. The fuse referenced in the text must be replaced with one having the ratings indicated.



Identifies a protective grounding terminal which must be connected to earth ground prior to making any other equipment connections.



Identifies an external protective grounding terminal which may be connected to earth ground as a supplement to an internal grounding terminal.



Indicates that static sensitive components are present, which may be damaged by electrostatic discharge. Use anti-static procedures, equipment and surfaces during servicing.



Indicates that the equipment has more than one power supply cord, and that all power supply cords must be disconnected before servicing to avoid electric shock.



The presence of this symbol in or on Grass Valley equipment means that it has been tested and certified as complying with applicable Underwriters Laboratory (UL) regulations and recommendations for USA.



The presence of this symbol in or on Grass Valley equipment means that it has been tested and certified as complying with applicable Canadian Standard Association (CSA) regulations and recommendations for USA/Canada.



The presence of this symbol in or on Grass Valley equipment means that it has been tested and certified as complying with applicable Underwriters Laboratory (UL) regulations and recommendations for USA/Canada.



The presence of this symbol in or on Grass Valley equipment means that it has been tested and certified as complying with applicable Intertek Testing Services regulations and recommendations for USA/Canada.



The presence of this symbol in or on Grass Valley product means that it complies with all applicable European Union (CE) directives.



The presence of this symbol in or on Grass Valley product means that it complies with safety of laser product applicable standards.

Warnings



A warning indicates a possible hazard to personnel, which may cause injury or death. Observe the following general warnings when using or working on this equipment:

- Appropriately listed/certified mains supply power cords must be used for the connection of the equipment to the rated mains voltage.
- This product relies on the building's installation for short-circuit (over-current) protection. Ensure that a fuse or circuit breaker for the rated mains voltage is used on the phase conductors.
- Any instructions in this manual that require opening the equipment cover or enclosure are for use by qualified service personnel only.
- Do not operate the equipment in wet or damp conditions.
- This equipment is grounded through the grounding conductor of the power cords. To avoid electrical shock, plug the power cords into a properly wired receptacle before connecting the equipment inputs or outputs.
- Route power cords and other cables so they are not likely to be damaged. Properly support heavy cable bundles to avoid connector damage.
- Disconnect power before cleaning the equipment. Do not use liquid or aerosol cleaners; use only a damp cloth.
- Dangerous voltages may exist at several points in this equipment. To avoid injury, do not touch exposed connections and components while power is on.
- High leakage current may be present. Earth connection of product is essential before connecting power.
- Prior to servicing, remove jewelry such as rings, watches, and other metallic objects.
- To avoid fire hazard, use only the fuse type and rating specified in the service instructions for this product, or on the equipment.
- To avoid explosion, do not operate this equipment in an explosive atmosphere.
- Use proper lift points. Do not use door latches to lift or move equipment.
- Avoid mechanical hazards. Allow all rotating devices to come to a stop before servicing.
- Have qualified service personnel perform safety checks after any service.

Cautions



A caution indicates a possible hazard to equipment that could result in equipment damage. Observe the following cautions when operating or working on this equipment:

- This equipment is meant to be installed in a restricted access location.
- When installing this equipment, do not attach the power cord to building surfaces.
- Products that have no on/off switch, and use an external power supply must be installed in proximity to a main power outlet that is easily accessible.
- Use the correct voltage setting. If this product lacks auto-ranging power supplies, before applying power ensure that each power supply is set to match the power source.
- Provide proper ventilation. To prevent product overheating, provide equipment ventilation in accordance with the installation instructions.

- Do not operate with suspected equipment failure. If you suspect product damage or equipment failure, have the equipment inspected by qualified service personnel.
- To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.
- This unit may have more than one power supply cord. Disconnect all power supply cords before servicing to avoid electric shock.
- Follow static precautions at all times when handling this equipment. Servicing should be done in a static-free environment.
- To reduce the risk of electric shock, plug each power supply cord into separate branch circuits employing separate service grounds.

Electrostatic Discharge (ESD) Protection



Electrostatic discharge occurs when electronic components are improperly handled and can result in intermittent failure or complete damage adversely affecting an electrical circuit. When you remove and replace any card from a frame always follow ESD-prevention procedures:

- Ensure that the frame is electrically connected to earth ground through the power cord or any other means if available.
- Wear an ESD wrist strap ensuring that it makes good skin contact. Connect the grounding clip to an *unpainted surface* of the chassis frame to safely ground unwanted ESD voltages. If no wrist strap is available, ground yourself by touching the *unpainted* metal part of the chassis.
- For safety, periodically check the resistance value of the antistatic strap, which should be between 1 and 10 megohms.
- When temporarily storing a card make sure it is placed in an ESD bag.
- Cards in an earth grounded metal frame or casing do not require any special ESD protection.

Battery Handling



This product may include a backup battery. There is a danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions. Before disposing of your Grass Valley equipment, please review the *Disposal and Recycling Information* at:

http://www.grassvalley.com/assets/media/5692/Take-Back_Instructions.pdf

Cautions for LCD and TFT Displays



Excessive usage may harm your vision. Rest for 10 minutes for every 30 minutes of usage.

If the LCD or TFT glass is broken, handle glass fragments with care when disposing of them. If any fluid leaks out of a damaged glass cell, be careful not to get the liquid crystal fluid in your mouth or skin. If the liquid crystal touches your skin or clothes, wash it off immediately using soap and water. Never swallow the fluid. The toxicity is extremely low but caution should be exercised at all times.

Mesures de sécurité et avis importants

La présente section fournit des consignes de sécurité importantes pour les opérateurs et le personnel de service. Des avertissements ou mises en garde spécifiques figurent dans le manuel, dans les sections où ils s'appliquent. Prenez le temps de bien lire les consignes et assurez-vous de les respecter, en particulier celles qui sont destinées à prévenir les décharges électriques ou les blessures.

Signification des symboles utilisés



Signale la présence d'une tension élevée et dangereuse dans le boîtier de l'équipement ; cette tension peut être suffisante pour constituer un risque de décharge électrique.



Avertit l'utilisateur, l'opérateur ou le technicien de maintenance que des instructions importantes relatives à l'utilisation et à l'entretien se trouvent dans la documentation accompagnant l'équipement.



Invite l'utilisateur, l'opérateur ou le technicien de maintenance à prendre note du calibre du fusible lors du remplacement de ce dernier. Le fusible auquel il est fait référence dans le texte doit être remplacé par un fusible du même calibre.



Identifie une borne de mise à la terre de protection. Il faut relier cette borne à la terre avant d'effectuer toute autre connexion à l'équipement.



Identifie une borne de mise à la terre externe qui peut être connectée en tant que borne de mise à la terre supplémentaire.



Signale la présence de composants sensibles à l'électricité statique et qui sont susceptibles d'être endommagés par une décharge électrostatique. Utilisez des procédures, des équipements et des surfaces antistatiques durant les interventions d'entretien.



Le symbole ci-contre signifie que l'appareil comporte plus d'un cordon d'alimentation et qu'il faut débrancher tous les cordons d'alimentation avant toute opération d'entretien, afin de prévenir les chocs électriques.



La marque UL certifie que l'appareil visé a été testé par Underwriters Laboratory (UL) et reconnu conforme aux exigences applicables en matière de sécurité électrique en vigueur au Canada et aux États-Unis.



La marque C-CSA-US certifie que l'appareil visé a été testé par l'Association canadienne de normalisation (CSA) et reconnu conforme aux exigences applicables en matière de sécurité électrique en vigueur au Canada et aux États-Unis.



La marque C-UL-US certifie que l'appareil visé a été testé par Underwriters Laboratory (UL) et reconnu conforme aux exigences applicables en matière de sécurité électrique en vigueur au Canada et aux États-Unis.



La marque ETL Listed d'Intertek pour le marché Nord-Américain certifie que l'appareil visé a été testé par Intertek et reconnu conforme aux exigences applicables en matière de sécurité électrique en vigueur au Canada et aux États-Unis.



Le marquage CE indique que l'appareil visé est conforme aux exigences essentielles des directives applicables de l'Union européenne en matière de sécurité électrique, de compatibilité électromagnétique et de conformité environnementale.



Le symbole ci-contre sur un appareil Grass Valley ou à l'intérieur de l'appareil indique qu'il est conforme aux normes applicables en matière de sécurité laser.

Avertissements



Les avertissements signalent des conditions ou des pratiques susceptibles d'occasionner des blessures graves, voire fatales. Veuillez vous familiariser avec les avertissements d'ordre général ci-dessous :

- Un cordon d'alimentation dûment homologué doit être utilisé pour connecter l'appareil à une tension de secteur de 120 V CA ou 240 V CA.
- La protection de ce produit contre les courts-circuits (surintensités) dépend de l'installation électrique du bâtiment. Assurez-vous qu'un fusible ou un disjoncteur pour 120 V CA ou 240 V CA est utilisé sur les conducteurs de phase.
- Dans le présent manuel, toutes les instructions qui nécessitent d'ouvrir le couvercle de l'équipement sont destinées exclusivement au personnel technique qualifié.
- N'utilisez pas cet appareil dans un environnement humide.
- Cet équipement est mis à la terre par le conducteur de mise à la terre des cordons d'alimentation. Pour éviter les chocs électriques, branchez les cordons d'alimentation sur une prise correctement câblée avant de brancher les entrées et sorties de l'équipement.
- Acheminez les cordons d'alimentation et autres câbles de façon à ce qu'ils ne risquent pas d'être endommagés. Supportez correctement les enroulements de câbles afin de ne pas endommager les connecteurs.
- Coupez l'alimentation avant de nettoyer l'équipement. Ne pas utiliser de nettoyeurs liquides ou en aérosol. Utilisez uniquement un chiffon humide.
- Des tensions dangereuses peuvent exister en plusieurs points dans cet équipement. Pour éviter toute blessure, ne touchez pas aux connexions ou aux composants exposés lorsque l'appareil est sous tension.
- Avant de procéder à toute opération d'entretien ou de dépannage, enlevez tous vos bijoux (notamment vos bagues, votre montre et autres objets métalliques).
- Pour éviter tout risque d'incendie, utilisez uniquement les fusibles du type et du calibre indiqués sur l'équipement ou dans la documentation qui l'accompagne.
- Ne pas utiliser cet appareil dans une atmosphère explosive.
- Présence possible de courants de fuite. Un raccordement à la masse est indispensable avant la mise sous tension.
- Après tout travail d'entretien ou de réparation, faites effectuer des contrôles de sécurité par le personnel technique qualifié.

Mises en garde



Les mises en garde signalent des conditions ou des pratiques susceptibles d'endommager l'équipement. Veuillez vous familiariser avec les mises en garde ci-dessous :

- L'appareil est conçu pour être installé dans un endroit à accès restreint.
- Au moment d'installer l'équipement, ne fixez pas les cordons d'alimentation aux surfaces intérieures de l'édifice.

- Les produits qui n'ont pas d'interrupteur marche-arrêt et qui disposent d'une source d'alimentation externe doivent être installés à proximité d'une prise de courant facile d'accès.
- Si l'équipement n'est pas pourvu d'un modules d'alimentation auto-adaptables, vérifiez la configuration de chacun des modules d'alimentation avant de les mettre sous tension.
- Assurez une ventilation adéquate. Pour éviter toute surchauffe du produit, assurez une ventilation de l'équipement conformément aux instructions d'installation.
- N'utilisez pas l'équipement si vous suspectez un dysfonctionnement du produit. Faites-le inspecter par un technicien qualifié.
- Pour réduire le risque de choc électrique, n'effectuez pas de réparations autres que celles qui sont décrites dans le présent manuel, sauf si vous êtes qualifié pour le faire. Confiez les réparations à un technicien qualifié. La maintenance doit se réaliser dans un milieu libre d'électricité statique.
- L'appareil peut comporter plus d'un cordon d'alimentation. Afin de prévenir les chocs électriques, débrancher tous les cordons d'alimentation avant toute opération d'entretien.
- Veillez à toujours prendre les mesures de protection antistatique appropriées quand vous manipulez l'équipement.
- Pour réduire le risque de choc électrique, branchez chaque cordon d'alimentation dans des circuits de dérivation distincts utilisant des zones de service distinctes.

Protection contre les décharges électrostatiques (DES)



Une décharge électrostatique peut se produire lorsque des composants électroniques ne sont pas manipulés de manière adéquate, ce qui peut entraîner des défaillances intermittentes ou endommager irrémédiablement un circuit électrique. Au moment de remplacer une carte dans un châssis, prenez toujours les mesures de protection antistatique appropriées :

- Assurez-vous que le châssis est relié électriquement à la terre par le cordon d'alimentation ou tout autre moyen disponible.
- Portez un bracelet antistatique et assurez-vous qu'il est bien en contact avec la peau. Connectez la pince de masse à une *surface non peinte* du châssis pour détourner à la terre toute tension électrostatique indésirable. En l'absence de bracelet antistatique, déchargez l'électricité statique de votre corps en touchant une surface métallique *non peinte* du châssis.
- Pour plus de sécurité, vérifiez périodiquement la valeur de résistance du bracelet antistatique. Elle doit se situer entre 1 et 10 mégohms.
- Si vous devez mettre une carte de côté, assurez-vous de la ranger dans un sac protecteur antistatique.
- Les cartes qui sont reliées à un châssis ou boîtier métallique mis à la terre ne nécessitent pas de protection antistatique spéciale.

Manipulation de la pile



Ce produit peut inclure une pile de sauvegarde. Il y a un risque d'explosion si la pile est remplacée de manière incorrecte. Remplacez la pile uniquement par un modèle identique ou équivalent recommandé par le fabricant. Disposez des piles usagées conformément aux instructions du fabricant. Avant de vous séparer de votre équipement Grass Valley, veuillez consulter les *informations de mise au rebut et de recyclage* à :

http://www.grassvalley.com/assets/media/5692/Take-Back_Instructions.pdf

Précautions pour les écrans LCD et TFT



Regarder l'écran pendant une trop longue période de temps peut nuire à votre vision. Prenez une pause de 10 minutes, après 30 minutes d'utilisation.

Si l'écran LCD ou TFT est brisé, manipulez les fragments de verre avec précaution au moment de vous en débarrasser. veillez à ce que le cristal liquide n'entre pas en contact avec la peau ou la bouche. En cas de contact avec la peau ou les vêtements, laver immédiatement à l'eau savonneuse. Ne jamais ingérer le liquide. La toxicité est extrêmement faible, mais la prudence demeure de mise en tout temps.

Environmental Information

European (CE) WEEE directive.



This symbol on the product(s) means that at the end of life disposal it should not be mixed with general waste.

Visit www.grassvalley.com for recycling information.

Grass Valley believes this environmental information to be correct but cannot guarantee its completeness or accuracy since it is based on data received from sources outside our company. All specifications are subject to change without notice.

If you have questions about Grass Valley environmental and social involvement (WEEE, RoHS, REACH, etc.), please contact us at environment@grassvalley.com.

Lithium Batteries

Battery Warning

CAUTION

This equipment contains a lithium battery.
There is a danger of explosion if this is replaced incorrectly.
Replace only with the same or equivalent type.
Dispose of used batteries according to the manufacturer's instructions.
Batteries **shall only** be replaced by trained service technicians.

Your Grass Valley equipment usually comes with at least one button battery located on the main printed circuit board. The batteries are used for backup and should not need to be replaced during the lifetime of the equipment.

Battery Disposal

Before disposing of your Grass Valley equipment, please remove the battery as follows:

- 1 Make sure the AC adapter / power Cord is unplugged from the power outlet.
- 2 Remove the protective cover from your equipment.
- 3 Gently remove the battery from its holder using a blunt instrument for leverage such as a screwdriver if necessary. In some cases the battery will need to be desoldered from the PCB.
- 4 Dispose of the battery and equipment according to your local environmental laws and guidelines.

WARNING

- Be careful not to short-circuit the battery by adhering to the appropriate safe handling practices.
- Do not dispose of batteries in a fire as they may explode.
- Batteries may explode if damaged or overheated.
- Do not dismantle, open or shred batteries.
- In the event of a battery leak, do not allow battery liquid to come in contact with skin or eyes.
- Seek medical help immediately in case of ingestion, inhalation, skin or eye contact, or suspected exposure to the contents of an opened battery.

Laser Safety - Fiber Output SFP and QSFP Modules Warning

LASER SAFETY



The average optical output power does not exceed 0 dBm (1mW) under normal operating conditions. Unused optical outputs should be covered to prevent direct exposure to the laser beam.

Even though the power of these lasers is low, the beam should be treated with caution and common sense because it is intense and concentrated. Laser radiation can cause irreversible and permanent damage of eyesight. Please read the following guidelines carefully:

- Make sure that a fiber is connected to the board's fiber outputs before power is applied. If a fiber cable (e.g. patchcord) is already connected to an output, make sure that the cable's other end is connected, too, before powering up the board.
- **Do not** look in the end of a fiber to see if light is coming out. The laser wavelengths being used are totally invisible to the human eye and can cause permanent damage. Always use optical instrumentation, such as an optical power meter, to verify light output.

Mains Supply Voltage

Before connecting the equipment, observe the safety warnings section and ensure that the local mains supply is within the rating stated on the rear of the equipment.

Safety and EMC Standards

This equipment complies with the following standards:

Safety Standards



Information Technology Equipment - Safety Part 1

EN60950-1: 2006

Safety of Information Technology Equipment Including Electrical Business Equipment.

UL1419 (4th Edition)

Standard for Safety – Professional Video and Audio equipment (UL file number E193966)

EMC Standards

This unit conforms to the following standards:

EN55032:2015 (Class A)

Electromagnetic Compatibility of multimedia equipment - Emission requirements

EN61000-3-2:2014 (Class A)

Electromagnetic Compatibility - Limits for harmonic current emissions

EN61000-3-3:2013

Electromagnetic Compatibility - Limits of voltage changes, voltage fluctuations and flicker

EN55103-2:2009 (Environment E2)

Electromagnetic Compatibility, Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use. Part 2. Immunity

WARNING

This equipment is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.

FCC / CFR 47:Part 15 (Class A)

Federal Communications Commission Rules Part 15, Subpart B

Caution to the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

EMC Performance of Cables and Connectors

Grass Valley products are designed to meet or exceed the requirements of the appropriate European EMC standards. In order to achieve this performance in real installations it is essential to use cables and connectors with good EMC characteristics.

All signal connections (including remote control connections) shall be made with screened cables terminated in connectors having a metal shell. The cable screen shall have a large-area contact with the metal shell.

SIGNAL/DATA PORTS

For unconnected signal/data ports on the unit, fit shielding covers. For example, fit EMI blanking covers to SFP+ type ports; and fit 75 Ω RF terminators to BNC type ports

COAXIAL CABLES

Coaxial cables connections (particularly serial digital video connections) shall be made with high-quality double-screened coaxial cables such as Belden 8281 or BBC type PSF1/2M and Belden 1694A (for 3Gbps).

D-TYPE CONNECTORS

D-type connectors shall have metal shells making good RF contact with the cable screen. Connectors having "dimples" which improve the contact between the plug and socket shells, are recommended.

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1 Introduction

This document is intended as guidance for experienced support and engineering functions only.

The following procedures are described:

- Adding a SSL certificate to a Morpheus UX system that is running a VME Store
- Retrieving the SSL certificate thumbnail for adding to a DSC Deploy script
- Updating a live Morpheus UX system with a new thumbnail

The installation of SSL certificates is required for the following:

- In order to provide secure communications over HTTPS
- In order to provide copy / paste functionality between Morpheus UX systems, typically regarding events in the Editor

2

Importing SSL Certificates onto Morpheus UX Hosts

This section describes the steps that are necessary in order to import a certificate onto a host Morpheus UX machine and retrieve the certificate thumbprint so that it may be added to a DSC deploy script.

Note: The process must be repeated on all Morpheus UX machines that are running a VME Store.

Importing the SSL Certificate

This process requires the use of Microsoft Management Console (MMC), as follows:

1. Click on the **Start** button then click on **Run** and enter *MMC* into the text box (Figure 2-1).

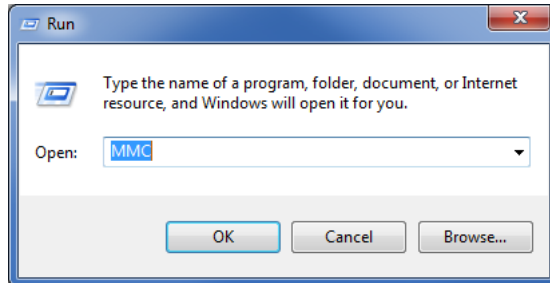


Fig. 2-1: Run MMC

2. Click on **File** and select **Add/Remove Snap-in...** from the displayed menu. The 'Add/Remove Snap-in' window is displayed (Figure 2-2).

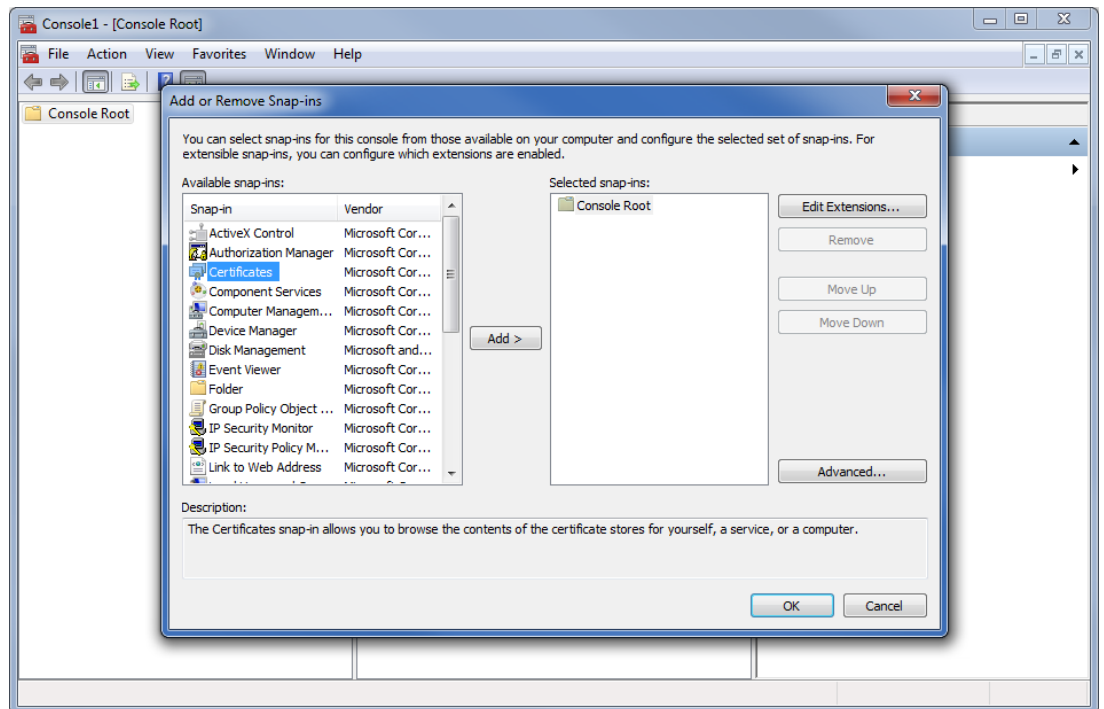


Fig. 2-2: Add/Remove Snap-in

3. Double click on 'Certificates'. The 'Certificates Snap-in' window is displayed (Figure 2-3).
Click on the **Computer Account** radio button then click on **Next**.

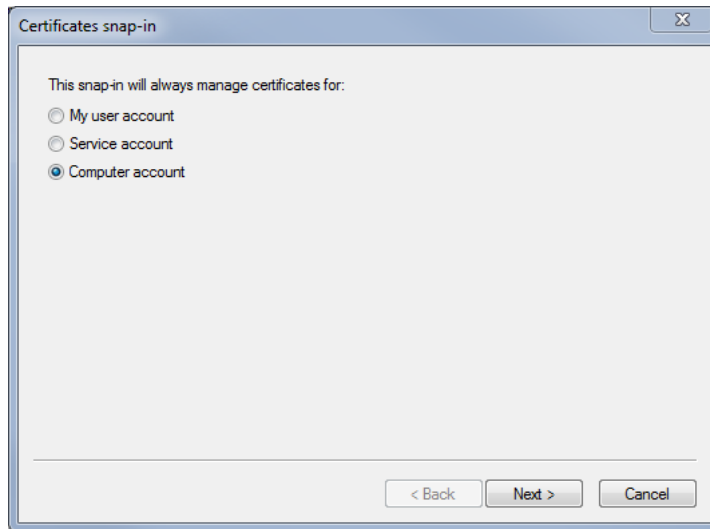


Fig. 2-3: Certificates Snap-in

4. The 'Select Computer' window is displayed.
Click on the **Local Computer: (the computer this console is running on)** then click on **Finish** (Figure 2-4).

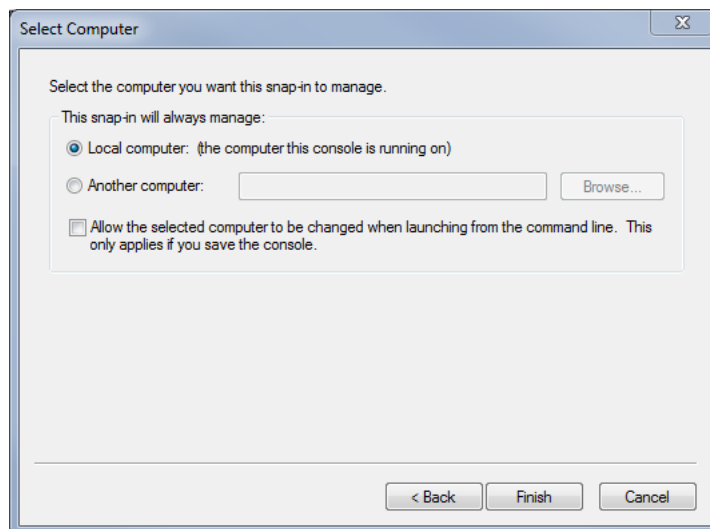


Fig. 2-4: Select Computer

5. Click on **OK** in order to exit the 'Certificates Snap-in' window.

- Expand the 'Certificates (Local Computer Branch)' then the 'Personal' branch.

Right click on the 'Certificates' folder and hover over **All Tasks** from the displayed menu then click on **Import...** (Figure 2-5). The 'Certificate Import Wizard' opens.

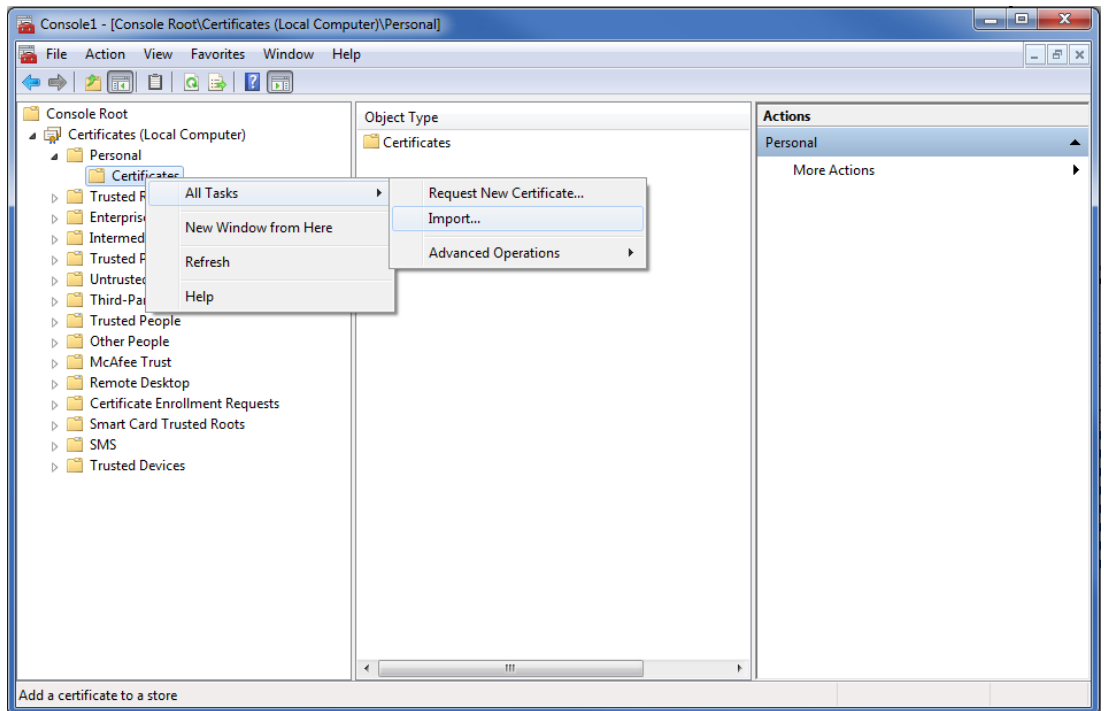


Fig. 2-5: Import Certificates

- Click **Next** in the 'Certificate Import Wizard' and use the browse function in order to select the certificate to import (.cer, .crt, .pfx). Refer to Figure 2-6.

Click on **Next**.

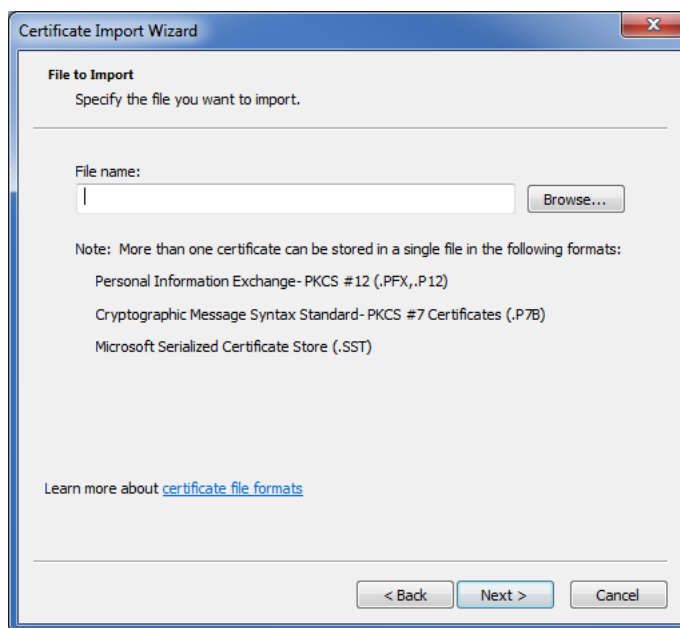


Fig. 2-6: File to Import

8. Click on the **Automatically select the certificate store based on the type of certificate** radio button then click on **Next** (Figure 2-7).

Click on **Finish** in order to exit the Wizard.

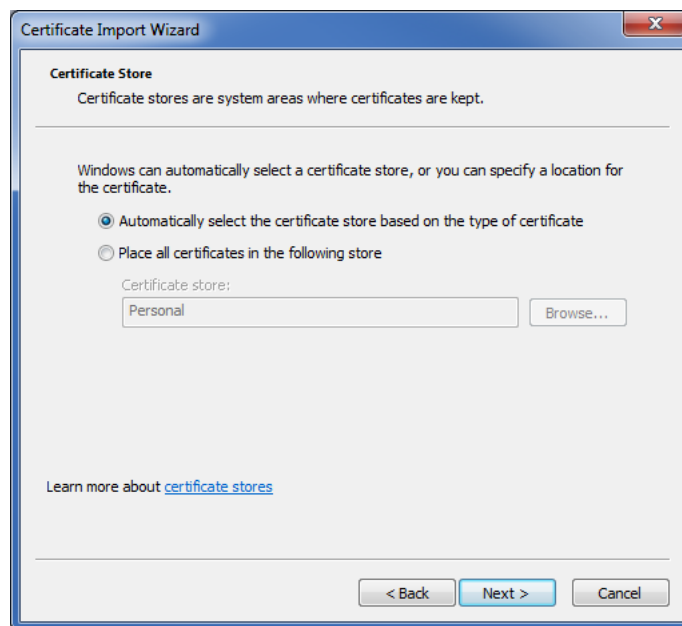


Fig. 2-7: 'Automatically Select the Certificate

Adding the Certificate Thumbprint to the DSC Deploy Script

This process requires the use of Microsoft Certificate Manager, as follows:

1. Click on the **Start** button and type *certmgr.msc* in the 'Search Programs and Files' text box (Figure 2-8).
2. From the displayed results, click on the *certmgr.msc* application.

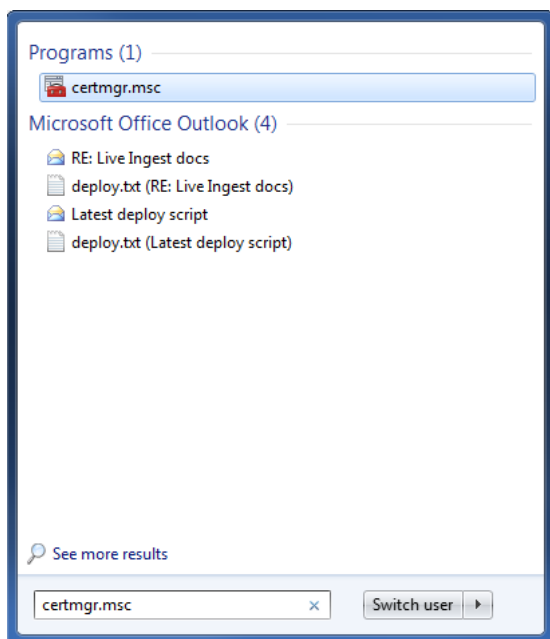


Fig. 2-8: Starting *certmgr.msc*

3. The 'certmgr' application is started (Figure 2-9).

Expand the relevant tree (usually 'Trusted Root Certification Authorities') then click on the appropriate folder in order to display the certificates.

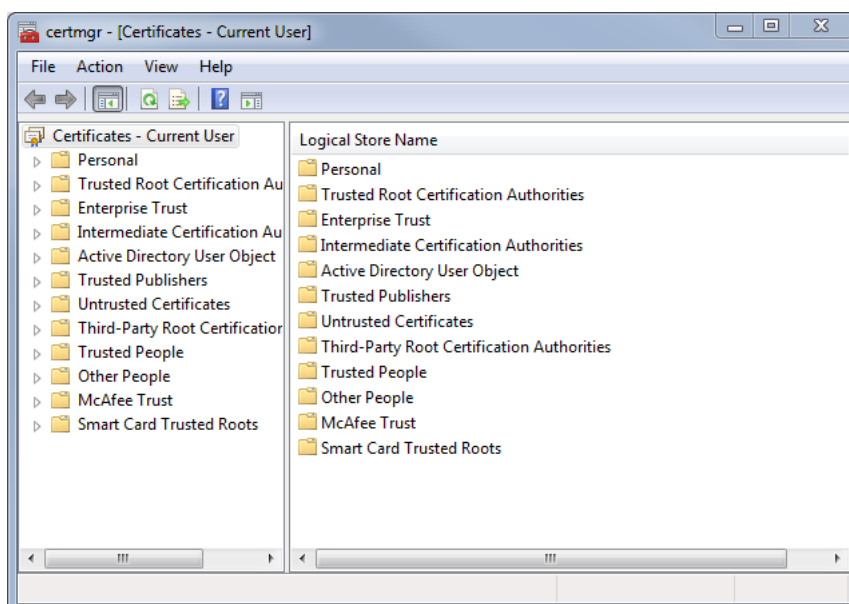


Fig. 2-9: *certmgr* Application

4. The certificate details are displayed.

Click on the 'Details' tab then on the 'Thumbprint' field in order to view the hex thumbprint (Figure 2-10).

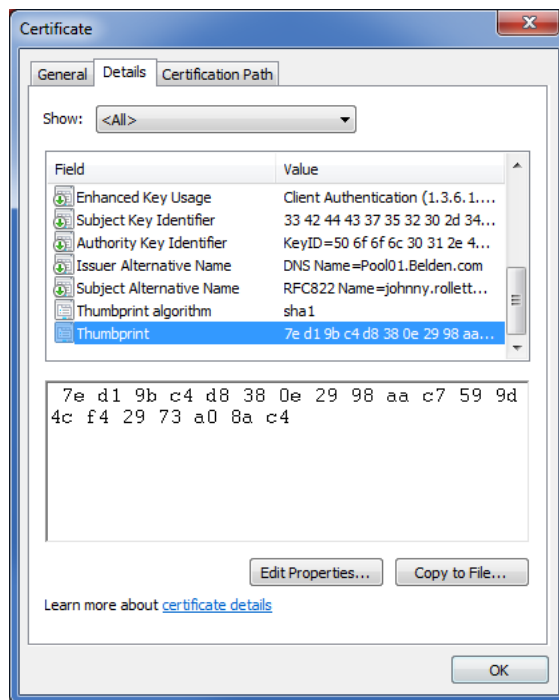


Fig. 2-10: Certificate Thumbprint

5. Copy the Thumbprint from certmgr and paste into the DSC deploy script as the value for 'SslThumbprint' (refer to the section Updating SSL Certificate Thumbprints in a DSC Deploy Script for details).

IMPORTANT: All white space must be removed from the thumbprint prior to pasting into the DSC deploy script. Note that there is a leading white space!

3 Updating SSL Certificate Thumbprints in a DSC Deploy Script

This section describes the procedure for updating a SSL certificate thumbprint on a live Morpheus UX system.

The steps should be performed on all systems that are running a VME Store and in the order in which they are presented.

Note: The instructions provided below are for guidance only as they have not been validated in a live environment and therefore may be incomplete.

Refer to the ReadMe.txt file in the `Installer` folder of the deployment directory for additional information.

Preparatory System Procedures

1. Verify that all of the most recent backups have been performed according to the maintenance plan.
2. On each machine, perform the following:
 - Shut down the Agent Host App
 - Shut down the VME Store

Note: Verify in Task Manager that any threads relating to these applications and any existing Windows user sessions are stopped.

It is not necessary to shut down any Morpheus applications that do not relate to VME, such as Snapshotter.

Updating the DSC Script with the New Thumbprint

1. Navigate to the folder that contains the DSC deploy script (example):
`C:\GrassValley\Dsc\Input\Installer`
2. Copy and rename the PowerShell Data file (.psd1).
3. Open the PSD1 file in Notepad++ in order for the required edits to be made.
4. At the top of the PSD1 file there should be the filename and the version of the file that was copied (as shown below); the filename must be changed and the version set to one that it is applicable to the new file.

```
#####  
###DSCDefault.psd1###  
### Version 1.0 Revision 1###  
### DO NOT EDIT OR DUPLICATE WITHOUT RENAMING AND CHANGING THE VERSIONING  
INFORMATION###  
#####
```

5. Update the certificate thumbprint.
It can be found in the PSD1 file under `Type = 'VmServer'` and written as follows (example):
`SslThumbprint = 7ed19bc4d8380e2998aac7599d4cf42973a08ac4`
6. Save the changes in Notepad++ and close.
7. Run PowerShell.
 - a) Click on the **Start** button and search for Windows PowerShell, right click on its icon then click on **Run as Administrator** from the displayed menu.

Note: The following prompt is returned if an incomplete command is unwittingly entered:

```
>>
```

Exit this state by entering **Ctrl-C**.

- b) Set the PowerShell installation output to verbose:
`> $VerbosePreference = "Continue"`
- c) Generate a transcript of the installation process:
Before starting the installation type: `> Start-Transcript filename`
At completion of the installation: `> Stop-Transcript`

8. Install the DSC resources in PowerShell.

- a) Verify that Windows Management Framework (WMF) is at the required release version. Enter the following command:

```
> $PSVersionTable
```

- b) Change directory to the installation folder (example):

```
> cd \GrassValley\Dsc\Input\Installer
```

- c) Install the DSC resources:

```
> .\InstallModules.ps1
```

- d) Verify that the expected modules have been installed:

```
> dir 'C:\Program Files\WindowsPowerShell\Modules
```

The output should display the directories installed by the process (examples):

```
*mAh  
*Db  
*Mdm  
*NetshHttp  
*Util  
*Vme  
*Workflow
```

9. Generate the MOF files.

- a) Run the PSD1 data file through the PS1 script; a MOF file will be generated for each Node detailed in the PSD1 file:

```
> .\ConfigBuilder.ps1 .\<CustomerFileName>.psd1
```

The MOF files will be generated into the MciConfig folder in (example)
\GrassValley\Dsc\Input\Installer

- b) Verify that the MOF files have been generated:

```
> dir MciConfig
```

The output displays the MOF files, the names of which are derived from the Node names defined in the PSD1 data file (e.g. VM-TPS-DSC1.mof).

10. Distribute the MOF file.

- a) It should not be necessary to initialise the Local Configuration Manager (LCM) as it should be running. If not then enter the following command:

```
> .\InitialiseLcm.ps1
```

As a part of the process, the file localhost.meta.mof is created in
C:\Dsc\Input\Installer\LCMConfig; it can be ignored.

- b) Install all of the products defined in the PSD1 file.

```
> .\InstallModules.ps1
```

11. Apply the MOF file.

Note: When applying a MOF for a Node that is acting as an Agent Host in dual redundant mode, the local computer name must be specified as a qualifier to the `Start-DscConfiguration` command (as shown below). This is required in order to prevent the process from trying to load the MOF remotely onto any other redundant Agent Host specified in the PSD1.

In this respect, it is therefore recommended that the local computer name qualifier is used regardless when applying all MOFs.

From the Windows PowerShell interface, run the following command:

```
> Start-DscConfiguration -Wait -Verbose MciConfig -ComputerName  
<computername>
```

12. Stop the optional transcript (if running)

```
> Stop-Transcript
```

13. Restart the applications that were stopped at the beginning of this process.

Debugging a DSC Deployment

Should a failure occur during the deployment of the MOF file, PowerShell will hold the process in a waiting state pending either resolution of the issue, or its cancellation.

- In order to resume a configuration following resolution of the issue:

```
> Start-DscConfiguration -Wait -UseExisting
```
- To cancel the configuration:

```
> Remove-DscConfigurationDocument -Stage Pending
```

Note: Whilst held in a pending state, it is not possible to rerun the same configuration process.

Testing a Deployed Configuration

Run one of the following commands in order to check the current state of configured nodes.

```
> Test-DscConfiguration
```

Returns `True` if the desired and actual configurations match, otherwise a `False` is returned. If verbose mode is set then all test messages are displayed.

```
> Test-DscConfiguration -Detailed
```

Returns a brief status report, unless in verbose mode, in which case all test messages are displayed.

Output Test Messages to a File

In order to output the verbose test messages to a text file, enter the following sequence of commands:

1. Output the test messages to an object - the object name can be anything of choice.

```
> $ObjectName = Test-DscConfiguration -Detailed
```

Example

```
> $OutputLog = Test-DscConfiguration -Detailed
```

2. Output selected messages to a text file using qualifiers.

```
> $ObjectName.ResourcesInDesiredState > filename.txt
```

Example 1

```
> $OutputLog.ResourcesInDesiredState > InState.txt
```

Outputs the test messages relating to Nodes that are in the desired state to a file named `InState`.

Example 2

```
> $OutputLog.ResourcesNotInDesiredState > NotInState.txt
```

3. View the text file in Notepad

```
> notepad filename.txt
```

Example

```
> notepad InState.txt
```




Grass Valley Technical Support

For details of our Regional Customer Support Offices please visit the Grass Valley website and navigate to Support > Contact Support.

<https://www.grassvalley.com/support>

UK Office

The department is staffed from 9.00am to 5:30pm Monday to Friday (excluding UK public holidays).

Outside these times, calls will be delivered to voicemail for follow up on the next working day.

Additional support is available outside these hours by purchasing a support contract, details of which are available from the Grass Valley website and through the account manager.

Customers with an existing support contract should call their personalised number, which can be found in the contract, and be ready to provide the contract number and details.