How to configure Emulex Fibre Channel HBAs with Hyper-V Virtual Fibre Channel on Microsoft Windows Server 2012 with a virtual machine running Microsoft Windows Server 2008 R2 x64

This application note explains how to connect directly Emulex Fibre Channel Host Bus Adapters (HBAs) to Fibre Channel storage from a virtual machine (VM) running Windows Server 2008 R2 x64. The VM is hosted on a server running the first release candidate (RC) of Windows Server 2012.

Introduction

Virtual Fibre Channel is a new feature of Windows Server 2012 that makes HBA ports available within a guest operating system (OS), allowing the VM to connect directly to Fibre Channel storage.

The benefits of the Hyper-V virtual Fibre Channel feature include:

- Virtualize workloads and applications that require direct access to Fibre Channel-based storage
- Configure clustering directly within the guest OS (sometimes referred to as guest clustering)
- Monitor Fibre Channel ports from the VM with Emulex OneCommand® Vision

Support for Fibre Channel in Hyper-V guests also includes support for many related features, such as virtual SANs, live migration and MPIO. For more information on the Hyper-V virtual Fibre Channel feature, refer to Hyper-V Virtual Fibre Channel Overview.

Instructions

1. If necessary, add the Hyper-V role to the host server. Using the Windows Server Manager tool, select **Add Roles and Features→Add Hyper V**.
2. To access Hyper-V for the first time under Server Manager, select **Tools→Hyper-V Manager→Connect to server→Select local computer**.
3. From the **Actions** menu at the right of the Hyper-V Manager window, select **Virtual SAN Manager**.
4. As shown in Figure 1, set up a virtual Storage Area Network (SAN) switch containing the physical ports of the Fibre Channel HBA you wish to virtualize.

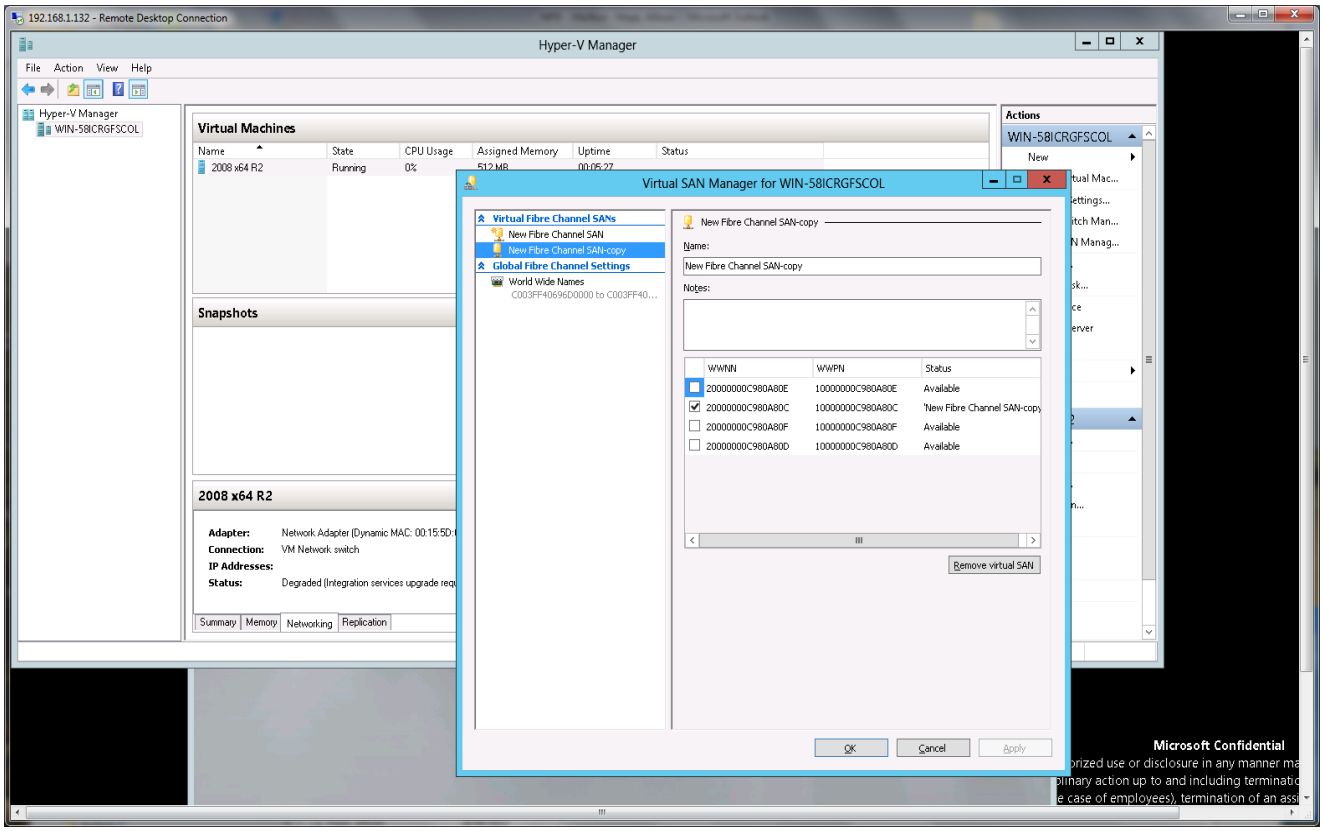


Figure 1: Setting up a virtual SAN switch

5. From the **Actions** menu, select **Virtual Switch Manager**. Assign the Network Interface Card (NIC) to be used for VM networking.
6. Add a VM by right-clicking on the name of the host server and selecting **New→VM**. Select and install the OS.
7. Log into the VM by right-clicking on its name and then selecting **Connect** from the pop-up menu.
8. From the **Action** menu in Hyper-V Manager, first select **Start** and then the **Ctrl-Alt-Delete** option.
9. Shut down the VM.
10. Right-click on the name of the VM. Select **Settings** from the pop-up menu and then assign a network switch to the VM.

11. Also assign the virtual SAN switch to the VM, as shown in Figure 2.

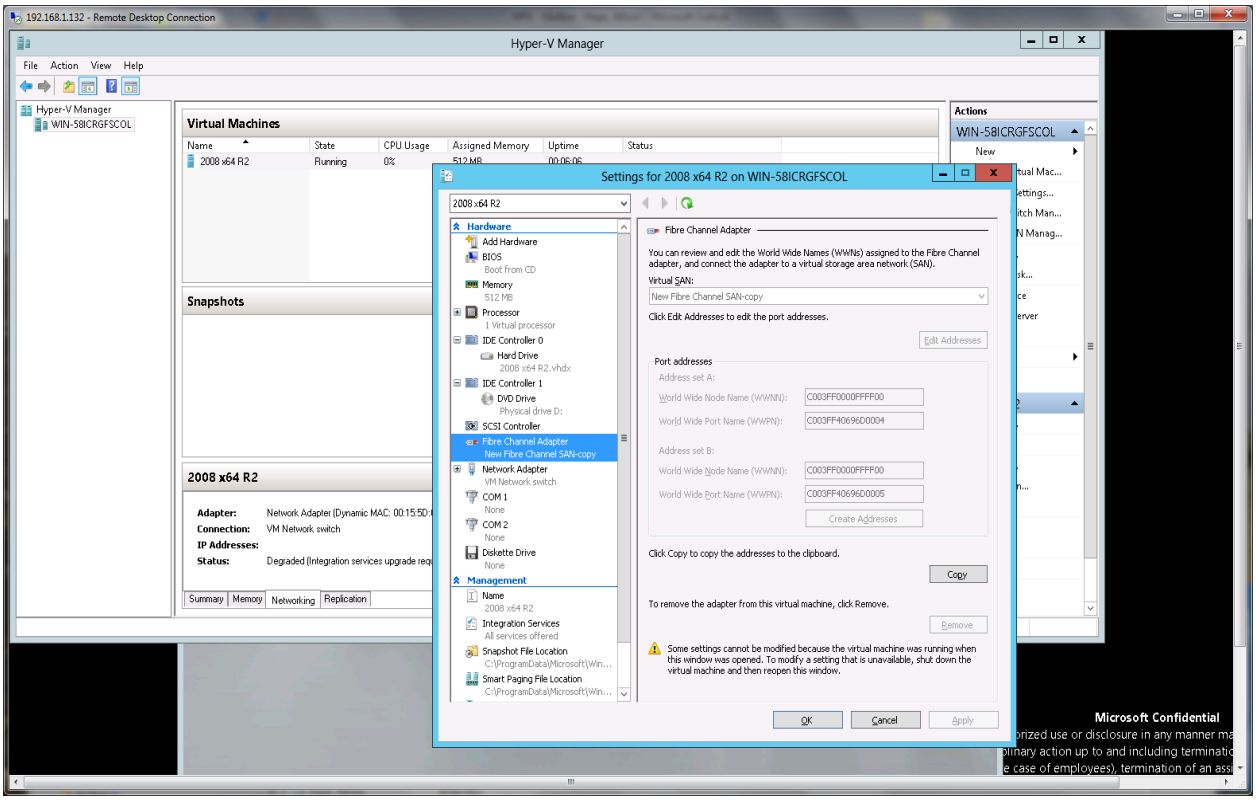


Figure 2: Assigning the virtual SAN switch to the VM

12. Check which version of Hyper-V Integration Services has been installed in the VM. The current version is displayed in **Device Manager** under **Storage Controllers**.
    - If necessary, update Hyper-V Integration Services to the latest version. To perform the update, use the **Action** menu of Hyper-V Manager and select **Insert Integration Services Setup Disk**.
    - Note that Hyper-V Integration Services 6.1.7600.16385 does not allow Hyper-V Virtual Fibre Channel to work correctly, with this particular version being listed as a storage miniport driver. However, after an update to Hyper-V Integration Services 6.2.8441.0, the new version is listed as a Microsoft Hyper-V Fibre Channel HBA.

13. Update Fibre Channel switch zoning to include the new virtual WWPN, as shown in Figure 3.

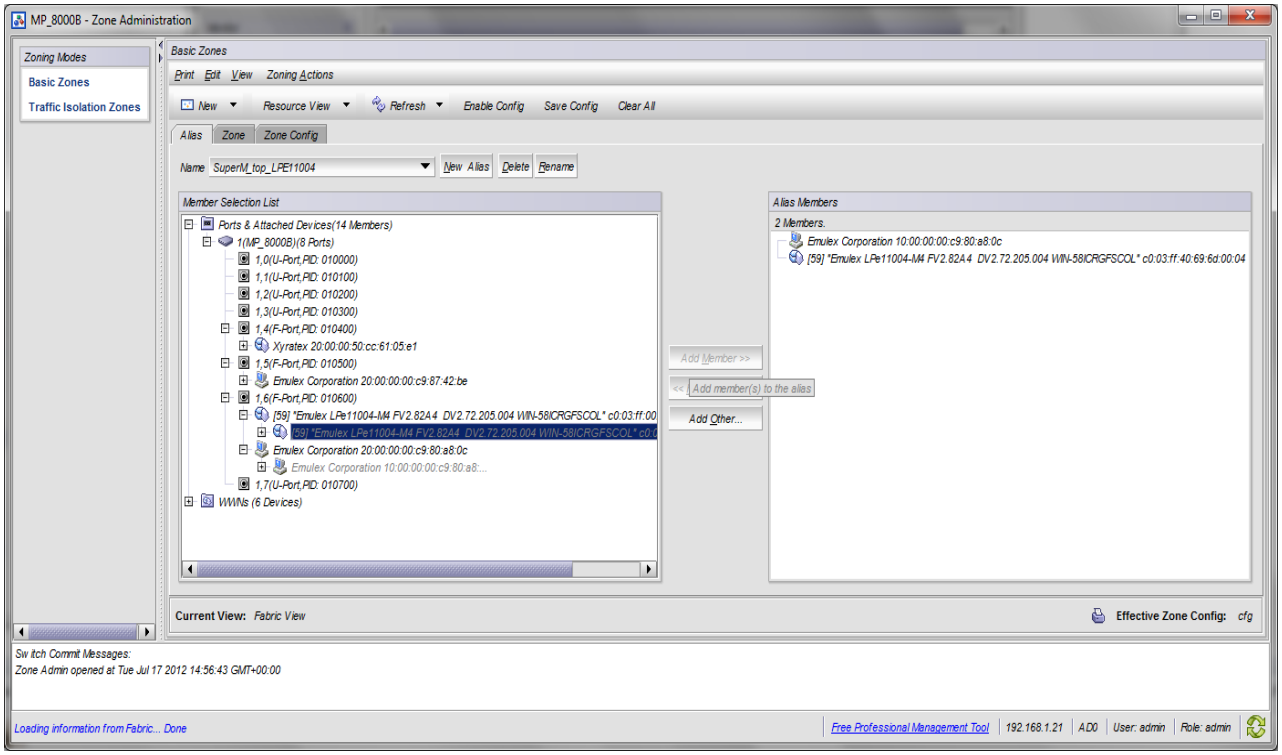


Figure 3: Updating Fibre Channel switch zoning to include the new virtual WWPN

14. On the storage, map a LUN to the new virtual port (vPort), as shown in Figure 4. Note that Xyratex storage is utilized in this example.

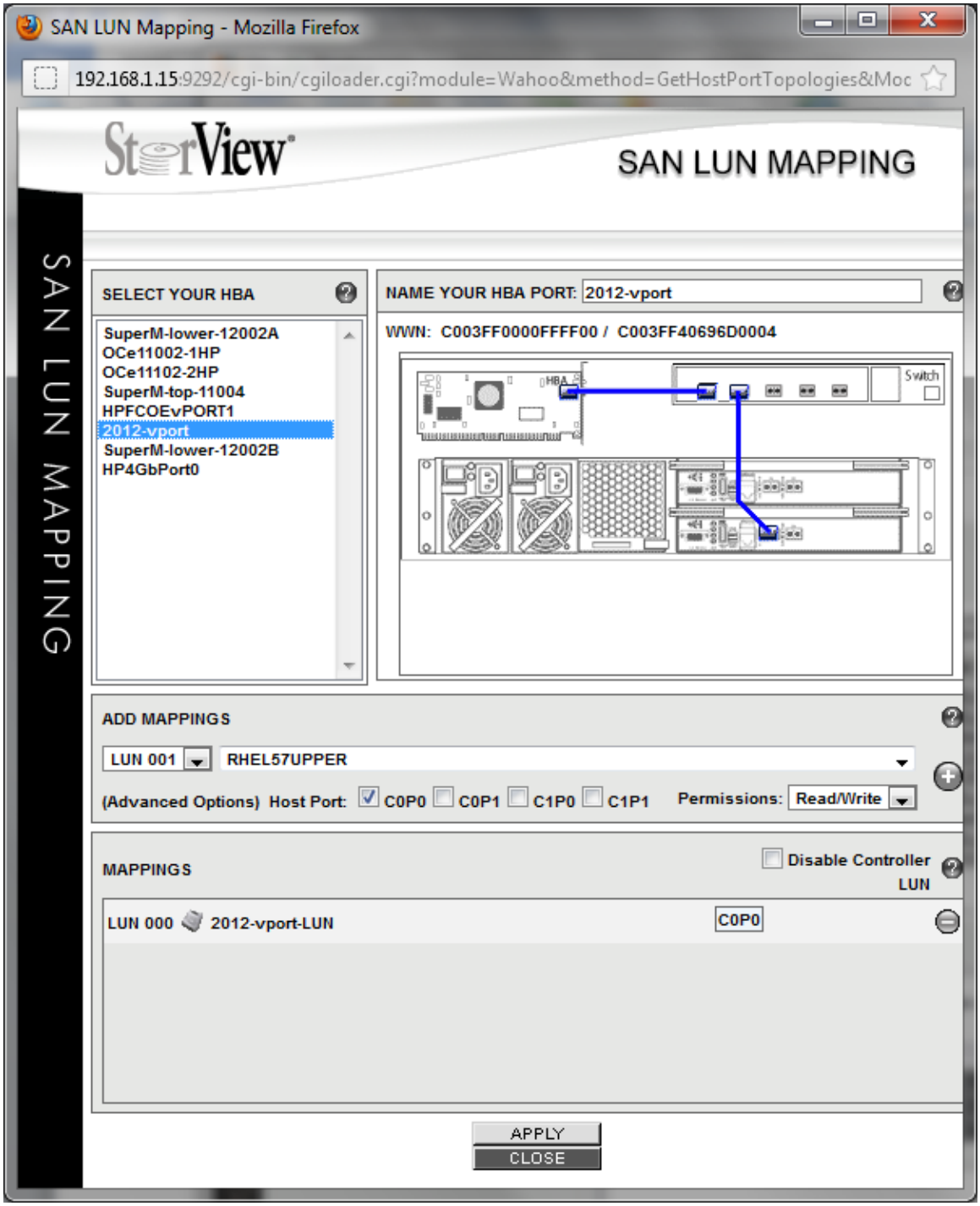


Figure 4: Using StorView software to map a LUN to the new vPort

15. To verify Hyper-V Virtual Fibre Channel set-up, scan for new devices using Disk Manager on the VM. Figure 5 shows the Virtual Fibre Channel-linked LUN – Disk 1 – on which volume E: has been created.

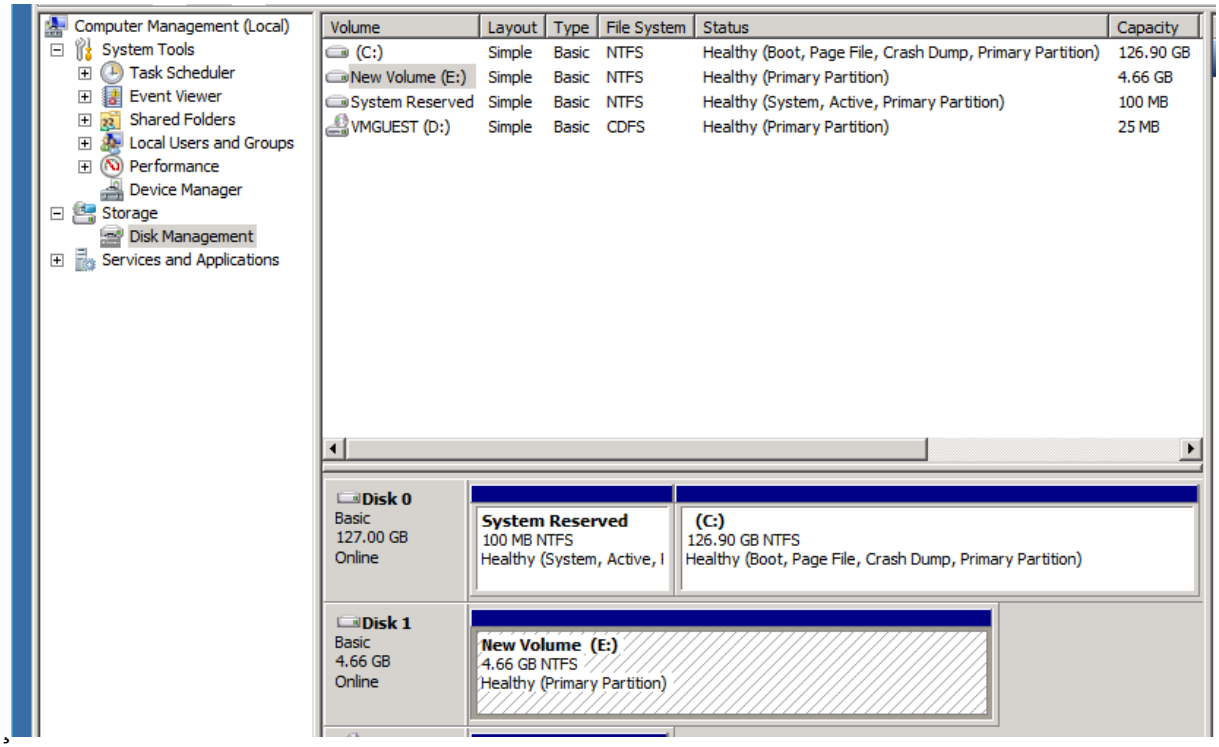


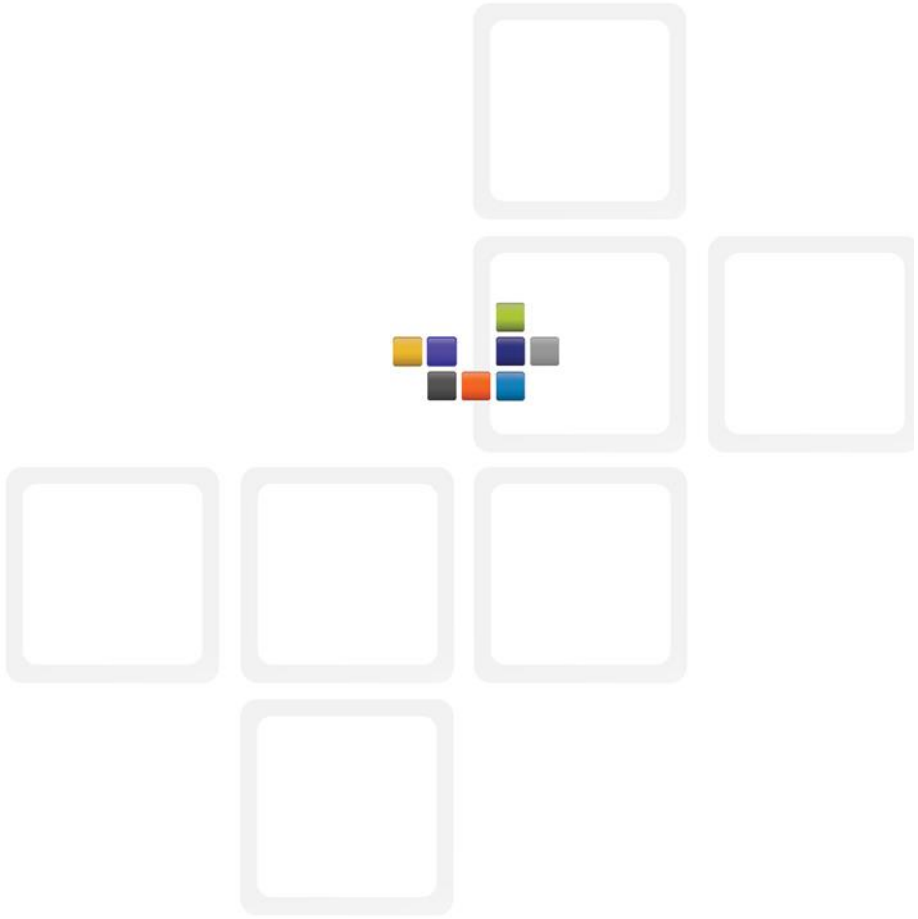
Figure 5: Volume E: has been created on the Virtual Fibre Channel-linked LUN

The steps demonstrated in the application note should assist in configuring a virtual HBA within a Microsoft Hyper-V virtual machine. For more information, please contact your OEM technical support or Emulex technical support.

More information

Emulex Solution Implementer's Lab website www.implementerslab.com

To help us improve our documents, please provide feedback at implementerslab@emulex.com.



EMULEX

www.emulex.com

World Headquarters 3333 Susan Street, Costa Mesa, California 92626 +1 714 662 5600
Bangalore, India +91 80 40156789 | **Beijing, China** +86 10 68499547
Dublin, Ireland+35 3 (0)1 652 1700 | **Munich, Germany** +49 (0) 89 97007 177
Paris, France +33 (0) 158 580 022 | **Tokyo, Japan** +81 3 5322 1348
Wokingham, United Kingdom +44 (0) 118 977 2929