The Balabit's Privileged Session Management 5 F6 Azure Reference Guide

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Abstract
Administrator Guide for Balabit's Privileged Session Management (PSM)

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1. Deploying Balabit's Privileged Session Management from the Azure Marketplace

This guide provides detailed descriptions for deploying Balabit's Privileged Session Management (PSM) from the Microsoft Azure Marketplace.

Before you start:

Before you start evaluating PSM, make sure you understand what PSM is and how it works. This information can greatly help you get PSM operational. Read the following:

- *Chapter 1, Introduction* in *The Balabit's Privileged Session Management 5 F6 Administrator Guide*
- *Chapter 2, The concepts of PSM* in *The Balabit's Privileged Session Management 5 F6 Administrator Guide*

1.1. Prerequisites

The following prerequisites must be met to deploy PSM in Microsoft Azure:

- You have a valid Balabit's Privileged Session Management license. When deployed from the Microsoft Azure Marketplace, the Balabit's Privileged Session Management uses the "Bring your own license" model. Note that to deploy two active PSM nodes as an availability set, you must purchase two standalone PSM licenses. To purchase a license, contact One Identity at `<sales@balabit.com>`.
- Microsoft recommends to use the *Azure Resource Manager (ARM) deployment model*. When you install PSM from the Azure Marketplace, PSM supports only this deployment method. If you need to deploy PSM into and infrastructure that uses the Classic deployment model, contact your One Identity sales representative.
- You have a Microsoft Azure account.

1.2. Limitations

The following limitations apply to PSM when you deploy it from the Microsoft Azure Marketplace.

Warning
Do not export or import configuration between a physical PSM deployment and a virtual one. Because of the differences and limitations between physical and virtual appliances, configure the virtual appliance from scratch to ensure proper functionality. When you migrate a virtual PSM to another one, you can export and import the configuration.

- Root login is not available on the console.
- SSH access is only available after you have completed the Welcome Wizard.
- Currently, the data that is entered during the provisioning phase (for example username, IP address) of creating the virtual machine in Azure is not transferred to PSM. Therefore, only the data entered in the Welcome Wizard will be used.

- By default, you can only use Physical interface 1 (eth0) of PSM, with a single IP address. Aside from changing the IP address of PSM, do not modify other interface-related settings (additional logical interfaces, IP forwarding, and so on) on the **Basic Settings > Network** page of PSM.
  The number of interfaces you can use depends on the size of your Azure VM. If your VM allows you to use multiple interfaces, you can configure multiple interfaces in PSM. For details, see *VM with multiple NICs*.

- The **Seal the box** functionality is not available.
- The High Availability support of PSM was designed to work between two physical PSM appliances. This feature is not available in Azure environments. For further details, see the *Section 1.4, High Availability and redundancy in Microsoft Azure (p. 7)*.
- Due to Azure requirements, an additional 5-minute delay has been added to the boot process. This ensures that the root device appears in the system.
- The size of the hard disk in Azure is 100 Gb. You cannot extend this virtual disk size later, nor can you write to Samba or other disks. In case you run out of disk space, either configure a **Backup policy** and an **Archive policy** if you have a server for this purpose, or configure a **Cleanup policy** that deletes the audit trails at certain time intervals. For details, see *Section 4.7, Data and configuration backups* in *The Balabit's Privileged Session Management 5 F6 Administrator Guide* and *Section 4.8, Archiving and cleanup* in *The Balabit's Privileged Session Management 5 F6 Administrator Guide*.
- PSM currently cannot receive its IP address using DHCP. Make sure that:
  - The IP address you have configured in Azure and the IP address that you configure for PSM for the **Physical interface 1** on the Networking settings part of the Welcome Wizard are the same. Otherwise, you will not be able to access PSM.
  - You set the internal IP static on the Network Interfaces tab of the Virtual Machine.
  - Do not assign a public IP address to PSM, use PSM as a component of your internal infrastructure. If you absolutely must configure Welcome Wizard from a publicly accessible IP address, note that PSM will be publicly accessible. If you assign a public IP to the web management interface, consider the following:
    - Select a complex passphrase.
    - Limit access to the management interface based on the source IP address, and make sure that brute-force protection for the administrator web login is enabled (they are enabled by default). For details, see *Procedure 4.3.1, Configuring user and administrator login addresses* in *The Balabit's Privileged Session Management 5 F6 Administrator Guide*.
    - Configure an email alert or SNMP trap for administrator logon events. For details, see *Procedure 4.5.2, Configuring e-mail alerts* in *The Balabit's Privileged Session Management 5 F6 Administrator Guide* and *Procedure 4.5.3, Configuring SNMP alerts* in *The Balabit's Privileged Session Management 5 F6 Administrator Guide*.
    - Forward the logs of PSM to a log server (for example, to a *syslog-ng server, or an syslog-ng Store Box appliance*) so that if the local logs are compromised, you still have an authentic copy of the original logs.
    - For security reasons, disable SSH access to PSM when it is not needed. Accessing the PSM host directly using SSH is not recommended or supported, except for troubleshooting purposes.

If you enable SSH access, restrict the clients that can access PSM based on their source IP address, and make sure that brute-force protection is enabled (they are enabled by default). For details, see *Procedure 6.6.2, Enabling SSH access to the PSM host* in *The Balabit's Privileged Session Management 5 F6 Administrator Guide*.

- To prevent unauthorized access to the audit trail files recorded on PSM, configure proper access control rules for the user groups and encrypt every audit trail. If you use encryption, store your keys in the personal or in the temporary key store. For details, see *Procedure 7.10.1, Encrypting audit trails* in *The Balabit's Privileged Session Management 5 F6 Administrator Guide*,

- Upgrading PSM in Azure is the same as upgrading a physical appliance: you have to upload the firmware on the PSM web interface. For detailed instructions, see *How to upgrade to Balabit's Privileged Session Management 5 F6*.

1.3. Procedure – Deploy Balabit's Privileged Session Management from the Microsoft Azure Marketplace

Purpose: . To have a Balabit's Privileged Session Management running in Microsoft Azure, complete the following steps.

Steps:

Step 1. **Deploy Balabit's Privileged Session Management from the Microsoft Azure Marketplace.** Create and configure a Balabit's Privileged Session Management virtual machine (VM) in the Azure portal. For details, see the *Microsoft Azure documentation*, here we just describe the PSM-specific settings.

Step a. *Login to the Azure portal*, select **Balabit's Privileged Session Management** from the Azure Marketplace, then click **Create**.

Step b. Fill the required fields of the **Basics** blade. Note that you must fill the **User name** and **Authentication Password/SSH public key** fields, but PSM will not actually use these settings (PSM will use the parameters you configure in the PSM Welcome Wizard).

Step c. Choose a size for the VM. If you want to use this machine in production and need help about sizing or architecture design, contact your One Identity sales representative.
The number of interfaces you can use depends on the size of your Azure VM. If your VM allows you to use multiple interfaces, you can configure multiple interfaces in PSM. For details, see *VM with multiple NICs*.

Step d. On the **Settings** blade, disable monitoring.

Step e. When the deployment is finished, navigate to the network settings of the new VM in the Azure portal. Change the IP address of the PSM network interface to Static, and note down the IP address and the hostname (you will need it in the PSM Welcome Wizard).

Step f. If you want to backup or archive data from PSM into Azure, *create an Azure File Share*. Note down the following information of the file share, because you will need it to configure PSM backups and archiving: `URL`, `Username`, `Password`.

Warning
If you have multiple PSM VMs, make sure to use a separate file share for each PSM.

Step 2. **Complete the PSM Welcome Wizard.** Complete the PSM Welcome Wizard (for details, see *Procedure 3.2, Configuring PSM with the Welcome Wizard* in *The Balabit's Privileged Session Management 5 F6 Administrator Guide*). Note the following points specific for Azure deployments. When configuring the network settings of PSM note the following points.

Warning
Do not export or import configuration between a physical PSM deployment and a virtual one. Because of the differences and limitations between physical and virtual appliances, configure the virtual appliance from scratch to ensure proper functionality. When you migrate a virtual PSM to another one, you can export and import the configuration.

Step a. Into the **Physical interface EXT or 1 — IP address** field, enter the static IP address of the PSM VM that you set on the Azure portal.

Step b. **Default GW**: The default gateway is usually the first address in a subnet (for example, if your subnet is `10.7.0.0/24`, then the gateway will be `10.7.0.1`).

Step c. **Hostname**: Use the hostname you have configured for the PSM VM on the Azure portal.

Step d. **DNS server**: You can use any DNS server that the PSM VM can access, even public ones.

Step 3. **Configure PSM.** Login to PSM and configure it.

Step a. Configure backups for PSM. For backup and archiving purposes One Identity recommends the built-in file shares of Azure. For details on configuring backups, see *Section 4.7, Data and configuration backups* in *The Balabit's Privileged Session Management 5 F6 Administrator Guide*.

Step b. Configure archiving for PSM. For backup and archiving purposes One Identity recommends the built-in file shares of Azure. For details on configuring backups, see *Section 4.8, Archiving and cleanup* in *The Balabit's Privileged Session Management 5 F6 Administrator Guide*. Configuring Archiving policy is highly recommended: because if the disk of the VM fills up, PSM stops working.

Step c. Configure a server: set up a host that is on the same subnet as PSM, and enable Remote Desktop (RDP) or Secure Shell (SSH) access to it.

Step d. Configure a connection on PSM to forward the incoming RDP or Secure Shell (SSH) connection to the host and establish a connection to the host. See *Procedure 3.3, Logging in to PSM and configuring the first connection* in *The Balabit's Privileged Session Management 5 F6 Administrator Guide* for details.

Step e. Replay your session in the browser. See *Procedure 16.1.2, Replaying audit trails in your browser in Search (classic)* in *The Balabit's Privileged Session Management 5 F6 Administrator Guide* for details.

In case you have questions about PSM, or need assistance, contact your One Identity representative.

1.4. High Availability and redundancy in Microsoft Azure

In a Microsoft Azure deployment, the high-availability and redundancy of the PSM appliance is provided by the Microsoft Azure infrastructure, according to the *Azure Storage SLA*.

Redundancy

The data in your Microsoft Azure storage account is always replicated to ensure durability and high availability, meeting the Azure Storage SLA. The exact type of replication depends on your storage account settings, but every disk is stored in 3 copies.

For details, see *Locally redundant storage* in the *Azure Storage replication* document, and *Service Healing - Auto-recovery of Virtual Machines*.

High Availability

If a hardware failure occurs, Azure moves the Virtual Machine to another location and restarts it in 5-15 minutes. In case you require higher SLA, you are recommended to deploy two standalone PSM nodes into an availability set. Note that to deploy two active PSM nodes as an availability set, you must purchase two standalone PSM licenses.

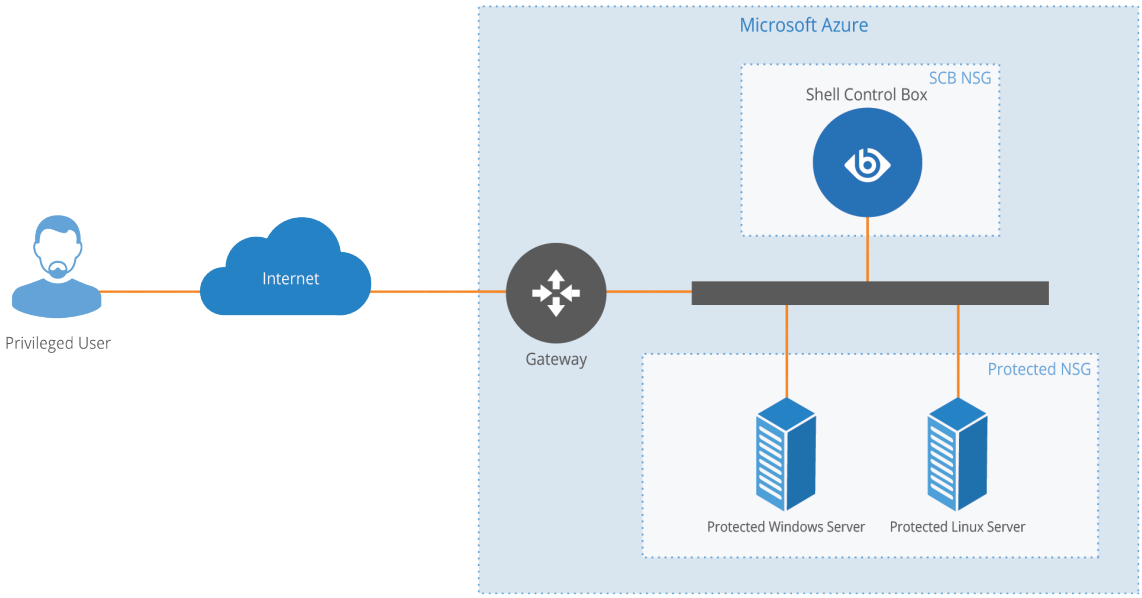
For details, see *Locally redundant storage* in the *Azure Storage replication* document, and *Service Healing - Auto-recovery of Virtual Machines*.

2. Architectural best practices

You can select several configuration options when installing Shell Control Box into Azure. This section will discuss two deployment models: Advanced Resource Manager (ARM) and Classic. Although, SCB can be installed using the ARM model only, you will be able to monitor virtual machines deployed in the Classic model too. The example architectures for both deployment models are described below:

2.1. Example architecture for monitoring virtual machines deployed with the ARM deployment model

Figure 1. ARM deployment model



Goal

Protect and audit every remote access connection (RDP and SSH) coming from the Internet and targeting the protected servers, deployed in the ARM model.

Network settings

Public IP addresses:

Every virtual machine has the same public IP address.

Private IP addresses:

Machine	IP	Subnet
Shell Control Box	10.0.0.10	10.0.0.0/24
Private Windows Server	10.0.0.20	10.0.0.0/24

Machine	IP	Subnet
Private Linux Server	10.0.0.30	10.0.0.0/24

Table 1. System related traps

Network Security Group (NSG) rules:

SCB NSG			
From	**Port**	**Verdict**	**Description**
Any	22	Allow	SSH connection to the Protected Linux Server
Any	3389	Allow	RDP connection to the Protected Windows Server
Any	443	Allow	SCB Web GUI
Any	Any	Deny	Any other connection is denied

Table 2. SCB NSG

Protected NSG			
From	**Port**	**Verdict**	**Description**
Any	80	Allow	HTTP service listening on the Protected Linux Server
Any	8080	Allow	HTTP service listening on the Protected Windows Server
10.0.0.10/32	22	Allow	SSH service listening on the Protected Linux Server only allowed from SCB
10.0.0.10/32	3389	Deny	RDP service listening on the Windows Server only allowed from SCB
Any	Any	Deny	Any other connection is denied

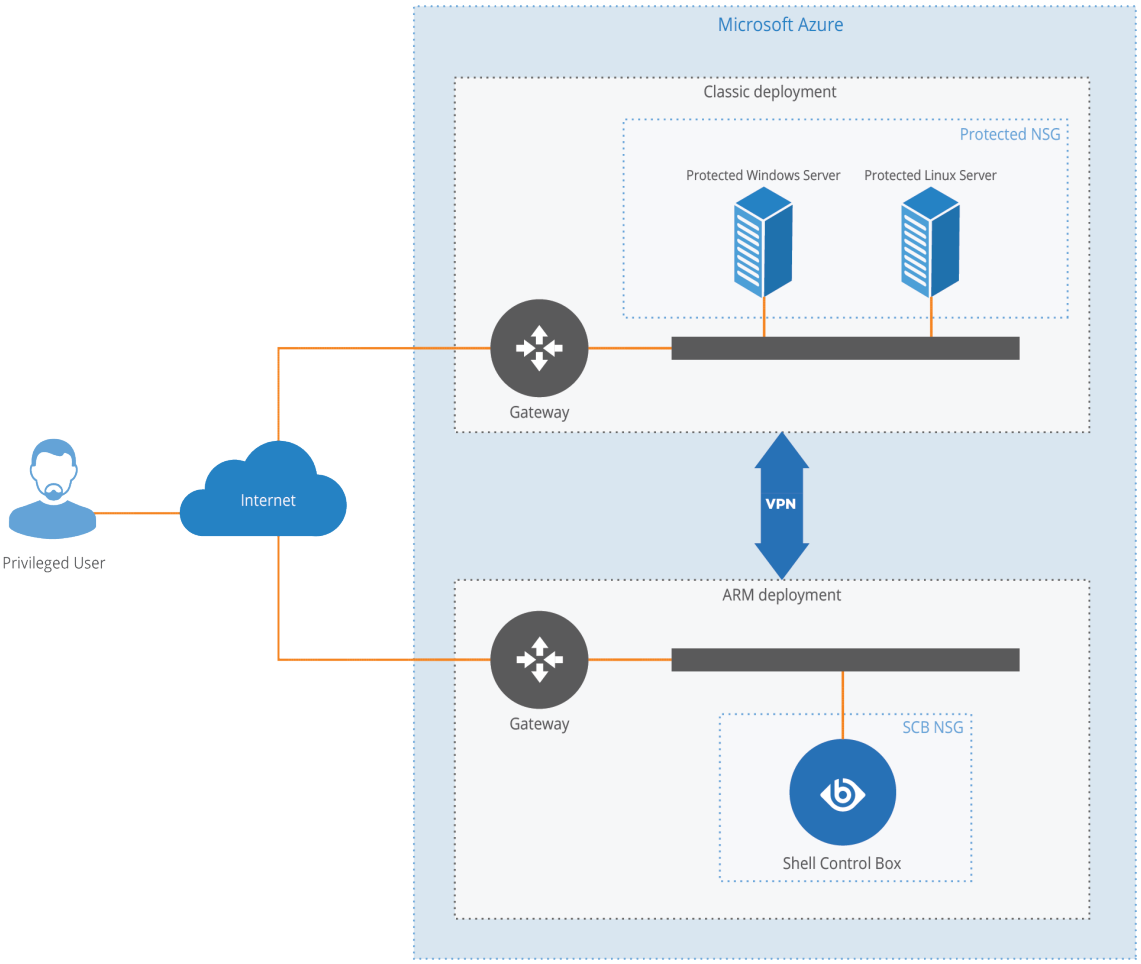
Table 3. Protected NSG

Description

On the two protected servers HTTP services (for example APIs) are running. This example focuses on remote connections, therefore the HTTP services are not audited by SCB. Every incoming RDP and SSH connection will reach SCB, as the NSGs are forcing them. SCB has a configured connection for each protected server. This way, every remote access will be controlled and audited by SCB.

2.2. Example architecture for monitoring virtual machines deployed with the Classic deployment model

Figure 2. Classic deployment model



Goal

Protect and audit every remote access connection (RDP and SSH) coming from the Internet and targeting the protected servers, deployed in the Classic model.

Network settings

Public IP addresses:

There is 1 public IP address in every deployment model.

Private IP addresses:

Machine	IP	Subnet
Shell Control Box	10.0.0.10	10.0.0.0/24
Private Windows Server	10.0.10.20	10.0.10.0/24

Machine	IP	Subnet
Private Linux Server	10.0.10.30	10.0.10.0/24

Table 4. System related traps

Network Security Group (NSG) rules:

SCB NSG			
From	**Port**	**Verdict**	**Description**
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Any	443	Allow	SCB Web GUI
Any	Any	Deny	Any other connection is denied

Table 5. SCB NSG

Protected NSG			
From	**Port**	**Verdict**	**Description**
Any	80	Allow	HTTP service listening on the Protected Linux Server
Any	8080	Allow	HTTP service listening on the Protected Windows Server
10.0.0.10/32	22	Allow	SSH service listening on the Protected Linux Server only allowed from SCB
10.0.0.10/32	3389	Deny	RDP service listening on the Windows Server only allowed from SCB
Any	Any	Deny	Any other connection is denied

Table 6. Protected NSG

Description

This example architecture is a little bit tricky, because SCB can be deployed in ARM model only, but the two protected servers are operating in a Classic deployment. The only solution for this issue is to connect the two Azure virtual networks (VNets) with a VPN connection. This secure connection will travel across the Microsoft Network only, not the Internet (for a detailed tutorial on how to create it and its limitations, see: *Connect virtual networks from different deployment models in the portal*). On the two protected servers HTTP services (for example APIs) are running. This example focuses on remote connections, therefore the HTTP services are not audited by SCB. Every incoming RDP and SSH connection will reach SCB, as the NSGs are forcing them. PSM has a configured connection for each protected server. This way, every remote access will be controlled and audited by SCB.

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