



# Click Studios

## Passwordstate

## Password Discovery, Reset and Validation

## Requirements

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# 1 Overview

In Passwordstate, through the use of PowerShell scripts, you're able to reset passwords for the following:

- Local accounts on Windows Servers/PCs
- Windows Services which are configured to use an account as its 'Log On As' identity
- Internet Information Services Application Pools which are configure to use an account as its 'Identity'
- Scheduled Tasks which are configured to run under the security context of user account
- Microsoft SQL Server accounts
- MySQL Server accounts
- Oracle accounts
- Linux/Unix accounts
- Cisco switch/router accounts
- VMWare ESx Accounts
- COM+ Component Passwords
- Out-of-Band Management Cards – HP iLO, Dell iDrac & IBM IMM
- F5 BIG-IP Load Balancers
- You can also create your own scripts to perform any sort of processing when a Password is updated within Passwordstate

You are also able to perform certain 'validation' tasks to ensure the passwords in Passwordstate are accurate compared to what is being used on remote hosts, and your also able to 'discover' Local Administrator Accounts, and various other 'Windows Resources' – such as Windows Services, IIS Application Pools and Scheduled Tasks.

Click Studios designed the Password Reset feature to make use of Microsoft's PowerShell scripting capabilities, to eliminate the need to install custom agents on remote Hosts. These Reset & Validation features can also be used on Hosts in non-trusted domains.

 Note: Passwordstate can also reset Active Directory accounts, but uses native .NET code for this instead of PowerShell scripts.

## 2 Passwordstate Web Server System Requirements

To make use of the PowerShell Password Reset Scripts, the following is required on your Passwordstate Web Server:

- Microsoft Windows Server 2008 & IIS 7.0
- Microsoft Windows Server 2008 R2 & IIS 7.5
- Microsoft Windows Server 2012 & IIS 8.0
- Microsoft Windows Server 2012 R2 & IIS 8.5
- Windows 7 & IIS 7.5
- Windows 8 & IIS 8.0
- Microsoft .Net Framework 4.5
- PowerShell 3.0 or Higher
- Oracle Data Access Components (ODAC) if you want to reset Oracle Passwords
- Microsoft Visual C++ 2013 Runtime - <https://www.microsoft.com/en-au/download/details.aspx?id=40784> (this is required for SSH sessions to Hosts)

### 3 Non-Trusted Active Directory Domain Requirements

It is also possible to perform Password Reset and Validations for hosts which are in non-trusted domains. For this to occur, the following is required:

- Functioning DNS so domain controllers and Hosts can be contacted
- Firewall ports must be open to allow traffic through. Typical ports which need to be opened are:
  - a. PowerShell Remoting - TCP/5985 & TCP/5986
  - b. Windows Management Instrumentation (WMI) - TCP/135 is the standard port for RPC, but dynamic ports can also be used by WMI. You may need to configure WMI with static ports
  - c. SSH – TCP/22
  - d. Telnet – TCP/23
  - e. Microsoft SQL Server – TCP/1433
  - f. MySQL Server – TCP/3306
- A Privileged Account Credential must be supplied on the screen Administration -> Privileged Account Credentials, in FQDN format i.e. [user@mydomain.com](#)
- The Active Directory Domain information needs to be added on the screen Administration -> Active Directory Domains, and then linked to the relevant Privileged Account Credentials
- And when added Hosts on the screen Hosts -> Hosts & Resources, it is recommended the Host names are specified using FQDN i.e. [serverabc@mydomain.com](#)

## 4 Installing Oracle Data Access Components (ODAC)

If you wish to perform password resets for Oracle user accounts, you need to install the Oracle Data Access Components on the Passwordstate web server, and modify the path to these components in the two Passwordstate PowerShell scripts. To do this, please follow these instructions:

- Download **ODP.NET\_Managed121012.zip** from <http://www.oracle.com/technetwork/database/windows/downloads/index-090165.html>
- Unzip the contents to a directory of your choice on the Passwordstate Web Server (not within the Passwordstate folder though)
- Open a command prompt as an Administrator and change to the directory "c:\oracleodp\odp.net\managed\x64" – the path will be different for you depending on where you unzipped the file
- Now type "configure.bat" and press the enter key. The screen will output a series of commands and then read "The operation completed successfully."
- If the path you've installed the data access components to is different to 'c:\oracleodp', then you will need to go to the screen Administration -> System Settings -> Password Reset Options tab, and update the path here
- Now restart the Passwordstate Windows Service

## 5 Password Reset Script Requirements

There are different System Requirements, and host configurations, depending upon which Password Reset scripts you would like to use. The following table describes the possible scenarios.

### Windows Server 2008, Server 2008 R2, Windows 7

| Script                              | Requirements   |
|-------------------------------------|--|
| Reset Local Windows Accounts        | <ul style="list-style-type: none"> <li>PowerShell 2.0 or above</li> <li>PowerShell Remoting enabled</li> </ul>   |
| Reset Window Services Accounts      | <ul style="list-style-type: none"> <li>PowerShell 2.0 or above</li> <li>PowerShell Remoting enabled</li> </ul>   |
| Reset Scheduled Task Accounts       | <ul style="list-style-type: none"> <li>PowerShell 2.0 or above</li> <li>PowerShell Remoting enabled</li> </ul>   |
| Reset IIS Application Pool Accounts | <ul style="list-style-type: none"> <li>PowerShell 2.0 or above</li> <li>PowerShell Remoting enabled</li> <li>Server 2008 (not R2) requires the IIS PowerShell Snap-In to be installed on the target host - <a href="http://www.iis.net/downloads/microsoft/powershell">http://www.iis.net/downloads/microsoft/powershell</a></li> <li>Also requires the following PowerShell Cmdlet to be run in order for scripts to be run (default is Restricted on these operating systems):<br/>Set-ExecutionPolicy RemoteSigned</li> </ul> |
| Reset COM+ Component Passwords      | <ul style="list-style-type: none"> <li>PowerShell 2.0 or above</li> <li>PowerShell Remoting enabled</li> </ul>   |

### Windows Server 2012, Server 2012 R2, Windows 8

| Script                              | Requirements  |
|-------------------------------------|---|
| Reset Local Windows Accounts        | <ul style="list-style-type: none"> <li>PowerShell 3.0 or above, and PowerShell Remoting enabled (these are default settings)</li> </ul>   |
| Reset IIS Application Pool Accounts | <ul style="list-style-type: none"> <li>PowerShell 3.0 or above, and PowerShell Remoting enabled (these are default settings)</li> <li>Also requires 'Set-ExecutionPolicy RemoteSigned' to be set</li> </ul> |
| Reset Scheduled Task Accounts       | <ul style="list-style-type: none"> <li>PowerShell 3.0 or above, and PowerShell Remoting enabled (these are default settings)</li> </ul>   |
| Reset Window Services Accounts      | <ul style="list-style-type: none"> <li>PowerShell 3.0 or above, and PowerShell Remoting enabled (these are default settings)</li> </ul>   |
| Reset COM+ Component Passwords      | <ul style="list-style-type: none"> <li>PowerShell 2.0 or above</li> <li>PowerShell Remoting enabled</li> </ul>  |

**SQL Server, MySQL, Cisco Switches/Routers, Linux/Unix Hosts, HP iLO Cards and VMWare**

| Script                              | Requirements  |
|-------------------------------------|---|
| Reset Microsoft SQL Server Accounts | <ul style="list-style-type: none"><li>• Firewall allows access on SQL Server port – default port is 1433 for SQL Standard and above, and SQL Express can use a Dynamic Port – generally 49260</li><li>• You must also have the TCP/IP Protocol enabled for SQL Server, and this can be done using the SQL Server Configuration Manager Utility, under the section SQL Server Network Configuration -&gt; Protocols for &lt;InstanceName&gt;. Generally this is not enabled for SQL Server Express</li></ul> |
| Reset MySQL Server Accounts         | <ul style="list-style-type: none"><li>• Firewall allows access on MySQL Server port – default port is 3306</li></ul>  |
| Reset Cisco Switch/Router Accounts  | <ul style="list-style-type: none"><li>• Remote connections using SSH</li></ul>  |
| Reset Linux/Unix Accounts           | <ul style="list-style-type: none"><li>• Remote connections using SSH</li><li>• Microsoft Visual C++ 2013 Runtime - <a href="https://www.microsoft.com/en-au/download/details.aspx?id=40784">https://www.microsoft.com/en-au/download/details.aspx?id=40784</a></li></ul>  |
| Reset HP iLO Card Accounts          | <ul style="list-style-type: none"><li>• Remote connections using SSH</li></ul>  |
| Reset VMWare ESX Accounts           | <ul style="list-style-type: none"><li>• Remote connections using SSH</li></ul>  |

## 6 Password Validation Script Requirements

The following PowerShell Scripts are provided to validate the password stored within Passwordstate, matches what is in use on the Host:

- Validate Password for Active Directory Account
- Validate Password for Cisco Account
- Validate Password for Linux Account
- Validate Password for MySQL Account
- Validate Password for SQL Account
- Validate Password for Windows Account
- Validate Password for Oracle Account
- Validate Password for VMWare ESX Account
- Validate Password for HP iLO Account
- Validate Password for IBM IMM Account
- Validate Password for Dell iDRAC Account
- Validate Password for F5 BIG-IP Account

- 🚩 Each of the Validation Scripts above have the same System Requirements as the Password Reset Scripts, except the 'Windows Account' validation scripts also requires the .NET Framework 3.5 for PowerShell 2 to be installed on the remote Host, or .NET Framework 3.5 or above for PowerShell 3.0.
- 🚩 Note: Active Directory Accounts can also be validated within Passwordstate, either using the  icon when the Password Edit screen is open, or you can run the 'AD Synchronization Report' from the 'List Administrators Actions' dropdown list for each of the Password Lists.

## 7 Password Discovery Script Requirements

As of Build 7000 of Passwordstate, the following PowerShell Scripts are provided to help discover Local Admin Accounts on your network, and various 'Windows Resources' – such as Windows Services, IIS Application Pools and Scheduled Tasks:

- Get-LocalAdminAccounts.ps1
- Get-Resources.ps1

These scripts are located in the folder /setup/scripts, and are imported and encrypted in the Passwordstate database. These scripts are not exposed via the Passwordstate web interface, like the Reset & Validation scripts.

 Each of the Discovery Scripts above have the same System Requirements as their respective Password Reset Scripts

## 8 Possible Errors and Their Cause

With each of the default PowerShell Scripts provided, there are certain exceptions which are captured and reported in the event of a failure. The following table summarises possible failures and their relevant fixes.

### Reset Local Windows Accounts

| Error   | Fix  |
|---|--|
| It appears the Host is not online, or PowerShell Remoting is not enabled                    | This error effectively means PowerShell Remoting to the host is not possible, for any of the reasons given in the error message.   |
| The Privileged Account password appears to be incorrect, or the account is currently locked | To update a local Windows account, the script must be passed the credentials of a 'Privileged Account' i.e. a domain account with permissions to logon to remote servers/PCs. This error indicates the username or password for the Privileged Account is incorrect, or the account is currently locked. Privileged Accounts can be found on the screen Administration -> Privileged Account Credentials |
| There are currently no logon servers available to service the logon request                 | There are no logon servers available (domain controller) to validate the use of the Privileged Account Credential being used to connect to the remote host   |
| The referenced account is currently locked out and may not be logged on to                  | The account you are trying to reset the password for is currently locked and cannot be logged onto   |
| UserName does not exist   | The local account no longer exists   |

### Reset Window Services Accounts

| Error  | Fix   |
|--|---|
| The Privileged Account password appears to be incorrect, or the account is currently locked                        | To update a password for a Windows Service, the script must be passed the credentials of a 'Privileged Account' i.e. a domain account with permissions to logon to remote servers/PCs. This error indicates the username or password for the Privileged Account is incorrect, or the account is currently locked. Privileged Accounts can be found on the screen Administration -> Privileged Account Credentials |
| It appears the Host is not online, PowerShell Remoting is not enabled  | This error effectively means either the Host Name is incorrect, or PowerShell Remoting is not enabled.  |
| Please check the Windows Service Name is correct   | It's possible the Windows Service name is incorrectly (the Display Name), or it doesn't exist anymore   |
| Please ensure the username is valid and the Privileged Account Credentials being used has the required permissions | It's possible the Privileged Account Credentials doesn't have the required permissions to change service passwords, and/or Restart Windows Services   |
| Please check the account credentials used for the Log On As identity are correct                                   | The Windows Service could not be restarted as the account being used for the Log On As identity looks to be incorrect – the password may be wrong   |

**Reset IIS Application Pool Accounts**

| <b>Error</b>   | <b>Fix</b>  |
|--|---|
| It appears the Host is not online, or PowerShell Remoting is not enabled   | This error effectively means PowerShell Remoting to the host is not possible, for any of the reasons given in the error message.  |
| The Privileged Account password appears to be incorrect, or the account is currently locked  | To update a password for an IIS Application Pool, the script must be passed the credentials of a 'Privileged Account' i.e. a domain account with permissions to logon to remote servers/PCs. This error indicates the username or password for the Privileged Account is incorrect, or the account is currently locked. Privileged Accounts can be found on the screen Administration -> Privileged Account Credentials |
| Unable to restart Application Pool   | It's possible the restarting of the Application Pool was delayed, of failed. You will need to manually check the reason why   |
| Application Pool not found   | It appears the Application Pool name is incorrect, or doesn't exist anymore   |
| Please ensure the username is valid and the Privileged Account Credentials being used has the required permissions                               | It's possible the Privileged Account Credentials doesn't have the required permissions to change service passwords, and/or Restart Windows Services   |
| It appears execution of PowerShell scripts has not been enabled on this Host. Please run the PowerShell command Set-ExecutionPolicy RemoteSigned | This error relates to Server 2008 R2 when execution of scripts hasn't been enabled on the server  |

**Reset Scheduled Task Accounts**

| <b>Error</b>  | <b>Fix</b>   |
|---|--|
| It appears the Host is not online, or PowerShell Remoting is not enabled                    | This error effectively means PowerShell Remoting to the host is not possible, for any of the reasons given in the error message.   |
| The Privileged Account password appears to be incorrect, or the account is currently locked | To update a password for a Scheduled Task, the script must be passed the credentials of a 'Privileged Account' i.e. a domain account with permissions to logon to remote servers/PCs. This error indicates the username or password for the Privileged Account is incorrect, or the account is currently locked. Privileged Accounts can be found on the screen Administration -> Privileged Account Credentials |

**Reset Microsoft SQL Server Accounts**

| <b>Error</b>   | <b>Fix</b>  |
|--|---|
| Please check SQL details are correct, and that a firewall is not blocking access | Possibly the SQL Server details supplied are incorrect (server name, instance name or port number), or a firewall is blocking access – default port is 1433 |
| Account does not exist or you do not have permission                             | The SQL Server account could not be found, or the Privileged Account Credentials supplied does not have the permissions to change passwords.                |
| Please check the Privileged Account Credentials provided are correct             | Possibly the Privileged Account Credentials supplied are incorrect  |

**Reset MySQL Server Accounts**

| <b>Error</b>   | <b>Fix</b>   |
|--|--|
| Please check the Host is online, or if a Firewall is blocking access | Possibly the MySQL Server details supplied are incorrect (server name or port number), or a firewall is blocking access – default port is 3306 |
| Please check the Privileged Account Credentials provided are correct | Possibly the Privileged Account Credentials supplied are incorrect   |

**Reset Cisco Switch/Router, Linux/Unix, HP iLO Card, and VMWare ESX Accounts**

| <b>Error</b>   | <b>Fix</b>   |
|--|--|
| The enable password appears to be incorrect                                  | Possibly the Privileged Account Credentials supplied for the 'enable' statement is incorrect                                       |
| Please check the Host is online, and accessible on the network               | Possibly the host is not currently accessible on the network – either turned off, network issue, or a firewall blocking SSH access |
| Please check the correct port is specified and username/password are correct | The SSH connection was denied as the UserName and Password supplied appear to be incorrect   |

## 9 Enabling PowerShell Remoting per Host

On Windows 7 and Server 2008, PowerShell Remoting is not enabled by default. It can be enabled on each Host individually by following these steps:

- On the destination Host, run PowerShell as an Administrator
- Now type `Enable-PSRemoting -Force`

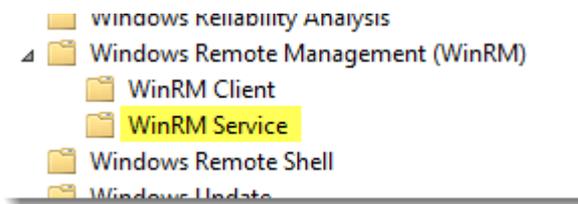
Running this command performs the following:

- Sets the 'Windows Remote Management' service to Automatic (delayed), and starts it
- Enables a HTTP listener
- Adds a firewall exception

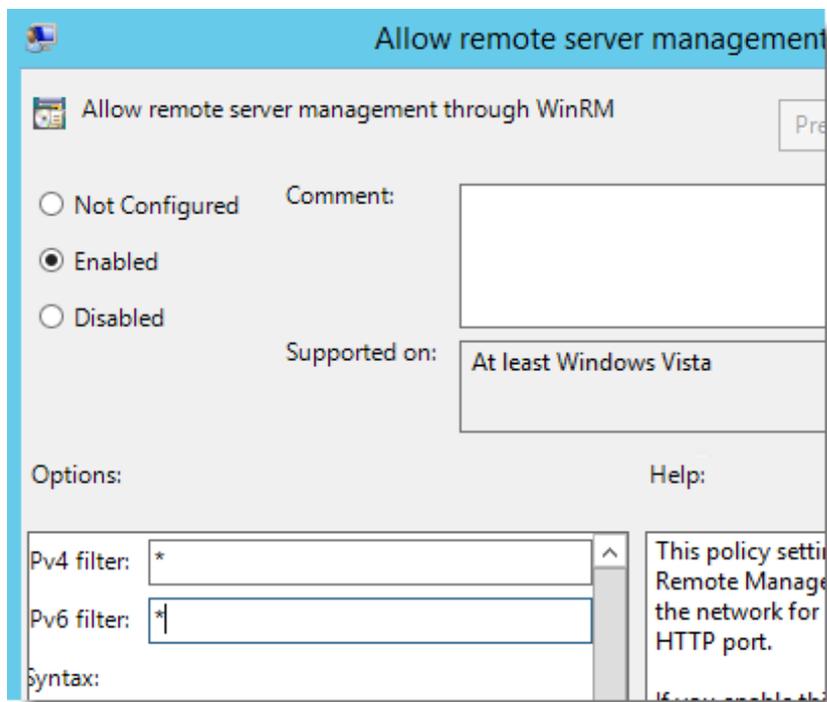
## 10 Enabling PowerShell Remoting via Group Policy

To enable PowerShell Remoting for multiple hosts at a time in your environment, you can use Group Policy to make the required changes. The following instructions provide detail of how to do this (this applies to a Windows Server 2012 R2 domain controller):

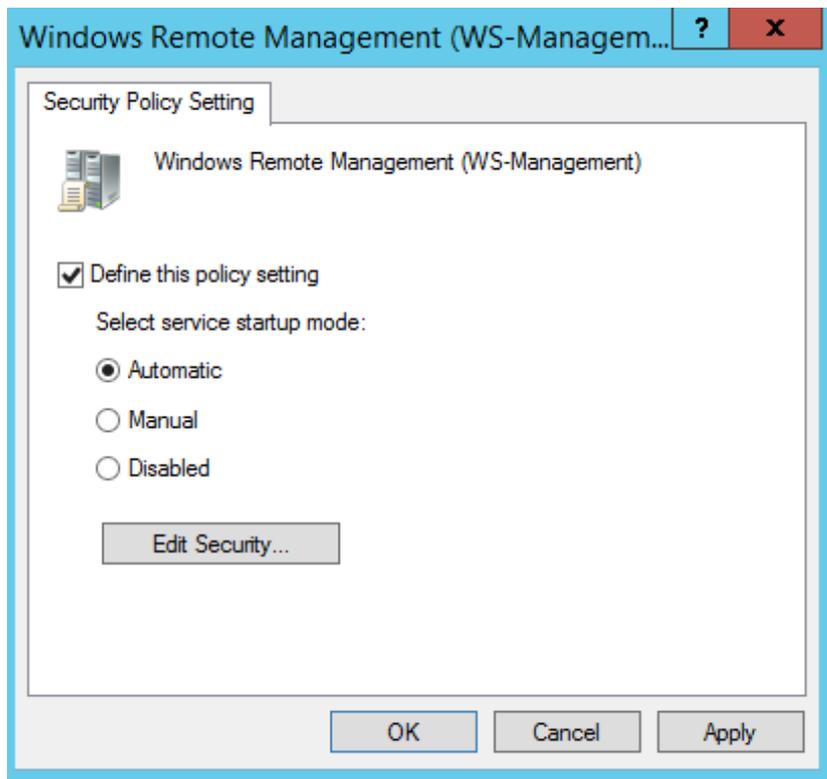
- Open the Group Policy Management Console
- Create or use an existing Group Policy Object, open it, and navigate to Computer Configuration -> Policies -> Administrative templates -> Windows Components
- Here you will find the available Group Policy settings for Windows PowerShell, WinRM and Windows Remote Shell:



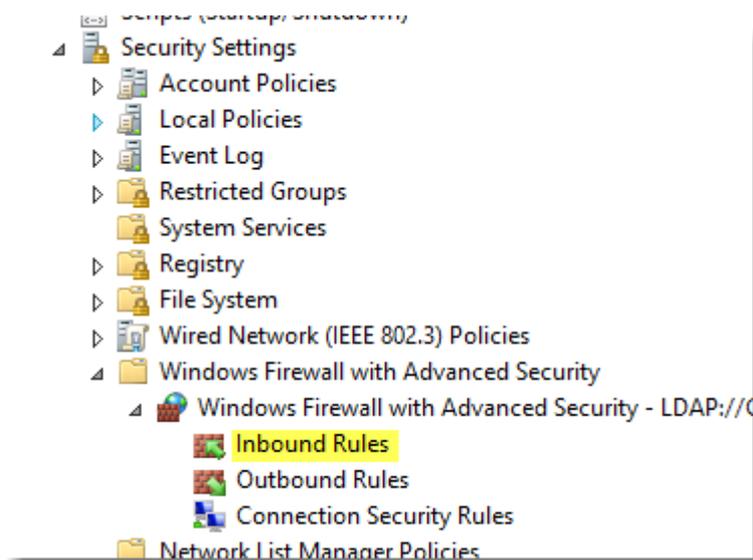
- Open “Allow remote server management through WinRM” setting
- Enable the Policy and set the IPv4 and IPv6 filter values to \*



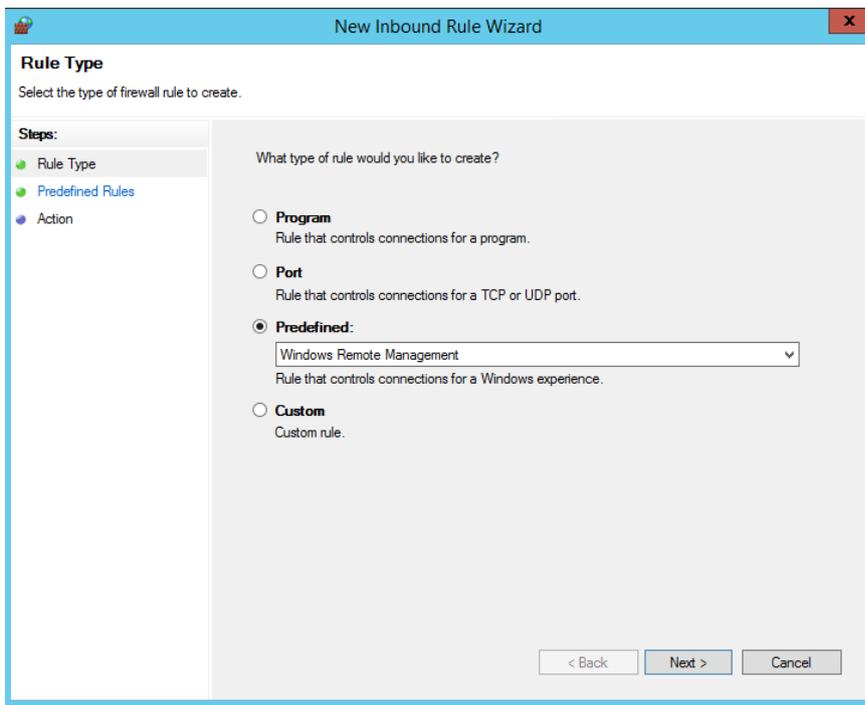
- Click OK
- Navigate to Windows Settings -> Security Settings -> System Services
- Select Windows Remote Management (WS-Management) Service and set the startup mode to Automatic



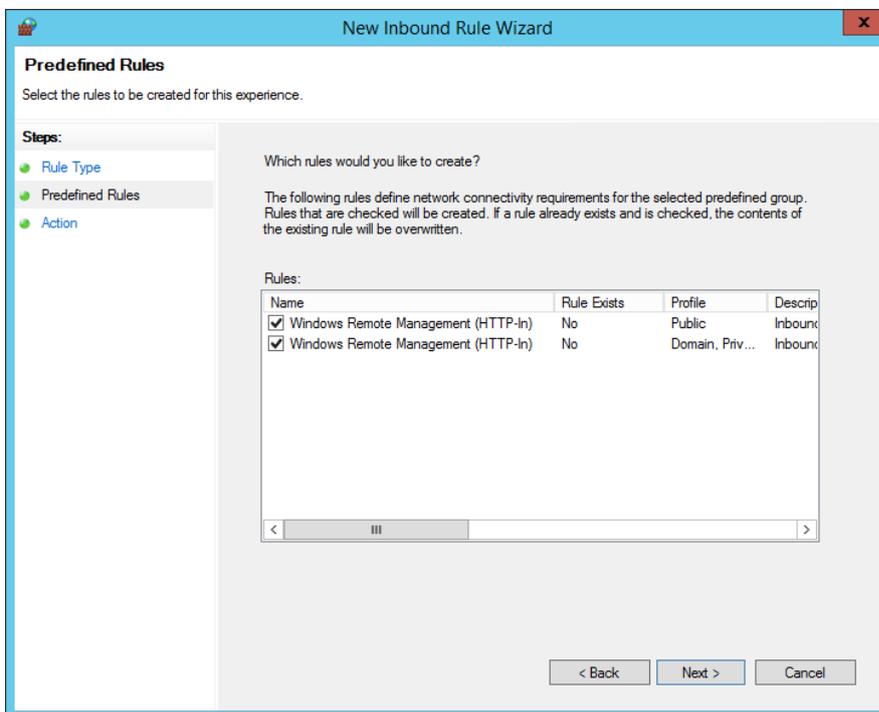
- Click OK
- You need to create a new Inbound Rule under Computer Configuration->Policies->Windows Settings->Windows Firewall with Advanced Security->Windows Firewall with Advanced Security->Inbound Rules:

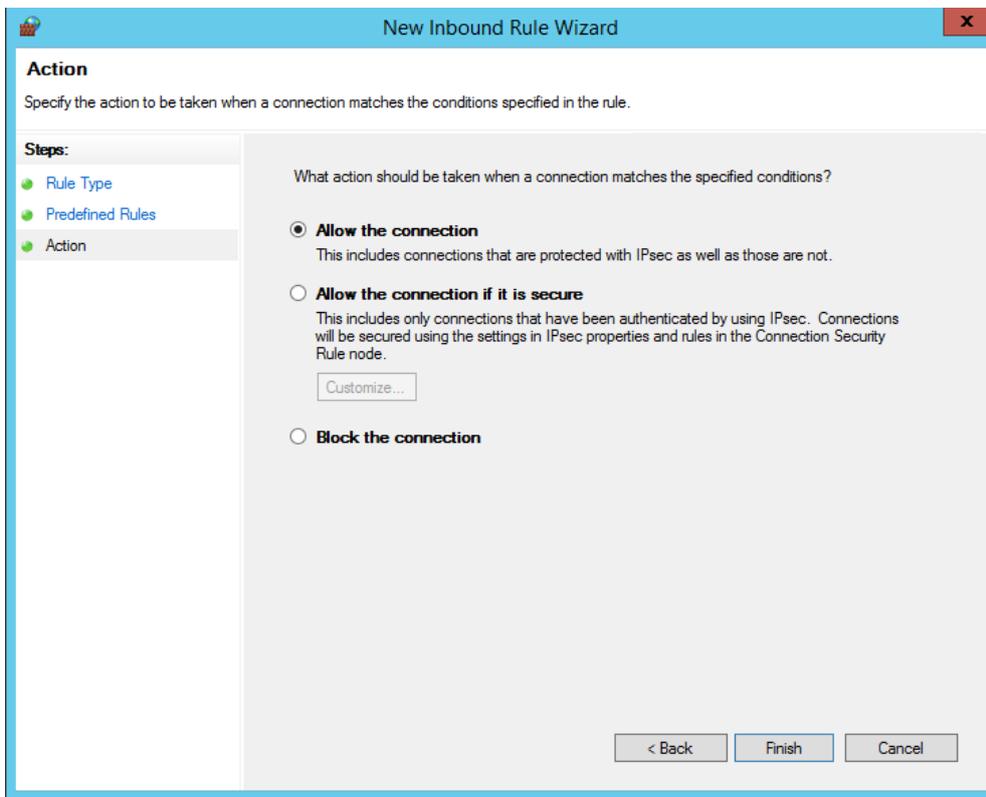


- The WinRM port numbers are predefined as “Windows Remote Management”:



With WinRM 2.0, the default http listener port is TCP 5985.





- Close the Group Policy Editor
- Link the PowerShell Settings GPO to correct OU for testing
- Run gpupdate on your test computers, or reboot them

## 11 Account Discovery and Password Resets between Non-Trusted Active Directory Domains

If you are wanting Passwordstate to perform Account Discovery and Password Resets between non-trusted domains, you will need to configure PowerShell on your Passwordstate Web Server to “trust” all remote hosts. You can do this by running the following PowerShell command:

```
Set-Item WSMAN:\localhost\Client\TrustedHosts -value *
```

Please restart the Passwordstate Windows Service after making this change.