Microsoft System Center

**Guide to System Center Management Pack for Windows Server DHCP 2016 and Above**

Microsoft Corporation

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Please include the Management Pack guide name with your feedback.

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# **System Center Management Pack for Windows Server 2016 and Above DHCP**

This guide describes the Windows Server 2016 and above DHCP Management Pack for System Center. The management pack is used to monitor the Dynamic Host Configuration Protocol (DHCP) server role of Windows Server 2016 and above.

## **Document Version**

This guide was written based on 10.1.0.1 version of the Management Pack for Windows Server 2016 and above DHCP.

## **Revision History**

| **Release Date** | **Changes** |
| --- | --- |
| **July, 2021** | Added topics in this release:  Changes in version 10.1.0.1 |
| March, 2019 | Added topics in this release:  Changes in version 10.1.0.0 |
| November, 2018 | Added topics in this release:  Changes in version 10.0.11.0 |
| September, 2017 | Added topics in this release:   * Changes in version 10.0.9.0 |
| December, 2016 | Added topics in this release:   * Changes in version 10.0.8.0 * Known Issues and Troubleshooting   Updated topics in this release:   * Supported Configurations |
| December, 2015 | Various versioning and naming changes correlated with “Windows Server Technical Preview” to “Windows Server 2016” Management Pack rebranding  Added topics in this release:   * Revision History * Changes in version 10.0.0.0 |
| August, 2015 | Original release of this guide for Windows Server Technical Preview DHCP Management Pack (version 6.0.7295.0). |

## **Getting the Latest Management Pack and Documentation**

You can find the Management Pack for Windows Server 2016 and Above DHCP on the [Download Center](https://www.microsoft.com/en-us/download/details.aspx?id=54587).

## **Changes in Version 10.1.0.1**

* Display String Changes

## **Changes in Version 10.1.0.0**

* Removed “Ping ipv4 scope" and "ping ipv6 scope" tasks as they are not working and can’t be fixed.
* Released localized management packs for Windows Server 2016 and 1709+ operating system.

## **Changes in Version 10.0.11.0**

* Fixed Issue: DHCP 2016 Scopes Discovery failing to discover the scopes for large number of scopes.
* Added New monitor for monitoring large number of scopes as a single unit and task for generating critical scopes report.
* Introduced support for Windows Server 1709+ operating system.
* Rebranded the display strings and knowledge base articles according to the supported versions of the operating systems: Microsoft Windows Server 2016 and 1709+.
* Fixed Issue: WMI Health monitor doesn't work if SPN http://*servername* is set to a user account.
* Fixed Issue: WMI Health monitor doesn't work if WINRM is configured to use *https* only.

## **Changes in Version 10.0.9.0**

* Fixed issue: DHCP Failover Server Relationship Discovery was failing as the Scope ID length max limit was 4000. The Scope ID length limit has been increased to 65536.
* Fixed issue: Alert description for "DHCP IPv4 Runtime Service Bound to Static IP Address Monitor","DHCP Dependent Service Health Monitor","DHCP Database Integrity Monitor” have been updated, users can comprehend and troubleshoot the situation better with such information.
* Fixed issue: To reduce the alert noise created with multiple alerts of same type, the alert rules “DHCP Back Up Database Warning Rule”, “DHCP IPv4 Runtime DNS Registration Rule”,” DHCP IPv4 Runtime Users Group Configuration Rule” and “DHCP Database Integrity Warning Rule” are suppressed so that only the alert count increases and not generate new alerts
* Fixed issue: "Collect ALL DHCP Server Performance Data" rule has been fixed to ingest right data in the registry key, thus indicating the correct health state of the entity
* Fixed issue: "DHCP Performance Health Monitor" which was always in not-monitored state has been rectified to correctly show the health state of the entity it monitors
* Fixed issue: "DHCP Server 2012 R2 Super Scope Addresses Available Percentage Monitor" that was failing to change state on critical alerts, has been fixed to show the appropriate state so the users do not miss out on critical state.

## **Changes in Version 10.0.8.0**

* Fixed issue: “DHCP Server 2016 IPV4 Individual Scope Addresses Available Percentage Monitor” was not generating the corresponding alerts in case of 0% percentage available.
* Fixed issue: “DHCP Server 2016 IPV4 Individual Scope Addresses Available Percentage Monitor” was failing if multiple scopes had the same name.
* Fixed issue: “DHCP Server 2016 IPV6 Individual Scope Addresses Available Percentage Monitor” was not generating the corresponding alerts in case of 0% percentage available.
* Fixed issue: “DHCP Server 2016 IPV6 Individual Scope Addresses Available Percentage Monitor” was failing if multiple scopes had the same name.
* Fixed issue: If the property scope id length of the failover server watcher class exceeded the max length, then Failover Server Watcher was not being discovered and hence could not monitor DHCP failover servers. The fix ensures that discovery is successful.
* Fixed issue: In a DHCP server with multiple scopes, if two or more scopes have same name when the alert raise for one scope it automatically raises the alert for another same scope name. The fix ensures that alerts are sent only for generated scope.

## **Changes in Version 10.0.0.0**

* “Windows Server Technical Preview” to “Windows Server 2016” versioning and naming rebranding changes
* DHCP Management Pack showed wrong entry on properties in the Failover Server Relationship view; fixed with this release
* If the first scope exceeded the threshold for minimum available addresses, alerts would be sent for all scopes on the DHCP server, even the ones that hadn’t violated the threshold; fixed with this release

## **Supported Configurations**

The Management Pack for System Center supports primarily the DHCP server role of Microsoft Windows 2016 and above, the DHCP clustered installation and the failover relationship feature. Windows PowerShell feature should be enabled.

All SCOM management servers should have remote access to the event log of the servers participated in DHCP failover relationship. For details, see “Event log” section of the following [article](https://support.microsoft.com/en-us/kb/832017).

| Operating system | Standalone DHCP | | Clustered DHCP | |
| --- | --- | --- | --- | --- |
|  | (x64) | (x86) | (x64) | (x86) |
| Microsoft Windows Server 2016 and above | X | NA | X | NA |

This management pack is supported to run in System Center 2016 and System Center 2019.

SCOM 2019 : [System requirements for System Center Operations Manager | Microsoft Docs](https://docs.microsoft.com/en-us/system-center/scom/system-requirements?view=sc-om-2019#microsoft-monitoring-agent-operating-system)

SCOM 2016 : [System requirements for System Center Operations Manager | Microsoft Docs](https://docs.microsoft.com/en-us/system-center/scom/system-requirements?view=sc-om-2016#software-requirements-for-operations-manager-components)

**Other SCOM versions support for Microsoft Windows Server 2016 and above, refer below links:**

<https://docs.microsoft.com/en-us/previous-versions/system-center/system-center-2012-R2/dn281931(v%3dsc.12)>

<https://docs.microsoft.com/en-us/system-center/scom/system-requirements?view=sc-om-2016#microsoft-monitoring-agent-operating-system>

<https://docs.microsoft.com/en-us/system-center/scom/system-requirements?view=sc-om-1801#microsoft-monitoring-agent-operating-system>

<https://docs.microsoft.com/en-us/system-center/scom/system-requirements?view=sc-om-1807#microsoft-monitoring-agent-operating-system>

<https://docs.microsoft.com/en-us/system-center/scom/system-requirements?view=sc-om-2019#microsoft-monitoring-agent-operating-system>

## **Understand Management Pack Operations**

The following tables list the elements of this management pack:

### **Discoveries**

| DISCOVERIES | Description |
| --- | --- |
| Microsoft.Windows.DHCPServer.2016.Server.Discovery | Discovers DHCP Server based on the installed DHCP feature. |
| Microsoft.Windows.DHCPServer.2016.ClusterServer.Discovery | Discovers DHCP Server based on the installed DHCP Failover Cluster feature. |
| Microsoft.Windows.DHCPServer.2016.Scopes.Discovery | Discovers DHCP IPV4 and IPV6 scopes |
| Microsoft.Windows.DHCPServer.2016.Database.Discovery | Discovers DHCP database |
| Microsoft.Windows.DHCPServer.2016.FailoverServerWatcher.Discovery | Discovers DHCP Failover relationships defined between Servers |
| Microsoft.Windows.DHCPServer.2016.Server.Discovery | Discovers DHCP Server based on the installed DHCP feature. |
| Microsoft.Windows.DHCPServer.2016.ClusterServer.Discovery | Discovers DHCP Server based on the installed DHCP Failover Cluster feature. |
| Microsoft.Windows.DHCPServer.2016.Scopes.Discovery | Discovers DHCP IPV4 and IPV6 scopes |
| Microsoft.Windows.DHCPServer.2016.Database.Discovery | Discovers DHCP database |
| Microsoft.Windows.DHCPServer.2016.FailoverServerWatcher.Discovery | Discovers DHCP Failover relationships defined between Servers |

### **Groups**

| GROUPS | Description |
| --- | --- |
| Microsoft.Windows.DHCPServer.2016.Group.Servers | Populate with DHCP 2016 and above servers |
| Microsoft.Windows.DHCPServer.2016.Group.IPv4Scopes | Populate with DHCP 2016 and above IPV4 Scopes |
| Microsoft.Windows.DHCPServer.2016.Group.IPv6Scopes | Populate with DHCP 2016 and above IPV6 Scopes |
| Microsoft.Windows.DHCPServer.2016.FailoverServerWatchersGroup | Populate with DHCP 2016 and above Failover Server Relationships |
| Microsoft.Windows.DHCPServer.2016.Group.Superscopes | Populate with DHCP 2016 and above Super Scopes |

### **Classes**

| CLASSES | Purpose |
| --- | --- |
| Microsoft.Windows.DHCPServer.2016.Server | The class represents the DHCP server service and its functional state. |
| Microsoft.Windows.DHCPServer.2016.IPv4Scope | The class represents the DHCP IPV4 scopes defined in a DHCP 2016 and above server and its functional state. |
| Microsoft.Windows.DHCPServer.2016.IPv6Scope | The class represents the DHCP IPV6 scopes defined in a DHCP 2016 and above server and its functional state. |
| Microsoft.Windows.DHCPServer.2016.IPv6Runtime | This class represents an IPV6 installation that is defined in the DHCP 2016 and above Server, and its Role functional state. |
| Microsoft.Windows.DHCPServer.2016.FailoverServerWatcher | This class represents a Failover Server relationship defined in a DHCP 2016 and above Server and its functional state |
| Microsoft.Windows.DHCPServer.2016.Server | The class represents the DHCP server service and its functional state. |
| Microsoft.Windows.DHCPServer.2016.IPv4Scope | The class represents the DHCP IPV4 scopes defined in a DHCP 2016 and above server and its functional state. |
| Microsoft.Windows.DHCPServer.2016.IPv6Scope | The class represents the DHCP IPV6 scopes defined in a DHCP 2016 and above server and its functional state. |
| Microsoft.Windows.DHCPServer.2016.IPv6Runtime | This class represents an IPV6 installation that is defined in the DHCP 2016 and above Server, and its Role functional state. |
| Microsoft.Windows.DHCPServer.2016.FailoverServerWatcher | This class represents a Failover Server relationship defined in a DHCP 2016 and above Server and its functional state |

### **Monitors**

| MONITORS | Condition Detected | Troubleshooting |
| --- | --- | --- |
| Microsoft.Windows.DHCPServer.Library.  Database.UnitMonitor.BackupAndRestore.1  (Defined in DHCP Library) | Detects failure of DHCP system’s restoration of the database | Repair the database and restore from a known good backup. |
| Microsoft.Windows.DHCPServer.Library.  Database.UnitMonitor.BackupAndRestore.2  (Defined in DHCP Library) | DHCP failed to find and back up the database | Create a valid backup path and restore the database |
| Microsoft.Windows.DHCPServer.Library.  Database.UnitMonitor.DBIntegrity  (Defined in DHCP Library) | DHCP has detected inconsistencies in the Jet database | Repair database and restore from a known good backup |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.UnitMonitor.ActiveDirectory  (Defined in DHCP Library) | DHCP cannot contact the domain because the directory service or domain controller is unavailable. | Fix any network connectivity problems between the DHCP server and domain controller |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.UnitMonitor.Backup  (Defined in DHCP Library) | DHCP was unable to restore the server registry configuration. | Give SYSTEM read/write permissions to the backup/restore directory |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.UnitMonitor.Communications  (Defined in DHCP Library) u | DHCP could not find the domain to which it is joined. | Identify and fix any network connectivity problems |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.UnitMonitor.GeneralAvailability.1  (Defined in DHCP Library) | DHCP has encountered an exception to the DLL callout. | Restart the DHCP Server service |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.UnitMonitor.GeneralAvailability.2  (Defined in DHCP Library) | DHCP is unavailable because it cannot find the domain, load its DLLs, or gain authorization. | Authorize the DHCP server |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.UnitMonitor.GeneralAvailability.3  (Defined in DHCP Library) | DHCP is unavailable because it cannot find the domain, load its DLLs, or gain authorization. | Assign execute rights to the DLL |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.UnitMonitor.LeaseIssuance  (Defined in DHCP Library) | DHCP was unable to ping the client before leasing an IP address. | Reconfigure reservations or exclusion ranges |
| Microsoft.Windows.DHCPServer.Library.  Database.UnitMonitor.DatabaseCorrupt  (Defined in DHCP Library) | DHCP failed to initialize one of its components. | Restore the DHCP database from a known good backup |
| Microsoft.Windows.DHCPServer.2016.  IPv6Runtime.InitializationFailed  (Defined in DHCP 2016 and 1709+) | DHCP service failed to initialize. The server cannot initialize until it has a static IPv6 address configured and proper configuration parameters. | Restart the DHCP Server service |
| Microsoft.Windows.DHCPServer.2016.  IPv6Runtime.UnitMonitor.ScopeFull  (Defined in DHCP 2016 and 1709+) | DHCP has determined that a scope is nearing capacity. If the scope becomes full, the DHCP server cannot lease additional IP addresses. | Extend DHCP scopes, reduce lease times, or decrease cleanup interval |
| Microsoft.Windows.DHCPServer.Library.  IPv4Scope.UnitMonitor.BOOTPScopeFull  (Defined in DHCP Library) | DHCP has determined that there are no IP addresses available for BOOTP clients in the scope. | Extend DHCP scopes, reduce lease times, or decrease cleanup interval |
| Microsoft.Windows.DHCPServer.Library.  IPv4Scope.UnitMonitor.LeaseAvailability.2  (Defined in DHCP Library) | DHCP has determined that a scope is nearing capacity | Extend DHCP scopes, reduce lease times, or decrease cleanup interval |
| Microsoft.Windows.DHCPServer.Library.  Database.UnitMonitor.Migration.1  (Defined in DHCP Library) | DHCP has determined that the database being used in this migration is incompatible with the DHCP version you are using. | Re-create the DHCP database export and retry the import |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.UnitMonitor.BOOTPFileConfig  (Defined in DHCP Library) | DHCP was unable to read the BOOTP file table from the registry. | Create or add entries to the BOOTP table |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.UnitMonitor.DHCPServiceBoundToStaticIP  (Defined in DHCP Library) | DHCP has no static IP address and cannot service clients until one is configured. | Configure a static address for the DHCP server |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.UnitMonitor.DNSRegistration  (Defined in DHCP Library) | DHCP failed to impersonate the credentials necessary for DNS registrations and dynamic DNS updates. | Configure impersonation credentials for dynamic updates |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.UnitMonitor.GroupConfig  (Defined in DHCP Library) | DHCP was unable to find or create the DHCP Users group or the DHCP Administrators local group. | Restart the DHCP Server service |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.UnitMonitor.ServiceInitialization.1  (Defined in DHCP Library) | The DHCP service failed to initialize. The server cannot initialize until it has a static IP address configured and proper configuration parameter | Restart the DHCP Server service |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.UnitMonitor.ServiceInitialization.2  (Defined in DHCP Library) | The DHCP service failed to initialize. The server cannot initialize until it has a static IP address configured and proper configuration parameters. | Configure a static IP address for the DHCP server |
| Microsoft.Windows.DHCPServer.2016.  IPv6Runtime.UnitMonitor.StaticIPAssigned  (Defined in DHCP 2016 and above) | DHCP failed to initialize one of its components. | Configure a static IP address for the DHCP server |
| Microsoft.Windows.DHCPServer.Library.Server.UnitMonitor.DependentServiceHealth  (Defined in DHCP Library) | DHCP cannot initialize because one or more services that it depends on failed. | Disable the Winsock Proxy client on the DHCP server  Restart the DHCP Server service |
| Microsoft.Windows.DHCPServer.Library.  UnitMonitor.DHCPServiceRunning  (Defined in DHCP Library) | DHCP failed to initialize one of its components | Restart the DHCP Server service |
| Microsoft.Windows.DHCPServer.Library.  IPv4Scope.UnitMonitor.OrphanedEntry  (Defined in DHCP Library) | DHCP has orphaned database entries due to the deletion of a class or an option definition. | Reconcile the DHCP scope |
| Microsoft.Windows.DHCPServer.Library.  IPv4Scope.UnitMonitor.UnknownScopeOption  (Defined in DHCP Library) | DHCP received an unknown option from a client. | Configure DHCP options on the server to match the client |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.UnitMonitor.Auditing.1  (Defined in DHCP Library) | DHCP has determined that the audit log cannot be written to because it is full or cannot be accessed. | Edit audit log path |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.UnitMonitor.Auditing.2  (Defined in DHCP Library) | DHCP has determined that the audit log cannot be written to because it is full or cannot be accessed. | Edit audit log path  Remove old audit log files or increase the maximum audit log size.  Give the DHCP service account permissions to audit log files and folders. |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.UnitMonitor.Auditing.3  (Defined in DHCP Library) | DHCP has determined that the audit log cannot be written to because it is full or cannot be accessed. | Give the DHCP service account permissions to audit log files and folders |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.UnitMonitor.AuthorizationAndConflicts  (Defined in DHCP Library) | DHCP has determined that the server is unauthorized to lease to clients on the domain or that there is a conflict with another authorized DHCP server in the workgroup. | Authorize the DHCP server or remove other active DHCP servers |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.UnitMonitor.RogueDetection.1  (Defined in DHCP Library) | DHCP has detected another DHCP server on the network. | Authorize the DHCP server |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.UnitMonitor.RogueDetection.2  (Defined in DHCP Library) | DHCP cannot authorize the server. The server must be authorized in Active Directory Domain Services. | Identify and fix any network connectivity problems |
| Microsoft.Windows.DHCPServer.2016.  IPv6Runtime.UnitMonitor.Auditing  (Defined in DHCP 2016 and above) | DHCPv6 has determined that the audit log cannot be written to because it is full or cannot be accessed. | Remove old audit log files or increase the maximum audit log size |
| Microsoft.Windows.DHCPServer.2016.Scope.  IPV4.FreeScopeAddresses.Percentage.Monitor  (Defined in DHCP 2016 and above) | DHCP has determined that a scope is nearing capacity | Extend DHCP scopes, reduce lease times, or decrease cleanup interval |
| Microsoft.Windows.DHCPServer.2016.Scope.  IPV4.FreeScopeAddresses.Quantity.Monitor  (Defined in DHCP 2016 and above) | DHCP has determined that a scope is nearing capacity | Extend DHCP scopes, reduce lease times, or decrease cleanup interval |
| Microsoft.Windows.DHCPServer.2016.Scope.  IPV6.FreeScopeAddresses.Percentage.Monitor  (Defined in DHCP 2016 and above) | DHCP has determined that a scope is nearing capacity | Extend DHCP scopes, reduce lease times, or decrease cleanup interval |
| Microsoft.Windows.DHCPServer.2016.FailoverServerWatcher.UnitMonitor.State  (Defined in DHCP 2016 and above) | The reported state of the DHCP Failover Relationship Server changed to Not Healthy | Identify and fix any network connectivity problems |
| Microsoft.Windows.DHCPServer.2016.FailoverServerWatcher.UnitMonitor.OutOfTimeSync  (Defined in DHCP 2016 and above) | The DHCP Failover Relationship Server was unable to ping the Partner Server to synchronize it | Identify and fix any network connectivity problems |
| Microsoft.Windows.DHCPServer.2016.FailoverServerWatcher.UnitMonitor.ErrorCommunicationWithfailoverPartnerServer  (Defined in DHCP 2016 and above) | The DHCP Failover Relationship Server was unable to ping the Partner Server | Identify and fix any network connectivity problems |
| Microsoft.Windows.DHCPServer.2016.FailoverServerWatcher.UnitMonitor.LostCommunicationWithfailoverPartnerServer  (Defined in DHCP 2016 and above) | The DHCP Failover Relationship Server was unable to ping the Partner Server | Identify and fix any network connectivity problems |
| Microsoft.Windows.DHCPServer.2016.Scopes.UnitMonitor.UtilizationByScope  (Defined in DHCP 2016 and above) | DHCP has determined that a scope is nearing capacity | Extend DHCP scopes, reduce lease times, or decrease cleanup interval |
| Microsoft.Windows.DHCPServer.2016.ScopesAndSuperScopes.UnitMonitor.Utilization  (Defined in DHCP 2016 and above) | DHCP has determined that a scope is nearing capacity | Extend DHCP scopes, reduce lease times, or decrease cleanup interval |
| Microsoft.Windows.DHCPServer.2016.Policy.  UnitMonitor.IPAddressRange80Full  (Defined in DHCP 2016 and above) | DHCP has determined that a scope is nearing capacity | Extend DHCP scopes, reduce lease times, or decrease cleanup interval |
| Microsoft.Windows.DHCPServer.2016.Policy.  UnitMonitor.IPAddressRange100Full  (Defined in DHCP 2016 and above) | DHCP has determined that a scope is nearing capacity | Extend DHCP scopes, reduce lease times, or decrease cleanup interval |
| Microsoft.Windows.DHCPServer.2016.Policy.  UnitMonitor.ClientPackDrop100Full  (Defined in DHCP 2016 and above) | DHCP has determined that a scope is nearing capacity | Extend DHCP scopes, reduce lease times, or decrease cleanup interval |
| Microsoft.Windows.DHCPServer.2016.Policy.  UnitMonitor.ResidualIPAddressRange100Full  (Defined in DHCP 2016 and above) | DHCP has determined that a scope is nearing capacity | Extend DHCP scopes, reduce lease times, or decrease cleanup interval |
| Microsoft.Windows.DHCPServer.2016.  IPv6Runtime.UnitMonitor.Auditing  (Defined in DHCP 2016 and above) | DHCPv6 has determined that the audit log cannot be written to because it is full or cannot be accessed. | Remove old audit log files or increase the maximum audit log size |
| Microsoft.Windows.DHCPServer.2016.Scope.  IPV4.FreeScopeAddresses.Percentage.Monitor  (Defined in DHCP 2016 and above) | DHCP has determined that a scope is nearing capacity | Extend DHCP scopes, reduce lease times, or decrease cleanup interval |
| Microsoft.Windows.DHCPServer.2016.Scope.  IPV4.FreeScopeAddresses.Quantity.Monitor  (Defined in DHCP 2016 and above) | DHCP has determined that a scope is nearing capacity | Extend DHCP scopes, reduce lease times, or decrease cleanup interval |
| Microsoft.Windows.DHCPServer.2012.R2.Scope.  IPV6.FreeScopeAddresses.Percentage.Monitor  (Defined in DHCP 2016 and above) | DHCP has determined that a scope is nearing capacity | Extend DHCP scopes, reduce lease times, or decrease cleanup interval |
| Microsoft.Windows.DHCPServer.2016.Scope.  IPV6.FreeScopeAddresses.Quantity.Monitor  (Defined in DHCP 2016 and above) | DHCP has determined that a scope is nearing capacity | Extend DHCP scopes, reduce lease times, or decrease cleanup interval |
| Microsoft.Windows.DHCPServer.2016.FailoverServerWatcher.UnitMonitor.State  (Defined in DHCP 2016 and above) | The reported state of the DHCP Failover Relationship Server changed to Not Healthy | Identify and fix any network connectivity problems |
| Microsoft.Windows.DHCPServer.2016.FailoverServerWatcher.UnitMonitor.OutOfTimeSync  (Defined in DHCP 2016 and above) | The DHCP Failover Relationship Server was unable to ping the Partner Server to synchronize it | Identify and fix any network connectivity problems |
| Microsoft.Windows.DHCPServer.2016.FailoverServerWatcher.UnitMonitor.ErrorCommunicationWithfailoverPartnerServer  (Defined in DHCP 2016 and above) | The DHCP Failover Relationship Server was unable to ping the Partner Server | Identify and fix any network connectivity problems |
| Microsoft.Windows.DHCPServer.2016.FailoverServerWatcher.UnitMonitor.LostCommunicationWithfailoverPartnerServer  (Defined in DHCP 2016 and above) | The DHCP Failover Relationship Server was unable to ping the Partner Server | Identify and fix any network connectivity problems |
| Microsoft.Windows.DHCPServer.2016.Scopes.UnitMonitor.UtilizationByScope  (Defined in DHCP 2016 and above) | DHCP has determined that a scope is nearing capacity | Extend DHCP scopes, reduce lease times, or decrease cleanup interval |
| Microsoft.Windows.DHCPServer.2016.ScopesAndSuperScopes.UnitMonitor.Utilization  (Defined in DHCP 2016 and above) | DHCP has determined that a scope is nearing capacity | Extend DHCP scopes, reduce lease times, or decrease cleanup interval |
| Microsoft.Windows.DHCPServer.2016.Policy.  UnitMonitor.IPAddressRange80Full  (Defined in DHCP 2016 and above) | DHCP has determined that a scope is nearing capacity | Extend DHCP scopes, reduce lease times, or decrease cleanup interval |
| Microsoft.Windows.DHCPServer.2016.Policy.  UnitMonitor.IPAddressRange100Full  (Defined in DHCP 2016 and above) | DHCP has determined that a scope is nearing capacity | Extend DHCP scopes, reduce lease times, or decrease cleanup interval |
| Microsoft.Windows.DHCPServer.2016.Policy.  UnitMonitor.ClientPackDrop100Full  (Defined in DHCP 2016 and above) | DHCP has determined that a scope is nearing capacity | Extend DHCP scopes, reduce lease times, or decrease cleanup interval |
| Microsoft.Windows.DHCPServer.2016.Policy.  UnitMonitor.ResidualIPAddressRange80Full  (Defined in DHCP 2016 and above) | DHCP has determined that a scope is nearing capacity | Extend DHCP scopes, reduce lease times, or decrease cleanup interval |
| Microsoft.Windows.DHCPServer.2016.Policy.  UnitMonitor.ResidualIPAddressRange100Full  (Defined in DHCP 2016 and above) | DHCP has determined that a scope is nearing capacity | Extend DHCP scopes, reduce lease times, or decrease cleanup interval |
| Microsoft.Windows.DHCPServer.2016.  IPv6Runtime.UnitMonitor.Auditing  (Defined in DHCP 2016 and above) | DHCPv6 has determined that the audit log cannot be written to because it is full or cannot be accessed. | Remove old audit log files or increase the maximum audit log size |
| Microsoft.Windows.DHCPServer.2016.Scope.  IPV4.FreeScopeAddresses.Percentage.Monitor  (Defined in DHCP 2016 and above) | DHCP has determined that a scope is nearing capacity | Extend DHCP scopes, reduce lease times, or decrease cleanup interval |
| Microsoft.Windows.DHCPServer.2016.Scope.  IPV4.FreeScopeAddresses.Quantity.Monitor  (Defined in DHCP 2016 and above) | DHCP has determined that a scope is nearing capacity | Extend DHCP scopes, reduce lease times, or decrease cleanup interval |
| Microsoft.Windows.DHCPServer.2016.Scope.  IPV6.FreeScopeAddresses.Percentage.Monitor  (Defined in DHCP 2016 and above) | DHCP has determined that a scope is nearing capacity | Extend DHCP scopes, reduce lease times, or decrease cleanup interval |
| Microsoft.Windows.DHCPServer.2016.Scope.  IPV6.FreeScopeAddresses.Quantity.Monitor  (Defined in DHCP 2016 and above) | DHCP has determined that a scope is nearing capacity | Extend DHCP scopes, reduce lease times, or decrease cleanup interval |
| Microsoft.Windows.DHCPServer.2016.FailoverServerWatcher.UnitMonitor.State  (Defined in DHCP 2016 and above) | The reported state of the DHCP Failover Relationship Server changed to Not Healthy | Identify and fix any network connectivity problems |
| Microsoft.Windows.DHCPServer.2016.FailoverServerWatcher.UnitMonitor.OutOfTimeSync  (Defined in DHCP 2016 and above) | The DHCP Failover Relationship Server was unable to ping the Partner Server to synchronize it | Identify and fix any network connectivity problems |
| Microsoft.Windows.DHCPServer.2016.FailoverServerWatcher.UnitMonitor.ErrorCommunicationWithfailoverPartnerServer  (Defined in DHCP 2016 and above) | The DHCP Failover Relationship Server was unable to ping the Partner Server | Identify and fix any network connectivity problems |
| Microsoft.Windows.DHCPServer.2016.FailoverServerWatcher.UnitMonitor.LostCommunicationWithfailoverPartnerServer  (Defined in DHCP 2016 and above) | The DHCP Failover Relationship Server was unable to ping the Partner Server | Identify and fix any network connectivity problems |
| Microsoft.Windows.DHCPServer.2016.Scopes.UnitMonitor.UtilizationByScope  (Defined in DHCP 2016 and above) | DHCP has determined that a scope is nearing capacity | Extend DHCP scopes, reduce lease times, or decrease cleanup interval |
| Microsoft.Windows.DHCPServer.2016.ScopesAndSuperScopes.UnitMonitor.Utilization  (Defined in DHCP 2016 and above) | DHCP has determined that a scope is nearing capacity | Extend DHCP scopes, reduce lease times, or decrease cleanup interval |
| Microsoft.Windows.DHCPServer.2016.Policy.  UnitMonitor.IPAddressRange80Full  (Defined in DHCP 2016 and above) | DHCP has determined that a scope is nearing capacity | Extend DHCP scopes, reduce lease times, or decrease cleanup interval |
| Microsoft.Windows.DHCPServer.2016.SuperScope.IPV4.AddressesAvailable.Percentage.Monitor | The percentage of free addresses for the specified super scope fall below the defined threshold. | Extend DHCP scopes, reduce lease times, or decrease cleanup interval |

**Note:** The following monitors are disabled by default:

* DHCP Server 2016 and above IPV4 Individual Scope Addresses Available Monitor [SCRIPT]
* DHCP Server 2016 and above IPV6 Individual Scope Addresses Available Monitor [SCRIPT]
* DHCP Back Up Database Error Monitor
* DHCP Database Integrity Monitor
* DHCP IPv4 Runtime DNS Registration Monitor [DHCP IPv4 Runtime]
* DHCP IPv4 Runtime Users Group Configuration Monitor [DHCP IPv4 Runtime]

### Collection Rules

| COLLECTION RULES | Purpose |
| --- | --- |
| Microsoft.Windows.DHCPServer.Library.  Database.Collect.BackupPathFail  (Defined in DHCP Library) | DHCP database backup |
| Microsoft.Windows.DHCPServer.Library.  Database.Collect.CleanupComplete  (Defined in DHCP Library) | DHCP database cleanup completed. |
| Microsoft.Windows.DHCPServer.Library.  Database.Collect.CleanupStarted  (Defined in DHCP Library) | DHCP database cleanup started. |
| Microsoft.Windows.DHCPServer.Library.  Database.Collect.ConversionInProgress  (Defined in DHCP Library) | DHCP database conversion in progress |
| Microsoft.Windows.DHCPServer.Library.  Database.Collect.ConversionRequired  (Defined in DHCP Library) | DHCP database conversion is required |
| Microsoft.Windows.DHCPServer.Library.  Database.Collect.DatabaseBackupFail  (Defined in DHCP Library) | Database backup failed |
| Microsoft.Windows.DHCPServer.Database.  Collect.DBCleanup  (Defined in DHCP Library) | DHCP database cleanup |
| Microsoft.Windows.DHCPServer.Library.  Database.Collect.DBLoadFail  (Defined in DHCP Library) | Failure in loading of database |
| Microsoft.Windows.DHCPServer.Library.  Database.Collect.DBPathFail  (Defined in DHCP Library) | Failure in database path |
| Microsoft.Windows.DHCPServer.Library.  Database.Collect.InitFail  (Defined in DHCP Library) | Database initialization failure |
| Microsoft.Windows.DHCPServer.Library.  Database.Collect.JetErrors  (Defined in DHCP Library) | Jet database errors |
| Microsoft.Windows.DHCPServer.Library.  Database.Collect.JetWarnings  (Defined in DHCP Library) | Jet database warnings |
| Microsoft.Windows.DHCPServer.Library.  Database.Collect.RestoreCompleted  (Defined in DHCP Library) | Database restoration completed |
| Microsoft.Windows.DHCPServer.Library.  Database.Collect.RestoreFailed  (Defined in DHCP Library) | Database restoration failure |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.Collect.AuditLogAppendFailed  (Defined in DHCP Library) | DHCP audit log append failure |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.Collect.AuditLogInitFailed  (Defined in DHCP Library) | DHCP audit log initialization failure |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.Collect.AuditLogMoveFailed  (Defined in DHCP Library) | DHCP audit log move failure |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.Collect.AuthorizedAndStarted  (Defined in DHCP Library) | DHCP server service is authorized and started |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.Collect.BadAuditPath  (Defined in DHCP Library) | DHCP is unable to access the audit file path |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.Collect.BOOTPFileFailed  (Defined in DHCP Library) | DHCP cannot read the DHCP BOOTP file table from the registry |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.Collect.CalloutLoadException  (Defined in DHCP Library) | The installed callout dll file causes an exception |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.Collect.CalloutLoadFailed  (Defined in DHCP Library) | DHCP fails to load a callout dll |
| Microsoft.Windows.DHCPServer.IPv4Runtime.Collect.CalloutLoadSuccess  (Defined in DHCP Library) | Callout dll is loaded successfully |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.Collect.ClientCleanup  (Defined in DHCP Library) | error occurs on cleaning up pending client records |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.Collect.ConfigBackup  (Defined in DHCP Library) | error occurs backing up the registry |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.Collect.DHCPLocalGroupFailed  (Defined in DHCP Library) | DHCP cannot create or read the DHCP local users group |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.Collect.DomainAuthorized  (Defined in DHCP Library) | DHCP is authorized in the domain |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.Collect.DomainAuthorizedAndStarted  (Defined in DHCP Library) | DHCP is authorized in the domain and is servicing clients |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.Collect.DomainError  (Defined in DHCP Library) | DHCP cannot locate the domain |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.Collect.DomainNotAuthorized  (Defined in DHCP Library) | DHCP is not authorized in the domain |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.Collect.DomainUnauthorized  (Defined in DHCP Library) | DHCP is not authorized in the domain |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.Collect.DomainUnchecked  (Defined in DHCP Library) | DHCP has not determined domain authorization |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.Collect.DomainUpgraded  (Defined in DHCP Library) | DHCP was recently upgraded and domain authorized to start |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.Collect.DSFailed  (Defined in DHCP Library) | DHCP could not contact a domain controller |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.Collect.DynamicAddress  (Defined in DHCP Library) | DHCP detects a dynamic IP address |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.Collect.GlobalBOOTPFileName  Failed  (Defined in DHCP Library) | DHCP failed to read the global BOOTP filename from the registry |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.Collect.InitFailed  (Defined in DHCP Library) | DHCP fails to initialize its configuration parameter |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.Collect.InterfaceNotificationFailed  (Defined in DHCP Library) | DHCP detects an interface notification problem |
| Microsoft.Windows.DHCPServer.IPv4Runtime.Collect.NetworkFailure  (Defined in DHCP Library) | Network failure |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.Collect.OtherServer  (Defined in DHCP Library) | DHCP workgroup server detects a domain server |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.Collect.PingFailed  (Defined in DHCP Library) | DHCP was unable to ping for a new address |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.Collect.RegistryRestoreFailed  (Defined in DHCP Library) | Error occurs while restoring the DHCP registry configuration |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.Collect.RogueServerDetected  (Defined in DHCP Library) | DHCP detects an unauthorized DHCP server on the same network |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.Collect.Upgraded  (Defined in DHCP Library) | DHCP was recently upgraded and authorized to start |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.Collect.WinsockFailed  (Defined in DHCP Library) | Winsock initialization fails |
| Microsoft.Windows.DHCPServer.Library  .IPv4Runtime.CollectCalloutFailed  (Defined in DHCP Library) | Exception occurs on calling out to the installed callout dll file |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.CollectNotAuthorized  (Defined in DHCP Library) | DHCP server is not authorized to start |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.CollectUnauthorized  (Defined in DHCP Library) | DHCP is unauthorized |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.CollectWrongDNSCreds  (Defined in DHCP Library) | DHCP cannot use the credentials provided for DNS registrations |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.NoCredsOnDC  (Defined in DHCP Library) | DHCP is running on a domain controller but does not have specific credentials for registering DNS information |
| Microsoft.Windows.DHCPServer.Library.  IPv4Runtime.SBSOtherServer  (Defined in DHCP Library) | SBS DHCP server detects another DHCP server |
| Microsoft.Windows.DHCPServer.Library.Rule.  CollectPerformanceData  (Defined in DHCP Library) | Collects all DHCP Performance Data |
| Microsoft.Windows.DHCPServer.Library.Server.Collect.DDNSUpdateRequest  (Defined in DHCP Library) | DDNS update is requested |
| Microsoft.Windows.DHCPServer.Library.Server.Collect.DDNSUpdateSuccess  (Defined in DHCP Library) | DDNS update successfully completes |
| Microsoft.Windows.DHCPServer.Library.Server.Collect.DHCPNotBoundToStaticIPAddress  (Defined in DHCP Library) | DHCP service is not servicing any clients because none of the active network interfaces have statically configured IP addresses, or there are no active interfaces. |
| Microsoft.Windows.DHCPServer.Library.Server.Collect.InitDataFailed  (Defined in DHCP Library) | DHCP is unable to initialize its global parameters |
| Microsoft.Windows.DHCPServer.Library.Server.Collect.InitRegistryFailed  (Defined in DHCP Library) | DHCP server failed to initialize its registry parameters |
| Microsoft.Windows.DHCPServer.Library.Server.Collect.RegistrationFailure  (Defined in DHCP Library) | DHCP service could not register with the Service Controller |
| Microsoft.Windows.DHCPServer.Library.Server.Collect.RPCFail  (Defined in DHCP Library) | DHCP server failed to start as a RPC server |
| Microsoft.Windows.DHCPServer.Library.Server.Collect.ScriptTraceEvents  (Defined in DHCP Library) | DHCP server script based events |
| Microsoft.Windows.DHCPServer.Library.Server.Collect.WinsockFailed  (Defined in DHCP Library) | DHCP server failed to initialize its Winsock data |
| Microsoft.Windows.DHCPServer.Library.Server.PerformanceCollection.AcksPerSecond  (Defined in DHCP Library) | DHCP server performance monitor - DHCP Acks Per Second |
| Microsoft.Windows.DHCPServer.Library.Server.PerformanceCollection.ActiveQueueLength  (Defined in DHCP Library) | DHCP server performance monitor - DHCP Active Queue Length |
| Microsoft.Windows.DHCPServer.Library.Server.PerformanceCollection.ConflictCheckQueue  Length  (Defined in DHCP Library) | DHCP server performance monitor - DHCP Conflict Check Queue Length |
| Microsoft.Windows.DHCPServer.Library.Server.PerformanceCollection.DeclinesPerSecond  (Defined in DHCP Library) | DHCP server performance monitor - DHCP Declines / Second |
| Microsoft.Windows.DHCPServer.Library.Server.PerformanceCollection.DiscoversPerSecond  (Defined in DHCP Library) | DHCP server performance monitor - DHCP Discovers / Second |
| Microsoft.Windows.DHCPServer.Library.Server.PerformanceCollection.DuplicatesDroppedPerSecond  (Defined in DHCP Library) | DHCP server performance monitor - DHCP Duplicates Dropped / Second |
| Microsoft.Windows.DHCPServer.Library.Server.PerformanceCollection.InformsPerSecond  (Defined in DHCP Library) | DHCP server performance monitor - DHCP Informs / Second |
| Microsoft.Windows.DHCPServer.Library.Server.PerformanceCollection.MillisecondsPerPacketAvg  (Defined in DHCP Library) | DHCP server performance monitor - DHCP Average Milliseconds / Packet |
| Microsoft.Windows.DHCPServer.Library.Server.PerformanceCollection.NacksPerSecond  (Defined in DHCP Library) | DHCP server performance monitor - DHCP Nacks / Second |
| Microsoft.Windows.DHCPServer.Library.Server.PerformanceCollection.OffersPerSecond  (Defined in DHCP Library) | DHCP server performance monitor - DHCP Offers / Second |
| Microsoft.Windows.DHCPServer.Library.Server.PerformanceCollection.PacketsExpiredPer  Second  (Defined in DHCP Library) | DHCP server performance monitor - DHCP Packets Expired / Second |
| Microsoft.Windows.DHCPServer.Library.Server.PerformanceCollection.PacketsReceivedPer  Second  (Defined in DHCP Library) | DHCP server performance monitor - DHCP Packets Received / Second |
| Microsoft.Windows.DHCPServer.Library.Server.PerformanceCollection.ReleasesPerSecond  (Defined in DHCP Library) | DHCP server performance monitor - DHCP Releases / Second |
| Microsoft.Windows.DHCPServer.Library.Server.PerformanceCollection.RequestsPerSecond  (Defined in DHCP Library) | DHCP server performance monitor - DHCP Requests / Second |
| Microsoft.Windows.DHCPServer.Library.Server.Collect.DHCPInitialized  (Defined in DHCP Library) | DHCP server service Initialization |
| Microsoft.Windows.DHCPServer.Library.  IPv4Scope.Collect.LeaseDeclined  (Defined in DHCP Library) | Lease declined |
| Microsoft.Windows.DHCPServer.Library.  IPv4Scope.Collect.LowAddressWarning  (Defined in DHCP Library) | IPv4 scopes that are running low on available leases |
| Microsoft.Windows.DHCPServer.Library.  IPv4Scope.Collect.NACKIssued  (Defined in DHCP Library) | IPv4 NACK Issued |
| Microsoft.Windows.DHCPServer.Library.  IPv4Scope.Collect.ScopeFull  (Defined in DHCP Library) | IPv4 scopes that are out of available leases |
| Microsoft.Windows.DHCPServer.Library.  IPv4Scope.Collect.UnknownOption  (Defined in DHCP Library) | IPv4 DHCP client requests that contained a request for an unknown DHCP option |
| Microsoft.Windows.DHCPServer.Library.  IPv4Scope.CollectBOOTPFull  (Defined in DHCP Library) | IPv4 BOOTP requests that could not be filled due to lack of available addresses |
| Microsoft.Windows.DHCPServer.Library.  IPv4Scope.CollectLeaseRelease  (Defined in DHCP Library) | Released IPv4 leases |
| Microsoft.Windows.DHCPServer.Library.  IPv4Scope.CollectOrphanedEntriesDeleted  (Defined in DHCP Library) | orphaned entries deleted in the configuration due to the deletion of a class or option definition |
| Microsoft.Windows.DHCPServer.2016.Scope.  IPV4.CollectFreeScopeAddresses  (Defined in DHCP 2016 and above) | Collects IPV4 Free Scope Addresses |
| Microsoft.Windows.DHCPServer.2016.Scope.  IPV6.CollectFreeScopeAddresses  (Defined in DHCP 2016 and above) | Collects IPV6 Free Scope Addresses |
| Microsoft.Windows.DHCPServer.2016.Scope.  IPV4.CollectScopeAddressesInUse  (Defined in DHCP 2016 and above) | Collects IPV4 Scope Addresses In Use |
| Microsoft.Windows.DHCPServer.2016.Scope.  IPV6.CollectScopeAddressesInUse  (Defined in DHCP 2016 and above) | Collects IPV6 Scope Addresses In Use |
| Microsoft.Windows.DHCPServer.2016.Scope.  IPV4.CollectFreeScopeAddresses  (Defined in DHCP 2016 and above) | Collects IPV4 Free Scope Addresses |
| Microsoft.Windows.DHCPServer.2016.Scope.  IPV6.CollectFreeScopeAddresses  (Defined in DHCP 2016 and above) | Collects IPV6 Free Scope Addresses |
| Microsoft.Windows.DHCPServer.2016.Scope.  IPV4.CollectScopeAddressesInUse  (Defined in DHCP 2016 and above) | Collects IPV4 Scope Addresses In Use |
| Microsoft.Windows.DHCPServer.2016.Scope.  IPV6.CollectScopeAddressesInUse  (Defined in DHCP 2016 and above) | Collects IPV6 Scope Addresses In Use |
| Microsoft.Windows.DHCPServer.2016.SuperScope.IPV4.CollectFreeAddresses | Collect IPV4 Free Super Scope Addresses |
| Microsoft.Windows.DHCPServer.2016.SuperScope.IPV4.CollectAddressesInUse | Collect IPV4 Super Scope Addresses In Use |
| Microsoft.Windows.DHCPServer.2016.Policy.FailOver.PacketDrop | Packet dropped because of Client ID hash mismatch or standby |

### Tasks

| Tasks | Purpose |
| --- | --- |
| Microsoft.Windows.DHCPServer.2016.Tasks.TestIPV4Scope | Test IPV4 Scope |
| Microsoft.Windows.DHCPServer.2016.Tasks.TestIPV6Scope | Test IPV6 Scope |

### Views

| VIEWS | Purpose |
| --- | --- |
| Active Alerts | To view all the active alerts of Windows Server 2016 and above DHCP server |
| DHCP 2016 Server Events | To view all the events of Windows Server 2016 and above DHCP server |
| Server Health | To view the health state of the Windows Server 2016 and above DHCP server |
| Server Performance | To view all the performance counters of the Windows Server 2016 and above DHCP server |
| Active Queue Length | To view all the IPv4 active queue length performance counters of the Windows Server 2016 and above DHCP server |
| Conflict Check Queue Length | To view all the IPv4 conflict check queue length performance counters of the Windows Server 2016 and above DHCP server |
| Average Milliseconds / Packet | To view all the IPv4 average milliseconds per packet performance counters of the Windows Server 2016 and above DHCP server |
| Declines / Second | To view all the IPv4 declines per second performance counters of the Windows Server 2016 and above DHCP server |
| Discovers / Second | To view all the IPv4 discovers per second performance counters of the Windows Server 2016 and above DHCP server |
| Nacks / Second | To view all the IPv4 NACKs per second performance counters of the Windows Server 2016 and above DHCP server |
| DHCP 2016 and above Database Events | To view all the Database events of Windows Server 2016 and above DHCP server |
| DHCP 2016 and above Script Trace Events | To view all the script trace events of Windows Server 2016 and above DHCP server |
| DHCP 2016 and above IP4 Runtime Events | To view all the IPV4 Runtime events of Windows Server 2016 and above DHCP server |
| DHCP 2016 and above IP6 Runtime Events | To view all the IPV6 Runtime events of Windows Server 2016 and above DHCP server |
| Scope Addresses in Use | To view Scope Addresses in Use performance counters collected data of the Windows Server 2016 and above DHCP server |
| Scope Free Addresses | To view Free Scope Addresses performance counters collected data of the Windows Server 2016 and above DHCP servers |
| Scope Health | To view the health state of the Windows Server 2016 and above DHCP Scopes |
| Component Health | To view the health state of the Windows Server 2016 and above DHCP Components |
| Failover Server Relationship Health | To view the health state of the Windows Server 2016 and above DHCP Failover Server Relationships |
| Super Scope Health | To view the health state of the 2016 and above DHCP Super Scope |

## **Recommended Additional Management Packs**

If you have a clustered DHCP deployment, you will need to download the Cluster Management Pack along with the DHCP Management Pack. The Cluster Management Pack provides both proactive and reactive monitoring of your Windows Server 2016 and above cluster deployments. It monitors cluster services components such as nodes, networks, resources, and resource groups, and reports problems that can cause downtime or poor performance.

## **Security Considerations**

You may need to customize your management pack. Certain accounts cannot be run in a low-privilege environment or must have minimum permissions.

### **Low-Privilege Environments**

The Windows Server DHCP Management Pack includes a Run As profile called DHCP Action Account. This profile can be assigned to a user-defined action account to support running in low-privileged environments.

The action account must have the following permissions:

* Registry Read permission
* Full access to HKLM\CurrentControlSet\Services\DHCPServer\Performance key and all subkeys
* Event log Read permission
* Member of the DHCP Users or DHCP Administrators group (located in local Security Accounts Manager (SAM) or Active Directory Domain Services (AD DS) depending on whether the managed node is domain joined or not)
* Server Operator (if you want to be able to start / stop DHCP service)
* Able to create temporary files in the service account temp directory

## **Windows Server DHCP Management Pack Discovery**

The Windows Server DHCP Management Pack discovers the object types described in this guide. All of the objects are automatically discovered. Use overrides to disable discovery if necessary.

For information about discovering objects, see [Object Discoveries in Operations Manager 20](http://go.microsoft.com/fwlink/?LinkId=717062)12.

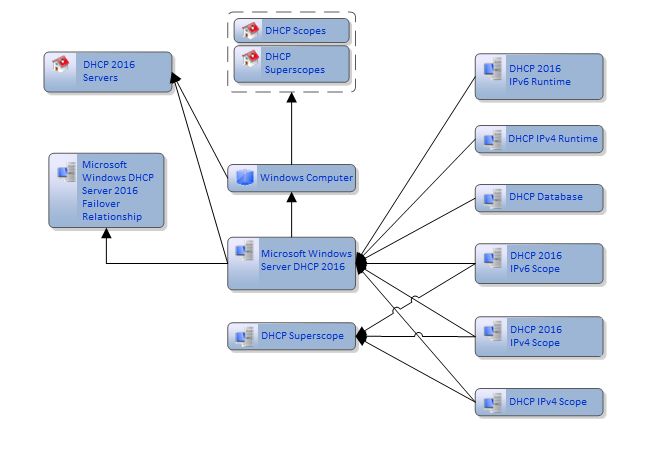
Use the following procedure to disable or enable automatic discovery.

To use an override to change the setting for automatic discovery

|  |
| --- |
| 1. In the Authoring pane, expand Management Pack Objects, and then click Object Discoveries.  2. On the Operations Manager toolbar, click Scope, and then filter the objects that appear in the details pane to include only DHCP objects.  3. In the Operations Manager toolbar, use the Scope button to filter the list of objects, and then click Microsoft.Windows.DHCPServer.2016.Server.Discovery for Windows Server 2016 and above. In the Authoring pane, expand Management Pack Objects, and then click Object Discoveries.  4. On the Operations Manager toolbar, click Overrides; click Override the Object Discovery, and then click For all objects of class: Windows Server.  5. In the Overrides Properties dialog box, click the Override box for the Enabled parameter.  6. Under Management Pack, click New to create an unsealed version of the Management Pack, and then click OK. |

## **How Health Rolls Up**

The following Diagram explains how health rolls up within Windows Server 2016 and above DHCP Management Pack.



## **Key Monitoring Scenarios**

The Windows Server DHCP Management Pack for System Center Operations Manager includes a number of key monitoring scenarios that are configurable.

| Scenario | Description |
| --- | --- |
| DHCP Server Health | This server-centric view monitors the health, availability, security, and configuration of all DHCP components. This view also rolls up status through the use of aggregate monitors.   Is this DHCP server functioning?   Do all DHCP scopes have sufficient remaining IP addresses to hand out? |
| DHCP Service Health | This service-wide view monitors the health, availability, security, and configuration of all DHCP components and rolls up status through the use of aggregate monitors.   Are all my DHCP servers currently healthy across the enterprise? |
| DHCP Core Component Health | Is DHCP ready to serve clients?   The DHCP service is running.   It is bound to all defined network cards.   It is authorized properly in the Active Directory service. |
| DHCP Database Health | Are the DHCP databases healthy?   Able to load all scope and Super scopes.   Enough disk space available for database use.   Database is not corrupted. |
| DHCP Security Health (Windows Server 2016 and above) |  Are any security-related issues occurring?   Is the DHCP service performing secure updates to the Domain Name System (DNS)?   Does the DHCP server detects any rogue servers? |
| DHCP Security Health (Windows Server 2016 and above) |  Are any security-related issues occurring?   Is the DHCP service performing secure updates to the Domain Name System (DNS)?   Does the DHCP server detects any rogue servers? |
| DHCP Performance Health |  Are the DHCP server queues healthy?   Are the DHCP servers responding to all queries in a timely manner? |
| DHCP Configuration Changes |  Detects any configuration changes. Optional ability to alert on changes.   Configuration reports show any inconsistent settings across the enterprise so that users can correlate those inconsistencies to service-related issues. |
| DHCP Performance Counter Collection | Provides the ability to chart and report on historical performance. |
| DHCP Policies | Are the defined policies for Scopes healthy? |
| DHCP Cluster and Failover Server Relationships | Are the partner server communication is up?  Are the clustered nodes are running healthy? |

## **Known Issues and Troubleshooting**

Known Issue: Discoveries fail on agents without PowerShell

Issue: Discoveries will fail on the agents without PowerShell installed on the server.

Workaround: Install PowerShell, or disable “DHCP Cluster 2016 and above Server Discovery Data Source” and “DHCP 2016 and above Server Discovery Data Source” discoveries on these agents. Then, run the following command in the “Operations Manager Shell”: *Remove-SCOMDisabledClassInstance*.

Known Issue: “DHCP IPV4 scope” is deprecated; several rules and monitors are deprecated

Issue: As long as "DHCP IPV4 scope" is deprecated, the following rules and monitors are deprecated:

* Collect IPv4 DHCP Client Declines Events
* Collect IPv4 NACK Issued Events
* Collect IPv4 Scope Full Events
* Collect Unknown IPv4 Option Events
* Collect IPv4 Boot Full Events
* Collect IPv4 Released Leases
* Collect Orphaned Entries Deleted Events
* Collect IPv4 Low Address Warning Events
* DHCP IPv4 Scope BOOTP Full Monitor
* DHCP IPv4 Scope NACKs Occurring Monitor
* DHCP IPv4 Scope Reconcile Required Monitor
* DHCP IPv4 Scope Unknown Option Monitor

Workaround: No workaround available.

Known Issue: "IPv6 Binding Is Enabled" and "IPv6 Preferred Lifetime" properties are not populated

Issue:“IPv6 Binding Is Enabled” and “IPv6 Preferred Lifetime” properties are not filled with the corresponding values.

Workaround: No workaround available.

Known Issue: DHCP server role is discovered on all cluster virtual servers

Issue: DHCP server role is discovered on all cluster virtual servers. Therefore, all cluster groups are found as DHCP servers.

Workaround: Disable “DHCP Cluster 2016 and above Server Discovery Data Source” discovery for all agentless cluster computers except for cluster virtual servers, which represent clustered DHCP role. Then, run the following command in the “Operations Manager Shell”: *Remove-SCOMDisabledClassInstance*.

Known Issue: Non-clustered DHCP server roles are discovered on active clustered node

Issue: Discovery finds non-clustered DHCP roles on clustered node, which owns DHCP role.

Workaround: Disable “DHCP 2016 and above Server Discovery Data Source” discovery for all agentless computers, which are located on a cluster having clustered DHCP role. Then, run the following command in the “Operations Manager Shell”: *Remove-SCOMDisabledClassInstance*.

Known Issue: Discoveries fail on Nano server 2016

Issue: “DHCP Cluster 2016 and above Server Discovery Data Source” and “DHCP 2016 Server Discovery Data Source” discoveries fail on Nano servers 2016 and above.

Workaround: Disable “DHCP 2016 and above Server Discovery Data Source” discovery for “Windows Server 2016 Computer (Nano)” class. Disable “DHCP Cluster 2016 and above Server Discovery Data Source” discovery for clustered nodes on Nano server 2016. Then, run the following command in the “Operations Manager Shell”: *Remove-SCOMDisabledClassInstance*.

Known Issue: "DHCP server 2016 and above discovery data source" fails if DHCP server is not running

Issue: "DHCP server 2016 and above discovery data source" fails if DHCP server is not running.

Workaround: No workaround available.

Known Issue: "Discovery DHCP 2016 and above Failover Server Relationships Data Source" does not work

Issue: "Discovery DHCP 2016 and above Failover Server Relationships Data Source" does not work if partner server name is set as IP address.

Workaround: Check that agent is installed on all DHCP servers in Failover Relationship. And then setup DHCP Failover partner(s) with FQDN instead of IP address.   
Another option: during creation of failover relationship via "DHCP Manager" console, use DNS name of servers. For remote servers, use "Add-DhcpServerv4Failover" PowerShell cmdlet instead of remote connection via "DHCP Manager" console.

For example:

"Add-DhcpServerv4Failover -ComputerName base1-core-01.baseos1.local -Name CORE01toCORE02 -PartnerServer base1-core-02.baseos1.local -ScopeId 192.168.241.0"

Known Issue: "Discovery DHCP 2016 and above Failover Server Relationships Data Source" fails if DHCP failover returns empty data for some properties

Issue: Discovery may fail if DHCP failover returns empty data for some properties.

Workaround: No workaround available.

Known Issue: For “DHCP 2016 and above Server Discovery Data Source Discovery”, data type of "IPv6 valid lifetime"/"IPv6 IATA valid lifetime" properties is incorrect

Issue: For “DHCP 2016 and above Server Discovery Data Source discovery”, data type of "IPv6 valid lifetime"/"IPv6 IATA valid lifetime" properties is incorrect; the data in SCOM is rounded to the nearest integer.

Workaround: No workaround available.

Known Issue: Incorrect populating of binding properties of DHCP server

Issue: If DHCP server has more than one Network Adapters, than the property is populated from the second Adapter.

Workaround: No workaround available.

Known Issue: “Warning” state of “DHCP Dependent Service Health Monitor” does not work

Issue: “Warning” state of “DHCP Dependent Service Health Monitor” does not work as long as it’s deprecated.

Workaround: No workaround available.

Known Issue: "DHCP Server 2016 and above Super Scope Addresses Available Percentage Monitor” is not generating the corresponding alerts

Issue: "DHCP Server 2016 and above Super Scope Addresses Available Percentage Monitor” is not generating the corresponding alerts in case of 0% percentage available.

Workaround: No workaround available.

Display Strings Known Issue: Several non-alerting rules have empty "Product Knowledge"

Issue: The following non-alerting rules have empty "Product Knowledge":

* Collect DHCP Database Cleanup Events
* Collect DHCP Callout Loading Success Events
* Collect DHCP Network Failure Events
* Collect DHCP Database Backup Path Failure Events
* Collect DHCP Database Cleanup Complete Events
* Collect DHCP Database Cleanup Started Events
* Collect DHCP Database Conversion In Progress Events
* Collect DHCP Database Conversion Required Events
* Collect DHCP Database Backup Failure Events
* Collect DHCP Database Load Failure Events
* Collect DHCP Database Path Failure Events
* Collect DHCP Database Initialization Failure Events
* Collect DHCP Jet Error Events
* Collect DHCP Database Warning Events
* Collect DHCP Database Restore Complete Events
* Collect DHCP Database Restore Failure Events
* Collect DHCP Audit Log Append Failure Events
* Collect DHCP Audit Log Intiialization Failure Events
* Collect DHCP Audit Log Move Failure Events
* Collects DHCP Authorized And Started Events
* Collect DHCP Bad Audit Path Events
* Collect DHCP BOOTP File Table Read Failure Events
* Collect DHCP Callout Load Exception Events
* Collect DHCP Callout Load Failure Events
* Collect Client Cleanup Events
* Collect DHCP Registry Configuration Backup Error Events
* Collect DHCP Local Users Group Failure Events
* Collect DHCP Domain Authorized Events
* Collect DHCP Domain Authorized And Started Events
* Collect DHCP Can't Locate Domain Events
* Collect DHCP Domain Not Authorized Events
* Collect DHCP Domain Unauthorized Events
* Collect DHCP Domain Authorization Unchecked Events
* Collect DHCP Domain Recently Upgraded Events
* Collect DHCP Failed To Locate a DC Events
* Collect DHCP Dynamic Address Detected Events
* Collect DHCP BOOTP Global Filename Read Failure Events
* Collect DHCP Configuration Initialization Failure Events
* Collect DHCP Interface Notification Failed Events
* Collect DHCP Other Server Detected Events
* Collect DHCP Ping Failure Events
* Collect DHCP Registry Restore Failure Events
* Collect Rogue DHCP Server Detected Events
* Collect DHCP Recently Upgraded Events
* Collect Winsock Failed Events
* Collect DHCP Callout Failure Events
* Collect DHCP Not Authorized Events
* Collect DHCP Unauthorized Events
* Collect Incorrect DNS Credentials Events
* Collect No DNS Credentials on DC Events
* Collect SBS DHCP Detected Other DHCP Server Events
* Collect IPv4 DHCP Client Declines Events
* Collect IPv4 Low Address Warning Events
* Collect IPv4 NACK Issued Events
* Collect IPv4 Scope Full Events
* Collect Unknown IPv4 Option Events
* Collect IPv4 Boot Full Events
* Collect IPv4 Released Leases
* Collect Orphaned Entries Deleted Events
* Collect DDNS Update Request Events
* Collects DDNS Update Successful Events
* Collect DHCP Initialized and Ready
* Collect DHCP not bound to static IP address
* Collect Init Data Failed Events
* Collect Init Registry Failed Events
* Collect Registration Failure Events
* Collect Init RPC Failed Events
* Collect Script Trace Events
* Collect Winsock Failed Events
* DHCP Back Up Database Error Rule
* Collect All DHCP Server Performance Data
* Collect Scope Free Addresses
* Collect Scope Addresses In Use
* Collect DHCP Acks / Second
* Collect DHCP Active Queue Length
* Collect DHCP Conflict Check Queue Length
* Collect DHCP Declines / Second
* Collect DHCP Discovers / Second
* Collect DHCP Duplicates Dropped / Second
* Collect DHCP Informs / Second
* Collect DHCP Average Milliseconds / Packet
* Collect DHCP Nacks / Second
* Collect DHCP Offers / Second
* Collect DHCP Packets Expired / Second
* Collect DHCP Packets Received / Second
* Collect DHCP Releases / Second
* Collect DHCP Requests / Second
* Collect Free Superscope Addresses
* Collect Superscope Addresses In Use

Workaround: No workaround available.

Known Issue: "DHCP Scopes MONITORING FAILS FOR LARGE NUMBER OF SCOPES”

Issue: DHCP 2016 and above MP workflows cause CPU spike when there are over 1000+ DHCP Scopes and causes the monitoring to crash.

**Workaround**: Disable the Rules and Monitors on scopes and create a Group for inclusion list i.e. add priority scopes to the group and enable the monitors and rules to run only on the group.

Known Issue: "DHCP Scope Addresses Available Monitor FAILS FOR LARGE NUMBER OF SCOPES”

Issue: DHCP Scope Addresses Available Monitor causes CPU spike when there are over 1000+ DHCP Scopes and causes the monitoring to crash.

**Workaround**: Added New monitor “Microsoft Windows Server DHCP 2016 and above Scope Addresses Availability” for monitoring all the scopes as a single unit and task for generating critical scopes report.

* After importing the MP, first disable the scopes discovery using the task “Disable DHCP IPv4 Scopes Discovery” on “DHCP 2016 and above IPv4 Scopes”, by providing, ID of any un-sealed MP as input for storing overrides.
* Then enable the “DHCP IPv4 Scopes Runtime Discovery”
* Then on “DHCP 2016 and above IPv4 Scopes Runtime” class new “Microsoft Windows Server DHCP 2016 and above Scope Addresses Availability” will be running and we can run the Task “Critical Scopes Availability” on same class to get list of all critical scopes.
* For the task “Critical Scopes Availability” if Destination Server is different from agent server then provide the Destination Server credentials in Task credentials.

## **Links**

The following links connect you to information about common tasks that are associated with System Center management packs:

### **System Center 2012 Operations Manager**

* [Management Pack Life Cycle](http://go.microsoft.com/fwlink/p/?LinkID=232986)
* [How to Import a Management Pack](http://go.microsoft.com/fwlink/p/?LinkID=219431)
* [Tuning Monitoring by Using Targeting and Overrides](http://go.microsoft.com/fwlink/p/?LinkID=217065)
* [How to Create a Run As Account](http://go.microsoft.com/fwlink/p/?LinkId=232988)
* [How to Export a Management Pack](http://go.microsoft.com/fwlink/p/?LinkId=232990)
* [How to Remove a Management Pack](http://go.microsoft.com/fwlink/p/?LinkId=232991)

For questions about Operations Manager and management packs, see [System Center Operations Manager community forum](http://go.microsoft.com/fwlink/?LinkID=179635).

A useful resource is [System Center Operations Manager Unleashed blog](http://go.microsoft.com/fwlink/?LinkId=246391), which contains “By Example” posts for specific management packs.

For additional information about Operations Manager, see [System Center 2012 - Operations Manager Survival Guide](http://go.microsoft.com/fwlink/?LinkId=246383)

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