

Windows Server DHCP Management Pack Guide for Operations Manager 2007

Microsoft Corporation

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# Introduction to the Windows Server DHCP Management Pack for Operations Manager 2007

This guide describes the Windows Server DHCP Management Pack for Operations Manager 2007, version 6.0.6709.0. The management pack is used to monitor the Dynamic Host Configuration Protocol (DHCP) server role of Windows Server 2008 R2. The management pack can also be used to monitor DHCP server role for the following versions of Windows:

Windows Server 2008

Windows Server 2003 and SPs

## Getting the Latest Management Pack and Documentation

You can find the Windows Server DHCP Management Pack for Operations Manager 2007 in the [System Center Operations Manager 2007 Catalog](http://go.microsoft.com/fwlink/?LinkId=82105) (http://go.microsoft.com/fwlink/?LinkId=82105).

# What's New

Following are the features that are new in the release of the Windows Server 2008 R2 DHCP and also supported in the Management Pack for monitoring:

 Link Layer based Filtering allows DHCP Administrators to control issuance/denial of DHCP leases/IP addresses based on MAC addresses.

 Name Protection prevents name squatting by non-Windows computers preventing them from registering in DNS with a name that is already registered.

 Prevents the exhaustion of IPv4 addresses at the scope level, especially for redundant and high availability deployments where Split Scopes may be used.

 DHCP activity logging allows DHCP Administrators to monitor configuration changes to improve network security and for IT compliance auditing purposes.

 The DHCP Server service has been moved from the Local Service account to the Network Service account allowing the DHCP Server to present the computer's credentials to remote servers. In addition, the Network Service account has very few privileges and can do less damage on the server if it is compromised.

 Usability and operability enhancements including:

 Wizard based configuration for split-scope deployment.

 Address leases to filter (multiple select supported) for Link Layer based filter configuration of leased clients.

 Address leases to reservation (multiple select supported) for reservation configuration of leased clients.

# Supported Configurations

The Windows Server DHCP Management Pack for Operations Manager 2007 supports primarily the DHCP server role of Microsoft Windows Server 2008 R2 and DHCP server role of Microsoft Windows Server 2008 and Microsoft Windows Server 2003 and its SP2.

| **Operating system** | **Standalone DHCP**  | **Clustered DHCP**  |
| --- | --- | --- |
|  | **(x64)** | **(x86)** | **(x64)** | **(x86)** |
| Microsoft Windows Server 2008 R2 | X | NA | X | NA |
| Microsoft Windows Server 2008 | X | X | X | X |
| Microsoft Windows Server 2003 | X (SP2) | X | X (SP2) | X |

# What this management pack monitors

The following tables list the elements of this management pack:

| DISCOVERIES | Description | Method |
| --- | --- | --- |
| Microsoft.Windows.2008R2.DHCP.Server.Discovery | Discovers DHCP Server based on the Start state of DHCP server (both in standalone and clustered environment) | Registry Key |

| CLASSES | Purpose | Notes |
| --- | --- | --- |
| Microsoft.Windows.2008R2.DHCP.Server.Role | The class represents the DHCP server service and its functional state. | The base class is a Windows Computer Role. |

| MONITORS | Condition Detected | Troubleshooting |
| --- | --- | --- |
| Microsoft.Windows.2008R2.DHCP.Server.Database.Monitor.BackupRestore.1 | Detects failure of DHCP system’s restoration of the database | Repair the database and restore from a known good backup. |
| Microsoft.Windows.2008R2.DHCP.Server.Database.Monitor.BackupRestore.2 | DHCP failed to find and back up the database | Create a valid backup path and restore the database |
| Microsoft.Windows.2008R2.DHCP.Server.Database.Monitor.DBIntegrity | DHCP has detected inconsistencies in the Jet database | Repair database and restore from a known good backup |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.AD | 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.2008R2.DHCP.Server.IPv4Runtime.Monitor.Backup | DHCP was unable to restore the server registry configuration. | Give SYSTEM read/write permissions to the backup/restore directory |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.Communications | DHCP could not find the domain to which it is joined. | Identify and fix any network connectivity problems |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.GeneralAvailability.1 | DHCP has encountered an exception to the DLL callout. | Restart the DHCP Server service |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.GeneralAvailability.2 | DHCP is unavailable because it cannot find the domain, load its DLLs, or gain authorization. | Authorize the DHCP server |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.GeneralAvailability.3 | DHCP is unavailable because it cannot find the domain, load its DLLs, or gain authorization. | Assign execute rights to the DLL |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.LeaseIssuance | DHCP was unable to ping the client before leasing an IP address. | Reconfigure reservations or exclusion ranges |
| Microsoft.Windows.2008R2.DHCP.Server.IPv6Runtime.Monitor.DatabaseCorrupt | DHCP failed to initialize one of its components. | Restore the DHCP database from a known good backup |
| Microsoft.Windows.2008R2.DHCP.Server.IPv6Runtime.Monitor.InitializationFailed | 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.2008R2.DHCP.Server.IPv6Scope.Monitor.ScopeFull | 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.2008R2.DHCP.Server.NAP.Monitor.NPSConnectivity | DHCP cannot reach the NPS server to determine the client NAP access state. | Install and start the NPS service or repair the network |
| Microsoft.Windows.2008R2.DHCP.Server.Scope.Monitor.BOOTPScopeFull | 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.2008R2.DHCP.Server.Scope.Monitor.LeaseAvailability.2 | DHCP has determined that a scope is nearing capacity | Extend DHCP scopes, reduce lease times, or decrease cleanup interval |
| Microsoft.Windows.2008R2.DHCP.Server.Database.Monitor.DatabaseCorrupt | 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.2008R2.DHCP.Server.Database.Monitor.Migration.1 | 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.2008R2.DHCP.Server.IPv4Runtime.Monitor.BOOTPFileConfig | DHCP was unable to read the BOOTP file table from the registry. | Create or add entries to the BOOTP table |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.DHCPServiceBoundToStaticIP | DHCP has no static IP address and cannot service clients until one is configured. | Configure a static address for the DHCP server |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.DNSRegistration | DHCP failed to impersonate the credentials necessary for DNS registrations and dynamic DNS updates. | Configure impersonation credentials for dynamic updates |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.GroupConfig | DHCP was unable to find or create the DHCP Users group or the DHCP Administrators local group. | Restart the DHCP Server service |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.InterfaceNotificationFailed | DHCP failed to receive a notification of interface list changes | Determine DHCP network changes |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.ServiceInitialization.1 | 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.2008R2.DHCP.Server.IPv4Runtime.Monitor.ServiceInitialization.2 | 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.2008R2.DHCP.Server.IPv6Runtime.Monitor.StaticIPAssigned | DHCP failed to initialize one of its components. | Configure a static IP address for the DHCP server |
| Microsoft.Windows.2008R2.DHCP.Server.Monitor.ActivityLogging | To track DHCP scope configuration changes committed by DHCP administrators | DHCP activity logging allows you to monitor configuration changes of the DHCP Server. Logging is used for network security / IT compliance auditing purposes. |
| Microsoft.Windows.2008R2.DHCP.Server.Monitor.DelayOffer | Clients are not obtaining leases from the secondary DHCP Server in a split-scope deployments | Configure a valid subnet prefix and/or a valid subnet delay |
| Microsoft.Windows.2008R2.DHCP.Server.Monitor.LinkLayerFiltering | A client failed to obtain a lease from the DHCP Server because Link layer filtering was not configured correctly. | Need to add or delete a MAC address in allow and/or deny list to obtain the desired results |
| Microsoft.Windows.2008R2.DHCP.Server.Monitor.NameProtection | DNS registration for a DHCP client was denied because the name is already registered in DNS by a non-Windows-based computer. | Configure a unique FQDN for the DHCP client, so that when the DHCP server performs DNS registration, it updates the DNS records with the unique FQDN, IP address and unique DHCID. |
| Microsoft.Windows.2008R2.DHCP.Server.Monitor.System | UDP port 67/546 is being used by another process or application preventing its use by the DHCP and DHCPv6 server respectively.The alternate DNS Server configured on the DHCP Server's interface is not a valid DNS Server address. | Bind DHCP Server service to UDP port number 67Bind DHCPv6 Server service to UDP port number 546Configure a valid alternate DNS server address |
| Microsoft.Windows.2008R2.DHCP.Server.Role.Monitor.DependentServiceHealth | DHCP cannot initialize because one or more services that it depends on failed. | Disable the Winsock Proxy client on the DHCP serverRestart the DHCP Server service |
| Microsoft.Windows.2008R2.DHCP.Server.Role.Monitor.ServiceInitialized | DHCP failed to initialize one of its components | Restart the DHCPv6 Server service |
| Microsoft.Windows.2008R2.DHCP.Server.Scope.Monitor.OrphanedEntry | DHCP has orphaned database entries due to the deletion of a class or an option definition. | Reconcile the DHCP scope |
| Microsoft.Windows.2008R2.DHCP.Server.Scope.Monitor.UnknownScopeOption | DHCP received an unknown option from a client. | Configure DHCP options on the server to match the client |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.Auditing.1 | 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.2008R2.DHCP.Server.IPv4Runtime.Monitor.Auditing.2 | DHCP has determined that the audit log cannot be written to because it is full or cannot be accessed. | Edit audit log pathRemove 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.2008R2.DHCP.Server.IPv4Runtime.Monitor.Auditing.3 | 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.2008R2.DHCP.Server.IPv4Runtime.Monitor.AuthorizationAndConflicts | 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.2008R2.DHCP.Server.IPv4Runtime.Monitor.RogueDetection.1 | DHCP has detected another DHCP server on the network. | Authorize the DHCP server |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.RogueDetection.2 | DHCP cannot authorize the server. The server must be authorized in Active Directory Domain Services. | Identify and fix any network connectivity problems |
| Microsoft.Windows.2008R2.DHCP.Server.IPv6Runtime.Monitor.Auditing | 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 |

| COLLECTION RULES | Purpose |
| --- | --- |
| Microsoft.Windows.2008R2.DHCP.Server.Database.Collect.BackupPathFail | DHCP database backup  |
| Microsoft.Windows.2008R2.DHCP.Server.Database.Collect.CleanupComplete | DHCP database cleanup completed. |
| Microsoft.Windows.2008R2.DHCP.Server.Database.Collect.CleanupStarted | DHCP database cleanup started. |
| Microsoft.Windows.2008R2.DHCP.Server.Database.Collect.ConversionInProgress | DHCP database conversion in progress |
| Microsoft.Windows.2008R2.DHCP.Server.Database.Collect.ConversionRequired | DHCP database conversion is required |
| Microsoft.Windows.2008R2.DHCP.Server.Database.Collect.DatabaseBackupFail | Database backup failed |
| Microsoft.Windows.2008R2.DHCP.Server.Database.Collect.DBCleanup | DHCP database cleanup |
| Microsoft.Windows.2008R2.DHCP.Server.Database.Collect.DBLoadFail | Failure in loading of database |
| Microsoft.Windows.2008R2.DHCP.Server.Database.Collect.DBPathFail | Failure in database path |
| Microsoft.Windows.2008R2.DHCP.Server.Database.Collect.InitFail | Database initialization failure |
| Microsoft.Windows.2008R2.DHCP.Server.Database.Collect.JetErrors | Jet database errors |
| Microsoft.Windows.2008R2.DHCP.Server.Database.Collect.JetWarnings | Jet database warnings |
| Microsoft.Windows.2008R2.DHCP.Server.Database.Collect.RestoreCompleted | Database restoration completed |
| Microsoft.Windows.2008R2.DHCP.Server.Database.Collect.RestoreFailed | Database restoration failure |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Collect.AuditLogAppendFailed | DHCP audit log append failure |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Collect.AuditLogInitFailed | DHCP audit log initialization failure |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Collect.AuditLogMoveFailed | DHCP audit log move failure |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Collect.AuthorizedAndStarted | DHCP server service is authorized and started |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Collect.BadAuditPath | DHCP is unable to access the audit file path |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Collect.BOOTPFileFailed | DHCP cannot read the DHCP BOOTP file table from the registry |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Collect.CalloutLoadException | The installed callout dll file causes an exception |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Collect.CalloutLoadFailed | DHCP fails to load a callout dll |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Collect.CalloutLoadSuccess | Callout dll is loaded successfully |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Collect.ClientCleanup | error occurs on cleaning up pending client records |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Collect.ConfigBackup | error occurs backing up the registry |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Collect.DHCPLocalGroupFailed | DHCP cannot create or read the DHCP local users group |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Collect.DomainAuthorized | DHCP is authorized in the domain |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Collect.DomainAuthorizedAndStarted | DHCP is authorized in the domain and is servicing clients |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Collect.DomainError | DHCP cannot locate the domain |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Collect.DomainNotAuthorized | DHCP is not authorized in the domain |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Collect.DomainUnauthorized | DHCP is not authorized in the domain |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Collect.DomainUnchecked | DHCP has not determined domain authorization |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Collect.DomainUpgraded | DHCP was recently upgraded and domain authorized to start |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Collect.DSFailed | DHCP could not contact a domain controller |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Collect.DynamicAddress | DHCP detects a dynamic IP address |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Collect.GlobalBOOTPFileNameFailed | DHCP failed to read the global BOOTP filename from the registry |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Collect.InitFailed | DHCP fails to initialize its configuration parameter |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Collect.InterfaceNotificationFailed | DHCP detects an interface notification problem |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Collect.NetworkFailure | Network failure |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Collect.OtherServer | DHCP workgroup server detects a domain server |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Collect.PingFailed | DHCP was unable to ping for a new address |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Collect.RegistryRestoreFailed | Error occurs while restoring the DHCP registry configuration |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Collect.RogueServerDetected | DHCP detects an unauthorized DHCP server on the same network |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Collect.Upgraded | DHCP was recently upgraded and authorized to start |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Collect.WinsockFailed | Winsock initialization fails |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.CollectCalloutFailed | Exception occurs on calling out to the installed callout dll file |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.CollectNotAuthorized | DHCP server is not authorized to start |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.CollectUnauthorized | DHCP is unauthorized |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.CollectWrongDNSCreds | DHCP cannot use the credentials provided for DNS registrations |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.NoCredsOnDC | DHCP is running on a domain controller but does not have specific credentials for registering DNS information |
| Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.SBSOtherServer | SBS DHCP server detects another DHCP server |
| Microsoft.Windows.2008R2.DHCP.Server.IPv6Runtime.CollectEvents | DHCP server runtime events |
| Microsoft.Windows.2008R2.DHCP.Server.IPv6Scope.CollectEvents | DHCP IPv6 scope events |
| Microsoft.Windows.2008R2.DHCP.Server.NAP.Collect.IASHelperConnectFailure | NAP IAS Helper Connect Failure |
| Microsoft.Windows.2008R2.DHCP.Server.Role.Collect.DDNSUpdateRequest | DDNS update is requested |
| Microsoft.Windows.2008R2.DHCP.Server.Role.Collect.DDNSUpdateSuccess | DDNS update successfully completes |
| Microsoft.Windows.2008R2.DHCP.Server.Role.Collect.DHCPInitialized | DHCP is ready to service clients |
| Microsoft.Windows.2008R2.DHCP.Server.Role.Collect.DHCPNotBoundToStaticIPAddress | 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.2008R2.DHCP.Server.Role.Collect.InitDataFailed | DHCP is unable to initialize its global parameters |
| Microsoft.Windows.2008R2.DHCP.Server.Role.Collect.InitRegistryFailed | DHCP server failed to initialize its registry parameters |
| Microsoft.Windows.2008R2.DHCP.Server.Role.Collect.RegistrationFailure | DHCP service could not register with the Service Controller |
| Microsoft.Windows.2008R2.DHCP.Server.Role.Collect.RPCFail | DHCP server failed to start as a RPC server |
| Microsoft.Windows.2008R2.DHCP.Server.Role.Collect.ScriptTraceEvents | DHCP server script based events |
| Microsoft.Windows.2008R2.DHCP.Server.Role.Collect.WinsockFailed | DHCP server failed to initialize its Winsock data |
| Microsoft.Windows.2008R2.DHCP.Server.Role.PerformanceCollection.AcksPerSecond | DHCP server performance monitor - DHCP Acks Per Second |
| Microsoft.Windows.2008R2.DHCP.Server.Role.PerformanceCollection.ActiveQueueLength | DHCP server performance monitor - DHCP Active Queue Length |
| Microsoft.Windows.2008R2.DHCP.Server.Role.PerformanceCollection.ConflictCheckQueueLength | DHCP server performance monitor - DHCP Conflict Check Queue Length |
| Microsoft.Windows.2008R2.DHCP.Server.Role.PerformanceCollection.DeclinesPerSecond | DHCP server performance monitor - DHCP Declines / Second |
| Microsoft.Windows.2008R2.DHCP.Server.Role.PerformanceCollection.Deniedduetomatch | DHCP server performance monitor - DHCP Denied due to match |
| Microsoft.Windows.2008R2.DHCP.Server.Role.PerformanceCollection.DeniedDueToNonMatch | DHCP server performance monitor - DHCP Denied Due To Non Match |
| Microsoft.Windows.2008R2.DHCP.Server.Role.PerformanceCollection.DiscoversPerSecond | DHCP server performance monitor - DHCP Discovers / Second |
| Microsoft.Windows.2008R2.DHCP.Server.Role.PerformanceCollection.DuplicatesDroppedPerSecond | DHCP server performance monitor - DHCP Duplicates Dropped / Second |
| Microsoft.Windows.2008R2.DHCP.Server.Role.PerformanceCollection.InformsPerSecond | DHCP server performance monitor - DHCP Informs / Second |
| Microsoft.Windows.2008R2.DHCP.Server.Role.PerformanceCollection.MillisecondsPerPacketAvg | DHCP server performance monitor - DHCP Average Milliseconds / Packet |
| Microsoft.Windows.2008R2.DHCP.Server.Role.PerformanceCollection.NacksPerSecond | DHCP server performance monitor - DHCP Nacks / Second |
| Microsoft.Windows.2008R2.DHCP.Server.Role.PerformanceCollection.OfferQueueLength | DHCP server performance monitor - DHCP Offer Queue Length |
| Microsoft.Windows.2008R2.DHCP.Server.Role.PerformanceCollection.OffersPerSecond | DHCP server performance monitor - DHCP Offers / Second |
| Microsoft.Windows.2008R2.DHCP.Server.Role.PerformanceCollection.PacketsExpiredPerSecond | DHCP server performance monitor - DHCP Packets Expired / Second |
| Microsoft.Windows.2008R2.DHCP.Server.Role.PerformanceCollection.PacketsReceivedPerSecond | DHCP server performance monitor - DHCP Packets Received / Second |
| Microsoft.Windows.2008R2.DHCP.Server.Role.PerformanceCollection.ReleasesPerSecond | DHCP server performance monitor - DHCP Releases / Second |
| Microsoft.Windows.2008R2.DHCP.Server.Role.PerformanceCollection.RequestsPerSecond | DHCP server performance monitor - DHCP Requests / Second |
| Microsoft.Windows.2008R2.DHCP.Server.Role.PerformanceCollection.V6.AcksPerSecond | DHCP server performance monitor - DHCPv6 Acks Per Second |
| Microsoft.Windows.2008R2.DHCP.Server.Role.PerformanceCollection.V6.ActiveQueueLength | DHCP server performance monitor - DHCPv6 ActiveQueueLength |
| Microsoft.Windows.2008R2.DHCP.Server.Role.PerformanceCollection.V6.AdvertisesPerSecond | DHCP server performance monitor - DHCPv6 AdvertisesPerSecond |
| Microsoft.Windows.2008R2.DHCP.Server.Role.PerformanceCollection.V6.ConfirmsPerSecond | DHCP server performance monitor - DHCPv6 ConfirmsPerSecond |
| Microsoft.Windows.2008R2.DHCP.Server.Role.PerformanceCollection.V6.DeclinesPerSecond | DHCP server performance monitor - DHCPv6 DeclinesPerSecond |
| Microsoft.Windows.2008R2.DHCP.Server.Role.PerformanceCollection.V6.DuplicatesDroppedSecond | DHCP server performance monitor - DHCPv6 DuplicatesDroppedSecond |
| Microsoft.Windows.2008R2.DHCP.Server.Role.PerformanceCollection.V6.InformsPerSecond | DHCP server performance monitor - DHCPv6 InformsPerSecond |
| Microsoft.Windows.2008R2.DHCP.Server.Role.PerformanceCollection.V6.MillisecondsPerPacketAvg | DHCP server performance monitor - DHCPv6 MillisecondsPerPacketAvg |
| Microsoft.Windows.2008R2.DHCP.Server.Role.PerformanceCollection.V6.PacketsExpiredPerSecond | DHCP server performance monitor - DHCPv6 PacketsExpiredPerSecond |
| Microsoft.Windows.2008R2.DHCP.Server.Role.PerformanceCollection.V6.PacketsReceivedPerSecond | DHCP server performance monitor - DHCPv6 PacketsReceivedPerSecond |
| Microsoft.Windows.2008R2.DHCP.Server.Role.PerformanceCollection.V6.RebindsPerSecond | DHCP server performance monitor - DHCPv6 RebindsPerSecond |
| Microsoft.Windows.2008R2.DHCP.Server.Role.PerformanceCollection.V6.ReleasesPerSecond | DHCP server performance monitor - DHCPv6 ReleasesPerSecond |
| Microsoft.Windows.2008R2.DHCP.Server.Role.PerformanceCollection.V6.RenewsPerSecond | DHCP server performance monitor - DHCPv6 RenewsPerSecond |
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| Microsoft.Windows.2008R2.DHCP.Server.Role.ServiceInitialized | DHCP server service Initialization |
| Microsoft.Windows.2008R2.DHCP.Server.Rule.ActivityLogging | Allows DHCP Administrators to monitor the configuration changes of the DHCP Servers |
| Microsoft.Windows.2008R2.DHCP.Server.Rule.DelayOffer | Scope with delay configuration |
| Microsoft.Windows.2008R2.DHCP.Server.Rule.LinkLayerFiltering | Link Layer based filtering configuration |
| Microsoft.Windows.2008R2.DHCP.Server.Rule.NameProtection | Name Protection configuration |
| Microsoft.Windows.2008R2.DHCP.Server.Scope.Collect.LeaseDeclined | Lease declined |
| Microsoft.Windows.2008R2.DHCP.Server.Scope.Collect.LowAddressWarning | IPv4 scopes that are running low on available leases |
| Microsoft.Windows.2008R2.DHCP.Server.Scope.Collect.NACKIssued | IPv4 NACK Issued |
| Microsoft.Windows.2008R2.DHCP.Server.Scope.Collect.ScopeFull | IPv4 scopes that are out of available leases |
| Microsoft.Windows.2008R2.DHCP.Server.Scope.Collect.UnknownOption | IPv4 DHCP client requests that contained a request for an unknown DHCP option |
| Microsoft.Windows.2008R2.DHCP.Server.Scope.CollectBOOTPFull | IPv4 BOOTP requests that could not be filled due to lack of available addresses |
| Microsoft.Windows.2008R2.DHCP.Server.Scope.CollectLeaseRelease | Released IPv4 leases |
| Microsoft.Windows.2008R2.DHCP.Server.Scope.CollectOrphanedEntriesDeleted | orphaned entries deleted in the configuration due to the deletion of a class or option definition |
| Microsoft.Windows.2008R2.DHCP.Server.System | DHCP Server service |

| VIEWS | Purpose |
| --- | --- |
| Describe each view | Describe what is intended to be used to accomplish |
| Microsoft.Windows.2008R2.DHCP.Server.AllActiveAlerts | To view all the active alerts of Windows Server 2008 R2 DHCP server |
| Microsoft.Windows.2008R2.DHCP.Server.AllEvents | To view all the events of Windows Server 2008 R2 DHCP server |
| Microsoft.Windows.2008R2.DHCP.Server.HealthState | To view the health state of the Windows Server 2008 R2 DHCP server |
| Microsoft.Windows.2008R2.DHCP.Server.View.AllPerformanceCounters | To view all the performance counters of the Windows Server 2008 R2 DHCP server |
| Microsoft.Windows.2008R2.DHCP.Server.View.Performance.ActiveQueueLength | To view all the IPv4 active queue length performance counters of the Windows Server 2008 R2 DHCP server  |
| Microsoft.Windows.2008R2.DHCP.Server.View.Performance.ConflictCheckQueueLength | To view all the IPv4 conflict check queue length performance counters of the Windows Server 2008 R2 DHCP server |
| Microsoft.Windows.2008R2.DHCP.Server.View.Performance.AverageMillisecondsPerPacket | To view all the IPv4 average milliseconds per packet performance counters of the Windows Server 2008 R2 DHCP server |
| Microsoft.Windows.2008R2.DHCP.Server.View.Performance.DeclinesPerSecond | To view all the IPv4 declines per second performance counters of the Windows Server 2008 R2 DHCP server |
| Microsoft.Windows.2008R2.DHCP.Server.View.Performance.DiscoversPerSecond | To view all the IPv4 discovers per second performance counters of the Windows Server 2008 R2 DHCP server |
| Microsoft.Windows.2008R2.DHCP.Server.View.Performance.NACKsPerSecond | To view all the IPv4 NACKs per second performance counters of the Windows Server 2008 R2 DHCP server |
| Microsoft.Windows.2008R2.DHCP.Server.IPv6.View.Performance.ActiveQueueLength | To view all the IPv6 active queue length performance counters of the Windows Server 2008 R2 DHCP server  |
| Microsoft.Windows.2008R2.DHCP.Server.IPv6.View.Performance.AcksPerSecond | To view all the IPv6 Acks per second performance counters of the Windows Server 2008 R2 DHCP server |
| Microsoft.Windows.2008R2.DHCP.Server.IPv6.View.Performance.ConfirmsPerSecond | To view all the IPv6 Confirms per second performance counters of the Windows Server 2008 R2 DHCP server |
| Microsoft.Windows.2008R2.DHCP.Server.IPv6.View.Performance.ReleasesPerSecond | To view all the IPv6 Releases per second performance counters of the Windows Server 2008 R2 DHCP server |
| Microsoft.Windows.2008R2.DHCP.Server.IPv6.View.Performance.RequestsPerSecond | To view all the IPv6 Requests per second performance counters of the Windows Server 2008 R2 DHCP server |
| Microsoft.Windows.2008R2.DHCP.Server.IPv6.View.Performance.SolicitsPerSecond | To view all the IPv6 Solicits per second performance counters of the Windows Server 2008 R2 DHCP server |

# Getting Started

This section describes the actions you should take before you import the Management Pack, any steps you should take after you import the Management Pack, and information about customizations. It is assumed that since you have this guide that you have already downloaded the management pack files. If not, refer to the files listed in the Files to Download section below.

# Preparation

Before you import the Windows Server DHCP Management Pack for Operation Manager 2007, note the following limitations of this release:

 Monitoring of Windows Server 2003 or 2008 or 2008 R2 DHCP server role deployed with Windows Failover Clustering is supported by deploying both Windows Server DHCP Management Pack for Operation Manager 2007 and Microsoft Windows Server Failover Clustering Management Pack for Operations Manager 2007.

 Multicast scopes are not supported.

 Maximum monitored number of DHCP scopes per DHCP server tested to support is 2450 scopes. Following is the system details of the DHCP server that was used in the test:

|  |  |
| --- | --- |
| **Item** | **Value** |
| Operating System Name | Microsoft Windows Server 2008 R2 Enterprise  |
| System Model | Virtual Machine |
| System Type | x64-based PC |
| Processor  | Intel(R) Core(TM)2 Quad CPU Q9550 @ 2.83GHz, 2826 Mhz, 1 Core(s), 1 Logical Processor(s) |
| Installed Physical Memory (RAM) | 1.00 GB |
| Total Physical Memory | 1.00 GB |
| Total Virtual Memory | 2.00 GB |

 Long DHCP scope names are truncated to 20 characters. This can cause a conflict if two scope names have the identical shortened name. To prevent scope name conflicts, limit scope name length to 20 characters or less.

Before you import the Windows Server DHCP Management Pack for Operation Manager 2007, take the following actions:

 Perform a full backup of the existing Operations Manager 2007 database.

 Uninstall any existing DHCP management packs. You may wish to record custom overrides and rules for possible inclusion in the new DHCP management pack.

# Files to Download

To monitor DHCP server role of Windows Server 2003 and its SPs or 2008 or 2008 R2, you must first download the Windows Server DHCP Management Pack for Operation Manager 2007 from the Management Pack Catalog, located at <http://go.microsoft.com/fwlink/?LinkId=82105>.

| **Management Pack Name** | **Contents** | **Required** |
| --- | --- | --- |
| Microsoft Windows Server DHCP Management Pack for Operation Manager 2007 | Microsoft Windows Server DHCP Management Pack for Operation Manager 2007.The management pack includes monitors, rules, views, and reports for the monitoring of your DHCP infrastructure. Alerts contain context sensitive knowledge base of useful information to help administrators resolve an issue when DHCP fails to process. | 6.0.6709.0 | Yes |

# 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 2003 and Windows Server 2008 R2 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.

# How to Import the Windows Server DHCP Management Pack

For instructions about importing a management pack, see [How to Import a Management Pack in Operations Manager 2007](http://go.microsoft.com/fwlink/?LinkID=98348) (http://go.microsoft.com/fwlink/?LinkID=98348).

After the DHCP Management Pack is imported, create a new management pack in which you store overrides and other customizations.

# Create a New Management Pack for Customizations

Most vendor management packs are sealed so that you cannot change any of the original settings in the management pack file. However, you can create customizations, such as overrides or new monitoring objects, and save them to a different management pack. By default, Operations Manager 2007 saves all customizations to the default management pack. As a best practice, you should instead create a separate management pack for each sealed management pack you want to customize.

Creating a new management pack for storing overrides has the following advantages:

 It simplifies the process of exporting customizations that were created in your test and pre-production environments to your production environment. For example, instead of exporting a default management pack that contains customizations from multiple management packs, you can export just the management pack that contains customizations of a single management pack.

 It allows you to delete the original management pack without first needing to delete the default management pack. A management pack that contains customizations is dependent on the original management pack. This dependency requires you to delete the management pack with customizations before you can delete the original management pack. If all of your customizations are saved to the default management pack, you must delete the default management pack before you can delete an original management pack.

 It is easier to track and update customizations to individual management packs.

For more information about sealed and unsealed management packs, see [Management Pack Formats](http://go.microsoft.com/fwlink/?LinkId=108355) (http://go.microsoft.com/fwlink/?LinkId=108355). For more information about management pack customizations and the default management pack, see [About Management Packs in Operations Manager 2007](http://go.microsoft.com/fwlink/?LinkId=108356) (http://go.microsoft.com/fwlink/?LinkId=108356).

# 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

# Computer Groups

You can delegate authority to a precise level with user roles. For more information about user roles, see the "[About User Roles in Operations Manager 2007](http://go.microsoft.com/fwlink/?LinkId=108357)" topic in the Operations Manager 2007 Help (http://go.microsoft.com/fwlink/?LinkId=108357).

The following computer groups can be used for scoping and roles authorization for Windows Server 2008:

 DHCP servers of Windows server 2003, Windows server 2008 and Windows server 2008 R2.

# Understanding Management Pack Operations

The Windows Server DHCP Management Pack will monitor all health, availability, performance, security and configuration aspects of every component of the Windows DHCP role through the use of the built-in DHCP instrumentation that is accessible through Perfmon counters, event log entries, and with the netsh dhcp server command.

# Windows Server DHCP Management Pack Discovery

The Windows Server DHCP Management Pack for Operation Manager 2007 discovers the object types described in the following table. Not all of the objects are automatically discovered. Use overrides to discover those that are not discovered automatically.

For information about discovering objects, see [Object Discoveries in Operations Manager 2007](http://go.microsoft.com/fwlink/?LinkId=108505).

| **Category** | **Object Type** | **Discovered Automatically** |
| --- | --- | --- |
| Windows Server 2008 R2 DHCP Server role | DHCP server service | Yes |

Use the following procedure to 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.2008R2.DHCP.Server.Discovery.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. |

After you change the override setting, the object type will be automatically discovered and will appear in the Monitoring pane.

# Classes

The following diagram show the classes defined in this management pack.

Legend:

OpsMgr Built-in Class

DHCP Server Class

Derived from

Microsoft.Windows.Server.Computer

Microsoft.Windows.2008R2.DHCP.Server.Role

# How Health Rolls Up

The following diagram shows how the health states of components roll up in this management pack.

For example:

|  |
| --- |
| (Critical) Entity Health – dhcpserver.dadomain-v2.com (Entity) |
|  (Critical) Availability – dhcpserver.dadomain-v2.com (Entity) |
|  Hardware Availability Rollup – dhcpserver.dadomain-v2.com (Windows Server) |
|  Operating System Availability Rollup – dhspserver.dadomain-v2.com (Windows Server) |
|  Ping Status – dhcpserver.dadomain-v2.com (Windows Computer) |
|  (Critical) Windows Computer Role Health Rollup – dhcpserver.dadomain-v2.com (Windows Computer) |
|  (Critical) Availability – dhcpserver.dadomain-v2.com (Entity) |
|  (Healthy) A DLL exception has occurred – dhcpserver.dadomain-v2.com (Microsoft.Windows.2008R2.DHCP.Server.Role) |
|  (Healthy) A DLL exception occurred or the DHCP server is unable to access AD – dhcpserver.dadomain-v2.com (Microsoft.Windows.2008R2.DHCP.Server.Role) |
|  (Healthy) A DLL exception occurred or the DHCP server is unable to access AD – dhcpserver.dadomain-v2.com (Microsoft.Windows.2008R2.DHCP.Server.Role) |
|  (Healthy) Backup restoration failed – dhcpserver.dadomain-v2.com (Microsoft.Windows.2008R2.DHCP.Server.Role) |
|  (Healthy) Communication was interrupted between critical network infrastructure components – dhcpserver.dadomain-v2.com (Microsoft.Windows.2008R2.DHCP.Server.Role) |
|  (Healthy) The BOOTP scope has reached its capacity – dhcpserver.dadomain-v2.com (Microsoft.Windows.2008R2.DHCP.Server.Role) |
|  (Healthy) The DHCP backup failed – dhcpserver.dadomain-v2.com (Microsoft.Windows.2008R2.DHCP.Server.Role) |
|  (Healthy) The DHCP database is corrupted – dhcpserver.dadomain-v2.com (Microsoft.Windows.2008R2.DHCP.Server.Role) |
|  (Healthy) The DHCP scope for IPv4 addresses has reached its capacity – dhcpserver.dadomain-v2.com (Microsoft.Windows.2008R2.DHCP.Server.Role) |
|  (Healthy) The DHCP server failed to initialize properly – dhcpserver.dadomain-v2.com (Microsoft.Windows.2008R2.DHCP.Server.Role) |
|  (Healthy) The DHCP server is unable to communicate with an NPS server – dhcpserver.dadomain-v2.com (Microsoft.Windows.2008R2.DHCP.Server.Role) |
|  (Healthy) The DHCPv6 scope has reached its capacity – dhcpserver.dadomain-v2.com (Microsoft.Windows.2008R2.DHCP.Server.Role) |
|  (Healthy) The DHCPv6 server failed to initialize properly – dhcpserver.dadomain-v2.com (Microsoft.Windows.2008R2.DHCP.Server.Role) |
|  (Critical) Unable to establish AD authorization – dhcpserver.dadomain-v2.com (Microsoft.Windows.2008R2.DHCP.Server.Role) |
|  (Healthy) Unable to ping client for lease issuance – dhcpserver.dadomain-v2.com (Microsoft.Windows.2008R2.DHCP.Server.Role) |
|  (Healthy) Unable to restore the registry – dhcpserver.dadomain-v2.com (Microsoft.Windows.2008R2.DHCP.Server.Role) |
|  (Healthy) Windows Local Application Health Rollup – dhcpserver.dadomain-v2.com (Windows Computer) |
|  (Healthy) Configuration – dhcpserver.dadomain-v2.com (Entity) |
|  (Healthy) Performance – dhcpserver.dadomain-v2.com (Entity) |
|  (Healthy) Security – dhcpserver.dadomain-v2.com (Entity) |

As per the above example: Since the “Unable to establish AD authorization” monitor is unhealthy/critical that is with the error. The container containing that monitor which is “Availability” is as well unhealthy/critical and so on that is the next higher level container is unhealthy/critical as captured above.

Following is the list of monitors and their health states in the Management Pack:

|  |  |  |  |
| --- | --- | --- | --- |
| **Monitors** |  |  |  |
| Microsoft.Windows.2008R2.DHCP.Server.Role |  |  |  |
|  System.Health.EntityState |  |  |  |
|  System.Health.AvailabilityState |  |  |  |
|  Microsoft.Windows.2008R2.DHCP.Server.Database.Monitor.BackupRestore.1 | Critical | Warning | Healthy |
|  Microsoft.Windows.2008R2.DHCP.Server.Database.Monitor.BackupRestore.2 | Warning | Healthy |  |
|  Microsoft.Windows.2008R2.DHCP.Server.Database.Monitor.DBIntegrity | Critical | Warning | Healthy |
|  Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.AD | Critical | Healthy |  |
|  Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.Backup | Critical | Warning | Healthy |
|  Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.Communications | Critical | Warning | Healthy |
|  Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.GeneralAvailability.1 | Warning | Healthy |  |
|  Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.GeneralAvailability.2 | Critical | Healthy |  |
|  Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.GeneralAvailability.3 | Critical | Warning | Healthy |
|  Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.LeaseIssuance | Warning | Healthy |  |
|  Microsoft.Windows.2008R2.DHCP.Server.IPv6Runtime.Monitor.DatabaseCorrupt | Critical | Healthy |  |
|  Microsoft.Windows.2008R2.DHCP.Server.IPv6Runtime.Monitor.InitializationFailed | Warning | Healthy |  |
|  Microsoft.Windows.2008R2.DHCP.Server.IPv6Scope.Monitor.ScopeFull | Critical | Warning | Healthy |
|  Microsoft.Windows.2008R2.DHCP.Server.Monitor.DHCPServiceRunning | Healthy | Critical |  |
|  Microsoft.Windows.2008R2.DHCP.Server.NAP.Monitor.NPSConnectivity | Warning | Healthy |  |
|  Microsoft.Windows.2008R2.DHCP.Server.Scope.Monitor.BOOTPScopeFull | Critical | Healthy |  |
|  Microsoft.Windows.2008R2.DHCP.Server.Scope.Monitor.LeaseAvailability.2 | Warning | Healthy |  |
|  System.Health.ConfigurationState |  |  |  |
|  Microsoft.Windows.2008R2.DHCP.Server.Database.Monitor.DatabaseCorrupt | Critical | Healthy |  |
|  Microsoft.Windows.2008R2.DHCP.Server.Database.Monitor.Migration.1 | Critical | Healthy |  |
|  Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.BOOTPFileConfig | Critical | Healthy |  |
|  Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.DHCPServiceBoundToStaticIP | Critical | Healthy |  |
|  Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.DNSRegistration | Warning | Healthy |  |
|  Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.GroupConfig | Critical | Healthy |  |
|  Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.InterfaceNotificationFailed | Critical | Healthy |  |
|  Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.ServiceInitialization.1 | Critical | Healthy |  |
|  Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.ServiceInitialization.2 | Critical | Healthy |  |
|  Microsoft.Windows.2008R2.DHCP.Server.IPv6Runtime.Monitor.StaticIPAssigned | Critical | Healthy |  |
|  Microsoft.Windows.2008R2.DHCP.Server.Monitor.ActivityLogging | Warning | Healthy |  |
|  Microsoft.Windows.2008R2.DHCP.Server.Monitor.DelayOffer | Warning | Healthy |  |
|  Microsoft.Windows.2008R2.DHCP.Server.Monitor.LinkLayerFiltering | Critical | Healthy |  |
|  Microsoft.Windows.2008R2.DHCP.Server.Monitor.NameProtection | Critical | Healthy |  |
|  Microsoft.Windows.2008R2.DHCP.Server.Monitor.System | Warning | Healthy |  |
|  Microsoft.Windows.2008R2.DHCP.Server.Role.Monitor.DependentServiceHealth | Critical | Warning | Healthy |
|  Microsoft.Windows.2008R2.DHCP.Server.Role.Monitor.ServiceInitialized | Critical | Healthy |  |
|  Microsoft.Windows.2008R2.DHCP.Server.Scope.Monitor.OrphanedEntry | Warning | Healthy |  |
|  Microsoft.Windows.2008R2.DHCP.Server.Scope.Monitor.UnknownScopeOption | Warning | Healthy |  |
|  System.Health.PerformanceState |  |  |  |
|  System.Health.SecuirtyState |  |  |  |
|  Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.Auditing.1 | Warning | Healthy |  |
|  Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.Auditing.2 | Warning | Healthy |  |
|  Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.Auditing.3 | Warning | Healthy |  |
|  Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.AuthorizationAndConflicts | Critical | Warning | Healthy |
|  Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.RogueDetection.1 | Critical | Warning | Healthy |
|  Microsoft.Windows.2008R2.DHCP.Server.IPv4Runtime.Monitor.RogueDetection.2 | Critical | Healthy |  |
|  Microsoft.Windows.2008R2.DHCP.Server.IPv6Runtime.Monitor.Auditing | Warning | Healthy |  |

# Key Monitoring Scenarios

The Windows Server DHCP Management Pack for Operations Manager 2007 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 Superscopes. Enough disk space available for database use. Database is not corrupted. |
| DHCP Security Health (Windows Server 2008 R2) |  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. |

# Placing Monitored Objects in Maintenance Mode

When a monitored object, such as a computer or distributed application, goes offline for maintenance, Operations Manager 2007 detects that no agent heartbeat is being received and, as a result, might generate numerous alerts and notifications. To prevent alerts and notifications, place the monitored object into maintenance mode. In maintenance mode, alerts, notifications, rules, monitors, automatic responses, state changes, and new alerts are suppressed at the agent.

For general instructions on placing a monitored object in maintenance mode, see [How to Put a Monitored Object into Maintenance Mode in Operations Manager 2007](http://go.microsoft.com/fwlink/?LinkId=108358) (http://go.microsoft.com/fwlink/?LinkId=108358).

# Troubleshooting

## Script Debugging

If a DHCP server is not being discovered or monitored properly, you can enable script debugging and collect the resulting output for review. Also, if you ask for assistance, script debugging will be necessary to resolve the issue.

To enable debugging, select the desired unit monitor or discovery and create an override that sets the DebugFlag parameter to true.

After the script runs, you can find all debugging information in a view called DHCP Script Trace Events. In addition, you will find the debugging information in the Operations Manager event log of the managed computer that was running with the DebugFlag parameter set to true.

You can open the Operations Manager event log and choose to save it as an event log file for later review or you can send it to Microsoft with the case number you opened with Customer Service Support.

# Appendix: Monitors and Overrides for Management Packs

This section provides detailed procedures and scripts that allow you to display rules and other information about the management packs you import.

# How to View Management Pack Details

For more information about a monitor and the associated override values, see the knowledge for the monitor.

To view knowledge for a monitor

|  |
| --- |
| 1. In the Operations Console, click the Authoring button.2. Expand Management Pack Objects, and then click Monitors.3. In the Monitors pane, expand the targets until you reach the monitor level. Alternately, you can use the Search box to find a particular monitor.4. Click the monitor, and in the Monitors pane, click View knowledge.5. Click the Product Knowledge tab. |

# How to Display Monitors for a Management Pack

To display a list of outputs for a management pack's monitors and overrides using the Command Shell, use the following procedure.

To display monitors for a management pack

|  |
| --- |
| 1. In the Command Shell, type the following command:get-monitor -managementPack name.mp | export-csv filename2. A .csv file is created. The .csv file can be opened in Microsoft Office Excel.Note In Excel, you may be required to specify that the .csv file is a text file. |

For example, the following command retrieves data for the monitors associated with one of the core management packs:

get-monitor -managementPack System.Health.Library.mp | export-csv "C:\monitors.csv"

# How to Display Overrides for a Management Pack

To display overrides for a management pack use the following procedure.

To display overrides for a management pack

|  |
| --- |
| 1. In the Command Shell, type the following command:get-override -managementPack name.mp | export-csv filename2. A .csv file is created. The .csv file can be opened in Excel.Note In Excel, you may be required to specify that the .csv file is a text file. |

For example, this command displays the overrides for one of the core management packs:

get-override -managementPack Microsoft.SystemCenter.OperationsManager.Internal.mp | export-csv "c:\overrides.csv"

# How to Display All Management Pack Rules

Use the following procedure to display a list of rules for the management packs that you imported. The list of rules can be viewed in Excel.

To display management pack rules

|  |
| --- |
| 1. In your management server, click Programs, and then click System Center.2. Click Command Shell.3. In the Command Shell window, type the following command:get-rule | select-object @{Name="MP";Expression={ foreach-object {$\_.GetManagementPack().DisplayName }}},DisplayName | sort-object -property MP | export-csv "c:\rules.csv"4. A .csv file is created. The .csv file can be opened in Excel.Note In Excel, you may be required to specify that the .csv file is a text file. |

# How to Display Monitor Thresholds

To display monitor thresholds, use the script described in this section. This script works for the majority of monitors. It creates a .csv file that includes the following columns and can be viewed using Excel.

| **Column** | **Description** |
| --- | --- |
| Type | The type of objects the monitor is targeted to |
| DisplayName | The display name of the monitor |
| Threshold | The threshold used by the monitor |
| AlertOnState | Determines whether the monitor generates an alert when the state changes |
| AutoResolveAlert | Determines whether the generated alert will be automatically resolved when the monitor state goes back to green |
| AlertSeverity | The severity of the generated alert |

Run the following script to create the .csv file that displays the monitor thresholds:

function GetThreshold ([String] $configuration)

{

$config = [xml] ("<config>" + $configuration + "</config>")

$threshold = $config.Config.Threshold

if($threshold -eq $null)

{

$threshold = $config.Config.MemoryThreshold

}

if($threshold -eq $null)

{

$threshold = $config.Config.CPUPercentageThreshold

}

if($threshold -eq $null)

{

if($config.Config.Threshold1 -ne $null -and $config.Config.Threshold2 -ne $null)

{

$threshold = "first threshold is: " + $config.Config.Threshold1 + " second threshold is: " + $config.Config.Threshold2

}

}

if($threshold -eq $null)

{

if($config.Config.ThresholdWarnSec -ne $null -and $config.Config.ThresholdErrorSec -ne $null)

{

 $threshold = "warning threshold is: " + $config.Config.ThresholdWarnSec + " error threshold is: " + $config.Config.ThresholdErrorSec

}

}

if($threshold -eq $null)

{

if($config.Config.LearningAndBaseliningSettings -ne $null)

{

$threshold = "no threshold (baseline monitor)"

}

}

return $threshold

}

$perfMonitors = get-monitor -Criteria:"IsUnitMonitor=1 and Category='PerformanceHealth'"

$perfMonitors | select-object @{name="Target";expression={foreach-object {(Get-MonitoringClass -Id:$\_.Target.Id).DisplayName}}},DisplayName, @{name="Threshold";expression={foreach-object {GetThreshold $\_.Configuration}}}, @{name="AlertOnState";expression={foreach-object {$\_.AlertSettings.AlertOnState}}}, @{name="AutoResolveAlert";expression={foreach-object {$\_.AlertSettings.AutoResolve}}}, @{name="AlertSeverity";expression={foreach-object {$\_.AlertSettings.AlertSeverity}}} | sort Target, DisplayName | export-csv "c:\monitor\_thresholds.csv"

# How to Display Performance Collection Rules

To display performance collection rules, use the script in this section. This script works for the majority of monitors. It creates a .csv file that includes the following columns and can be viewed using Excel.

| **Column** | **Description** |
| --- | --- |
| WriteAction | Contains information about where the performance counter is written |
| WriteToDB or CollectionPerformanceData | Writes to the Operations Manager database |
| WriteToDW or CollectPerfDataWarehouse | Writes to the data warehouse |
| WC | Stores baseline data for a performance counter in the operational database |

 To display the performance collection rules present in the management group, run the following script:

function GetPerfCounterName ([String] $configuration)

{

$config = [xml] ("<config>" + $configuration + "</config>")

return ($config.Config.ObjectName + "\" + $config.Config.CounterName)

}

function GetFrequency ([String] $configuration)

{

$config = [xml] ("<config>" + $configuration + "</config>")

$frequency = $config.Config.Frequency;

if($frequency -eq $null)

{

$frequency = $config.Config.IntervalSeconds;

}

return ($frequency)

}

function GetDisplayName($performanceRule)

{

 if($performanceRule.DisplayName -eq $null)

 {

 return ($performanceRule.Name);

 }

 else

 {

 return ($performanceRule.DisplayName);

 }

}

function GetWriteActionNames($performanceRule)

{

 $writeActions = "";

 foreach($writeAction in $performanceRule.WriteActionCollection)

 {

 $writeActions += " " + $writeAction.Name;

 }

 return ($writeActions);

}

$perf\_collection\_rules = get-rule -criteria:"Category='PerformanceCollection'"

$perf\_collection\_rules | select-object @{name="Type";expression={foreach-object {(Get-MonitoringClass -id:$\_.Target.Id).DisplayName}}},@{name="RuleDisplayName";expression={foreach-object {GetDisplayName $\_}}} ,@{name="CounterName";expression={foreach-object {GetPerfCounterName $\_.DataSourceCollection[0].Configuration}}},@{name="Frequency";expression={foreach-object {GetFrequency $\_.DataSourceCollection[0].Configuration}}},@{name="WriteActions";expression={foreach-object {GetWriteActionNames $\_}}} | sort Type,RuleDisplayName,CounterName | export-csv "c:\perf\_collection\_rules.csv"