

System Center 2012 Operations Manager Management Pack For ConfigMgr 2012 (R2) Clients

Version 1.1

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MP Version: 1.1.0.0
Date: 19/09/2014
Feedback:

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MANAGEMENT PACK VERSION INFORMATION

Ver	Date	Status	Description of New Content	Name
0.1	20/08/2013	Draft	Initial release	Tao Yang
1.0	18/03/2014	Release	MP version 1.0.1.0	Tao Yang
1.1	19/09/2014	Release	Updated for MP version 1.1.0.0	Tao Yang

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- You are free to modify this management pack to suit your environments.
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- Even though this management pack has been fully tested, you may use it at your own risk. The Author does not hold any responsibility for any damages it may cause in your environments.

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1. ConfigMgr 2012 Client Management Pack Overview

The Monitoring Pack for System center 2012 – Configuration Manager, which was developed by Microsoft provides monitoring for System Center 2012 Configuration Manager, via System Center Operations Manager. This management pack is designed to heavily focus on the server components of System Center 2012 Configuration Manager. It provides very basic monitoring for the Configuration Manager Client component. The ConfigMgr 2012 Client management pack is designed to fill this gap by providing in-depth monitoring to the System Center 2012 and System Center 2012 R2 Configuration Manager clients.

This monitoring solution includes 4 management packs. Each serves different purposes:

1. ConfigMgr 2012 Client Library

ID:	ConfigMgr 2012 Client Library
Display Name:	ConfigMgr 2012 Client Library
File Name:	ConfigMgr.2012.Client.Library.mpb
MP Type:	Management Pack Bundle
Description:	This Management Pack defines class and group definitions for ConfigMgr 2012 client and client agents. It also provides custom module types, monitor types, aggregate monitors and dependency monitors for other management packs used to monitor ConfigMgr 2012 clients.
Version	1.1.0.0

2. ConfigMgr 2012 Client Discovery

ID:	ConfigMgr 2012 Client Discovery
Display Name:	ConfigMgr 2012 Client Discovery
File Name:	ConfigMgr.2012.Client.Discovery.mp
MP Type:	Sealed Management Pack
Description:	This Management Pack discovers ConfigMgr 2012 client and various client agents.
Version	1.1.0.0

3. ConfigMgr 2012 Client Monitoring

ID:	ConfigMgr 2012 Client Monitoring
Display Name:	ConfigMgr 2012 Client Monitoring
File Name:	ConfigMgr.2012.Client.Monitoring.mp
MP Type:	Sealed Management Pack
Description:	This Management Pack provides rules and monitors used to monitor ConfigMgr 2012 client. It also provides various state and alert views scoped for ConfigMgr 2012 clients.
Version	1.1.0.0

4. ConfigMgr 2012 Client Overrides

ID:	ConfigMgr 2012 Client Overrides
Display Name:	ConfigMgr 2012 Client Overrides
File Name:	ConfigMgr.2012.Client.Overrides.xml
MP Type:	Unsealed Management Pack
Description:	This Management Pack contains overrides for the ConfigMgr 2012 client monitoring solution.
Version	1.0.0.0

2. Document Purpose

The purpose of this document is to detail the monitoring solution provided by the MP as well as instructions for customising and configuring the MP to suit your environment. It also documents the following:

- Monitoring Class model
- Monitored Components
- Various Management Pack Workflows (Discoveries, Monitors and Rules).
- Alerts generated by this management pack
- Agent Tasks provided by the Management Packs
- Various views (state & alert views)
- OpsMgr groups can be used to customise the monitoring solution

3. Prerequisites and Target Audience

This document is prepared for personnel who manage and support System Center 2012 Configuration Manager (including clients) as well as System Center 2012 Operations Manager administrators who is involved in configuring and customising the management packs.

4. Management Pack Design Considerations

During the Management Packs development, the following factors have been taken into consideration:

- The solution is built using Visual Studio Authoring Extension (VSAE). All the management packs are using the OpsMgr 2012 version of the MP schema, which means these management packs are not backwards compatible. They will not work in OpsMgr 2007 management groups.
- All scripts used in the management packs are written using VBScript. There are no requirements for Windows PowerShell on OpsMgr agent computers to run the workflows within the management packs.
- Various ConfigMgr 2012 Client Agents (DCM agent, Hardware Inventory Agent, Software Update Agent, etc.) are defined as separate local application component object so monitors / rules for these ConfigMgr 2012 Client functions are only applied to the client if these agents are enabled by ConfigMgr client policies.
- All the data gathered by the workflows (discoveries, monitors, rules) are retrieved locally from the ConfigMgr 2012 client. The management packs do not query any ConfigMgr Site Systems.
- The top level initial discovery workflows have been designed to target Windows Server Computer class and Windows Client Computer class separately. The discovery for Windows Client Computer class is disabled by default. Therefore by default, this monitoring solution does not monitor ConfigMgr 2012 Clients on Windows Client computers. If it is required, the monitoring for Windows Client computers has to be manually enabled (by enabling the top level discovery via overrides).
- Wherever is possible, consecutive samples monitors are utilised to reduce the number of possible false alerts in OpsMgr.

5. Management Pack Dependencies

5.1. ConfigMgr 2012 Client Library

Management Pack	Minimum Version
Microsoft.SystemCenter.InstanceGroup.Library	7.5.8501.0
Microsoft.SystemCenter.Library	7.0.8427.0
Microsoft.Windows.Library	7.5.8501.0
System.Health.Library	7.0.8427.0

System.Library	7.5.8501.0
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5.2. ConfigMgr 2012 Client Discovery

Management Pack	Minimum Version
Microsoft.SystemCenter.InstanceGroup.Library	7.5.8501.0
Microsoft.SystemCenter.Library	7.0.8427.0
Microsoft.Windows.Library	7.5.8501.0
System.Library	7.5.8501.0
ConfigMgr.2012.Client.Library	1.1.0.0

5.3. ConfigMgr 2012 Client Monitoring

Management Pack	Minimum Version
Microsoft.SystemCenter.Library	7.0.8427.0
Microsoft.Windows.Library	7.5.8501.0
System.Health.Library	7.0.8427.0
System.Library	7.5.8501.0
ConfigMgr.2012.Client.Library	1.1.0.0

5.4. ConfigMgr 2012.Client.Overrides

Management Pack	Minimum Version
System.Library	7.5.8501.0
ConfigMgr.2012.Client.Library	0.2.0.0
ConfigMgr.2012.Client.Discovery	0.2.0.0
ConfigMgr.2012.Client.Monitoring	0.2.0.0

6. Management Packs Change History

6.1. Version 1.1.0.0

In version 1.1.0.0, the following has been updated from the initial release version 1.0.1.0:

Bug Fixes:

- Software Update agent health not rolled up (dependency monitors was missed in the previous release).
- SyncTime in some data source modules were not correctly implemented
- Typo in Pending Software update monitor alert description
- The “All ConfigMgr 2012 Client computer group” population is incorrect. It includes all windows computers, not just the ones with ConfigMgr 2012 client installed.
- Many warning alerts “Operations Manager failed to start a process” generated against various scripts used in this MP. It has been identified the issue is caused by the OpsMgr agent executing the workflows when the SMS Agent Host service is not running. This typically happened right after computer startup or reboot because SMS Agent Host service is set to Automatic (Delayed). All the scripts that query root\ccm WMI namespace have been re-written to wait up to 3 minutes for the SMS Agent Host to start (if it’s not already started). Hopefully this will reduce the number of these warning alerts. The updated scripts will also try to catch such condition so the alert indicates the actual issue:

Alert Description

The process started at 3:08:01 PM failed to create System.PropertyBagData. Errors found in output:

C:\Program Files\Microsoft Monitoring Agent\Agent\Health Service State\Monitoring Host Temporary Files 31\1276\CM12ClientSiteCodeProbe.vbs(118, 5) CM12ClientSiteCodeProbe.vbs: Unable to query the ConfigMgr Agent WMI namespace because the SMS Agent Host service (CcmExec) and/or DCOM Server Process Launcher service is not running when this script is being executed.

Command executed: "C:\Windows\system32\cscript.exe" /nologo "CM12ClientSiteCodeProbe.vbs"
MGMT01.corp.tyang.org TAO 180 20
Working Directory: C:\Program Files\Microsoft Monitoring Agent\Agent\Health Service State\Monitoring Host Temporary Files 31\1276\

One or more workflows were affected by this.

Workflow name: ConfigMgr.2012.Client.Monitoring.ConfigMgr.2012.Client.Application.Site.Code.Monitor

Instance name: MGMT01.corp.tyang.org

Instance ID: {49DA5848-8EFB-B9D1-3CC6-A481667DD92E}

Management group: TYANG

Additional items:

- A diagnostic task and a recovery task for the CcmExec service monitor. The diagnostic task detects if the system uptime is longer than 5 minutes (overrideable), if the system uptime is longer than 5 minutes, the recovery task will start the SMS Agent Host service. Both the service monitor and the recovery task are disabled by default. –If the users decide to use this service monitor and the recovery task, it would help to reduce the number of failed start a process warning alerts caused by stopped SMS Agent Host service.
- Monitor if the SCCM client has been placed into the Provisioning mode for a long period of time (Consecutive Sample monitor) (<http://thoughtsonopsmgr.blogspot.com.au/2014/06/sccm-w7-osd-task-sequence-with-install.html>)
- The Missing CCMEval Consecutive Sample unit monitor has been disabled and replaced by a new monitor. The new monitor is no longer a consecutive sample monitor, it will simply detect if the CCMEval job has missed 5 consecutive cycles (number of missing cycles is overrideable). This new monitor is designed to simplify the detection process and to address the false alerts the previous consecutive monitor generates.
- Monitor CCMCache size. Alert when the available free space for the CCMCache is lower than 20%
- Agent Task: Delete CCMCache content

Updated item:

- Pending Reboot monitor updated to allow users to disable any of the 4 areas that the monitor checks for reboot (Pending File Rename operation is disabled by default because it generates too many alerts):
 - Component Based Serving
 - Windows Software Update Agent
 - SCCM Client
 - Pending File Rename operation
- The Missing CCMEval monitor is disabled and superseded.
- All consecutive samples monitors have been updated. The System.ConsolidatorCondition condition detection module has been replaced by the <MatchCount> configuration in the System.ExpressionFilter module (New in OpsMgr 2012) to consolidate consecutive samples. It simplifies the configuration and tuning process of these consecutive sample monitors.
- Additional events logged in the Operations manager event log by various scripts. – help with troubleshooting. Please refer to Appendix A for the details of these events.

7. Management Pack Classes and Relationships

7.1. Classes

The following classes are defined in the ConfigMgr 2012 Client Library management pack:

ID	Display Name	Inherited From
ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.Application	System Center ConfigMgr 2012 Client	Microsoft.Windows.LocalApplication
ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.App.Component.Desired.Configuration.Management.Agent	ConfigMgr 2012 Client Desired Configuration Management Agent	Microsoft.Windows.ApplicationComponent
ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.App.Component.Hardware.Inventory.Agent	ConfigMgr 2012 Client Hardware Inventory Agent	Microsoft.Windows.ApplicationComponent
ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.App.Component.Software.Distribution.Agent	ConfigMgr 2012 Client Software Distribution Agent	Microsoft.Windows.ApplicationComponent
ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.App.Component.Software.Inventory.Agent	ConfigMgr 2012 Client Software Inventory Agent	Microsoft.Windows.ApplicationComponent
ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.App.Component.Software.Update.Agent	ConfigMgr 2012 Client Software Update Agent	Microsoft.Windows.ApplicationComponent

7.2. Groups

The following groups are defined in the ConfigMgr 2012 Client Library management pack:

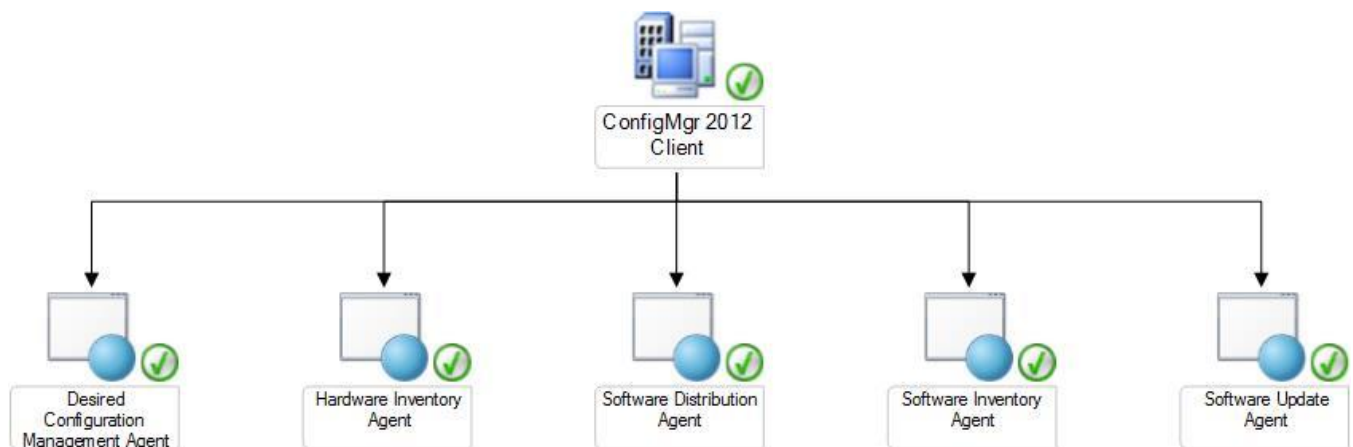
ID	Display Name	Group Type
ConfigMgr.2012.Client.Library.All.ConfigMgr.2012.Client.Computer.Group	All ConfigMgr 2012 Client Computers	Computer Group
ConfigMgr.2012.Client.Library.All.ConfigMgr.2012.Client.Instance.Group	All ConfigMgr 2012 Clients	Instance Group
ConfigMgr.2012.Client.Library.All.ConfigMgr.2012.Client.On.Client.OS.Instance.Group	All ConfigMgr 2012 Clients on Client OS	Instance Group
ConfigMgr.2012.Client.Library.All.ConfigMgr.2012.Client.On.Server.OS.Instance.Group	All ConfigMgr 2012 Clients on Server OS	Instance Group

The “All ConfigMgr 2012 Clients” instance group is the parent group for “All ConfigMgr 2012 clients on Client OS” and “All ConfigMgr 2012 Clients on Server OS” instance groups:

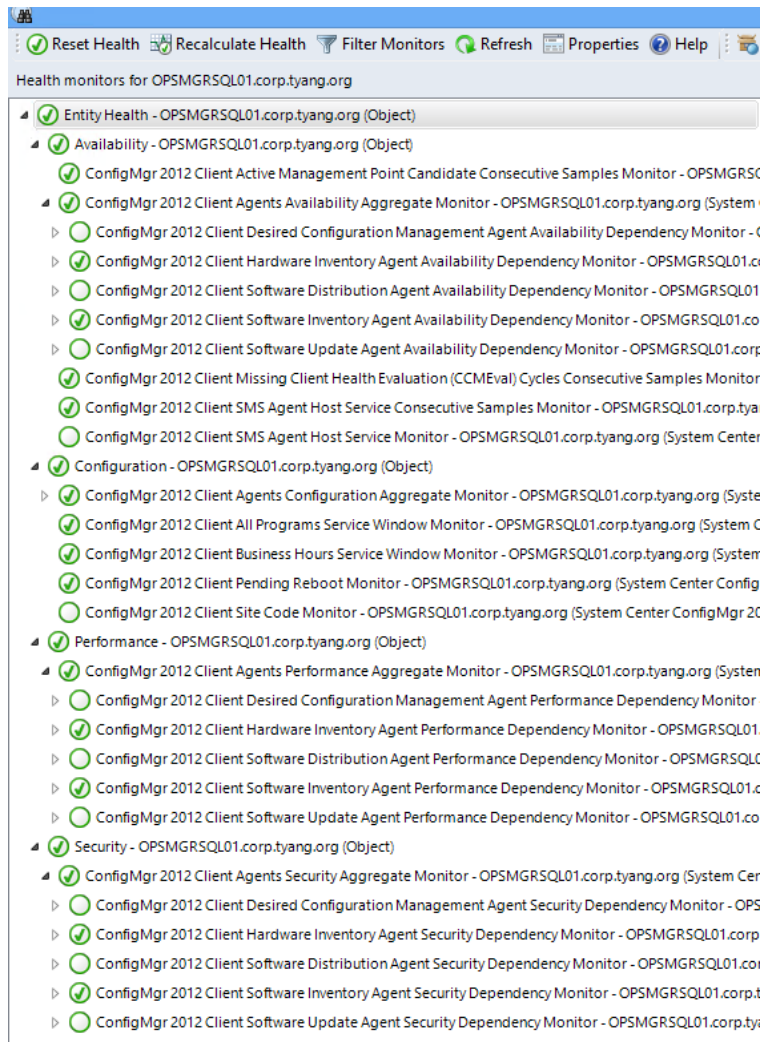
All ConfigMgr 2012 Clients	2
All ConfigMgr 2012 Clients on Client OS	0
All ConfigMgr 2012 Clients on Server OS	0

7.3. Class Relationships

The diagram below illustrates the relationship between the ConfigMgr 2012 client class and various client agents:



Additional aggregate and dependency monitors have been defined in the “ConfigMgr 2012 Client Library” management pack to rollup health of various ConfigMgr 2012 client agents to the parent class of “ConfigMgr 2012 Client”. The figure below indicates the aggregate monitors and dependency monitors used to rollup the overall health state of ConfigMgr 2012 Client application:



8. Management Pack Objects

The objects defined in each management pack (excluding the custom module types and monitor types) are listed below:

8.1. ConfigMgr 2012 Client Library

8.1.1. Class Definitions:

Name	Base Class
ConfigMgr 2012 Client Desired Configuration Management Agent	Microsoft.Windows.ApplicationComponent
ConfigMgr 2012 Client Hardware Inventory Agent	Microsoft.Windows.ApplicationComponent
ConfigMgr 2012 Client Software Distribution Agent	Microsoft.Windows.ApplicationComponent
ConfigMgr 2012 Client Software Inventory Agent	Microsoft.Windows.ApplicationComponent
ConfigMgr 2012 Client Software Update Agent	Microsoft.Windows.ApplicationComponent
System Center ConfigMgr 2012 Client	Microsoft.Windows.LocalApplication
All ConfigMgr 2012 Client Computers	Microsoft.SystemCenter.ComputerGroup
All ConfigMgr 2012 Clients	Microsoft.SystemCenter.InstanceGroup
All ConfigMgr 2012 Clients on Client OS	Microsoft.SystemCenter.InstanceGroup
All ConfigMgr 2012 Clients on Server OS	Microsoft.SystemCenter.InstanceGroup

8.1.2. Relationships

Name	Source	Target	Type
ConfigMgr 2012 Client Hosts Desired Configuration Management Agent	System Center ConfigMgr 2012 Client	ConfigMgr 2012 Client Desired Configuration Management Agent	System.Hosting
ConfigMgr 2012 Client Hosts Hardware Inventory Agent	System Center ConfigMgr 2012 Client	ConfigMgr 2012 Client Hardware Inventory Agent	System.Hosting
ConfigMgr 2012 Client Hosts Software Distribution Agent	System Center ConfigMgr 2012 Client	ConfigMgr 2012 Client Software Distribution Agent	System.Hosting
ConfigMgr 2012 Client Hosts Software Inventory Agent	System Center ConfigMgr 2012 Client	ConfigMgr 2012 Client Software Inventory Agent	System.Hosting
ConfigMgr 2012 Client Hosts Software Update Agent	System Center ConfigMgr 2012 Client	ConfigMgr 2012 Client Software Update Agent	System.Hosting

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8.1.3. Dependency Monitors

Name	Target	Algorithm	Source Monitor	Relationship
ConfigMgr 2012 Client Desired Configuration Management Agent Availability Dependency Monitor	System Center ConfigMgr 2012 Client	WorstOf	System.Health.AvailabilityState	ConfigMgr 2012 Client Hosts Desired Configuration Management Agent
ConfigMgr 2012 Client Desired Configuration Management Agent Configuration Dependency Monitor	System Center ConfigMgr 2012 Client	WorstOf	System.Health.ConfigurationState	ConfigMgr 2012 Client Hosts Desired Configuration Management Agent
ConfigMgr 2012 Client Desired Configuration Management Agent Performance Dependency Monitor	System Center ConfigMgr 2012 Client	WorstOf	System.Health.PerformanceState	ConfigMgr 2012 Client Hosts Desired Configuration Management Agent
ConfigMgr 2012 Client Desired Configuration Management Agent Security Dependency Monitor	System Center ConfigMgr 2012 Client	WorstOf	System.Health.SecurityState	ConfigMgr 2012 Client Hosts Desired Configuration Management Agent
ConfigMgr 2012 Client Hardware Inventory Agent Availability Dependency Monitor	System Center ConfigMgr 2012 Client	WorstOf	System.Health.AvailabilityState	ConfigMgr 2012 Client Hosts Hardware Inventory Agent
ConfigMgr 2012 Client Hardware Inventory Agent Configuration Dependency Monitor	System Center ConfigMgr 2012 Client	WorstOf	System.Health.ConfigurationState	ConfigMgr 2012 Client Hosts Hardware Inventory Agent
ConfigMgr 2012 Client Hardware Inventory Agent Performance Dependency Monitor	System Center ConfigMgr 2012 Client	WorstOf	System.Health.PerformanceState	ConfigMgr 2012 Client Hosts Hardware Inventory Agent
ConfigMgr 2012 Client Hardware Inventory Agent Security Dependency Monitor	System Center ConfigMgr 2012 Client	WorstOf	System.Health.SecurityState	ConfigMgr 2012 Client Hosts Hardware Inventory Agent
ConfigMgr 2012 Client Software Distribution Agent Availability Dependency Monitor	System Center ConfigMgr 2012 Client	WorstOf	System.Health.AvailabilityState	ConfigMgr 2012 Client Hosts Software Distribution Agent
ConfigMgr 2012 Client Software Distribution Agent Configuration Dependency Monitor	System Center ConfigMgr 2012 Client	WorstOf	System.Health.ConfigurationState	ConfigMgr 2012 Client Hosts Software Distribution Agent
ConfigMgr 2012 Client Software Distribution Agent Performance Dependency Monitor	System Center ConfigMgr 2012 Client	WorstOf	System.Health.PerformanceState	ConfigMgr 2012 Client Hosts Software Distribution Agent
ConfigMgr 2012 Client Software Distribution Agent Security Dependency Monitor	System Center ConfigMgr 2012 Client	WorstOf	System.Health.SecurityState	ConfigMgr 2012 Client Hosts Software Distribution Agent
ConfigMgr 2012 Client Software Inventory Agent Availability Dependency Monitor	System Center ConfigMgr 2012 Client	WorstOf	System.Health.AvailabilityState	ConfigMgr 2012 Client Hosts Software Inventory Agent
ConfigMgr 2012 Client Software Inventory Agent Configuration Dependency Monitor	System Center ConfigMgr 2012 Client	WorstOf	System.Health.ConfigurationState	ConfigMgr 2012 Client Hosts Software Inventory Agent
ConfigMgr 2012 Client Software Inventory Agent Performance Dependency Monitor	System Center ConfigMgr 2012 Client	WorstOf	System.Health.PerformanceState	ConfigMgr 2012 Client Hosts Software Inventory Agent
ConfigMgr 2012 Client Software Inventory Agent Security Dependency Monitor	System Center ConfigMgr 2012 Client	WorstOf	System.Health.SecurityState	ConfigMgr 2012 Client Hosts Software Inventory Agent
ConfigMgr 2012 Client Software Update Agent Availability Dependency Monitor	System Center ConfigMgr 2012 Client	WorstOf	System.Health.AvailabilityState	ConfigMgr 2012 Client Hosts Software Update Agent
ConfigMgr 2012 Client Software Update Agent Configuration Dependency Monitor	System Center ConfigMgr 2012 Client	WorstOf	System.Health.ConfigurationState	ConfigMgr 2012 Client Hosts Software Update Agent
ConfigMgr 2012 Client Software Update Agent Performance Dependency Monitor	System Center ConfigMgr 2012 Client	WorstOf	System.Health.PerformanceState	ConfigMgr 2012 Client Hosts Software Update Agent

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ConfigMgr 2012 Client Software Update Agent Security Dependency Monitor	System Center ConfigMgr 2012 Client	WorstOf	System.Health.SecurityState	ConfigMgr 2012 Client Hosts Software Update Agent
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8.1.4. Aggregate Monitors

Name	Target	Algorithm
ConfigMgr 2012 Client Agents Security Aggregate Monitor	System Center ConfigMgr 2012 Client	WorstOf
ConfigMgr 2012 Client Agents Performance Aggregate Monitor	System Center ConfigMgr 2012 Client	WorstOf
ConfigMgr 2012 Client Agents Availability Aggregate Monitor	System Center ConfigMgr 2012 Client	WorstOf
ConfigMgr 2012 Client Agents Configuration Aggregate Monitor	System Center ConfigMgr 2012 Client	WorstOf

8.2. ConfigMgr 2012 Client Discovery

8.2.1. Discoveries

Name	Target	Enabled	Frequency	Removable	Description
ConfigMgr 2012 Client Desired Configuration Management Agent Discovery	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.Application	True	43200	True	Discovers the enabled ConfigMgr 2012 client Desired Configuration Management (DCM) Agent
ConfigMgr 2012 Client Hardware Inventory Agent Discovery	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.Application	True	43200	True	Discovers the enabled ConfigMgr 2012 client Hardware Inventory Agent
ConfigMgr 2012 Client Software Distribution Agent Discovery	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.Application	True	43200	True	Discovers the enabled ConfigMgr 2012 client Software Distribution Agent
ConfigMgr 2012 Client Software Inventory Agent Discovery	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.Application	True	43200	True	Discovers the enabled ConfigMgr 2012 client Software Inventory Agent
ConfigMgr 2012 Client Software Update Agent Discovery	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.Application	True	43200	True	Discovers the enabled ConfigMgr 2012 client Software Update Agent
ConfigMgr 2012 Client Discovery Step 2	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.Application	True	43200	True	This discovery discovers the remaining properties of the ConfigMgr 2012 client using a VBScript.
ConfigMgr 2012 Client For Client Computers Discovery Step 1	Microsoft.Windows.Client.Computer	False	43200	True	Initial registry based discovery for ConfigMgr 2012 client on Windows Client computers
ConfigMgr 2012 Client For Server Computers Discovery Step 1	Microsoft.Windows.Server.Computer	True	43200	True	Initial registry based discovery for ConfigMgr 2012 client on Windows Server computers
All ConfigMgr 2012 Client Computers Group Discovery	ConfigMgr.2012.Client.Library.All.ConfigMgr.2012.Client.Computer.Group	True		True	Group Populator for "All ConfigMgr 2012 Client Computers" computer group.
All ConfigMgr 2012 Clients Group Discovery	ConfigMgr.2012.Client.Library.All.ConfigMgr.2012.Client.Instance.Group	True		True	Group Populator for "All ConfigMgr 2012 Clients" Instance Group.
All ConfigMgr 2012 Clients On Client OS	ConfigMgr.2012.Client.Library.All.ConfigMgr.2012.Client.Instance.Group	True		True	Group Populator for "All ConfigMgr 2012 Clients On Client OS" Instance

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Group Discovery	igMgr.2012.Client.On.Client.OS.Instance.Group				Group.
All ConfigMgr 2012 Clients On Server OS Group Discovery	ConfigMgr.2012.Client.Library.All.ConfigMgr.2012.Client.On.Server.OS.Instance.Group	True		True	Group Populator for "All ConfigMgr 2012 Clients On Server OS" Instance Group.

8.3. ConfigMgr 2012 Client Monitoring

8.3.1. Unit Monitors

Name	Target	Category	Enabled	Alert Severity	Remotable	Description
ConfigMgr 2012 Client DCM Baselines Compliance Monitor	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.App.Component.Desired.Configuration.Management.Agent	ConfigurationHealth	True	Error	True	2-State Monitor that detects non-compliant DCM Baselines assigned to the ConfigMgr 2012 client
ConfigMgr 2012 Client Missing Hardware Inventory Cycles Consecutive Samples Monitor	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.App.Component.Hardware.Inventory.Agent	AvailabilityHealth	True	Error	True	2 State Consecutive Samples monitor that detects if ConfigMgr 2012 client has missed hardware inventory cycle
ConfigMgr 2012 Client Missing Software Inventory Cycles Consecutive Samples Monitor	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.App.Component.Software.Inventory.Agent	AvailabilityHealth	True	Error	True	2 State Consecutive Samples monitor that detects if ConfigMgr 2012 client has missed software inventory cycle
ConfigMgr 2012 Client Failed Applications Deployments Monitor	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.App.Component.Software.Distribution.Agent	ConfigurationHealth	True	Error	True	Detects failed Applications Deployments on ConfigMgr 2012 clients.
ConfigMgr 2012 Client Pending Software Updates Monitor	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.App.Component.Software.Update.Agent	SecurityHealth	True	Error	True	Detects pending software updates that have passed configured deadline.
ConfigMgr 2012 Client Business Hours Service Window Monitor	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.Application	ConfigurationHealth	True	Error	True	Checks if at least one Business Hours Service Window (Service Window Type 6) exist on the ConfigMgr 2012 client
ConfigMgr 2012 Client SMS Agent Host Service Consecutive Samples Monitor	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.Application	AvailabilityHealth	True	Error	False	ConfigMgr 2012 Client SMS Agent Host (CcmExec) Service Consecutive Samples Monitor
ConfigMgr 2012 Client Pending Reboot Monitor	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.Application	ConfigurationHealth	True	Warning	True	ConfigMgr 2012 Client Pending Reboot Monitor
ConfigMgr 2012 Client All Programs Service Window Monitor	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.Application	ConfigurationHealth	False	Error	True	Checks if at least one All Programs Service Window (Service Window Type 1) exist on the ConfigMgr 2012 client
ConfigMgr 2012 Client Site Code Monitor	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.Application	ConfigurationHealth	False	Error	True	ConfigMgr 2012 Client Site Code Monitor
ConfigMgr 2012 Client SMS Agent Host Service Monitor	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.Application	AvailabilityHealth	False	Error	True	ConfigMgr 2012 Client SMS Agent Host (CcmExec) Service Monitor

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ConfigMgr 2012 Client Active Management Point Candidate Consecutive Samples Monitor	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.Application	AvailabilityHealth	True	Error	True	2 State Consecutive Samples monitor that detects if the ConfigMgr 2012 client has active Management Pack candidate
ConfigMgr 2012 Client Missing Client Health Evaluation (CCMEval) Cycles Consecutive Samples Monitor	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.Application	AvailabilityHealth	False	Error	True	DEPRECATED and SUPERSEDED. 2 State Consecutive Samples monitor that detects if ConfigMgr 2012 client has missed Client Health Evaluation (CCMEval) cycle
ConfigMgr.2012.Client.Monitoring.ConfigMgr.2012.Client.CCMEval.Execution.Cycles.Monitor	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.Application	AvailabilityHealth	True	Warning	True	Replacement for the ConfigMgr 2012 Client Missing Client Health Evaluation (CCMEval) Cycles Consecutive Samples Monitor. It detects if the CCMEval job has missed number of consecutive cycles.
ConfigMgr.2012.Client.Monitoring.ConfigMgr.2012.Client.Cache.FreeSpace.Monitor	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.Application	AvailabilityHealth	True	Warning	True	Monitors the available % free space for ConfigMgr 2012 Client cache (ccmcache).
ConfigMgr.2012.Client.Monitoring.ConfigMgr.2012.Client.In.Provisioning.Mode.Consecutive.Samples.Monitor	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.Application	AvailabilityHealth	True	Error	True	2 State Consecutive Samples monitor that detects if the ConfigMgr 2012 client has been placed into the Provisioning Mode for a long period of time.

8.3.2. Rules

Name	Target	Cat ego ry	En abl ed	Gener ate Alert	Alert Sever ity	Alert Priori ty	Rem otab le	Description
ConfigMgr 2012 Client Advertisements Execution History Alert Rule	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.App.Component.Software.Distribution.Agent	Alert	True	True	Error	Normal	True	This rule runs on a schedule and checks ConfigMgr 2012 Client advertisements execution history since last check generate alerts if failed executions are detected

8.3.3. Agent Tasks

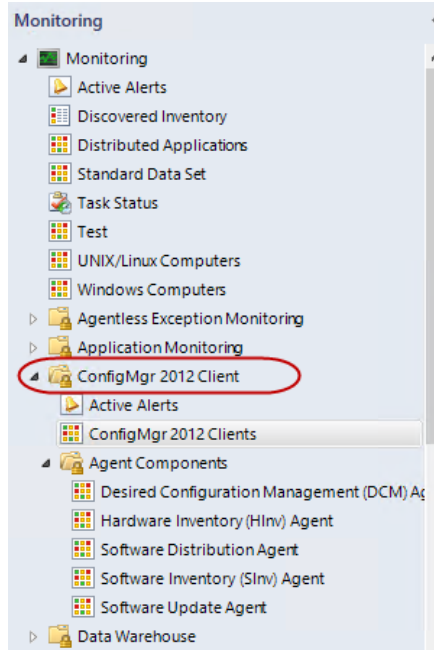
Name	Description	Remo table	Target
Initiate Location Service Timeout Refresh Task	Initiate Location Service Timeout Refresh Task for ConfigMgr 2012 Client	True	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.Application
Request Machine Assignments	Request Machine Assignments for ConfigMgr 2012 Client	True	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.Application
ConfigMgr 2012 Client Repair	Client Repair for ConfigMgr 2012 Client	True	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.Application
Initiate Software Metering Usage Report Cycle	Initiate Software Metering Usage Report for ConfigMgr 2012 Client	True	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.Application
Initiate Hardware Inventory	Initiate Hardware Inventory for ConfigMgr 2012 Client	True	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.App.Compon ent.Hardware.Inventory.Agent
Initiate Software Inventory	Initiate Software Inventory for ConfigMgr 2012 Client	True	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.App.Compon ent.Software.Inventory.Agent
Initiate Software Updates Assignments Evaluation Cycle	Initiate Software Updates Assignments Evaluation for ConfigMgr 2012 Client	True	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.App.Compon ent.Software.Update.Agent
Initiate File Collection Cycle	Initiate File Collection for ConfigMgr 2012 Client	True	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.Application
Initiate Software Updates Scan Cycle	Initiate Software Updates Scan for ConfigMgr 2012 Client	True	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.App.Compon ent.Software.Update.Agent
DCM Policy	Evaluate DCM Policy for ConfigMgr 2012 Client	True	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.App.Compon ent.Desired.Configuration.Management.Agent
Application Deployment Evaluation Cycle	Initiate Application Deployment Evaluation Cycle for ConfigMgr 2012 Client	True	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.App.Compon ent.Software.Distribution.Agent
Evaluate Machine Policy	Evaluate Machine Policy for ConfigMgr 2012 Client	True	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.Application
Initiate Discovery Data Collection	Initiate Discovery Data Collection for ConfigMgr 2012 Client	True	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.Application
Initiate Location Service Refresh Locations Task	Initiate Location Service Refresh Locations Task for ConfigMgr 2012 Client	True	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.Application
Delete Cache Content	Delete content stored in the ccmcache folder	False	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.Application

System Center 2012 Operations Manager Management Pack For System Center 2012 (R2)
Configuration Manager Client

8.3.4. Views

Name	Target	Type	Description
Software Update Agent	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.App.Component.Software.Update.Agent	State View	ConfigMgr 2012 Client Software Update Agent State View
Desired Configuration Management (DCM) Agent	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.App.Component.Desired.Configuration.Management.Agent	State View	ConfigMgr 2012 Client DCM Agent State View
Software Inventory (SInv) Agent	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.App.Component.Software.Inventory.Agent	State View	ConfigMgr 2012 Client SInv Agent State View
Hardware Inventory (HInv) Agent	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.App.Component.Hardware.Inventory.Agent	State View	ConfigMgr 2012 Client HInv Agent State View
Software Distribution Agent	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.App.Component.Software.Distribution.Agent	State View	ConfigMgr 2012 Client Software Distribution Agent State View
Active Alerts	ConfigMgr.2012.Client.Library.All.ConfigMgr.2012.Client.Instance.Group	Alert View	Active Alerts for ConfigMgr 2012 Clients
ConfigMgr 2012 Clients	ConfigMgr.2012.Client.Library.ConfigMgr.2012.Client.Application	State View	Description for the new view

The above mentioned views are available under the “ConfigMgr 2012 Client” folder as illustrated below:



9. ConfigMgr 2012 Client Object Discoveries

The discoveries defined in this monitoring solution follows the best practise as they are staged and the initial discovery is a registry based discovery. The initial discovery for the ConfigMgr 2012 Client class runs on windows computers based on registry values. Once the initial registry discovery has discovered the ConfigMgr 2012 Client, a script discovery then runs to discover the property values of the ConfigMgr 2012 Client. The script discoveries for the various ConfigMgr 2012 Client agents (Local Application Component) will also then run to discover the client agents that have been enabled on the ConfigMgr 2012 client. This section covers the details of the discoveries for each monitoring class.

9.1. ConfigMgr 2012 Client Discoveries

There are 3 discovery workflows associated with the discovery of the ConfigMgr 2012 Client object (Local Application):

- ConfigMgr 2012 Client For Server Computers Discovery Step 1
- ConfigMgr 2012 Client For Client Computers Discovery Step 1
- ConfigMgr 2012 Client Discovery Step 2

The “ConfigMgr 2012 Client For Server Computers Discovery Step 1” and “ConfigMgr 2012 Client For Client Computers Discovery Step 1” run identical workflows to discover the existence of ConfigMgr 2012 client based on registry values. As the name suggested, these two similar workflows are targeting Windows Client computer and Windows Server computers respectively.

The “ConfigMgr 2012 Client For Server Computers Discovery Step 1” does not discover ConfigMgr 2012 clients on any server computers that “IsVirtualNode “ equals true (i.e. failover clusters).

The discovery targeting Windows client computers is disabled by default. Therefore by default ConfigMgr 2012 clients on Windows Client computers are not discovered. OpsMgr administrators can manually enable this

discovery for all Windows Client computers or a group of Windows Client computers (i.e. Business Critical desktops).

In order for the ConfigMgr 2012 client to be discovered by the step 1 discoveries, the Windows computer has to meet both of the following conditions:

- The registry key “*HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\CcmExec*” must exist
- The registry value “*HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\SMS\Mobile Client\ProductVersion*” must start with “5.”

The “ConfigMgr 2012 Client Discovery Step 2” runs a script to detect various property values such as assigned site code, client GUID, client version, etc.

9.2. Desired Configuration Management (DCM) Agent Discovery

The “ConfigMgr 2012 Client Desired Configuration Management Agent Discovery” runs script every 12 hours on ConfigMgr 2012 client and detects if the DCM client agent has been enabled. The script runs below WMI query under the “*root\ccm\PolicyMachine\ActualConfig*” WMI namespace:

“Select * from CCM_ConfigurationManagementClientConfig WHERE SiteSettingsKey = 1”
--

9.3. Hardware Inventory Agent Discovery

The “ConfigMgr 2012 Client Hardware Inventory Agent Discovery” runs script every 12 hours on ConfigMgr 2012 client and detects if the Hardware Inventory client agent has been enabled. The script runs below WMI query under the “*root\ccm\PolicyMachine\ActualConfig*” WMI namespace:

“Select * from CCM_HardwareInventoryClientConfig WHERE SiteSettingsKey = 1”
--

9.4. Software Inventory Agent Discovery

The “ConfigMgr 2012 Client Software Inventory Agent Discovery” runs script every 12 hours on ConfigMgr 2012 client and detects if the Software Inventory client agent has been enabled. The script runs below WMI query under the “*root\ccm\PolicyMachine\ActualConfig*” WMI namespace:

“Select * from CCM_SoftwareInventoryClientConfig WHERE SiteSettingsKey = 1”
--

9.5. Software Distribution Agent Discovery

The “ConfigMgr 2012 Client Software Distribution Agent Discovery” runs script every 12 hours on ConfigMgr 2012 client and detects if the Software Distribution client agent has been enabled. The script runs below WMI query under the “*root\ccm\PolicyMachine\ActualConfig*” WMI namespace:

“Select * from CCM_SoftwareDistributionClientConfig WHERE SiteSettingsKey = 1”

9.6. Software Update Agent Discovery

The “ConfigMgr 2012 Client Software Distribution Agent Discovery” runs script every 12 hours on ConfigMgr 2012 client and detects if the Software Distribution client agent has been enabled. The script runs below WMI query under the “*root\ccm\PolicyMachine\ActualConfig*” WMI namespace:

“Select * from CCM_SoftwareUpdatesClientConfig WHERE SiteSettingsKey = 1”
--

10. Monitors and Rules

Once the ConfigMgr 2012 client and client agents have been discovered, the monitors and rules associated to each class will then become active. In another word, if a specific client agent is not discovered (enabled by ConfigMgr administrators), the monitors and rules that are targeting this client agent will not become active. i.e. if the DCM agent is not added for the ConfigMgr 2012 client, any monitors that are targeting the DCM agent class will not run. This section explains each monitor and rule in details.

10.1. ConfigMgr 2012 Client

10.1.1. SMS Agent Host Service Monitor

This monitor is a basic service monitor that monitors the “SMS Agent Host” service. It generates a critical alert when the SMS Agent Host is not running. This monitor is disabled by default.

Note: In order to reduce the noise of this monitor, the management pack author strongly recommend to use the “SMS Agent Host Service Consecutive Samples Monitor” instead.

10.1.2. SMS Agent Host Service Consecutive Samples Monitor

This consecutive samples monitor is configured to run every 5 minute and detects the state of the “SMS Agent Host” service. If the service is not running over 3 consecutive samples, a critical alert will be generated. Once the service enters the running state and detected by the monitor during next schedule, the monitor will become healthy and the alert will be automatically closed. The interval and number of samples can be modified via override. Please refer to the product knowledge article associated to this monitor for details regarding to customising this monitor.

Note: This monitor is not remotable, which means it will not run on agentless monitored computers. Please manually enable the “SMS Agent Host Service Monitor” for agentless monitored computers if it is required.

10.1.3. ConfigMgr 2012 Client Site Code Monitor

In large ConfigMgr environments, it is very common that there are more than one (1) ConfigMgr hierarchy in the organisation. Sometimes it is very import to make sure ConfigMgr clients are assigned to the correct ConfigMgr primary sites. Incorrect site code could be caused by:

- Incorrect site code specified during the client installation
- Automatic Site Assignment is enabled and there are overlapping boundaries within the environment.
- Someone has manually updated the site code on the ConfigMgr client.

This monitor is designed to monitor the site code assigned to the ConfigMgr 2012 client. Because each environment is different, this monitor is disabled by default. OpsMgr administrators will need to manually enable it via override. The **CorrectSiteCode** value will also need to be specified via override in order for this monitor to function properly.

Note: OpsMgr administrators may also need to create various groups for different ConfigMgr 2012 clients if they report to different ConfigMgr primary sites. These groups can then be targeted by overrides with different **CorrectSiteCode** value.

10.1.4. ConfigMgr 2012 Client Pending Reboot Monitor

This monitor detects if the ConfigMgr 2012 client is pending reboot. This monitor checks pending reboot from the following components:

- Component-Based Servicing (for computers running Windows Server 2008 / Windows Vista or later)
 - Check if the registry key “HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\Component Based Servicing\” has a sub key named “RebootPending”.
- Windows Update (WSUS) Agent
 - Check if the registry key “HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\WindowsUpdate\Auto Update\” has a subkey named “RebootRequired”.
- ConfigMgr 2012 Agent
 - Execute the method “DeterminelfRebootPending” in the CCM_ClientUtilities WMI class which is located in the “Root\Ccm\ClientSDK” namespace.
- Pending File Rename Operations
 - Check the Multi-String registry key value “HKLM\SYSTEM\CurrentControlSet\Control\Session Manager\PendingFileRenameOperations”. If this registry key value is not empty, a reboot is considered as required.

A warning alert is raised if the monitor has detected required reboot from any of above mentioned components. The alert description contains details in which component(s) require reboot.

The screenshot shows the 'Alert Details' window for a warning alert titled 'Pending Reboot detected on the ConfigMgr 2012 Client'. The alert was created on 15/08/2013 at 10:08:06 AM by the 'ConfigMgr 2012 Client Pending Reboot Monitor'. The alert description states: 'Pending detected on ConfigMgr 2012 client'. Below this, it lists the status of pending reboots from various components: Component-Based Servicing (false), Windows Update (false), ConfigMgr Client (false), and Pending File Rename Operations (true). A 'Knowledge' section provides a summary of the monitor's function and its configuration, which includes checking for pending reboots from the listed components. A link to 'View additional knowledge...' is also present.

Alert Details	
Source: [Redacted]	Alert Description
Full Path Name: [Redacted]	Pending detected on ConfigMgr 2012 client
Alert Monitor: ConfigMgr 2012 Client Pending Reboot Monitor	
Created: 15/08/2013 10:08:06 AM	
<hr/>	
Knowledge:	View additional knowledge...
<hr/>	
Summary	
This monitor runs on a schedule and detects if the ConfigMgr 2012 client is pending reboot.	
Configuration	
A warning alert is raised when a pending reboot is detected on the ConfigMgr 2012 client. This monitor checks pending reboot from the following components:	
Component-Based Servicing (for computers running Windows Server 2008 / Windows Vista or later)	
Windows Update (WSUS) Agent	
ConfigMgr 2012 Agent	
Pending File Rename Operations	

NOTE: The detection for each above mentioned components can be disabled via override. By default, the detection for the Pending File Rename Operation is disabled.

10.1.5. ConfigMgr 2012 Client Missing Client Health Evaluation (CCMEval) Cycles Consecutive Samples Monitor

NOTE: This monitor has been **DISABLED**. It has been replaced by the “ConfigMgr 2012 Client Missing Client Health Evaluation (CCMEval) Execution Cycles Monitor”.

This monitor detects if the ConfigMgr 2012 client has missed the "Configuration Manager Client Health Evaluation" (CcmEval) scheduled task Cycle for over number of consecutive samples. By default, this monitor

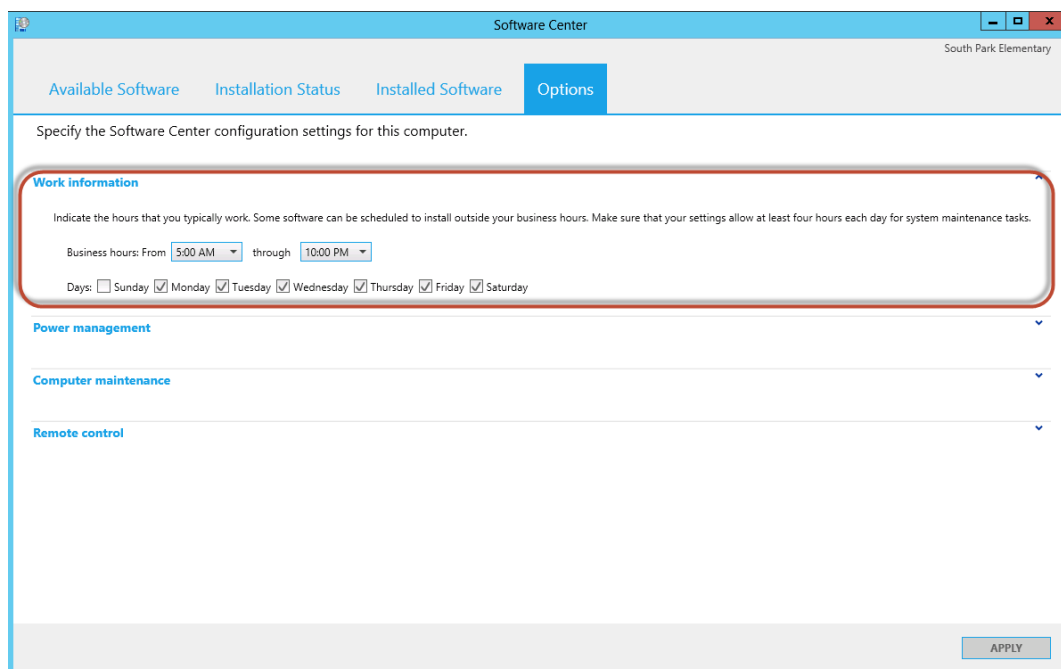
runs once a day. The script within this monitor firstly checks the execution interval for CcmEval from registry and then checks if the last execution is within the execution interval. A critical alert is generated if the CcmEval task has missed a number of consecutive samples (by default 3 samples). When the monitor detects the CcmEval has been executed within the execution interval, the monitor will become healthy and the alert will be automatically closed. The monitor execution interval and number of samples can be modified via override. Please refer to the product knowledge article associated to this monitor for details regarding to customising this monitor.

10.1.6. ConfigMgr 2012 Client Missing Client Health Evaluation (CCMEval) Execution Cycles Monitor

This monitor detects if the ConfigMgr 2012 client has missed the "Configuration Manager Client Health Evaluation" (CcmEval) scheduled task Cycle for over number of consecutive samples. By default, this monitor runs once a day. The script within this monitor firstly checks the execution interval for CcmEval from registry and then checks if the last execution is within the **execution interval x number of maximum allowed missing cycles**. A warning alert is generated if the last CcmEval execution has missed a number of consecutive samples (by default 5 samples). When the monitor detects the CcmEval has been executed within the execution interval, the monitor will become healthy and the alert will be automatically closed. The monitor execution interval and the maximum number of missing execution cycles can be modified via override. Please refer to the product knowledge article associated to this monitor for details regarding to customising this monitor.

10.1.7. ConfigMgr 2012 Client Business Hours Service Window Monitor

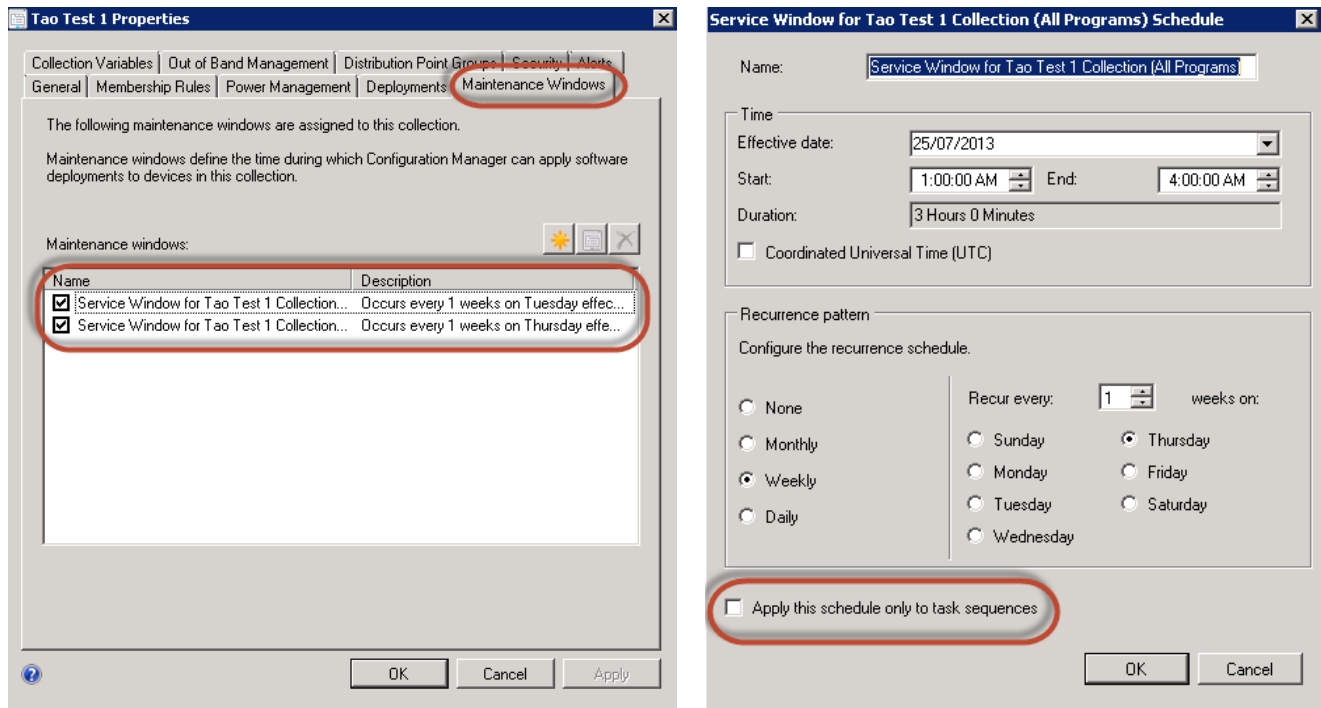
This monitor detects if the Business Hours service windows are configured for the ConfigMgr 2012 Client. A critical alert is raised when the business hours are not configured for the ConfigMgr 2012 client. When the monitor enters Healthy state, the alert is automatically closed. The business hours can be manually configured on the client within the Software Center:



The screenshot shows the 'Software Center' window for 'South Park Elementary'. The 'Options' tab is selected. Below the tabs, it says 'Specify the Software Center configuration settings for this computer.' The 'Work Information' section is highlighted with a red box. It contains the instruction: 'Indicate the hours that you typically work. Some software can be scheduled to install outside your business hours. Make sure that your settings allow at least four hours each day for system maintenance tasks.' Below this, 'Business hours' are set from '5:00 AM' to '10:00 PM'. The 'Days' section shows checkboxes for Sunday (unchecked), Monday (checked), Tuesday (checked), Wednesday (checked), Thursday (checked), Friday (checked), and Saturday (checked). Below 'Work Information' are sections for 'Power management', 'Computer maintenance', and 'Remote control', each with a downward arrow. An 'APPLY' button is at the bottom right.

10.1.8. ConfigMgr 2012 Client All Programs Service Window Monitor

This monitor detects if the "All Programs" service windows are configured for the ConfigMgr 2012 Client. It is disabled by default. When enabled, a critical alert is raised when there is no "All Programs" service window configured for the ConfigMgr 2012 client. The "All Programs" service windows can be configured on a collection which the ConfigMgr 2012 client is a member of.



10.1.9. ConfigMgr 2012 Client Active Management Point Candidate Consecutive Samples Monitor

This monitor runs on a defined schedule and generate alert when there are no active Management Point candidates detected on the ConfigMgr 2012 client over number of consecutive samples. A critical alert is raised when no active Management Point candidate detected on ConfigMgr 2012 client over number of consecutive samples. The monitor execution interval and number of samples can be modified via override. Please refer to the product knowledge article associated to this monitor for details regarding to customising this monitor.

The script used by this monitor queries the "SMS_ActiveMPCandidate" WMI class from the "Root\Ccm\LocationServices" namespace. When the monitor enters Healthy state, the alert is automatically closed. If the alert is generated on a large number of ConfigMgr 2012 clients, it may indicate there are issues with the ConfigMgr Management Points site systems.

10.1.10. ConfigMgr 2012 Client Cache Free Space Monitor

This monitor checks the percentage free space for the ccmcache folder, and a warning alert is generated when the available free space falls below 20%. The monitor execution interval and percentage threshold can be modified via override. Please refer to the product knowledge article associated to this monitor for details regarding to customising this monitor.

10.1.11. ConfigMgr 2012 Client In Provisioning Mode Consecutive Samples Monitor

This monitor runs on a defined schedule and generate alert when it detects the ConfigMgr 2012 client is in the Provisioning Mode over number of consecutive samples. A critical alert is raised this condition is detected. The monitor execution interval and number of samples can be modified via override. Please refer to the product knowledge article associated to this monitor for details regarding to customising this monitor.

10.2. ConfigMgr 2012 Client Desired Configuration Management Agent

10.2.1. ConfigMgr 2012 Client DCM Baselines Compliance Monitor

This monitor runs on a schedule and detects any Non-Compliant DCM baselines on the ConfigMgr 2012 client. A critical alert is raised when the at least one DCM baseline is detected as Non-Compliant. The names of the non-compliant DCM baselines are included in the alert description.

Alert Details

Non-Compliant DCM Baselines detected

Source: Desired Configuration Management Agent

Full Path Name: Configuration Management Agent

Alert Monitor: ConfigMgr 2012 Client DCM Baselines Compliance Monitor

Created: 12/08/2013 10:21:52 AM

Alert Description

Uncompliant DCM baselines detected on ConfigMgr 2012 client: [REDACTED]

Number of Non-compliant DCM Baselines: 2

List of Non-compliant baselines:
Tao Test CML Reg Key DCM Baseline
Tao Test HKLM\SOFTWARE\TEST Reg Key DCM Baseline

Knowledge: [View additional knowledge...](#)

Summary

This monitor runs on a schedule and detects any Non-Compliant DCM baselines on the ConfigMgr 2012 client

Configuration

A critical alert is raised when the at least one DCM baseline is detected as Non-Compliant. The names of the non-compliant DCM baselines are included in the alert description.

When the monitor enters Healthy state, the alert is automatically closed.

Resolutions

For details of non-compliant Configuration Items within the DCM baseline, please run the compliance report against the DCM baseline on the ConfigMgr 2012 client. When all DCM baselines are compliant, this monitor becomes healthy after the next run.

[Hide knowledge](#)

When the monitor enters Healthy state, the alert is automatically closed.

To detect non-compliant DCM baselines, the script used by the monitor runs below WMI query under the “Root\Ccm\dcms” WMI namespace:

```
“Select * from SMS_DesiredConfiguration Where LastComplianceStatus=0”
```

10.3. ConfigMgr 2012 Client Hardware Inventory Agent

10.3.1. ConfigMgr 2012 Client Missing Hardware Inventory Cycles Consecutive Samples Monitor

This monitor detects if the ConfigMgr 2012 client has missed the Hardware Inventory Cycle for over number of consecutive samples. A critical alert is raised when the ConfigMgr 2012 client has missed the Hardware Inventory cycle for over number of consecutive samples.

Since the author of the management pack did not find a way to detect what is the effective hardware inventory cycle interval from the ConfigMgr 2012 client, the hardware inventory interval (in days) has to be manually configured for the monitor via overrides.

To detect the last Hardware Inventory cycle, the script used by the monitor runs below WMI query under “Root\Ccm\InvAgt” WMI namespace:

```
“Select * from InventoryActionStatus Where InventoryActionID=’ {00000000-0000-0000-0000-000000000001}””
```

The monitor runs on a schedule and checks if the last hardware inventory cycle was within the inventory interval. A critical alert will be generated if 3 consecutive samples that the monitor took all came back as missing hardware inventory. For example, if the hardware inventory interval is configured as 7 days (“InvIntervalDays” property in the monitor) and the monitor is configured to run once a day (“IntervalSeconds” property in the monitor) with 3 consecutive samples (“ConsolidationNumberOfSamples” property in the monitor), an alert will be generated when the ConfigMgr 2012 client has not submitted hardware inventory for longer than 10 days (1x3+7=10).

The monitor execution interval and number of samples can be modified via override. Please refer to the product knowledge article associated to this monitor for details regarding to customising this monitor.

10.4. ConfigMgr 2012 Client Software Inventory Agent

10.4.1. ConfigMgr 2012 Client Missing Software Inventory Cycles Consecutive Samples Monitor

This monitor detects if the ConfigMgr 2012 client has missed the Software Inventory Cycle for over number of consecutive samples. A critical alert is raised when the ConfigMgr 2012 client has missed the Software Inventory cycle for over number of consecutive samples.

To detect the last Software Inventory cycle, the script used by the monitor runs below WMI query under "Root\Ccm\InvAgt" WMI namespace:

"Select * from InventoryActionStatus Where InventoryActionID=' {00000000-0000-0000-0000-000000000002}'"
--

Since the author of the management pack did not find a way to detect what is the effective software inventory cycle interval from the ConfigMgr 2012 client, the software inventory interval (in days) has to be manually configured for the monitor via overrides.

The monitor runs on a schedule and checks if the last software inventory cycle was within the inventory interval. A critical alert will be generated if 3 consecutive samples that the monitor took all came back as missing software inventory. For example, if the software inventory interval is configured as 7 days ("InvIntervalDays" property in the monitor) and the monitor is configured to run once a day ("IntervalSeconds" property in the monitor) with 3 consecutive samples ("ConsolidationNumberOfSamples" property in the monitor), an alert will be generated when the ConfigMgr 2012 client has not submitted software inventory for longer than 10 days ($1 \times 3 + 7 = 10$).

The monitor execution interval and number of samples can be modified via override. Please refer to the product knowledge article associated to this monitor for details regarding to customising this monitor.


10.5. ConfigMgr 2012 Client Software Distribution Agent



10.5.1. ConfigMgr 2012 Client Failed Applications Deployments Monitor

This monitor detects any failed ConfigMgr 2012 application deployments on ConfigMgr clients. A critical alert is raised when the at least one failed ConfigMgr 2012 application deployment is detected. This monitor queries the **CCM_Application** WMI class in "**Root\CCM\ClientSDK**" Namespace, any application deployments with **EvaluationState** of 4 are considered as failed.


Alert example:

Alert Details

**Failed Applications Deployments Detected on ConfigMgr 2012 Client**

Source:  **Software Distribution Agent**
Full Path Name: **Software Distribution Agent** Software
Alert Monitor:  **ConfigMgr 2012 Client Failed Applications Deployments Monitor**
Created: 12/08/2013 10:22:46 AM

Alert Description
On ConfigMgr 2012 client [REDACTED], there are 1 Failed Application Deployments detected. For details of the failed application deployments, please use the SCCM 2012 Client Center or query the "CCM_Application" WMI class in "Root\CCM\ClientSDK" Namespace.

Knowledge:  [View additional knowledge...](#)

Summary
This monitor detects any failed ConfigMgr 2012 application deployments on ConfigMgr clients.

Configuration
A critical alert is raised when the at least one failed ConfigMgr 2012 application deployment is detected. This monitor queries the CCM_Application WMI class in "Root\CCM\ClientSDK" Namespace, any application deployments with EvaluationState of 4 are considered as failed.
When the monitor enters Healthy state, the alert is automatically closed.

Resolutions
Please use various tools such as SCCM 2012 Client Center or the native reports in ConfigMgr 2012 console to detect the failed application deployments.

Additional Information
SCCM 2012 Client Center can be downloaded at <http://sccmcltr.codeplex.com>
[Hide knowledge](#)


When the monitor enters Healthy state, the alert is automatically closed.



10.5.2. ConfigMgr 2012 Client Advertisements Execution History Alert Rule

This rule runs every 30 minutes by default and checks ConfigMgr 2012 Client advertisement executions history since when it ran last time. It generates a critical alert if failed executions are detected. The alert description contains a list of advertisements that have failed to execute of the time period. It also initiates ConfigMgr Client Hardware Inventory if any advertisement executions are found. Please refer to the Product Knowledge article associated to this rule for details on customising the rule.

The figure below is an alert generated by this rule:

Alert Details

**ConfigMgr 2012 Client Failed Advertisement Execution detected**

Source:  **Software Distribution Agent**
Full Path Name: **Software Distribution Agent** Software
Alert Rule:  **ConfigMgr 2012 Client Advertisements Execution History Alert Rule**
Created: 22/08/2013 8:25:22 PM


Alert Description
The ConfigMgr 2012 Client on [REDACTED] has failed the following advertisement executions within the last 1800 seconds:

Advertisement Execution Summary:
Failed Advertisements:

Package ID: [REDACTED]
Package Name: Tao Test Crappy Package #2
Program: dir A\
Start Time: 2013/08/22 19:59:01
Result: Failure
Return Code: -2147024894
Reason: The system cannot find the file specified.

Successful Advertisements:
None

Hardware Inventory Initiation Result: Successful

Knowledge:  [View additional knowledge...](#)

Summary
This rule runs every 30 minutes by default and checks ConfigMgr 2012 Client advertisement executions history since when it ran last time. It generates alerts if failed executions are detected. It also initiates ConfigMgr Client Hardware Inventory if any advertisement executions are found.

Configuration
The behavior of Hardware Inventory initiation can be modified by Overriding the "InitiateHinvCondition" parameter of this rule. There are 4 possible values of this parameter:

- OnSuccess - Initiate Hardware Inventory When Success Advertisement Executions are found
- OnFailure - Initiate Hardware Inventory When Failed Advertisement Executions are found
- Both - Initiate Hardware Inventory When ANY Advertisement Executions are found
- None - Do not Initiate Hardware Inventory

10.6. ConfigMgr 2012 Client Software Update Agent

10.6.1. ConfigMgr 2012 Client Pending Software Updates Monitor

This monitor detects any software updates that have passed the deadline for over the configured grace period days (default 15 days).

A critical alert is raised when the at least one update is in pending state and has passed the deadline for over the configured grace period days. When the monitor enters Healthy state, the alert is automatically closed.

Alert Details

Source: Software Update Agent	Alert Description
Full Path Name: [Redacted] \Software Update Agent	On ConfigMgr 2012 client [Redacted], there are 1 update(s) detected that have passed the deadline for over 15 days(s) . For details of the missing updates, please use the SCCM 2012 Client Center or run the "Compliance 5 -Specific computer" report from ConfigMgr 2012 console.
Alert Monitor: ConfigMgr 2012 Client Pending Software Updates Monitor	
Created: 12/08/2013 10:29:45 AM	

Knowledge: [View additional knowledge...](#)

Summary
This monitor detects any software updates that have passed the deadline for over the configured grace period days (default 15 days).

Configuration
A critical alert is raised when the at least one update is in pending state and has passed the deadline for over the configured grace period days.

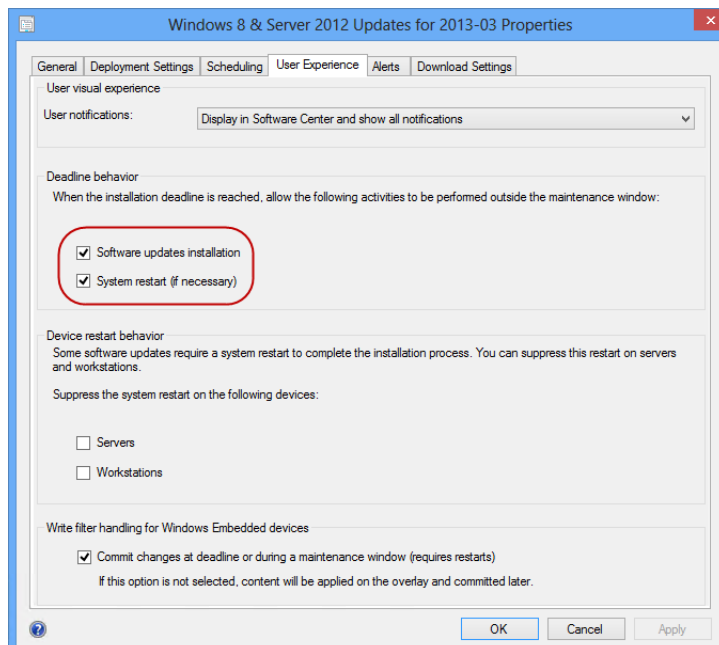
When the monitor enters Healthy state, the alert is automatically closed.

Resolutions
Please use various tools such as SCCM 2012 Client Center or the native reports in ConfigMgr 2012 console to detect th missing updates. The updates maybe pending because of no maintenance windows or the installation may have failed.

Additional Information
SCCM 2012 Client Center can be downloaded at <http://sccmdicttr.codeplex.com>

[Hide knowledge](#)

When configuring an Update Deployment in ConfigMgr, ConfigMgr operators have the choice to specify the client behaviour after the deadline is reached:



As indicated above, if the “Software updates installation” tick box under “Deadline behaviour” is not ticked, the ConfigMgr client will wait for a next maintenance window that has enough time allocated to install the updates. If there are no sufficient maintenance windows available, the updates will not be installed. Although ConfigMgr operators can configure alerts within the ConfigMgr 2012 console, the “ConfigMgr 2012 Client Pending Software

Updates Monitor” provides individualised alerts for each ConfigMgr 2012 client, rather than an overall percentage compliance as indicated below:

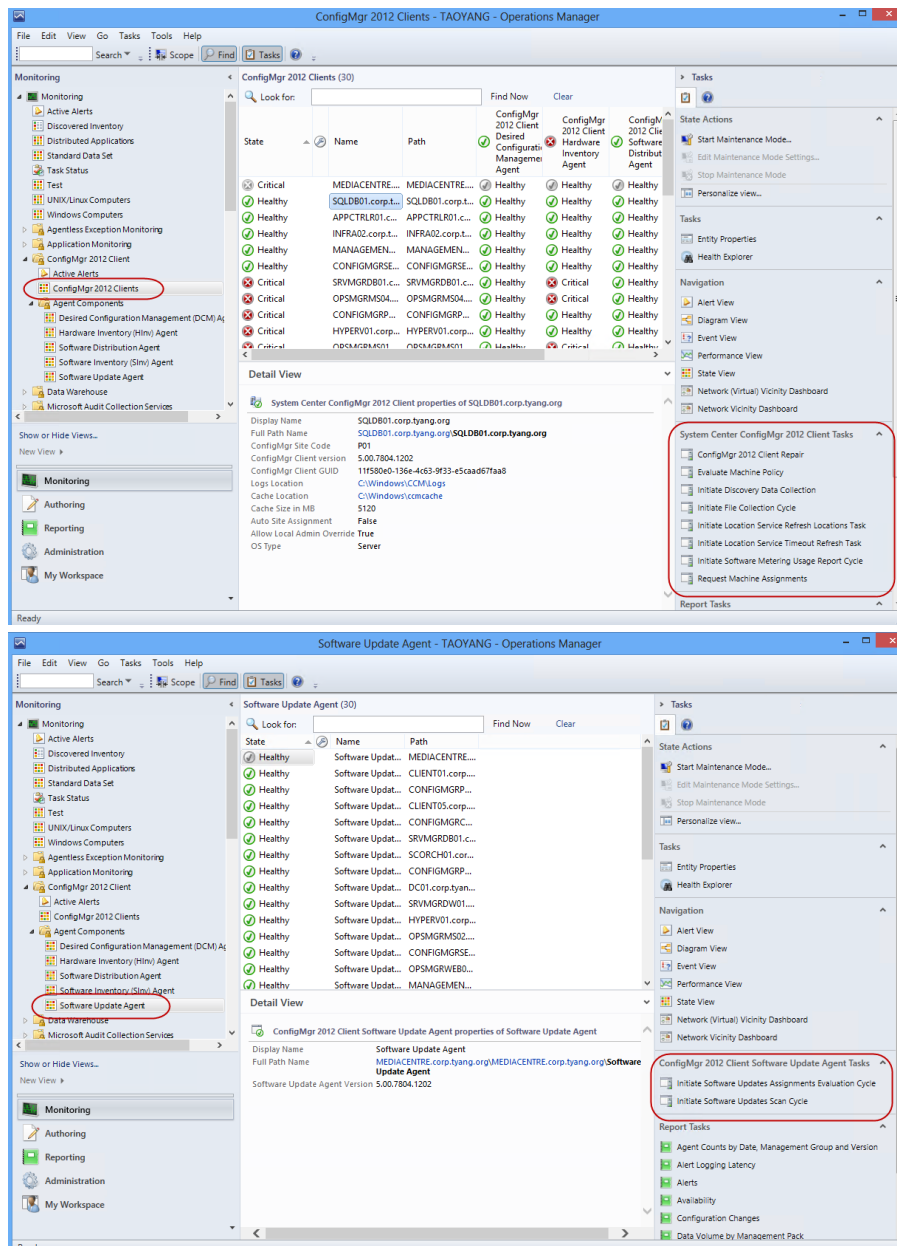
Recent Alerts (7) - Last updated: 23/08/2013 4:44:38 PM	
✖ Success of Update Group Deployment "Windows 8 & Server 2012 Updates for 2013-07" is 85%, below target of 95%.	Category: Update group deployment success Date: 26/07/2013
✖ Success of Update Group Deployment "Windows 8 & Server 2012 Updates for 2013-06" is 92%, below target of 95%.	Category: Update group deployment success Date: 26/07/2013
✖ Success of Update Group Deployment "Windows 7 & Server 2008 R2 Updates for 2013-07" is 85%, below target of 95%.	Category: Update group deployment success Date: 14/08/2013
✖ Success of Update Group Deployment "Windows 7 & Server 2008 R2 Updates for 2013-04" is 85%, below target of 95%.	Category: Update group deployment success Date: 14/08/2013
✖ Success of Update Group Deployment "Windows 8 & Server 2012 Updates for 2013-04" is 85%, below target of 95%.	Category: Update group deployment success Date: 14/08/2013
✖ Success of Update Group Deployment "Windows 8 & Server 2012 Updates for 2012" is 85%, below target of 95%.	Category: Update group deployment success Date: 15/08/2013

This monitor runs on a schedule and detects any pending updates that have passed the deadline over x number of days (GracePeriodDays). By default, the monitor is configured to run once a day and the GracePeriodDays is set to 15 days. Please refer to the product knowledge article associated to this monitor for details regarding to customising this monitor.

11. Agent Tasks

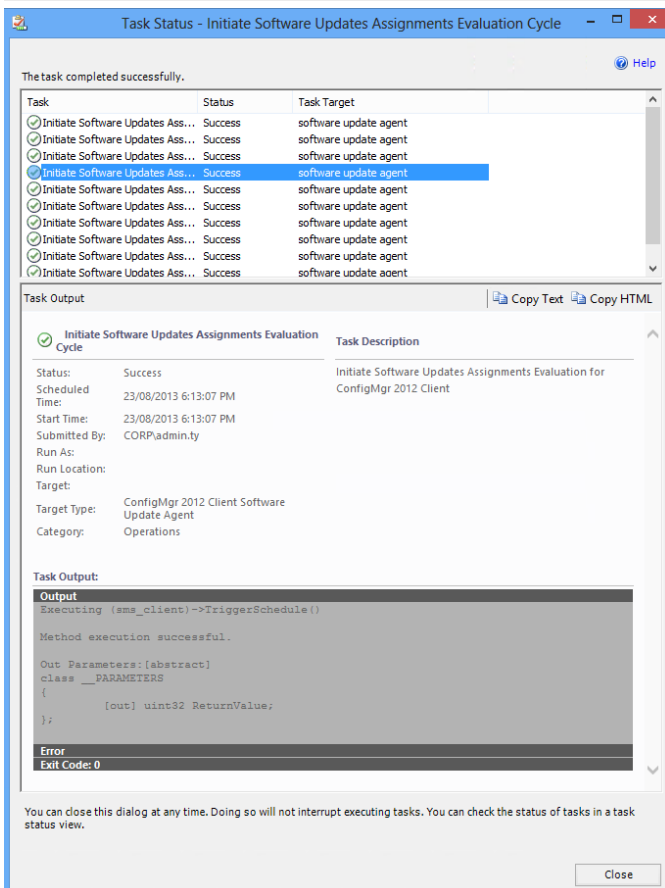
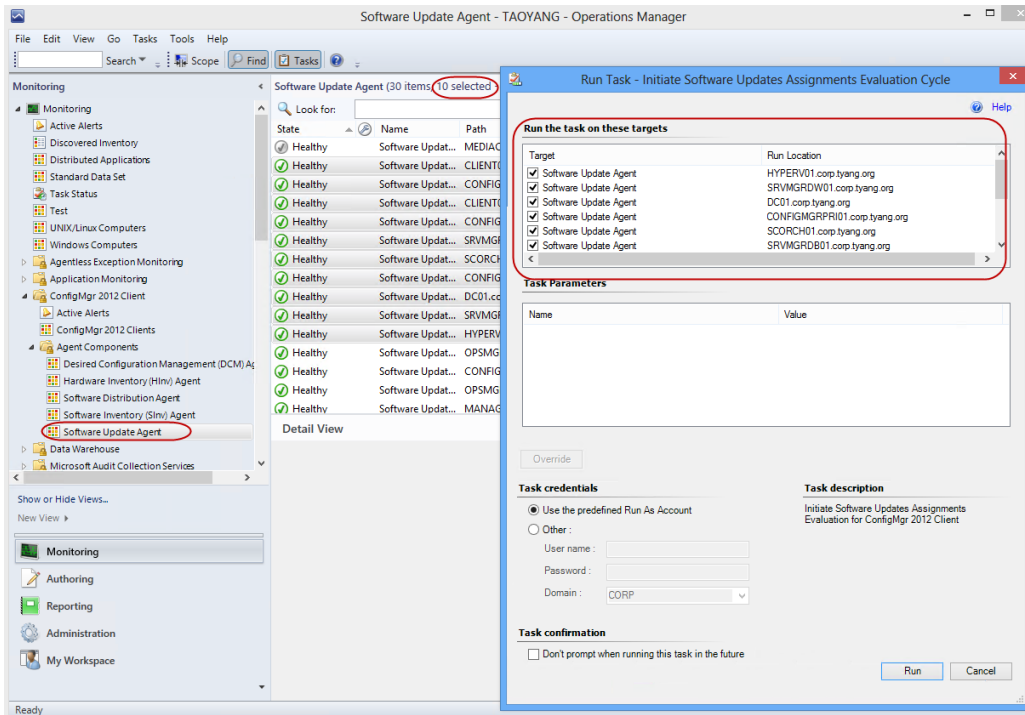
As mentioned in Section 8.3.3 of this document, the “ConfigMgr 2012 Client Monitoring” management pack includes several agent tasks that can be executed against ConfigMgr 2012 Clients or client agents. These tasks are available on the “Task” pane of each appropriate state view:

I.e. The figures below indicate the agent tasks associated to the ConfigMgr 2012 Client class and the Software Update Client Agent class respectively:



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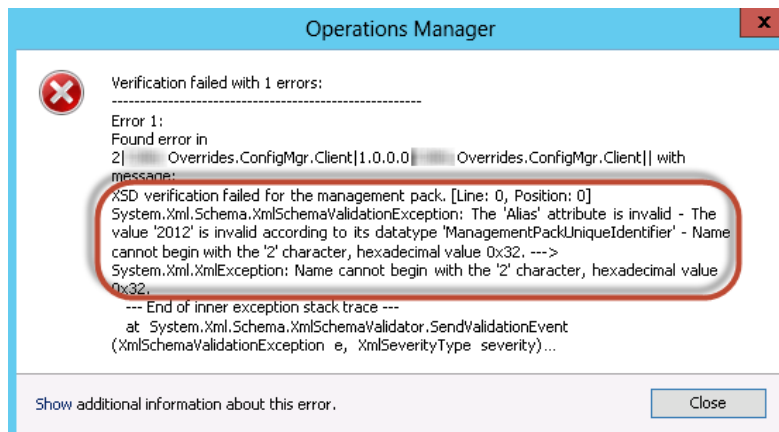
By design, OpsMgr allows users to trigger an agent task on up to 10 managed objects at once. The figures below illustrates OpsMgr operators can multi-select up to 10 Software Update Agent objects from the state view and trigger the “Software Update Assignments Evaluation Cycle” agent task and task results for each selected node:



12. Known Issues

12.1. Error When Creating Overrides

An error will occur when try to create an override to an unsealed management pack that is created in the OpsMgr operational console:



This is because all three (3) sealed management packs included in this project have the phrase “2012” as part of the ID. When OpsMgr operational console is trying to create a reference for one of this management packs on the unsealed management pack, it fails because the phrase “2012” cannot be part of the alias for the referencing MP. There are two (2) workaround for this issue.

1. Use the “ConfigMgr.2012.Client.Overrides” unsealed management pack to store overrides.
2. Manually create references in the unsealed management pack for the ConfigMgr 2012 client management packs. Please take the following steps to create references:
 1. Export the Unsealed Override MP from the OpsMgr Operations Console
 2. Open the unsealed MP (.xml) using a text editor
 3. Copy and paste below lines to the override MP inside the **<References></References>** section:

```
<Reference Alias="C2CL">
  <ID>ConfigMgr.2012.Client.Library</ID>
  <Version>0.2.0.0</Version>
  <PublicKeyToken>136b1dfd385ca82a</PublicKeyToken>
</Reference>
<Reference Alias="C2CD">
  <ID>ConfigMgr.2012.Client.Discovery</ID>
  <Version>0.2.0.0</Version>
  <PublicKeyToken>136b1dfd385ca82a</PublicKeyToken>
</Reference>
<Reference Alias="C2CM">
  <ID>ConfigMgr.2012.Client.Monitoring</ID>
  <Version>0.2.0.0</Version>
  <PublicKeyToken>136b1dfd385ca82a</PublicKeyToken>
</Reference>
```



```
<?xml version="1.0" encoding="utf-8"?>
<ManagementPack SchemaVersion="2.0" ContentReadable="true" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <Manifest>
    <Identity>
      <ID>ConfigMgr.2012.Client.Overrides</ID>
      <Version>1.0.0.0</Version>
    </Identity>
    <Name>ConfigMgr.2012.Client.Overrides</Name>
    <References>
      <Reference Alias="System">
        <ID>System.Library</ID>
        <Version>7.5.8501.0</Version>
        <PublicKeyToken>31bf3856ad364e35</PublicKeyToken>
      </Reference>
      <Reference Alias="C2CL">
        <ID>ConfigMgr.2012.Client.Library</ID>
        <Version>0.2.0.0</Version>
        <PublicKeyToken>136b1dfd385ca82a</PublicKeyToken>
      </Reference>
      <Reference Alias="C2CD">
        <ID>ConfigMgr.2012.Client.Discovery</ID>
        <Version>0.2.0.0</Version>
        <PublicKeyToken>136b1dfd385ca82a</PublicKeyToken>
      </Reference>
      <Reference Alias="C2CM">
        <ID>ConfigMgr.2012.Client.Monitoring</ID>
        <Version>0.2.0.0</Version>
        <PublicKeyToken>136b1dfd385ca82a</PublicKeyToken>
      </Reference>
    </References>
  </Manifest>
  <LanguagePacks>
    <LanguagePack ID="ENU" IsDefault="true">
      <DisplayStrings>
        <DisplayString ElementID="ConfigMgr.2012.Client.Overrides">
          <Name>ConfigMgr 2012 Client Overrides</Name>
          <Description>This Management Pack contains overrides for the ConfigMgr 2012 client monitoring solut:
```

4. Save the xml and import it back to OpsMgr management group via the operational console.

12.2. Operations Manager failed to start a process alert

OpsMgr many generate some warning alerts “Operations Manager failed to start a process” against various scripts used in this MP. It has been identified the issue is caused by the OpsMgr agent executing the workflows when the SMS Agent Host service is not running. This typically happened right after computer startup or reboot because SMS Agent Host service is set to Automatic (Delayed). A workaround has been implemented in MP version 1.1.0.0. However, if this alerts are still being generated against scripts in the MP, it can be ignored.

Appendix A: Scripts Events Generated in Operations Manager log

Event ID	Severity	Workflow Name	Workflow Type	Script Name	Description
11100	Info	ConfigMgr.2012.Client.Monitoring.ConfigMgr.2012.Client.DCM.Baselines.Compliance.Monitor	Monitor	CM12ClientDCMComplianceProbe.vbs	Start checking ConfigMgr 2012 DCM Baselines compliance
11101	Info	ConfigMgr.2012.Client.Monitoring.ConfigMgr.2012.Client.DCM.Baselines.Compliance.Monitor	Monitor	CM12ClientDCMComplianceProbe.vbs	All required services are now running. Querying WMI class 'Root\ccm\dcmsms:SMS_DesiredConfiguration' now.
11102	Info	ConfigMgr.2012.Client.Monitoring.ConfigMgr.2012.Client.Active.MP.Candidate.Consecutive.Samples.Monitor	Monitor	CM12ClientActiveMPCandidateProbe.vbs	Start Checking ConfigMgr 2012 client active management point candidates
11103	Info	ConfigMgr.2012.Client.Monitoring.ConfigMgr.2012.Client.Active.MP.Candidate.Consecutive.Samples.Monitor	Monitor	CM12ClientActiveMPCandidateProbe.vbs	All required services are now running. Querying WMI class 'Root\ccm\LocationServices:SMS_ActiveMPCandidate' now.
11104	Info	ConfigMgr.2012.Client.Monitoring.ConfigMgr.2012.Client.Pending.Software.Updates.Monitor	Monitor	CM12ClientCheckPendingSoftwareUpdates.vbs	Start Checking ConfigMgr 2012 client Pending Software Updates.
11105	Info	ConfigMgr.2012.Client.Monitoring.ConfigMgr.2012.Client.Pending.Software.Updates.Monitor	Monitor	CM12ClientCheckPendingSoftwareUpdates.vbs	All required services are now running. Querying WMI class 'Root\ccm\ClientSDK:CCM_SoftwareUpdate' now.
11106	Info	ConfigMgr.2012.Client.Monitoring.ConfigMgr.2012.Client.Advertisements.Execution.History.Alert.Rule	Rule	CM12ClientAdvertHistoryProbe.vbs	Start Checking ConfigMgr 2012 client Advertisements Executions History.
11107	Info	ConfigMgr.2012.Client.Monitoring.ConfigMgr.2012.Client.Advertisements.Execution.History.Alert.Rule	Rule	CM12ClientAdvertHistoryProbe.vbs	All required services are now running. Querying registry 'HKLM\SOFTWARE\Microsoft\SMS\Mobile Client\Software Distribution\Execution History\System' and WMI class 'Root\CCM\Policy\Machine\ActualConfiguration:CCM_SoftwareDistribution' now."

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11108	Info	ConfigMgr.2012.Client.Monitoring.ConfigMgr.2012.Client.Failed.Applications.Deployments.Monitor	Monitor	CM12ClientFailedAppDeploymentsProbe.vbs	Start Checking ConfigMgr 2012 client failed application deployments.
11109	Info	ConfigMgr.2012.Client.Monitoring.ConfigMgr.2012.Client.Failed.Applications.Deployments.Monitor	Monitor	CM12ClientFailedAppDeploymentsProbe.vbs	All required services are now running. Querying WMI class 'Root\ccm\ClientSDK:CCM_Application' now.
11110	Info	ConfigMgr.2012.Client.Monitoring.ConfigMgr.2012.Client.Missing.Hardware.Inventory.Cycles.Consecutive.Samples.Monitor & ConfigMgr.2012.Client.Monitoring.ConfigMgr.2012.Client.Missing.Software.Inventory.Cycles.Consecutive.Samples.Monitor	Monitor	CM12ClientInvActionStatusProbe.vbs	Start Checking ConfigMgr 2012 client missed inventory actions.
11111	Info	ConfigMgr.2012.Client.Monitoring.ConfigMgr.2012.Client.Missing.Hardware.Inventory.Cycles.Consecutive.Samples.Monitor & ConfigMgr.2012.Client.Monitoring.ConfigMgr.2012.Client.Missing.Software.Inventory.Cycles.Consecutive.Samples.Monitor	Monitor	CM12ClientInvActionStatusProbe.vbs	All required services are now running. Querying WMI class 'Root\ccm\InvAgt:InventoryActionStatus' now.
11112	Info	ConfigMgr.2012.Client.Monitoring.ConfigMgr.2012.Client.Application.Pending.Reboot.Monitor	Monitor	CM12ClientPendingRebootProbe.vbs	Start Checking pending reboot for the ConfigMgr 2012 client computer.
11113	Info	ConfigMgr.2012.Client.Monitoring.ConfigMgr.2012.Client.Application.Pending.Reboot.Monitor	Monitor	CM12ClientPendingRebootProbe.vbs	All required services are now running. Querying WMI class 'Root\ccm\ClientSDK:CCM_ClientUtilities' now.
11114	Info	ConfigMgr.2012.Client.Monitoring.ConfigMgr.2012.Client.Application.Business.Hours.Service.Window.Monitor & ConfigMgr.2012.Client.Monitoring.ConfigMgr.2012.Client.Application.All.Programs.Service.Window.Monitor	Monitor	CM12ClientServiceWindowProbe.vbs	Start Checking ConfigMgr 2012 client available service windows.
11115	Info	ConfigMgr.2012.Client.Monitoring.ConfigMgr.2012.Client.Application.Business.Hours.Service.Window.Monitor & ConfigMgr.2012.Client.Monitoring.ConfigMgr.2012.Client.Application.All.Programs.Service.Window.Monitor	Monitor	CM12ClientServiceWindowProbe.vbs	All required services are now running. Querying WMI class 'Root\ccm\Policy\Machine\RequestedConfig:CCM_ServiceWindow' now.
11116	Info	ConfigMgr.2012.Client.Monitoring.ConfigMgr.2012.Client.Application.Site.Code.Monitor	Monitor	CM12ClientSiteCodeProbe.vbs	Start Checking assigned site code on the ConfigMgr 2012 client.

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11117	Info	ConfigMgr.2012.Client.Monitoring.ConfigMgr.2012.Client.Application.Site.Code.Monitor	Monitor	CM12ClientSiteCodeProbe.vbs	All required services are now running. Querying WMI class 'Root\ccm\ccm:SMS_Client' now.
11118	Info	ConfigMgr.2012.Client.Monitoring.ConfigMgr.2012.Client.Missing.CCMEval.Cycles.Consecutive.Samples.Monitor	Monitor	CM12ClientCheckCCMEvalExecutionProbe.vbs	Last CCMEval was executed at <execution time> (UTC). It was executed within the maximum allowed missing cycle of <max allowed missing cycles>, and the cycle interval is every <interval> minutes.
11119	Warning	ConfigMgr.2012.Client.Monitoring.ConfigMgr.2012.Client.Missing.CCMEval.Cycles.Consecutive.Samples.Monitor	Monitor	CM12ClientCheckCCMEvalExecutionProbe.vbs	Last CCMEval was executed at <execution time> (UTC). It was NOT executed within the maximum allowed missing cycle of <max allowed missing cycles>, and the cycle interval is every <interval> minutes.
11120	Info	ConfigMgr.2012.Client.Monitoring.ConfigMgr.2012.Client.Cache.FreeSpace.Monitor	Monitor	CM12ClientCacheContentSizeProbe.vbs	Start Checking ConfigMgr 2012 client cache content size
11121	Info	ConfigMgr.2012.Client.Monitoring.ConfigMgr.2012.Client.Cache.FreeSpace.Monitor	Monitor	CM12ClientCacheContentSizeProbe.vbs	All required services are now running. Querying WMI class 'Root\ccm\SoftMgmtAgent:CacheConfig' and 'Root\ccm\SoftMgmtAgent:CacheInfoEx' now.
11122	Info	ConfigMgr.2012.Client.Monitoring.ConfigMgr.2012.Client.Application.CcmExec.Service.Monitor.Diagnostic.Task	Diagnostic Task	OSUptimeProbe.vbs	SMS Agent Host (CcmExec) service is not running, System Uptime is <uptime seconds> seconds.