

Columbus Technical Reference

Compendium

Version 7.6

columbus

Issue: 09.19

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Document title	Columbus Technische Referenz - Kompendium
Product version	7.6
Production and printing	Brainware Consulting & Development AG Dammstrasse 19 CH-6300 Zug
Release date	09.2019

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General

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Thank you very much for choosing brainwaregroup and Columbus. Columbus and Spider provide you with powerful tools for software and lifecycle management.

This manual will support you in using the manifold possibilities of Columbus in the best possible way for your company.

0.1 Target Group

Any person involved in the process of editing or creating Columbus Packaging-, OSDeploy- or Inventory- scripts needs to know the syntax of the script commands.

0.2 Typographical conventions

This manual uses various formats to highlight certain terms and actions. Specific notes and tips are shown with a different background color, according to their importance.

Format	Description
Bold font	Elements in the software or in the operating system, such as menu items, buttons or elements of a selection list
<i>Italic font</i>	Emphases (important details) and links to other chapters or documents
Triangle symbol "➤"	Instruction step
Angle bracket ">"	Command menu sequences, e.g. File > Open
System font	Directories, code and script samples
CAPITAL LETTERS	Key names, e.g. SHIFT, CTRL, or ALT
KEY+KEY	Key combinations, i.e. the user has to hold one key and press another simultaneously, e.g. CTRL+P or ALT+F4.

Note	Used for notes or tips which facilitate the work or for additional information which enhances understanding for the product.
-------------	--

Important	Information which should be observed by the user, because otherwise problems or additional work may be caused in operation.
------------------	---

Attention	Information which should be observed by the user in order to prevent malfunctions of the system (crashes, data loss, system failure).
------------------	---

0.3 Help

Please visit our **Website** <http://www.brainwaregroup.com> for additional information and support. Here you can find all documents, a **KnowledgeBase** <https://kb.brainwaregroup.com/> as well as a support form if you have questions for our specialists.

Support

The support page features a link to the **KnowledgeBase** <https://kb.brainwaregroup.com/>, the support form and information about our customer service.

- Open **www.brainwaregroup.com** <http://www.brainwaregroup.com> in your browser and click on **Support and KnowledgeBase** on the right side.
- Start your search in the **KnowledgeBase** where you can find a list of the most common support cases

If nothing matches your search criteria, you may use the support form for advanced information. Please provide a detailed description of your problem so that our specialists can help you as quick as possible.

- Click on Support Form.
- Please fill in at least the fields marked with an asterisk (*) and click on **Send Question**
 - | You will receive a confirmation that your question has been received in the system.

The support page contains the telephone numbers necessary for telephone contacts.

Documentation

A separate download area is available on our web site for the currently available documentation. This area contains all manuals in PDF and CHM format in German and English language. At present, some of the technical manuals are only available in English.

- Navigate to **www.brainwaregroup.com** <http://www.brainwaregroup.com> in your browser and click on **Downloads + Licenses** on the right side.
- Click on **Login**, enter your **User name** and **Password** and then click on **Register**.
- Please select **Documentation** as download type, then select the desired product and click on **Search**
 - | An overview of all available documents will be displayed.
- Click on the desired format and language to download the PDF/CHM file in the desired form.

You will find the Acrobat Reader on our support page or directly under www.adobe.com.

Note

During the installation the documents are copied by default to the directory named [\[C:\Program Files\]\Columbus](#). In order to display the Console help in German you will have to rename the file [CMC_de.chm](#) in the [\Console](#) directory to [CMC.chm](#).

Training information

brainwaregroup is taking all efforts to ensure that our products and solutions will be used and operated in an appropriate, qualified and proper way. Therefore, we are offering various training courses. You can find all information about training types and dates under the **Training** http://www.brainwaregroup.com/de-ch/kalender/training.html?utm_source=bwg.KC&utm_medium=referral menu point

0.4 Important Terms

Below we would like to explain some terms which will be important for understanding the following chapters.

Command

Script

CHAPTER 1

Scripting

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1.1 Intro

The Columbus Software Management System can deliver and install any Software, when it is brought into the Columbus Package Format. This can be done by repackaging the software using PackageMaker. The Columbus Package contains two script files, which contains all necessary commands to install the software. These scripts can be modified and enhanced by manual editing. So Columbus scripts form the basis of all Columbus functions. More information can be found in the Package Engineering Guide.

OSDeploy features the Columbus script engine for usage in jobs, which should perform certain configuration actions under Windows. So all Columbus commands and variables, except the packaging variables can be used in OSDeploy scripts too.

The Inventory uses the script engine in jobs, which read inventory information out of the system and write them to the Columbus Database. The usage of embedded VBScripts may help to determine special inventory items. You will find several examples on the Microsoft website.

A special feature of the script language is the possibility to use automatically generated variables for many system paths and other important configurations. This helps to make the scripts very flexible, so they will function on several different platforms and language versions of the OS. This guide lists all possible variables.

1.2 Script Commands

Columbus scripts form the basis of all Columbus functions. The Columbus packaging engine adds version control and process flow control to those functions. Said that, it is also obvious, that the functionality and usefulness of a Columbus environment is only as good as the quality of the scripts and the version management of your packages. In order to ensure a controlled Columbus environment, a proper Integration and Release management is imperative.

1.2.1 ; (Remark)

Syntax	; any remark
Description	Anything following a semicolon ';' is used as a remark and will not be interpreted.
Parameter	None

Example

```
; This is a Remark
```

1.2.2 AddNet

Syntax	ADDNET 'networkpath' 'User' 'password' 'device' [/MapFullPath]
Description	Connects a local device (drive or port) to the network.

Parameter	Description
Networkpath	Network path or printer queue
User	The user name of the account to connect to the resource (either specify only the user name or combined it as 'domain\user')
Password	Password of the user (must be encrypted with cryptit.exe)
Device	Name of the device to be (re)connected. Local devices can be <ul style="list-style-type: none">drives A: to Z:ports LPT1: to LPT4 or COM1 to COM4
/MapFullPath.	Map the entire path (e.g. using directory names below the share) to the device name (e.g. when using <code>\\MyServer\MyShare\SubDirectory</code> as the Network-Path). When specifying /MapFullPath the drive mapping will point to the <code>\SubDirectory</code> directory, when committing /MapFullPath then the drive mapping will point to the directory MyShare.

Note Because of Windows security reasons, we recommend not to use this command in the [\[ServerAdd\]](#) and [\[ClientAdd\]](#) sections. It will be executed with the credentials of the Columbus account. The user may have no access rights and the connection cannot be cleared in the userpart anymore.

Example

Microsoft Network

```
ADDNET '\\Myserver\MyShare\Tools' '' 'T:'
ADDNET '\\MyServer\Share' 'Domain\User' 'H#692635EF5ADF201EC8' 'T'
; = Disconnect Drive if not more used
CANCELNET 'T:'
```

Novell Netware

```
ADDNET 'SYS2:APPS\TOOLS' '' '' 'T:'
```

Networkprinter

```
ADDNET 'MyServer/ColorLaser' '' '' 'LPT1:'
```

1.2.3 Attrib

Syntax ATTRIB 'file pattern' 'attributes' [/Sub] [[/NoFileSystemRedirection] [/NoErrors]]

Description Sets / modifies attributes on certain files / directories. You can either specify absolute attributes (overwriting any previous attributes) - e.g. 'R', or you can modify the attributes considering previous attributes - e.g. '+R'.

Parameter	Description
File pattern	File name, directory name or filepattern for files that should be updated.
Attributes	Absolute attributes - e.g. "R", or relative attributes like "+R". Possible characters to be used: <ul style="list-style-type: none"> + Adds the specific attribute - Removes the specific attribute A Archive attribute H Hidden attribute S System attribute R Readonly attribute C Compressed attribute
/Sub	Process also subdirectories
/NoErrors	This switch causes Columbus to ignore errors if the attributes can not be set.
/NoFileSystemRedirection	On 64-Bit operating system: do not turn off file system redirection (even if %_WindowsSystem64% is used).

Example

```
ATTRIB '%_PkgTarget%\*.*' '+C' /Sub
ATTRIB '%_Windows%\Win.ini' '-R'
ATTRIB '%_Windows%\Win.ini' ''
```

1.2.4 Begin Script

- Syntax** `Begin Script 'ScriptType' 'Procedure' [Param1] [Param2] ...`
 `...script commands...`
 `End Script`
- Description** Allows you to integrate scripts designed for WSH (Windows scripting host) within Columbus scripts.
 The Return from integrated scripts can be used as `%_ReturnValueScript%`

Parameter	Description
ScriptType	Any valid WSH source, e.g. VBScript
Procedure	The procedure within the Script that should be launched.
Paramx	Parameter(s) that should be passed to the main procedure.

Example

```
BEGIN SCRIPT 'VBScript' 'Main' '%_Machine%'  
Function Main (S)  
  y = Left(S, Len(S)-(Len(S)-1))  
  Main=y  
End Function  
END SCRIPT
```

```
log 'This is a "%_ReturnValueScript%" machine'
```

1.2.5 Cancel Net

- Syntax** `CANCELNET 'device'`
- Description** Disconnects an assigned network device.

Parameter	Description
Device	Name of the device to be disconnected. Local devices can be: <ul style="list-style-type: none">• Drives A: to Z:• Ports LPT1: to LPT4: or COM1: to COM4:

Note Local devices can be drives (A: to Z:) and ports (LPT1: to LPT4 or COM1 to COM4). The connection to this device is cut 'forced' which means, that in case an application is still using/writing data on it, this data may be lost.

Example

```
CANCELNET 'T: '
```

1.2.6 CancelSystemRestorePoint

- Syntax** `CancelSystemRestorePoint SequenceNumber [/NoErrors]`

- Description** Abort and remove previously created System Restore point (if this feature is supported and enabled by the operating system)
- Availability** Since Version 6.7

Parameter	Description
SequenceNumber	The sequence number of the restore point to be cancelled. When creating a system restore with the SetSystemRestorePoint command the sequence number will be saved as %_LastSystemRestoreNumber%.
/NoErrors	This switch causes Columbus to ignore any errors during that operation.

Note The feature SystemRestore must be supported by the operating system (like Windows XP) and must be enabled.

Example

```
CancelRestorePoint '13'
```

1.2.7 CD

- Syntax** CD 'directory' [[/NoFileSystemRedirection]]
- Description** Sets the current directory to 'directory'.

Parameter	Description
Directory	Drive and path to be set as current
/NoFileSystemRedirection	On 64-Bit operating system: do not turn off file system redirection (even if %_WindowsSystem64% is used)

Note If the current drive is not 'directory', then the current drive is also changed.

Example

```
CD 'c:\temp'  
CD '%AD%:%ADIR%\WINWORD'
```

1.2.8 ChangePW

- Syntax** ChangePW 'domain' 'user' 'PW'
- Description** This changes the Windows password for the specified user and the new password can be provided in encrypted form.
- Changing of passwords of local useraccounts is not comfortable and insecure, because the password must be in clear text, when using NT built in commands.

Parameter	Description
Domain	If the account is a domain account and you want to change the domain password, you must specify the domain name here.

	Leave empty, if the account is a local account
User	Name of the user account, for which the password should be changed
Password	Password of the user (must be encrypted with cryptit.exe)

Example

```
CHANGEPW '\\%COMPUTERNAME%' 'MyUser' 'H#6E7FAC34'
CHANGEPW '' 'MYLocalUSER' 'H#6E7FAC34'
CHANGEPW 'DOMBW' 'MYUSER' 'H#1234AC34'
```

1.2.9 ClientConfig

Syntax ClientConfig 'template' [/NoFileSystemRedirection]

Description This command is used for Dynamic Config feature of Columbus. Writing a large number of different client settings and locations directly to the registry with scripts quickly becomes unmanageable. So an additional option has been created to load these settings from configuration templates. These templates are the familiar Columbus.cfg files, as used in the OSDeploy Job for Columbus and in the Client Rollout feature and can be loaded via this command.

Availability Since Version 6.7

Parameter	Description
TemplateName	The name of the configuration template. The templates are stored in a subdirectory of the directory containing the configuration script. <i>TemplateName</i> is the name of the folder containing the Columbus.cfg file to load. <div style="border: 1px solid black; padding: 2px; margin: 5px 0;"> <code>[Columbus Cache directory]\\$CfgTemplate\$ [TemplateName]\ Columbus.cfg</code> </div> ClientConfig " with empty parameter in the configuration script, thus without Template name, instructs the Columbus client to process the Client Config Template assigned in the console.
/NoFileSystemRedirection	On 64-Bit operating system: do not turn off file system redirection (even if %_WindowsSystem64% is used)

Note For more information see manual Columbus Basics - Dynamic Config

Example

Configuration Script:

```
[Config]
ClientConfig 'Base'
```

When the configuration script resides in the folder c:\Windows\Cache\\$CfgTemplate\$, this command loads the client config settings defined in the configuration file

```
%_windows%\Cache\$CfgTemplate$\Base\Columbus.cfg
```

1.2.10 Copy

Syntax COPY 'FromFile' TO 'ToPath' [/S][/{+}R][/{+}O][Sub] [/Newer] [/Changed] [/Version] [/MOVE] [/NoErrors] [/NoRebootOperations] [[/NoFileSystemRedirection]

Description Copies or moves files from 'FromFile' to 'ToPath'. Time, date, size, and the attributes of the file will not be changed, except that the /xR switch is used. Wildcards can be used in the FromFile.

Parameter	Description
FromFile	Source path and file. Filename may contain wildcards ('?' '*').
ToPath	Target path ending with a '\' or filename of the form '*.*'; '*.xxx'...
/S	This parameter is not supported.
/+R	Set ReadOnly attributes at target.
/-R	Remove ReadOnly attributes on target.
/+O	Causes overwriting of the target files. A read-only target will be flagged read-write, if possible; if not, the file will not be copied.
/-O	Only files that do not exist on the target will be copied. If no /xO is specified, any target file that is not read-only gets overwritten.
/Sub	Copies the specified files in a whole subtree
/Newer	If a target file with the same name exists, then only newer files (date/time) are copied. This command can be combined with /SUB, but not with /CHANGED. Files existing only on the source drive will be copied. This command can be used to synchronize environments such as laptop and desktop data.
/Changed	If a target file exists with different date/time (newer or older!), then the source file is copied. This command can be combined with /SUB, but not with /NEWER. Files existing only on the source drive will be copied. This command can be used to force environments to be in a certain condition (e.g., release server <---> production environment).
/Version	This switch works in combination with the /CHANGED and /NEWER switch. When a file already exist, Columbus will check the internal version number of the file to determine, if the file is different or older. This can be used to copy DLL files into the Windows system folder, if the files have valid and consistant version numbers.
/MOVE	Attempts to move the files instead of a simple copy. If the source is read-only, it will try to flag it ReadWrite and delete it. If deletion is not possible, it will be ignored without an error.
/NoErrors	This switch causes copy functions to ignore errors caused by target files which cannot be overwritten. Errors caused by insufficient rights or disk space will still be reported.
/NOREBOOT OPERATIONS	If a file is in use and can't be overwritten Columbus would normally initiate a pending file rename operation and update that file at next reboot. With this switch set, Columbus will skip such files without an error - but not initiate any file rename operations (and therefore not update the affected file).
/NoFileSystemRedirection	On 64-Bit operating system: do not turn off file system redirection (even if %_WindowsSystem64% is used)

/TrustedInstaller	Allows to to perform an operation under the security context of the TrustedInstaller instead of the current security context. This allows you to bypass issues where the current security context my not provide you with enough rights to perform an operation (so essentially bypassing Windows Resource Protection).
-------------------	---

Example

```
COPY 'c:\*.bat' TO 'c:\temp\'
COPY 'c:\*.bat' TO 'c:\temp\' /sub
COPY 'c:\*.bat' TO 'c:\temp\' /sub /-r /changed
COPY 'c:\*.bat' TO 'c:\temp\' /-o
COPY 'c:\*.bat' TO 'c:\temp\' /sub /move /noerrors
```

1.2.11 Delete

Syntax DELETE 'file' [/NoErrors] [/NoRebootOperations] [/NoFileSystemRedirection]

Description Deletes a file.

Parameter	Description
File	Path and name of the file to be deleted
/NoErrors	This switch causes delete functions to ignore errors caused by target files which cannot be deleted.
[/NoReboot Operations]	If a file is in use and can't be deleted Columbus would normally initiate a pending file rename operation and delete that file at next re-boot. With this switch set, Columbus will skip such files without an error - but not initiate any file rename operations (and therefore not delete the affected file).
/NoFileSystemRedirection	On 64-Bit operating system: do not turn off file system redirection (even if %_WindowsSystem64% is used)
/TrustedInstaller	Allows to to perform an operation under the security context of the TrustedInstaller instead of the current security context. This allows you to bypass issues where the current security context my not provide you with enough rights to perform an operation (so essentially bypassing Windows Resource Protection).

Note Locked files will be deleted using a reboot.

Example

```
Delete '%TEMP%\myfile.txt'
Delete '%_Windows%\winnt.bmp'
Delete '%_Startup%\*.lnk'
```

1.2.12 End Script

Syntax Begin Script 'ScriptType' 'Procedure' [Param1] [Param2] ...
...script commands...
End Script

Description Allows you to integrate scripts designed for WSH (Windows scripting host) within Columbus scripts.
The Return from integrated scripts can be used as %_ReturnValueScript%

Parameter	Description
ScriptType	Any valid WSH source, e.g. VBScript
Procedure	The procedure within the Script that should be launched.
Paramx	Parameter(s) that should be passed to the main procedure.

Example

```
BEGIN SCRIPT 'VBScript' 'Main' '%_Machine%'
Function Main (S)
  y = Left(S, Len(S)-(Len(S)-1))
  Main=y
End Function
END SCRIPT

log 'This is a "%_ReturnValueScript%" machine'
```

1.2.13 Error

Syntax Error ON|OFF

Description Handle errors from script commands. Error Off will suppress errors from script commands. Error On will cause the current script to be stopped if a command causes an error. On Error allows you to specify any script command to be executed if an error occurs (also Goto [label])

Availability Since Version 5.0

Parameter	Description
ON	When an error occurs Columbus will terminate the execution of the script. The package will stay in the processing queue, with a detailed error message and feedback will be send to the Management Console that the package has terminated with an error including an errormessage. This is the recommended setting and the default, if nothing is specified. This is also the same behaviour like Columbus versions older then 5.1
OFF	Does not terminate the execution of a script in case of any error

Note Use the OFF switch with caution, because otherwise a package may not be installed correctly but it will be protocolled as sucessfully installed!

This command affects only the behaviour of Columbus within a section of a script. As soon as another section or another script is loaded Columbus will default to ERROR ON.

Example

```
Error OFF
Error On
```

1.2.14 Exit

Syntax	EXIT 'message'
Description	Under certain circumstances it may be necessary to stop the installation of a package based on logical decisions such as a check for a certain package to be installed before this one. The exit command offers such a function, and can provide an error message which will be reported in the package queue. The package itself remains in the queue and will be re-executed during the next Columbus run.

Parameter	Description
Message	Text to be reported. It should shortly describe the reason for stopping processing the package

Note The comma ',' is not allowed in the message text

Example

```
Exit 'sorry execution not possible'
If not File 'c:\test.txt' then exit 'file not found'
If DiskFree 'C:' <'6000000' then Exit 'Not enough diskspace'
If not '%_OSTechnology'='WINNT' then Exit 'OS not supported'
```

1.2.15 Expand

Syntax	EXPAND 'FromZip' TO 'ToPath' [/[+ -]R][/[+ -]O] [[/NEWER] [/CHANGED] [/VERSION]] [/NOERRORS]
Description	Expands files from 'FromZip' and copies them to 'ToPath'. Time, date, size, and the attributes of the file will not be changed, except that the /xR switch is used.

Availability Since Version 5.0

Parameter	Description
FromZip	Defines the Source file in ZIP format
ToPath	Target path ending with a '\' or filename of the form '*.*', '*.xxx'...
/+R	Set ReadOnly attributes at target.
/-R	Remove ReadOnly attributes on target.
/+O	Causes overwriting of the target files. A read-only target will be flagged read-write, if possible; if not, the file will not be copied.
/-O	Only files that do not exist on the target will be copied. If no /xO is specified, any target file that is not read-only gets overwritten.
/Newer	If a target file with the same name exists, then only newer files (date/time) are copied. This command can be combined with /SUB, but not with /CHANGED. Files existing only on the source drive will be copied. This command can be used to synchronize environments such as laptop and desktop data.
/Changed	If a target file exists with different date/time (newer or older!), then the source file is copied. This command can be combined with /SUB, but not with /NEWER. Files existing only on the source drive will be copied. This command can be used to force environments to be in a certain condition

	(e.g., release server <---> production environment).
/Version	This switch works in combination with the /CHANGED and /NEWER switch. When a file already exist, Columbus will check the internal version number of the file to determine, if the file is different or older. This can be used to copy DLL files into the Windows system folder, if the files have valid and consistant version numbers.
/NoErrors	This switch causes copy functions to ignore errors caused by target files which cannot be overwritten. Errors caused by insufficient rights or disk space will still be reported.
/NoFileSystem Redirection	On 64-Bit operating system: do not turn off file system redirection (even if %_WindowsSystem64% is used)

Example

```
Expand '%_PkgCache%\Client\windows.zip' TO '%_Windows%\*.*' /NEWER
Expand '%_PkgSource%\Server\apps.zip' TO '%_PkgTarget%\*.*' /Changed
```

1.2.16 Filesystemredirection

Syntax FileSystemRedirection 'ON' | 'OFF' [/NoErrors]

Description Microsoft automatically redirects certain directories on 64-Bit operating system for 32-Bit applications.

E.g. on Vista X64 a 32-Bit application (like Columbus) would not physically read write to %WINDIR%\System32 when this directory is accessed, but instead all calls would get redirected to %WINDIR%\SysWow64.

Columbus itself has some builtin mechanisms to detect if that fileredirection should be turned off (e.g.when using the variable %_WindowsSystem64%) but with this command you can override it (e.g. for usage with Scripts).

If the redirection is turned off, Columbus would also access %WINDIR%\System32 physically in the above example.

Parameter	Description
State	'On' or 'OFF'
/NoErrors	This switch causes Columbus to ignore any errors during enabling/disabling system file redirection.

Example

FileSystemRedirection 'OFF'

```
; Do something with %WINDIR%\System32...
```

FileSystemRedirection 'ON'

1.2.17 Font

Syntax Font 'Fontfile' [/Add | /Remove] [/NoErrors] [/NoFileSystemRedirection]

Description Activates a specified font; the fontfile must be in the fonts folder and the registry entries must be present. Then this font is active without the need of

a reboot.

Availability Since Version 5.0

Parameter	Description
Fontfile	Font file name including full path. The file must already exist.
/Add	Installs a specified font
/Remove	Removes a specified font
/NoErrors	Script will not terminate in case of errors, e.g. if the font file does not exist.
/NoFileSystemRedirection	On 64-Bit operating system: do not turn off file system redirection (even if %_WindowsSystem64% is used).

Note The fontfile has to be copied first with the copy statement and registered with the registry entries, as generated by PackageMaker. The font command is for activating the font, avoiding the need to reboot.

The following font types are supported

- Font resource file (.FON/.FOT)
- Raw bitmap font (.FNT) und
- TrueType file (.TTF)

For other types like type 1 fonts (.PFB/.PFM) is still necessary to reboot the computer for activating these fonts.

Example

```
Font '%_Fonts%\Arial.ttf' /Install  
Font '%_Fonts%\Arial.ttf' /Remove /NoErrors
```

1.2.18 GoTo

Syntax GOTO label

Description Continues execution at line label within the same section of the current script. The label has to be marked with ':label'.

Parameter	Description
Label	Label within the same section of the current script at which execution will continue. Incorrect labels will cause a script to abort. Label names have to be one word (although you can combine them with '_') of a maximum length of 100 characters (short labels are recommended for reasons of speed). A label name must be unique within a script section. Upper/Lowercase is ignored.

Example

```
if not file '%_Windows%\Test.ini' then GoTo END  
if '%_OSTechnology%'='WINNT' then GoTo WindowsNT  
GoTo END  
...  
:WindowsNT  
...  
:END
```

1.2.19 If <Variable>

Syntax	IF [NOT] '%Variable%'{< > = Contains NoCaseContains N> V> N< V<}'value' THEN command IF [NOT] '%Variable%'=' THEN command
Description	The value or existence of a variable. The action may be a conditional jump (GOTO) or any other Columbus command.

Parameter	Description
Variable	Name of the variable enclosed by single quotes and % signs
Value	Value to be compared with the variable enclosed in single quotes. Can be empty if only existence of variable is checked.
Command	Any valid Columbus command
Description of operators	<p>< String comparison - checks if %Variable% is lower than %Value%</p> <p>> String comparison - checks if %Variable% is higher than %Value%</p> <p>= String comparison - checks if %Variable% is equal to %Value%</p> <p>Contains String comparison - checks if %Variable% contains the value of %Value%</p> <p>NoCase Contains String comparison - checks if %Variable% contains the value of %Value% (case insensitive)</p> <p>N< Numeric comparison - checks if %Variable% is lower than %Value%</p> <p>V< File version based comparison - checks if %Variable% is lower than %Value%</p> <p>N> Numeric comparison - checks if %Variable% is higher than %Value%</p> <p>V> File version based comparison - checks if %Variable% is higher than %Value%</p>

Note	Using the IF command in conjunction with the EXIT command as shown in the sample below allows you to terminate the current installation without a success status. Therefore the administrator will get in Columbus Management Console the message specified in EXIT as a comment why the installation was aborted. Columbus will retry to install this package each time the installation process for packages runs. This technique is very useful to abort installations when there is not enough space or to abort an installation because another package you depend on is not yet installed (check for a specific variable in this case).
-------------	---

Example

```

If '%Temp%'='' Then Set Temp='C:\Temp'
If Not '%_OSTechnology%'='win9x' then goto WINDOWS95
If Not '%_ColumbusMajorVersion%'='5' then Exit 'Columbus 5 must be installed'

if '%_ApplicationData%' contains 'Administrator' then Log 'You are the user "Administrator".'

;Version based comparison
if '6.12.0' < '6.2.0' then Log 'C6 was not able to compare file versions correctly - because it thinks that version 6.12 is less than version 6.2!'
if '6.12.0' V> '6.2.0' then Log 'C7 now offers the option for version based comparison, therefore it knows that 6.12 is higher than 6.2.'

```

```
;Numeric comparison  
if '99' > '100' then Log 'C6 was not able to compare numbers correctly - because it thinks  
that 99 is more than 100!'  
if '99' < '100' then Log 'C7 now offers the option for numeric comparison, therefore it knows  
that 99 is less than 100.'
```

1.2.20 If Diskfree

Syntax IF [NOT] DISKFREE '*drive*'{<|>|=}'*size*' THEN *command*

Description Process an action, based on the size of available disk space (specify size in bytes). The action may be a conditional jump (GOTO) or any other Columbus command.

Parameter	Description
Command	Any valid Columbus command
Drive	Drive where the available diskspace should be checked
Size	Size in Bytes

Note Using the 'Diskfree' command in conjunction with the EXIT command as shown in the sample below allows you to terminate the current installation without a success status. Therefore the administrator will get in CMC the message specified in EXIT as a comment why the installation was aborted. Columbus will retry to install this package each time the installation process for packages runs. This technique is very useful to abort installations when there is not enough disk space.

Example

```
If Not DiskFree 'C:'>'10000000' then exit 'less than 10 MB diskspace free'
```

1.2.21 If File

Syntax IF [NOT] FILE '*filename*' THEN *command*

Description Process an action, based on the existence or absence of a certain file, file pattern. The action may be a conditional jump (GOTO) or any other Columbus command.

Parameter	Description
Filename	Name and path of the file (or pattern) to be verified
Command	Any valid Columbus command

Note Using the if command in conjunction with the EXIT command as shown in the sample below allows you to terminate the current installation without a success status. Therefore the administrator will get in Management Console the message specified in EXIT as a comment why the installation was aborted. Columbus will retry to install this package each time the installation process for packages runs. This technique is very useful to abort installations when there is not enough space or to abort an installation because another package you depend on is not yet installed (check for a specific file in this case).

Example

```
If Not File '%Temp%\test.txt' Then GoTo TEST  
GoTo END
```

```
:TEST  
If File '%Temp%\test.txt' Then Delete '%Temp%\test.txt'  
:END  
If Not File '%_ProgramFiles%\Microsoft Internet\iexplore.exe' then exit 'Internet Explorer  
must be installed too'
```

1.2.22 If FileVersion

- Syntax** If [Not] FileVersion 'filename' < '9999.9999.9999.9999' Then command
- Description** Process an action, based on the version of a file. The action may be a conditional jump (GOTO) or any other Columbus command.
- Availability** Since Version 6.5

Parameter	Description
Filename	Name and path of the file
Command	Any valid Columbus command
!	Forces expression result to be TRUE if the file does not exist
?	Forces expression result to be False if the file does not exist

Note The file version that you compare against must always get specified in format '9999.9999.9999.9999'! A file version of 6.5 would be 0006.0005.0000.0000.

Example

```
If FileVersion '%_Windows%\Columbus.dll' < '0006.0005.0000.0000' Then Log 'Columbus is out  
of date...'
```

1.2.23 If Group

- Syntax** IF [NOT] GROUP '*groupname*' THEN *command*
- Description** Process an action in the user part of the package, based on the membership of a certain user group. The action may be a conditional jump (GOTO) or any other Columbus command.
- Availability** Since Version 5.1

Parameter	Description
Groupname	Name of the local or global NT usergroup For built in groups the usage of the corresponding Columbus variables is recommended, because group names are language specific!

Note Only use in the [UserAdd] and [UserRemove] section of the package. Otherwise the group membership of the Columbus account will be checked!

Using the IF command in conjunction with the EXIT command as shown in the sample below allows you to terminate the current installation without a success status. Therefore the administrator will get in Management Console the message specified in EXIT as a comment why the installation was aborted. Columbus will retry to install this package each time the installation process for packages runs. This technique is very useful to abort installations when the user has not the appropriate user rights (check for a specific groupmembership in this case).

Example

```
If Group '%_DomainUser%' Then Goto INSTALL  
If Not Group 'XYZ' Then Exit 'User must be member of group XYZ'
```

1.2.24 If Installed

Syntax IF Installed '*Type*' '*Parameter*' Then *command*

Description This command allows easy checking if a specific application has been installed to manage dependencies. Queries log entries in the registry and reports, if a software is installed. This is necessary to handle the reinstall for MSI setups properly.

Parameter	Description
Type	Type of product to query currently supported values: MSIPRODUCT
Parameter	Specify the entry of the product, which should be queried, as defined in the registry logs. For MSIPRODUCT you have to use the ProductCode from the MSI-setup of the application, usually a CLSID.

Note For the typ MSIPRODUCT to function, the setup must follow the recommendations from Microsoft concerning MSI.

Example

```
If Installed 'MSIPRODUCT' '{F0B10740-E2E8-11D2-BE4A-00C04F6C8AD6}' then goto ReinstallOffice2000
```

1.2.25 IniRead

Syntax INIREAD '*section*' '*key*' '*defaultvalue*' '*file*' '*VariableName*'
[/user|script|machine] [/immediate]

Description Reads value from an INI file into a variable.

Parameter	Description
Section	Title of the INI section to be read from
Key	Key to be read from
Defaultvalue	The value to be given to the variable if the KEY does not exist
File	Filename of the INI file to read from. If no path is specified, then the Windows user directory is assumed.
VariableName	The name of the variable to which you want to assign the retrieved value
/Script	Variable is only valid during the execution of the script, from which the command gets executed. Best used, when the variable is only needed temporarily.
/User	When command is used in the UserAdd section and the user has no write access to the machine hive of the registry, this option must be used. Sets the variable in the user hive of the registry.
/Machine	Variable set in the machine part. This is the default.
/Immediate	Needed, when a value gets read in the ServerAdd section and should be used in the same ServerAdd section. Cause variable to be set immediately instead of being written to the machvars.wms, where it would be available in the ClientAdd section
/NoErrors	This switch will ignore errors that might occur during reading the ini file.
/NoFileSystemRedirection	On 64-Bit operating system: do not turn off file system redirection (even if %_WindowsSystem64% is used)

Note All parameters have to be enclosed within string delimiters. The VariableName has to be given without %..%.

Example

```
INIWRITE 'intl' 'sLanguage' 'eng' 'win.ini' 'IntVariable'  
INIWRITE 'PersIPAdr' '%_User%' 'undefined' '\\srv1\cfg\ip.ini' 'myipadr'
```

1.2.26 IniWrite

Syntax INIWRITE 'section' 'key' 'value' ['file'] [/NoErrors] [/NoFileSystemRedirection]

Description Write/delete entries in a file in the INI file format. If the path to the directory does not exist, where to INI file should be written, Columbus will try to create it automatically.

Parameter	Description
Section	Title of the section to be modified
Key	Key to be modified {Nil} if the whole section should be deleted, Value must contain {Nil} to
Value	Value to be written {Nil} if this key should be deleted
File	Filename; if none specified, then WIN.INI is assumed. If no path is specified, then the Windows directory is assumed.
/NoErrors	This switch causes iniwrite functions to ignore errors caused by target files which cannot be written in.
/NoFileSystemRedirection	On 64-Bit operating system: do not turn off file system redirection (even if %_WindowsSystem64% is used)

Note Section, key, value, and file must be enclosed within string delimiters if they should represent a value. Using {NIL} instead of value causes the key to be deleted. Using {NIL} instead of the key and the value causes the section to be deleted.

Example

```
INIWRITE 'intl' 'sLanguage' 'eng'  
INIWRITE 'Default' 'Autosave' '1' '%Windows%\uedit.ini'  
INIWRITE 'Microsoft Word 2.0' '{NIL}' '{NIL}'  
INIWRITE 'Default' 'Autosave' '{NIL}' '%Windows%\uedit.ini'
```

1.2.27 Inventory

Syntax Inventory '[MainTreeItem.[SubTreeItem1..n.]]DataItem' 'value'

Description Adds data to the Columbus Inventory

Availability Since Version 6.2

Parameters	Description
Treeltem	The Columbus inventory can be hierarchically structured. A datatree contains a tree root, the main tree item, which is topmost level and any number of sub tree items. The items must be divided by dots "."
Dataltem	The data item is the display name for the reported item
Value	Reported value
/User	When command is used in the UserAdd Section, the inventory data will be stored in users inventory tab on columbus console.

Note With Columbus 6 you should use this command instead of the WriteInventory command

Example

The following example reads the value for the computer model from the WMI database and set it as variable `_Temp`. The Inventory command writes this value to the entry "Computer Model" in the subtree "Systems" under the tree "Components" in the Columbus 6 inventory database.

```
WMIRead '' 'Win32_ComputerSystem' 'Model' '' '_TEMP_' /immediate /machine
Inventory 'Components.System.Computer Model' '%_TEMP_%'
```

1.2.28 Load Variables

Syntax Load Variables 'section' 'file' [/Machine | /User] [/Immediate] [/Volatile] [/NoFileSystemRedirection]

Description Load one or several Columbus variables from a file in INI-File syntax.

Parameter	Description
Section	Title of the section to be read
File	File containing the variables
/Immediate	Allows to make the variables immediately active, even if the command is used in a SERVERADD section of a package. This offers additional flexibility over the SET command
/Machine	Loads the variables into the machine environment, best used in the ClientAdd section. This is the default, if nothing is specified.
/User	Loads the variables into the user environment, only to be used in the UserAdd section
/Volatile	Loads the variables into the volatile environment, which will be deleted at next reboot. Best used for temporary variables in the ClientAdd or UserAdd section
/NoFileSystemRedirection	On 64-Bit operating system: do not turn off file system redirection (even if %_WindowsSystem64% is used)

Note 'section' and 'file' can be passed in variables

Example

```
Load Variables 'AllMachines' '\\%_AdminPath%\config\base.cfg' /immediate
```

Where the base.cfg could look as follows:

```
[AllMachines]  
GroupData=G:  
GroupTemplates=G:\templates  
CDDrive=Z:  
Organisation=<BW>  
Location=CH  
CountrySettings=Deutsch (Schweiz)  
Homepage=<BWWeb>
```

1.2.29 Log

Syntax LOG '*message*' [/MEMORY]

Description Adds a message to the Columbus log file

Parameter	Description
Message	Message to be added to the log file.
/Memory	Adds also the current memory status from Columbus to the log file.

Example

```
Log 'Successfully added message from my Package to the Columbus Log!' /MEMORY
```

1.2.30 MD

Syntax MD '*directory*' [/NoFileSystemRedirection]

Description Create a directory called '*directory*'. This command can create several subdirectory levels in one step.

Parameter	Description
Directory	Drive and path of the directory to be created
/NoFileSystemRedirection	On 64-Bit operating system: do not turn off file system redirection (even if %_WindowsSystem64% is used)
/TrustedInstaller	Allows to perform an operation under the security context of the TrustedInstaller instead of the current security context. This allows you to bypass issues where the current security context may not provide you with enough rights to perform an operation (so essentially bypassing Windows Resource Protection).

Example

```
MD 'U:\Settings\Microsoft'  
MD '%_ProgramFiles%\MyApplication'  
MD '\\%MyServer%\Share\data\sub1\sub2'
```

1.2.31 MSI

Syntax	MSI 'product' 'options' [/DEFAULT FULL REDUCED NONE BASIC] [/LOG:"Logfile" [/AppendToLog] [/LogTypes:"type"]] [/REPAIR] [/DesktopInteractionRequired [/DisableInput]]
Description	Installs or removes a specified package in Microsoft Installer Service format.
Requirement	The file ColiSvc.exe must be present in the same folder as the Columbus.exe
Availability	Columbus 6.7

Parameter	Description
Packagepath	Name and location of the MSI package (use UNC notation if running from a networked source)
Options	Option/Property string as specified in the MSI documentation. Attention MSI is very restrictive on the use of Uppercase/Lowercase characters in Option fields. So make sure to use them correctly.
/Repair	Performs the MSI-internal repair of an MSI installation. In this case Packagepath must not point to the MSI package but rather contain the Product-ID of the MSI package and Options must specify what kind of items should be repaired and how the file reinstallation should take place. Repair Option/Property string as specified in the MSI documentation. One of the following reinstall-settings must be specified: <ul style="list-style-type: none"> p Reinstall only if file is missing o Reinstall if file is missing or an older version is present e Reinstall if file is missing or an equal or older version is present d Reinstall if file is missing or a different version is present c Reinstall if file is missing or corrupt a Force all files to be reinstalled, regardless of checksum or version This can be combined with the following options: <ul style="list-style-type: none"> u Rewrite all required user registry entries m Rewrite all required machine registry entries s Rewrite all shortcuts
/Default	Show the default user interface of MSI as specified in the package only works in userpart of package
/Full	Show complete user interface of MSI (requires user interaction), only works in userpart of package
/Reduced	Show partial user interface of MSI without requiring user selections only works in userpart of package
/None	Show no user interface at all, leave user interface to Columbus, this is the regular behaviour of MSI commands used in server and client parts of packages
/Basic	Show only progress information of MSI only works in userpart of package
/Log:"LogFile"	Write a protocol file of the Installer actions. By default this file will get overwritten
/AppendToLog	Appends installer logging to the "Logfile" file instead of overwriting it

Parameter	Description
/LogTypes:"..."	<p>What kind of messages should be protocolled. By default "V" is assumed. Possible values (which can get combined):</p> <ul style="list-style-type: none"> V Verbose, all messages F Fatal Exit E Error W Warning U User I Info R Resolvesource O Out of disk space S Action start D Action data C Common data P Property dump
/Desktop Interaction Required	<p>Some installation routines need an interaction with desktop of the currently user to execute properly. By default this is not possible when a program is called from the Server or Client part of the package, because this gets executed by the Columbus service in the background. When this switch is used the Management Client starts a helper service, which can interact with the desktop, but still has administrative rights. The helper service executes the program and after the execution it gets removed by the Management Client again.</p>
/DisableInput	<p>If <i>DesktopInteractionRequired</i> is used, keyboard and mouse input from the logged on user can be disabled during installation, so that the user cannot interfere with the installation procedure.</p>
/NoFileSystem Redirection	<p>On 64-Bit operating system: do not turn off file system redirection (even if %_WindowsSystem64% is used)</p>

Note **Restrictions on NT4:** When using the MSI command from SERVER or CLIENT sections in Windows NT4, the MSI source package must be copied to the local disk first as Microsoft MSI is not able on NT4 to contact a server from system space. If you need to run MSI packages off a server on Windows NT4, we recommend to use the Columbus RUN command, calling MSIEXEC which will work fine. This restriction does not apply to calls of MSI in Columbus USER section nor using MSI in any sections of Windows 2000 and Windows XP.

Example

This installs the Orca application (part of the Microsoft MSI Developers kit) without showing the user the MSI User interface.

```
MSI '\\server1\sources\orca\orca.msi' '' /NONE
```

This removes an installed copy of the Orca application from a workstations.

```
MSI '\\server1\sources\orca\orca.msi' 'REMOVE=All' /NONE
```

This installs a msi installerfile with an additional transformfile. (Be aware when a " is required or not)

```
MSI '\\server1\sources\setup.msi' 'TRANSFORMS=\\server1\sources\inst.MST' /NONE
MSI '\\server1\sources\setup.msi' 'TRANSFORMS=""\\server1\setup sources\install file.MST' /NONE
```

Note The switches /Default /Full / Reduced /Basic must not be used in the ServerAdd or ClientAdd section of the package

For more information on error handling with MSI installations please check the samples in Managing Errors with 'On Error' and 'Error ON/OFF'

1.2.32 MSIPATCH

Syntax MSIPATCH 'packagepath' 'options' [/Repair] [[/Default] [/Full] [/Reduced] [/None] [/Basic]] [/LOG:"Logfile"] [/AppendToLog] [/LogTypes:"..."] [/DesktopInteractionRequired] [/DisableInput] [/NoFileSystemRedirection]

Description Installs or removes a specified package in Microsoft Installer Service format.

Parameter	Description																								
PatchFile	Name and location of the MSI patch file (use UNC notation if running from a networked source)																								
CommandLine	Command line parameters Note from Microsoft: You must set the REINSTALL property on the command line when applying a small update or minor upgrade patch. Without this property, the patch is registered on the system but cannot update files. For patches that do not use a Custom Action Type 51 to automatically set the REINSTALL and REINSTALLMODE properties, the REINSTALL property must be explicitly set with the szCommandLine parameter. Set the REINSTALL property to list the features affected by the patch, or use a practical default setting of "REINSTALL=ALL". The default value of the REINSTALLMODE property is "omus". Beginning with Windows Installer version 3.0, the REINSTALL property is configured by the installer and does not need to be set on the command line.																								
/Default	Show the default user interface of MSI as specified in the package																								
/Full	Show complete user interface of MSI (requires user interaction)																								
/Reduced	Show partial user interface of MSI without requiring user selections																								
/None	Show no user interface at all, leave user interface to Columbus																								
/Basic	Show only progress information of MSI																								
/Log:"LogFile"	Write a protocol file of the Installer actions. By default this file will get overwritten																								
/AppendToLog	Appends installer logging to the "Logfile" file instead of overwriting it																								
/LogTypes:"..."	What kind of messages should be protocolled. By default "V" is assumed. Possible values (which can get combined): <table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">V</td> <td style="width: 60%;">V: Verbose, all messages</td> <td style="width: 5%;">R</td> <td style="width: 25%;">Resolvesource</td> </tr> <tr> <td>F</td> <td>Fatal Exit</td> <td>O</td> <td>Out of disk space</td> </tr> <tr> <td>E</td> <td>Error</td> <td>S</td> <td>Action start</td> </tr> <tr> <td></td> <td>Warning</td> <td>D</td> <td>Action data</td> </tr> <tr> <td>U</td> <td>User</td> <td>C</td> <td>Common data</td> </tr> <tr> <td>I</td> <td>Info</td> <td>P</td> <td>Property dump</td> </tr> </table>	V	V: Verbose, all messages	R	Resolvesource	F	Fatal Exit	O	Out of disk space	E	Error	S	Action start		Warning	D	Action data	U	User	C	Common data	I	Info	P	Property dump
V	V: Verbose, all messages	R	Resolvesource																						
F	Fatal Exit	O	Out of disk space																						
E	Error	S	Action start																						
	Warning	D	Action data																						
U	User	C	Common data																						
I	Info	P	Property dump																						
/NoFileSystemRedirection	On 64-Bit operating system: do not turn off file system redirection (even if %_WindowsSystem64% is used)																								

1.2.33 On Error

Syntax	Error ON OFF
Description	Handle errors from script commands. Error Off will suppress errors from script commands. Error On will cause the current script to be stopped if a command causes an error. On Error allows you to specify any script command to be executed if an error occurs (also Goto [label])
Availability	Since Version 5.0

Parameter	Description
ON	When an error occurs Columbus will terminate the execution of the script. The package will stay in the processing queue, with a detailed error message and feedback will be send to the Management Console that the package has terminated with an error including an errormessage. This is the recommended setting and the default, if nothing is specified. This is also the same behaviour like Columbus versions older then 5.1
OFF	Does not terminate the execution of a script in case of any error

Note Use the OFF switch with caution, because otherwise a package may not be installed correctly but it will be protocolled as sucessfully installed!

This command affects only the behaviour of Columbus within a section of a script. As soon as another section or another script is loaded Columbus will default to ERROR ON.

Example

Error OFF
Error On

1.2.34 Path

Syntax	PATH ' <i>pathstring</i> ' [/Add Remove] [/User]
Description	Sets the absolute system search path, or adds and removes single directories to the path.

Parameter	Description
Pathstring	Any valid path string. If no parameters are specified, the full path has to be given. Otherwise single directories to be appended or removed have to be specified.
/Add	Add the specified single directory to the path, if it is not already included.
/Remove	Remove the specified single directory from the path, if it is still included.
/User	This adds the path to the user-environment instead of the system environment. Default is the system path for the local computer
/NoFileSystemRedirection	On 64-Bit operating system: do not turn off file system redirection (even if %_WindowsSystem64% is used)

Note When using the /Add or /Remove option only one folder can be specified. To add or remove more folders to the path a separate command must be used for every single folder.

Example

```
PATH '%%SystemRoot%\system32;%%SystemRoot%'
PATH '%_ProgramFiles%\myapp1' /ADD
PATH '%_ProgramFiles%\myapp2' /ADD
PATH '%_ProgramFiles%\myapp' /REMOVE
PATH '%HOMEDRIVE%\MyFolder' /ADD /User
```

1.2.35 Play

Syntax PLAY 'wavefile'

Description Plays a WAV file asynchronously. This allows you to play a background tune while a script file is running.

Parameter	Description
Wavefile	Full pathname of the WAV file to be played. The file is played asynchronously, and in an endless loop, until the executable ends, or the PLAY function is called with an empty string (").
/NoFileSystemRedirection	On 64-Bit operating system: do not turn off file system redirection (even if %_WindowsSystem64% is used)

Example

```
PLAY 'c:\funstuff\sound\start.wav'
```

Plays an error message for 15 seconds

```
PLAY '%_Media%\errormessage.wav'
wait 15000
PLAY ''
```

1.2.36 RD

Syntax RD 'directory' [/Empty] [/NoFileSystemRedirection] [/NoErrors] [/NoRebootOperations]

Description Remove a whole directory subtree, including any files within it. Read-only files get flagged Read/Write for deletion if possible.

Note A remove directory with length 0 or 1 (empty or '\') will be ignored to protect machines from being destroyed, if for instance a referenced variable for the RD command does not exist or has length 0!

Parameter	Description
Directory	Directory to be removed
/EMPTY	Removes the directory only if it is empty.
/NoErrors	This switch causes delete functions to ignore errors caused by files which cannot be deleted.

/NoRebootOperations	If a file is in use and can't be deleted Columbus would normally initiate a pending file rename operation and delete that file at next reboot. With this switch set, Columbus will skip such files without an error - but not initiate any file rename operations (and therefore not delete the affected file).
/NoFileSystemRedirection	On 64-Bit operating system: do not turn off file system redirection (even if %_WindowsSystem64% is used)
/TrustedInstaller	Allows to to perform an operation under the security context of the TrustedInstaller instead of the current security context. This allows you to bypass issues where the current security context may not provide you with enough rights to perform an operation (so essentially bypassing Windows Resource Protection).

Note A remove directory with length 0 or 1 (empty or '\\' only) will be ignored to protect machines from being destroyed, if for instance a referenced variable for the RD command does not exist or has length 0!

Example

```
RD '%_Programs%\Utilities' /Empty
RD 'c:\temp\subdir'
```

1.2.37 Register32

Syntax REGISTER32 'mainkey' 'subkey' ['valname' 'value' 'type'] [/ADD|REMOVE] [/DECRYPT] [/UNICODE] [/NOBINCONVERT]

Description Registers keys and values in any of the WIN32 registry hives. Useful if you need to write a number of entries to the registry (as is often the case when installing an application).

<TabAva> /DECRYPT and /UNICODE since version 5.1

Parameter	Description
Mainkey	One of the valid registry hives: HKey_Classes_Root / HKey_Current_User / HKey_Users / HKey_Local_Machine / HKey_Current_Config
Subkey	Subkey inside the hive to be built or to be opened for adding a value (i.e., Software\Microsoft\Notepad). Note Subkeys have no leading backslash.
Valname	Name of a value inside the specified tree. If no value and following parameters are specified, then only the key is created. Each key may have one default value without a name. The Regedit tool displays the name "Default". This value can be created by specifying "" as the 'valname' parameter. Use {Nil} for 'Valuename' and 'value' to delete the specified <i>Subkey</i>
Value	Specifies the contents of a certain value (as defined by valname). Columbus currently supports values up to 999 bytes. Use {Nil} as <i>value</i> to delete the entry <i>ValueName</i>

Type	This specifies the type of data to be stored in a value. Allowed types are: REG_SZ Standard String REG_EXPAND_SZ String which contains Environment variables to be expanded REG_MULTI_SZ List of Strings (see also the additional /Add Remove switch to handle such entries modular) REG_BINARY Binary data such as executables REG_NONE No defined value type REG_DWORD DoubleWord (LongInteger) REG_DWORD_BIG_ENDIAN 32-Bit Number (most significant byte per word is the low order byte) REG_DWORD_LITTLE_ENDIAN 32-Bit Number (most significant byte per word is the high order byte) REG_LINK Unicode symbolic link REG_RESOURCE_LIST Device driver resource list REG_QWORD 64-Bit number
/ADD	With REG_MULTI_SZ only Allows to append an entry to a REG_MULTI_SZ string without destroying its current contents or appending it in multiple copies.
/Remove	With REG_MULTI_SZ only Allows to delete an entry from a REG_MULTI_SZ string
/Decrypt	Allows to write a value into the registry that appears in encrypted form within a script (or external text file that its getting read from). Note that such entries must get created with PublicCrypt.Exe, values created with CryptStr or CryptIt can not be used.
/Unicode	Put in a character 0 after each character. Requires the entry to be REG_BINARY and does not support the /Decrypt option. Is used e.g. for the user name in registering Microsoft Office products.
/NoBinConvert	For entries beginning with H#... if they should not be converted to binary strings.
/TrustedInstaller	Allows to to perform an operation under the security context of the TrustedInstaller instead of the current security context. This allows you to bypass issues where the current security context my not provide you with enough rights to perform an operation (so essentially bypassing Windows Resource Protection).

Note

PackageMaker generates remove commands for every newly created registry entry in the Remove sections, but those commands are remarked, because often it is not recommended to delete those keys, because they may be used by other programs as well.

- The generated Remove statements remove entry by entry, but you can use '{NIL}' '{NIL}' to remove complete keys, including all values and subkeys.
- The registry is the heart of the 32-bit systems (Windows NT and 95). Corrupting it by faulty values or incomplete settings may force a full reinstallation of Windows. Under NT, the registry is also protected by security profiles. So if you find that some REGISTER32 commands are not being performed, then this may be due to insufficient authorization of the user account running the script.
- Under Windows 2000 microsoft tightened the security settings in the registry. The script language provides the command **Regperm** to modify security permissions in the registry.

Example

Writing a string value:

```
Register32 'HKey_Current_User' 'Software\Microsoft\International' 'Language' 'English'  
'REG_SZ'
```

Deleting the string value Language:

```
Register32 'HKey_Current_User' 'Software\Microsoft\International' 'Language' '{NIL}'  
'REG_SZ'
```

Writing a binary value:

```
Register32 'HKey_Current_User' 'Software\Brainware\Test' 'BinaryValue' 'H#4523A0'  
'REG_BINARY'
```

Creating a Key without specifying a value:

```
Register32 'HKey_Current_User' 'Software\Brainware\New Key'
```

Appending to a Stringlist:

```
Register32 'HKey_Current_User' 'Software\Test' 'multi' 'Line1' 'REG_MULTI_SZ' /ADD  
Register32 'HKey_Current_User' 'Software\Test' 'multi' 'Line2' 'REG_MULTI_SZ' /ADD  
Register32 'HKey_Current_User' 'Software\Test' 'multi' 'Line3' 'REG_MULTI_SZ' /ADD
```

Delete single entries from a stringlist:

```
Register32 'HKey_Current_User' 'Software\Test' 'multi' 'Line2' 'REG_MULTI_SZ' /REMOVE
```

Delete complete stringlist:

```
Register32 'HKey_Current_User' 'Software\Test' 'multi' '{NIL}' 'REG_MULTI_SZ'
```

Delete complete subkey (Test), including all values and further subkeys:

```
Register32 'HKey_Current_User' 'Software\Brainware\Test' '{NIL}' '{NIL}' 'REG_SZ'
```

Use encrypted string for writing to the registry

```
Register32 'HKey_Local_Machine' 'Software\Brainware' 'mypassword' 'H#6691BC54FBB771D04829'  
'reg_sz' /Decrypt
```

Register user information for Microsoft Office 2000

```
Register32 'HKey_Current_User' 'Software\Microsoft\Office\9.0\Common\UserInfo' 'Company'  
'<BW> Solutions AG' 'reg_binary' /unicode  
Register32 'HKey_Current_User' 'Software\Microsoft\Office\9.0\Common\UserInfo' 'UserName'  
'%_UserFullName%' 'reg_binary' /unicode
```

1.2.38 Register64

Syntax REGISTER64 'mainkey' 'subkey' ['valname' 'value' 'type' [/Add] [/Remove] [/Decrypt] [/Unicode] [/NoBinConvert]]

Description Registers keys and values in any of the registry hives. Useful if you need to write a number of entries to the registry (as is often the case when installing an application).

Note The registry is the heart of the 32-bit systems (Windows NT and 95). Corrupting it by faulty values or incomplete settings may force a full reinstallation of Windows. Under NT, the registry is also protected by security profiles. So if you find that some REGISTER64 commands are not being performed, then this may be due to insufficient authorization of the user account running the script.

The difference to the Register32 command is that Microsoft automatically redirects certain registry keys for 32-Bit applications. Since Columbus is a 32Bit application using the Register32 might write to redirected keys, therefore these entries would not be visible to 64-bit applications. For such cases the Register64 command should be used.

Note Some keys might be used from 32-Bit AND 64-Bit applications, then you should use the Register32 AND the Register64 command.

Parameter	Description
mainkey	One of the valid registry hives: HKey_Classes_Root HKey_Current_User HKey_Users HKey_Local_Machine HKey_Current_Config
Subkey	Subkey inside the hive to be built or to be opened for adding a value (i.e., Software\Microsoft\Notepad). Note: Subkeys have no leading backslash.
valname	Name of a value inside the specified tree. If no value and following parameters are specified, then only the key is created. Each key may have one value without a name. That one value can be created by specifying " as the 'valname' parameter.
value	Specifies the contents of a certain value (as defined by valname). Columbus currently supports values up to 999 bytes.
type	This specifies the type of data to be stored in a value. Allowed types are: REG_SZ Standard String REG_EXPAND_SZ String which contains Environment variables to be expanded REG_MULTI_SZ List of Strings (see also the additional /Add switch to handle such entries modular) REG_BINARY Binary data such as executables REG_NONE No defined value type REG_DWORD DoubleWord (LongInteger) REG_DWORD_BIG_ENDIAN 32-Bit Number (most significant byte per word is the low order byte) REG_DWORD_LITTLE_ENDIAN 32-Bit Number (most significant byte per word is the high order byte) REG_LINK Unicode symbolic link REG_RESOURCE_LIST Device driver resource list REG_QWORD 64-Bit number
/Add	With REG_MULTI_SZ only Allows to append an entry to a REG_MULTI_SZ string without destroying its current contents or appending it in multiple copies
/Remove	With REG_MULTI_SZ only Allows to delete an entry from a REG_MULTI_SZ string
/Decrypt	Allows to write a value into the registry that appears in encrypted form within a script (or external text file that its getting read from). Note that such entries must get created with PublicCrypt.Exe, values created with CryptStr or CryptIt can not be used!
/Unicode	Put in a character 0 after each character. Requires the entry to be REG_BINARY and does not support the /Decrypt option. Is used e.g. for the user name in registering Microsoft Office products.
/NoBinConvert	For entries beginning with H#... if they should not be converted to binary strings.

Parameter	Description
/TrustedInstaller	Allows to perform an operation under the security context of the TrustedInstaller instead of the current security context. This allows you to bypass issues where the current security context may not provide you with enough rights to perform an operation (so essentially bypassing Windows Resource Protection).

1.2.39 RegisterFile

Syntax	RegisterFile 'file' [/NOERRORS]
Description	Performs the self registration of a file (e.g. DLL). So the necessary registration entries under HKEY_CLASSES_ROOT will be created automatically by the file.
Availability	Since Version 5.1

Parameter	Description
Filename	The file that should be selfregistered. The file must exist and should contain the entry point "DllRegisterServer".
/NoErrors	If a file is not found or does not contain Selfregister routines no error is raised, script execution will continue
/NoFileSystemRedirection	On 64-Bit operating system: do not turn off file system redirection (even if %_WindowsSystem64% is used)

Note Wildcards are not allowed.

Example

Registers the Microsoft HTML-help ocx component

```
Register '%_WindowsSystem%\hhctr1.ocx'
```

1.2.40 RegPerm

Syntax	RegPerm 'HIVE' 'Subkey' 'Group/User' 'Rights' 'Flags' [/Sub] [/Replace Add ReplaceAll Remove] [/NoErrors] [/Allowed Denied]
Description	Sets security on registry items
Availability	Since Version 3.50 v22 sp6

Parameter	Description
Hive	Valid registry hives are: HKEY_LOCAL_MACHINE, HKEY_USERS, HKEY_CURRENT_USER or HKEY_CLASSES_ROOT
Tree	Subkey inside the hive
Group/User	Username or Usergroupname. You can use Columbus variables for language independency, like: _User, _GroupUsers, _GroupAdministrators

Parameter	Description
Rights	<p>Specified user access rights can be:</p> <ul style="list-style-type: none"> F Full Controll M Modify (Write + Delete) W Write R Read N None <p>Or any combination of the following words:</p> <ul style="list-style-type: none"> QUERYVALUE query or search for a value SETVALUE set a value CREATESUBKEY create a subkey ENUMSUBKEY enumerate subkeys NOTIFY send notification to Windows to reload item after changes CREATELINK create a link DELETE delete WRITEDAC modiy security WRITEOWNER set ownership of key READCONTROL same as R FULLCONTROL same as F
Flags	<p>CONTAINER If you specify, that a registry key is a container, it means, that every new subkey or so called child objects will inherit the rights of this container and not from a higher key.</p>
/Sub	Sets security on key and existing subkeys
/Replace	Replaces the ACL instead of modifying it for the specified users/goups. The default security settings will be removed and only the specified security settings will be applied. Rights of other users/groups will not be affected, like the built in accounts System or Administrator
/ReplaceAll	<p>Replaces the ACL instead of modifying it for all users/goups. So only the specified users/groups will have the specified rights and all others including built in system accounts will be removed.</p> <p>Be carefully using this powerfull option. Consider to include the default system rights and accounts.</p>
/Add	<p>Modifies the ACL, so these settings will be added to the existing security settings</p> <p>This is default when nothing is specified</p>
/Remove	Removes the specified rights
/NoErrors	Scriptexecution will continue, even when non critical errors occure
/Allowed	The specified rights will be granted to the user/groups. This is the default when nothing is specified
/Denied	The specified rights are explicitely denied to the specified users/groups. According to Windows security rules the tightest security setting wins. So a user will not get this right, even if he is also member of a group, which would give him those rights.
/TrustedInstaller	Allows to to perform an operation under the security context of the TrustedInstaller instead of the current security context. This allows you to bypass issues where the current security context my not provide you with enough rights to perform an operation (so essentially bypassing Windows Resource Protection).

Note Some combination of switches might not be useful (e.g. /REMOVE /REPLACEALL), such combinations will not be validated. Invalid combinations might cause problems. E.g. assigning FULLCONTROL+QUERYVALUE will only give QUERYVALUE rights!

Example

This removes any rights for SYSTEM in HKLM\Software\test, be extremely carefully with such operations!

```
RegPerm 'HKEY_LOCAL_MACHINE' 'Software\test' 'System' '' '' /Remove
```

Group Users gets Full Control, regardless of inherited entries

```
RegPerm 'HKEY_LOCAL_MACHINE' 'Software\test' 'Users' 'F' 'Container' /Replace
```

Set the following rights in HKLM\Software\test and all existing subkeys:

Administrators Full

MyDomain_Columbus Full

Users Write

```
RegPerm 'HKEY_LOCAL_MACHINE' 'Software\test' 'Administrators,MyDomain\_Columbus' 'F' 'Container' /ReplaceAll /Sub
RegPerm 'HKEY_LOCAL_MACHINE' 'Software\test' 'Users' 'W' 'Container' /Sub
```

Grant the group users Write rights, newly created subkeys will NOT get this rights

```
RegPerm 'HKEY_LOCAL_MACHINE' 'Software\test' 'Users' 'W' '' /Replace
```

1.2.41 RegPerm64

Syntax RegPerm64 'HIVE' 'Subkey' 'Group/User' 'Rights' 'Flags' [/Sub] [/Replace|Add|ReplaceAll|Remove] [/NoErrors] [/Allowed|Denied]

Description Sets security on registry items

Parameter	Description
Hive	Valid registry hives are: HKEY_LOCAL_MACHINE, HKEY_USERS, HKEY_CURRENT_USER or HKEY_CLASSES_ROOT
Tree	Subkey inside the hive
Group/User	Username or Usergroupname. You can use Columbus variables for language independency, like: _User, _GroupUsers, _GroupAdministrators

Parameter	Description
Rights	<p>Specified user access rights can be:</p> <p>F Full Controll M Modify (Write + Delete) W Write R Read N None</p> <p>Or any combination of the following words:</p> <p>QUERYVALUE query or search for a value SETVALUE set a value CREATESUBKEY create a subkey ENUMSUBKEY enumerate subkeys NOTIFY send notification to Windows to reload item after changes CREATELINK create a link DELETE delete WRITEDAC modiy security WRITEOWNER set ownership of key READCONTROL same as R FULLCONTROL same as F</p>
Flags	<p>CONTAINER If you specify, that a registry key is a container, it means, that every new subkey or so called child objects will inherit the rights of this container and not from a higher key.</p>
/Sub	Sets security on key and existing subkeys
/Replace	Replaces the ACL instead of modifying it for the specified users/goups. The default security settings will be removed and only the specified security settings will be applied. Rights of other users/groups will not be affected, like the built in accounts System or Administrator
/ReplaceAll	<p>Replaces the ACL instead of modifying it for all users/goups. So only the specified users/groups will have the specified rights and all others including built in system accounts will be removed.</p> <p>Be carefully using this powerfull option. Consider to include the default system rights and accounts.</p>
/Add	<p>Modifies the ACL, so these settings will be added to the existing security settings</p> <p>This is default when nothing is specified</p>
/Remove	Removes the specified rights
/NoErrors	Script execution will continue, even when non critical errors occure
/Allowed	The specified rights will be granted to the user/groups. This is the default when nothing is specified
/Denied	The specified rights are explicitely denied to the specified users/groups. According to Windows security rules the tightest security setting wins. So a user will not get this right, even if he is also member of a group, which would give him those rights.

Parameter	Description
/TrustedInstaller	Allows to perform an operation under the security context of the TrustedInstaller instead of the current security context. This allows you to bypass issues where the current security context may not provide you with enough rights to perform an operation (so essentially bypassing Windows Resource Protection).

Note Some combination of switches might not be useful (e.g. /REMOVE /REPLACEALL), such combinations will not be validated.
Invalid combinations might cause problems. E.g. assigning FULLCONTROL+QUERYVALUE will only give QUERYVALUE rights!

Note Microsoft automatically redirects certain registry keys for 32-bit applications. Since Columbus is a 32-bit application using the RegPerm command might read from redirected keys. So for setting permissions on registry keys used by 64-bit applications use the RegPerm64 command.

Example

This removes any rights for SYSTEM in HKLM\Software\test, be extremely carefully with such operations!

```
RegPerm64 'HKEY_LOCAL_MACHINE' 'Software\test' 'System' ' ' ' ' /Remove
```

Group Users gets Full Control, regardless of inherited entries

```
RegPerm64 'HKEY_LOCAL_MACHINE' 'Software\test' 'Users' 'F' 'Container' /Replace
```

Set the following rights in HKLM\Software\test and all existing subkeys:

Administrators	Full
MyDomain_Columbus	Full
Users	Write

```
RegPerm64 'HKEY_LOCAL_MACHINE' 'Software\test' 'Administrators,MyDomain\_Columbus' 'F' 'Container' /ReplaceAll /Sub
RegPerm 'HKEY_LOCAL_MACHINE' 'Software\test' 'Users' 'W' 'Container' /Sub
```

Grant the group users Write rights, newly created subkeys will NOT get this rights

```
RegPerm64 'HKEY_LOCAL_MACHINE' 'Software\test' 'Users' 'W' ' ' /Replace
```

1.2.42 RegRead

Syntax REGREAD '*mainkey*' '*subkey*' '*valname*' '*variablename*'
[/MACHINE|USER|SCRIPT] [/IMMEDIATE]

Description Allows to retrieve the value of a 'Reg_sz' style registry value into a Columbus variable.

Parameter	Description
Mainkey	One of the valid registry hives: HKey_Classes_Root HKey_Current_User HKey_Users HKey_Local_Machine HKey_Current_Config
Subkey	Subkey inside the hive to be built or to be opened for adding a value (i.e., Software\Microsoft\Notepad).

Parameter	Description
	Note: Subkeys have no leading backslash.
Valname	Name of a value inside the specified tree. The value needs to be of type REG_SZ. If you are not sure of the type, use REGEDT32 in NT to check or REGEDIT in Win9x.
VariableName	Name of the variable where the result shall be stored without %..% signs.
/Script	Variable is only valid during the execution of the script, from which the command gets executed. Best used, when the variable is only needed temporarily.
/User	When command is used in the UserAdd section and the user has no write access to the machine hive of the registry, this option must be used. Sets the variable in the user hive of the registry.
/Machine	Variable set in the machine part. This is the default, if no context is defined.
/Immediate	Needed, when called in the ServerAdd section. Cause variable to be set immediately instead of being written to the machvars.wms, so it would be available in the ClientAdd section

Note Without the /Immediate switch, which has been introduced with SP6, the command will not work in the Serveradd section, because no variables are set in the Serveradd section directly. The variables gets written to the machvars.wms file in the cache folder of the package and will be active in the ClientAdd section of this package

Example

Reading the Language settings of a user into a variable %UsrLanguage%:

```
RegRead 'Hkey_Current_User' 'Software\Microsoft\International' 'sLanguage' 'UsrLanguage'
```

1.2.43 RegRead64

Syntax REGREAD64 'mainkey' 'subkey' 'valname' 'variable name' [/Script | /User | /Machine] /Immediate

Description Allows to retrieve the value of a 'REG_SZ' style registry value (REG_SZ, REG_EXPAND_SZ or REG_DWORD) into a Columbus variable.

Note Microsoft automatically redirects certain registry keys for 32-Bit applications. Since Columbus is a 32-Bit application using the RegRead command would might read from redirected keys. So for reading registry keys used by 64-Bit applications use the RegRead64 command.

Parameter	Description
Mainkey	One of the valid registry hives: <ul style="list-style-type: none"> • HKey_Classes_Root • HKey_Current_User • HKey_Users • HKey_Local_Machine • HKey_Current_Config
Subkey	Subkey inside the hive to be built or to be opened for adding a value.(i.e., Software\Microsoft\Notepad). Note: Subkeys have no leading backslash.
Valname	Name of a value inside the specified tree. The value should be either of type REG_SZ, REG_DWORD or REG_EXPAND_SZ.

	If you are not sure of the type, use REGEDT32 in NT to check or REGEDIT in Win9x.
Variable Name	Name of the variable where the result shall be stored without %..% signs.
/Script	Variable is only valid for the actual script
/User	Variable is set for every user in the user space
/Machine	Variable is set in the machine space. This is the default, when no parameter is specified.
/Immediate	Allows to make the variables immediately active (required when using within Server part of scripts).

Example

Reading the default directory where to install (64-Bit) programs to:

```
REGREAD64 'HKEY_LOCAL_MACHINE' 'Software\Microsoft\Windows\CurrentVersion'
'ProgramFilesDir' 'AppDir' /Immediate
```

1.2.44 Rename

Syntax RENAME 'source' 'target' [/FORCE] [/NOERRORS]

Description Renames directories and files to new names.

Parameter	Description
Source	Name of the source file or directory
Target	Name of the target file or directory
/NoErrors	This switch causes rename operations to ignore errors caused by target files which cannot be overwritten. Errors caused by insufficient rights or disk space will still be reported.
/Force	If the target file already exists, it will be deleted, even if the file is read only. Then the rename takes place. If the file cannot be deleted, e.g. because it is in use, the function terminates with an error
/NoFileSystem Redirection	On 64-Bit operating system: do not turn off file system redirection (even if %_WindowsSystem64% is used)

Note This command does not support moving files or file trees to a different drive, but can move a complete subtree within the same drive. It does not support the use of wildcards in the file or directory name.

Example

```
Rename '%TEMP%\test' '%SYSTEMDRIVE%\testnew'
Rename '%TEMP%\test\myfile.txt' '%TEMP%\test\yourfile.txt'
```

1.2.45 Replace

Syntax Replace 'Input' 'StringToReplace' 'Replacement' 'OutputVariable' [/user|machine|allusers|script] [/immediate]

Description Accepts a variable as input and replaces a string in this variable with another

and writes the new string to a new variable.

This is useful for handling over variables between Windows Scripting Host scripts and Columbus scripts or when manipulation variables from the WMIRead command before writing them to the Columbus inventory.

Availability Since version 5.2.3

Parameter	Description
Input	Value, which contains the string, which should be replaced can also be a variable
StringToReplace	String, which will be replaced
Replacement	New string, which will replace the other
OutputVariable	Variable which contains the new value, where the string has been replaced. If the input has been a variable, the output can be written to the same variable. Then the variable will be overwritten with the new value.
/Script	Variable is only valid for the actual script
/User	Variable is set for the actually logged on user in his user space. Only valid for the UserAdd section of a package. In the ServerAdd or ClientAdd section of the package /user would be set for the Columbus account and not for the logged on user.
/Machine	Variable is set in the machine space Best used in the ServerAdd and ClientAdd section of a package, for usage in the UserAdd section, Columbus must be able to write protected registry entries
/AllUsers	Variable is set for all new users in the default user space Best used in the ServerAdd and ClientAdd section of a package, for usage in the UserAdd section, Columbus must be able to write protected registry entries
/Immediate	Variable will be active immediately even, when used in the ServerAdd section, instead of writing it to the machvars.wms and setting it for the ClientAdd section. Only necessary for set command in ServerAdd section. In all other sections variables are always active immediately. Only use for packages, which will be installed locally and not for server based installation

Example

This command reads the username of the logged on User out of the WMI inventory. (This may be useful to detect the username in the Server and ClientAdd section of a package) The username will be returned as variable VarUser and has the value "MyDomain\\UserX"

```
WMIRead '' 'Win32_ComputerSystem' 'UserName' '' 'VarUser' /machine
```

With this command the \\ can be replaced by a single \ and the variable VarUser will contain the new value "MyDomain\UserX"

```
Replace '%VarUser%' '\\\' '\ ' 'VarUser' /machine
```

This value may then be used to for instance join this account into the local admin group or written to the machine inventory of Columbus, so you have the information in the machine feedback, which user was logged on the machine.

1.2.46 Return

Syntax Return

Description Can be used only in combination with GOTO command. If after a GOTO operation a RETURN is found, control goes back to the line following the GOTO Command

Example

```

if '%MyVar%'='' then GOTO SetVar
Iniwrite 'Debug' 'Myvar' '%MyVar%'
Goto End

:SetVar
Set Myvar='Set in Subroutine'
RETURN

:End

```

1.2.47 Run

Syntax	<code>RUN 'program' [<mode> [WAITDOWN TASK[:<n>] [/OnTimeoutReboot]] [/SYSTEM] [/NOERRORS] [/DesktopInteractionRequired [/DisableInput]]</code>
Description	Runs an external program 'program' with optional parameters.
Requirement	The file ColiSvc.exe must be present in the same folder as the Columbus.exe
Availability	Columbus 6.8

Parameter	Description
Program	Program (including Parameters) to be started. Must be enclosed in string delimiters.
Mode	Run-mode of the application. Allowed values are SHOW, HIDE, MINIMIZE, and MAXIMIZE
WAITDOWN TASK[:XX]	Waits until the specified task has become inactive. <i>Waitdown Task:xx</i> waits a maximum of xx minutes, then it continues with the operation of the script. Columbus continues with the execution after the specified seconds, regardless if the task is still running. This helps to avoid deadlock situations, in case a task crashes. Be careful if the started task is just a loader for the effective application. In that case this parameter does not work because Columbus only captures the status of the started process. The only way to handle such cases is to use the <i>Wait</i> command.
/System	Within the server and client sections you can use the <i>/System</i> switch telling Columbus to execute a program under the local System authority (attention: tasks under the System authority have no access to the network).
/OnTimeoutReboot	When the timeout has expired, script execution will be stopped with an error and Columbus will issue an immediate reboot. If the task will also fail after the reboot, there is the danger of an endless reboot.
/DesktopInteractionRequired	Some installation routines need an interaction with desktop of the currently user to execute properly. By default this is not possible when a program is called from the Server or Client part of the package, because this gets executed by the Columbus service in the background. When this switch is used the Management Client starts a helper service, which can interact with the desktop, but still has administrative rights. The helper service executes the program and after the execution it gets removed by the Management Client again. Requirement: the file ColiSvc.exe must be present in the same folder as the Columbus.exe

Parameter	Description
/DisableInput	If <i>DesktopInteractionRequired</i> is used, keyboard and mouse input from the logged on user can be disabled during installation, so that the user cannot interfere with the installation procedure.
/NoErrors	Does not stop the Package installation with an error. Continues to execute the script, even if the timeout has expired or the program could not have been started
/NoFileSystemRedirection	On 64-Bit operating system: do not turn off file system redirection (even if %_WindowsSystem64% is used)
/TrustedInstaller	Allows to to perform an operation under the security context of the TrustedInstaller instead of the current security context. This allows you to bypass issues where the current security context may not provide you with enough rights to perform an operation (so essentially bypassing Windows Resource Protection).

Note The Windows API has special requirements when dealing with directory or filenames, which contain blank characters. To allow running programs in such paths, you have to enclose the program's path and filename in double quotes (see example below). To avoid confusion you can add such double quotes to all RUN statements, even if you do not expect blanks in the path or filename. If you have to pass parameters to the program, which may again include blanks, then you will have to treat them the same way.

On Windows NT, performing a Run command in the ClientAdd or ServerAdd section of a package will not be shown on screen no matter if you use the SHOW or HIDE parameter because these commands are performed in NTs system space. When you run Notepad, for example, you will not see the notepad window. Only, when you check the processes in task manager you will see, that notepad is running. If you need to monitor such tasks for debugging purpose, you should first set the Columbus services to 'Allow Interact with Desktop' and reboot your workstation.

Example

```
Run 'Notepad.exe' show waitdown task
```

Note the double quotes because of the blank in the pathname:

```
Run '"c:\program files\test\notepad.exe" "c:\temp\test file.txt"' show
Run 'net use G: \\brainware3\demo' show waitdown task
```

Quiet installation using Microsoft Installer service

```
Run 'msiexec.exe /i /qn %_PkgSource%\example.msi' show waitdown task
If not '%_ErrorLevelRun%'='0' then GoTo ERROR
```

Install Office unattended with Microsoft native techniques, after preparing a transform with the Office resource kit

```
Run '%OfficeSource%\O2KTS.exe TRANSFORMS=%OfficeSource%\O2KTS.MST /i
%OfficeSource%\O2KTS.MSI /wait' show waitdown task
```

Switch Terminalserver to Install mode

```
if file '%_WindowsSystem%\mfadmin.exe' then run '%_WindowsSystem%\change user /install' show
waitdown task
```

Run an unattended installation and check status of installation, if setup.exe provides an errorlevel. Some Setup routines, created with Installshield tools, can be automated by providing a SETUP.ISS file.

```
Run '%_PkgSource%\DISK1\SETUP.EXE -SMS -S' show waitdown task
if '%_ErrorLevelRun%'='0' then goto SUCCESS
if '%_ErrorLevelRun%'='3' then goto ERROR
```

Automate MS Outlook postoffice files and Exchange profile creation, using the deployment kit tools

```
run '%PgmOffice2000%\office\newprof.exe -p %_Userprofile%\outlook.prf' show waitdown task
```

1.2.48 Run64

Syntax RUN64 'program' 'parameters' 'starting directory' [mode [WAITDOWN TASK[Wait timeout] [/System]] [/OnTimeoutReboot]] [/NoErrors] [/DesktopInteractionRequired] [/DisableInput] [/NoFileSystemRedirection]

Description Runs an external 64-Bit program 'program' with optional parameters.

Note That the parameters slightly differ from the Run parameter.

Parameter	Description
Program	Program (incl. Parameters) to be started. Must be enclosed in string delimiters.
Mode	Run-mode of the application. Allowed values are SHOW, HIDE, MINIMIZE, and MAXIMIZE
WAITDOWN TASK[:XX]	Waits until the specified task has become inactive. <i>Waitdown Task:xx</i> waits a maximum of xx minutes, then it continues with the operation of the script. Columbus continues with the execution after the specified seconds, regardless if the task is still running. This helps to avoid deadlock situations, in case a task crashes. Be careful if the started task is just a loader for the effective application. In that case this parameter does not work because Columbus only captures the status of the started process. The only way to handle such cases is to use the <i>Wait</i> command.
/System	Within the server and client sections you can use the /System switch telling Columbus to execute a program under the local System authority (attention: tasks under the System authority have no access to the network).
/OnTimeoutReboot	When using Waitdown Task:xxx and the task will not be terminated when the timeout occurs then an immediate reboot will be signalled. Attention: This could cause a situation where Columbus will reboob forever!
/DesktopInteractionRequired	Some installation routines need an interaction with desktop of the currently user to execute properly. By default this is not possible when a program is called from the Server or Client part of the package, because this gets executed by the Columbus service in the background. When this switch is used the Management Client starts a helper service, which can interact with the desktop, but still has administrative rights. The helper service executes the program and after the execution it gets removed by the Management Client again. Requirement: the file ColiSvc.exe must be present in the same folder as the Columbus.exe
/DisableInput	If DesktopInteractionRequired is used, keyboard and mouse input from the logged on user can be disabled during installation, so that the user cannot interfere with the installation procedure.
/NoErrors	This switch causes the client to ignore errors that might be returned from the executed program.
/NoFileSystemRedirection	On 64-Bit operating system: do not turn off file system redirection (even if %_WindowsSystem64% is used)

/TrustedInstaller	Allows to perform an operation under the security context of the TrustedInstaller instead of the current security context. This allows you to bypass issues where the current security context may not provide you with enough rights to perform an operation (so essentially bypassing Windows Resource Protection).
-------------------	---

The Windows API has special requirements when dealing with directory or filenames, which contain blank characters. To allow running programs in such paths, you have to enclose the program's path and filename in double quotes (see example below). To avoid confusion you can add such double quotes to all RUN statements, even if you do not expect blanks in the path or filename. If you have to pass parameters to the program, which may again include blanks, then you will have to treat them the same way.

On Windows NT, performing a Run command in the ClientAdd or ServerAdd section of a package will not be shown on screen no matter if you use the SHOW or HIDE parameter because these commands are performed in NT's system space. If you need to monitor such tasks for debugging purpose, you should first set the Columbus services to 'Allow Interact with Desktop' and reboot your workstation.

The Errorlevel of the application you ran is available in %_ErrorLevelRun% if you start the program with the WAITDOWN TASK parameter.

When starting a task with the RUN command, this task will be executed under the account of the Columbus user (Server- and Client sections) or under the authority of the currently logged on user (User sections). Within the server and client sections you can use the /System switch telling Columbus to execute a program under the local System authority (attention: tasks under the System authority have no access to the network!)

1.2.49 RunAs

Syntax RunAs '[Domain]' 'User' 'Password' 'Application' '[Params]' '[StartDir]' [<mode> [WAITDOWN TASK[:<n>] [/NoErrors] [/LoadUserProfile]

Description Runs application in the user part of the package with the privileges of the specified account instead of the logged on user. This makes it possible to execute programs, which either needs interaction with the user or must display something on the users desktop or must access any drive or settings of the logged on user with administrative rights. This command is similar to the RUNAS.EXE in Windows2000 and XP.

Availability Since version 5.2.3

Parameter	Description
Domain	Name of the domain, if the specified account is a member of a domain
User	Username of the account. the application will be executed under the name and with the privileges of this account.
Password	The password of the account must be encrypted with the PubliCrypt utility found in your Columbus download.
Application	Path and filename of the application, which should get executed. The full path to the executable and the full filename including extension must be specified.
Params	Optionally specify parameters for the application here
StartDir	Optionally define the startup folder for the application
ShowMode	Status of the application window upon startup. Values can be Show,Hide,Minimize or Maximize
WAITDOWN TASK[:XX]	Waits until the specified task has become inactive. <i>Waitdown Task:xx</i> waits a maximum of xx minutes, then it continues with the operation of the

	script. Columbus continues with the execution after the specified seconds, regardless if the task is still running. This helps to avoid deadlock situations, in case a task crashes. Be careful if the started task is just a loader for the effective application. In that case this parameter does not work because Columbus only captures the status of the started process. The only way to handle such cases is to use the <i>Wait</i> command.
/NoErrors	Does not stop the script with an error in case the application file does not exist or cannot be started
/LoadUser Profile	Optionally loads a userprofile for the specified account. This may be necessary for certain applications, especially MSI setup routines.
/NoFileSystemRedirection	On 64-Bit operating system: do not turn off file system redirection (even if %_WindowsSystem64% is used)

Example

This command starts the network control panel applet with the privileges of the local administrator and waits for the task to be finished but maximum 20 minutes.

```
[UserAdd]
RunAs '' 'Administrator' 'H#692635EF5ADF201EC8' '%_WindowsSystem%\ncpa.cpl' '' '' Show
Waitdown Task:20
```

Start a setup program from the cache folder of the package with the privileges of the Columbus account, so that the user can run this setup program manually.

```
RunAs 'MyDomain' 'Columbus' 'H#692635EF5ADF201EC8' '%_PkgCache%\setup.exe' '' '' ShowWaitdown
Task
```

1.2.50 Script

Syntax Begin Script 'ScriptType' 'Procedure' [Param1] [Param2] ...
 ...script commands...
 End Script

Description Allows you to integrate scripts designed for WSH (Windows scripting host) within Columbus scripts.
 The Return from integrated scripts can be used as %_ReturnValueScript%

Parameter	Description
ScriptType	Any valid WSH source, e.g. VBScript
Procedure	The procedure within the Script that should be launched.
Paramx	Parameter(s) that should be passed to the main procedure.

Example

```
BEGIN SCRIPT 'VBScript' 'Main' '%_Machine%'
Function Main (S)
  y = Left(S, Len(S)-(Len(S)-1))
  Main=y
End Function
END SCRIPT

log 'This is a "%_ReturnValueScript%" machine'
```

1.2.51 Service

Syntax SERVICE 'Name' 'File' 'DisplayName' 'Group' 'UserID' 'Password' /INSTALL [/DEVICE|FILESYSTEM] [/BOOTSTART | SYSTEMSTART | AUTOSTART | DEMANDSTART | DISABLEDSTART] [/VISIBLE] [/NOERRORS]
SERVICE 'Name' /REMOVE|START|STOP [/NOERRORS]

Description Installs or removes a Windows NT System Service. Special rights (System Administrator) are required to use this command. This command only registers the Service in the Service Control Manager's Database. In order to set the correct service parameters, some additional Register32 commands may be required.

This command must be inserted manually in the script for a detected service to work properly

Parameter	Description
Name	Name of the Service. This name is equivalent to the name of the service's subkey in the registry entry '\SYSTEM\CurrentControlSet\Services'.
File	Name and path of the file that contains the service.
DisplayName	Title to be displayed in the Service Control Panel. This parameter can be empty.
Group	Name of the Load order group the service is part of. This parameter can be empty.
UserID	UserID to be used for the Service. If none is specified, then the service will run under an internal system account.
Password	Password of the ID to be used.
/Install	Install a service. By default, a standard NT service process is assumed. By combining this switch with the /DEVICE or /FILESYSTEM switches, it can also install device drivers or file system drivers. The optional, additional switch /VISIBLE will turn on the visual interaction of the service with the user's desktop. In combination with the /INSTALL switch, you can also define different start modes for a service, such as: /BOOTSTART, /DEMANDSTART, /SYSTEMSTART, /AUTOSTART, or /DISABLEDSTART (to mark a disabled driver).
/Remove	Remove an existing service of any kind
/NoErrors	This parameter should be always specified to avoid having the script stop if the service cannot be installed because it is already running. It also avoids an error if the uninstall fails because the service does not exist.
/Start	This starts the service after installing it. Starting a service does not start any dependent services For this parameter to work, you must use the name of the service, which is identical to the registry key (as explained above) and not the displayname!
/Stop	Stops the specified service. Services that the actual service depends on must get stopped before. Note: Do not use the services Display name but the real name of the service (e.g. ClipSrv)
/NoFileSystemRedirection	On 64-Bit operating system: do not turn off file system redirection (even if %_WindowsSystem64% is used)

Note

Most services cannot be properly registered under NT by simply writing registry entries, but require you to call the Service Control Manager API. Determining which services fall into this category is fairly easy; just scan PACKAGE.WMS for values with the name 'ImagePath' in the HKey_Local_Machine\System\CurrentControlSet\Services hive. Every service that has such a value requires a special registration.

Example

Installs the service for the Compaq Sound system

```
Service 'CpqSnd' '%SystemRoot%\system32\drivers\cpqsnd.driv' 'Compaq Soundsystem' 'Base' ''
'' /INSTALL /SYSTEMSTART /DEVICE /NOERRORS
```

Removes the Columbus Service - we hope you never do this in a package:-)

```
Service 'BwColumbus' /REMOVE /NOERRORS
```

Stops the McAfee onaccess virusscan. This can help speed up package installation, because new files will not be scanned for viruses.

```
Service 'McShield' /Stop
```

This starts the service again

```
Service 'McShield' /Start
```

Tipp

If you still have problems with the service, be aware, that you can also use the standard WindowsNT commands to handle services in your package:

```
run '<path>\service.exe -install [-remove]' show waitdown task
run 'net start [stop] ServiceExeName' show waitdown task
run 'net start [stop] "Service Display Name"' show waitdown task
```

1.2.52 Set

Syntax SET *variable*='*value*' [/SCRIPT|USER|ALLUSERS|MACHINE] [/VOLATILE] [/IMMEDIATE] [/8.3]
SET *variable* /DELETE

Description Sets a string variable to the desired value. Variables can be User- or Machine-specific, but will be combined at the time of script execution. There is no limit to the number of allowed variables, but the name of a variable cannot be longer than 100 characters.

Parameter	Description
Variable	Name of the variable
Value	Value of the variable to be set. Allowed values are strings ('...') and environment variables (%...%). These types can be mixed together. The entire value has to be enclosed in single quotes ('). If single quotes are part of the text string, then double quotes (") can be used instead. If you leave the value empty (") this will delete any previous value and set an empty variable. The variable name will still be registered in the registry. So you can for instance override a Windows system variable with an empty value.
/Script	Variable is only valid for the actual script
/User	Variable is set for the actually logged on user in his user space. Only valid for the UserAdd section of a package. In the ServerAdd or ClientAdd section of the package /user would be set for the Columbus account and not for the logged on user.
/AllUsers	Variable is set for all new users in the default user space Best used in the ServerAdd and ClientAdd section of a package, for usage in the UserAdd section, Columbus must be able to write protected registry entries
/Machine	Variable is set in the machine space

Parameter	Description
	Best used in the ServerAdd and ClientAdd section of a package, for usage in the UserAdd section, Columbus must be able to write protected registry entries
/Immediate	Allows to make the variables immediately active (required when using within Server part of scripts).
/Volatile	Variable is only valid until the next reboot
/8.3	Variable is converted to 8.3 (e.g. C:\Program Files\Microsoft Office would get converted to C:\PROGRA~1\MICROS~1)
/Delete	Deletes the Columbus variable. Variable will get deleted out of the registry.

Note Columbus variables are only known to Columbus scripts, they are not set in the Windows environment!

Columbus stores the variables in the registry under HKLM\Software\Brainware\variables respectively under HKCU\Software\Brainware\variables!

When resolving a variable, Columbus first searches for the variable in the user space, when its not found there, Columbus looks for the variable in the machine space and last but not least in the WindowsNT environment. Therefore a Columbus variable overwrites a NT environment variable, a Columbus user variable overwrites a Columbus machine variable.

Note When using the /volatile or /immediate switch in the user part of the package, the /User switch must be set too!

When you use the set command, the Columbus variables gets stored in the registry. Without any parameter, the variable will be set for the machine, so when using the /volatile or /immediate switch without any parameter, this gets written to the machine hive of the registry! Under Windows 2000 or Windows XP the ordinary user does not have write access to this hive.

Example

```
Set TEMP='%_SystemDrive%\myTemp' /machine
Set USER='My Name'
```

This would cause the variable to be like 'C:\Progra~1\MyAppl~2'

```
Set sPgmMyApplication='%_ProgramFiles%\My Application2' /Machine /8.3
```

1.2.53 SetSystemRestorePoint

Syntax SetSystemRestorePoint [*Name*] [/Daily]

Description Creates a system restore point.

If the operation is successful the sequence number of the restore point will be saved in the variable %_LastSystemRestoreNumber%.

Availability Since Version 6.7

Parameter	Description
Description	Name of the system restore point. If omitted "Columbus Restore point from <Date>" will be used.
/Daily	Creates the system restore point only if for today no other System restore point has been created by Columbus.
/NoErrors	This switch causes Columbus to ignore any errors during creating the System restore point.

Note The feature SystemRestore must be supported by the operating system (like Windows XP) and must be enabled.

Example

```
SetSystemRestorePoint  
SetSystemRestorePoint 'Installation of Service pack for Office'  
SetSystemRestorePoint /Daily
```

1.2.54 SharedDLLCounter

Syntax SharedDLLCounter '*FileName*' [/INC[:xx] | /DEC[:xx]]

Description Creates or updates the usage counter of shared components in the registry.

Availability Since Version 6.7

Parameter	Description
FileName	The file name of the shared component that should be treated.
/Inc	Increases the usage counter by 1.
/Dec	Decreases the usage counter by 1.
/Inc:xx	Increases the usage counter by xx.
/Dec:xx	Decreases the usage counter by xx.
/NoErrors	This switch causes Columbus to ignore any errors during setting the Shared DLL counter.

Note Windows is keeping track of shared DLLs in the registry under

```
HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\CurrentVersion\Shared  
DLLs\FileName=UsageCounter
```

Setup routines are supposed to set or increase this counter if any shared DLLs get installed. The usage counter gets decreased by uninstall procedures, if they try to remove the DLL. If the counter is 0, this shared DLL will be deleted by the uninstall procedure.

Note It is highly recommended to use this command in snapshoted packages, when original uninstall procedures like MSI are used in other packages.

This command gets created automatically by PackageMaker beginning with version 6.7. If you want to use the latest version of PackageMaker but the Management Client will not get updated to at least to version 6.7, you may want to disable this feature in PackageMaker by setting the following entry in the configuration file PkgMaker.cfg, which is located in the application folder of PackageMaker:

```
[Options]  
UseSharedDLLCountersCommand=0
```

Example

```
SharedDLLCounter '%_WindowsSystem%\qchain.exe' /INC  
SharedDLLCounter '%_WindowsSystem%\msvcrt.dll' /INC:2
```

1.2.55 SharedDLLCounter64

Syntax SharedDLLCounter64 FileName /Inc /Dec /Inc:xx /Dec:xx [/NoErrors]

Description Creates / updates the registry entry counting the usage of shared components (for 64-Bit components on 64-Bit operating systems).

Parameter	Description
FileName	The file name of the shared component that should be treated.
/Inc	Increases the usage counter by 1.
/Dec	Decreases the usage counter by 1.
/Inc:xx	Increases the usage counter by xx.
/Dec:xx	Decreases the usage counter by xx.
/NoErrors	This switch causes Columbus to ignore any errors during setting the Shared Dll counter.

1.2.56 ShortCut

Syntax SHORTCUT 'LinkFile' 'FileToLaunch[,Parameters]' ['StartDir' ['Icon' ['Description']] []] [/Maximize|/Minimize|/Show|/Hide] ! SHORTCUT 'LinkFile' /Delete [/NoErrors] [/NoFileSystemRedirection] [/RunAsAdmin]

Description Creates or deletes a shortcut in the designated directory. The shortcut can point to executables as well as documents or other objects.

Parameter	Description
LinkFile	Path and name of the link file to be created. If the file is generated in the user's menu structure, or the desktop area, then its filename (without the path) will be used as the display title Pay attention, when creating a shortcut to a DOS-program, NT will create a file with the extension ".pif" instead of ".lnk".
FileToLaunch	Path and name of the file object you want to associate with this shortcut. This may be an executable or any document type for which an association has been defined. If you need to call an executable with one or more parameters, they need to be separated from the executable by a ',' (comma) - see the example.
StartDir	Start path where the application is launched.
Icon	Location and Index of the Icon for the Shortcut. The notation is 'Filepath,Index' where Filepath is the path of the file containing the icon, and Index is an integer index of the icon in this file (first is 0). If no index is specified, then the first icon in the file is assumed
Description	Icon description, which appears under Windows 2000 or Millenium, when you drag the mouse over the icon
/Delete	Specifies that the shortcut (LinkFile) should get deleted (available from Columbus 6.10 upwards).
/NoErrors	This switch causes Columbus to ignore any errors that might be raised while creating the shortcut.
/NoFileSystemRedirection	On 64-bit operating system: do not turn off file system redirection (even if %_WindowsSystem64% is used)

/Show	Default when nothing is specified. Opens the application window with the application default
/Maximize	Maximizes the application window upon startup.
/Minimize	Minimizes the application window upon startup.
/Hide	Hides the application window upon startup.
/Delete	Removes the shortcut specified by LinkFile.
/RunAsAdmin	Specifies that the target application will be launched under different user account. Depending on the operating system and the user rights this can act in different ways: For Operating systems earlier than Windows Vista this will indicate that the target application will be launched under a different user account. For Windows Vista and higher it will ask a normal user for the new account detail (like e.g. on Windows XP), for an administrator it will start the target application automatically with administrator rights.

Note For specifying the groupname in the startmenu or on the desktop, always use the built in variables of Columbus. This makes the package flexible, so it will work on Windows NT/2000/XP and on different language versions of Windows. For more information see the list of variables.

- _CommonDesktop
- _CommonFavorites
- _CommonStartMenu
- _CommonStartup
- _Desktop
- _Favorites
- _Programs
- _SendTo
- _StartMenu
- _Startup

Example

Shortcut on User Desktop:

```
ShortCut '%_Desktop%\Protocol.lnk' '%Data%\protocol.doc' '%_PkgTarget%\Startdir'
'%_Windows%\Notepad.exe,0'
```

Shortcut in User Startmenu:

```
ShortCut '%_StartMenu%\Protocol.lnk' '%Pgm%\winword.exe, %Data%\test.doc'
'%_SystemDrive%\Data' '%_Windows%\Notepad.exe'
```

The second example calls WinWord with a parameter of '%Data%\test.doc'.

Remove a shortcut:

```
ShortCut '%_Desktop%\Protocol.lnk' /Delete
```

1.2.57 System

Syntax

```
SYSTEM REBOOT
SYSTEM REBOOT IMMEDIATE
SYSTEM REBOOT ONREBOOTOPERATIONS
SYSTEM REFRESH
SYSTEM LOGOUT
SYSTEM LOGOUT IMMEDIATE [/FORCE]
```

- Description** Perform a workstation reboot or send a message to all running processes about certain system updates.
Allows to perform a scripted logout from within the user section of a script.
- Availability** Since version 6.9.3

Parameter	Description
REBOOT	Reboots the current machine (Windows 9x and NT). If the Friendly Shutdown Option of CCONFIG is used, a Dialogbox with a 'cancel' option will be shown before the reboot takes place
IMMEDIATE	Causes an immediate Reboot after installation of the current package. If the Friendly Shutdown Option of CCONFIG is used, a dialog box with a 'cancel' option will be shown before the reboot takes place.
ONREBOOT OPERATIONS	Only Reboots a machine if filerename or filereplace operations are pending.
REFRESH	Sends a message to all processes that system settings have changed. (Not recommended on newer OS than NT 4.0)
LOGOUT	Allows to perform a scripted logout from within the user section of a script.

If the Friendly Shutdown Option is activated for the Management Client, a dialog will be shown and the user has to allow the reboot to take place by clicking on "Reboot Now"

Example

System Reboot at next possibility:

```
System Reboot
```

System Reboot after end this script section:

```
System Reboot Immediate
```

Perform a scripted User logout immediately:

```
System Logout Immediate
```

Perform a scripted User logout after end of processing:

```
System Logout
```

1.2.58 Textfile

Syntax Textfile 'Filename' 'Textline' /Add [/IfExists:"TexttoFind" | /IfNotexists:"TexttoFind"] [/AtTop | /AtEnd | /BeforeEntry:"Entry" | /AfterEntry:"Entry"] [/AllowDuplicates] [/OmitTrailingCRLF] [/NoErrors] [/NoFileSystemRedirection]

Description Textfile can modify textfiles that are not in an INI file based format. The textfile should be line based. This command allows you to add, change or delete lines in files like Serives, Hosts and similar files.

Main functions are:

- Textfile 'Filename' 'Textline' /Add (adds a line if it does not exist yet)
- Textfile 'Filename' 'Search' 'Replace' /Replace (Search / Replace)
- Textfile 'Filename' 'Search' 'Textline' /ReplaceLine (Replace entire line while searching only for a part of a line)
- Textfile 'Filename' 'Text' /Delete (Delete line containing the specified text)

- Textfile 'Filename' 'Textline' /DeleteLine (Delete a line, requires the entire line to be specified)

Availability

Since Version 5.1

AllowDuplicates since since Version 5.2.2

OmitTrailingCRLF since since Version 5.2.4

Parameter	Description
Filename	Specifies the file that should get modified
Textline	Specifies an entire line (not case sensitive)
/Add	Specifies that a line should get added
/IfExists:"..."	Specifies that a line should get added only if a specific text entry already exists
/IfNotExists:"..."	Specifies that a line should get added only if a specific text entry does not exist yet
/AtTop	The entry should get added at the beginning of the file
/AtEnd	The entry should get added at the end of the file
/BeforeEntry:"..."	The entry should get added just before the first occurrence of the text specified
/AfterEntry:"..."	The entry should get just after the first occurrence of the text specified
Search	The text that should be searched for
Replace	The text that should be replace the text that got searched
/Replace	Specifies that a Search/Replace should be performed
/First	Specifies that Replace or Delete functions terminate after the have been executed once (to avoid multiple Replace or Delete)
/ReplaceLine	Specifies that a Search/Replace of an entire line should be performed
/AddifMissing	The text the should get replaced will get added if the search text could not get found
/Delete	Specifies that a Delete should be performed
/Deleteline	Specifies that a DeleteLine should be performed
/AllowDuplicates	Allows that the line that should be added can appear more than once (e.g. for writing TNSNAMES.ORA or SQLNET.ORA)
/NoErrors	If during the textfile manipulation an error occurs the error will be ignored and the execution of the script will be continued.
/OmitTrailingCRLF	If this switch is specified the file will be written without a carriage return / line feed for the last line. if you have severla textfile commands for the same file this switch is only required for the last textfile command.
/CreateAnsi	Creates the file in ANSI format (if the file is not existing yet), this is the default.
/CreateUnicode	Creates the file in UNICODE format (if the file is not existing yet)
/NoFileSystemRedirection	On 64-Bit operating system: do not turn off file system redirection (even if %_WindowsSystem64% is used)

1.2.59 UnRegisterFile

Syntax

UnRegisterFile 'file' [/NOERRORS]

Description

Performs the self-de-registration of a file (e.g. DLL). So the registration entries under HKEY_CLASSES_ROOT will be deleted automatically by the file.

Availability Since Version 5.1

Parameter	Description
Filename	Every file which supports selfregistration, like .dll, .ocx, .vbx...
/NoErrors	Does not show errormessage
/NoFileSystem Redirection	On 64-Bit operating system: do not turn off file system redirection (even if %_WindowsSystem64% is used)

Note Wildcards are not allowed.

Be extremely careful by unregistering and deleting files, because most of these components are used by a lot of programs. Make sure, that no other program is using this file anymore.

Example

Unregisters the Adobe Acrobat ActiveX component for viewing pdf files in the browser

```
Register '%_ProgramFiles%\Adobe\Acrobat\pdf.ocx'
```

1.2.60 Wait

Syntax WAIT <waittime>

Description Wait for the specified time (in milliseconds), before continuing with the next script command.

Parameter	Description
Waittime	Milliseconds to wait

Note No variables are allowed. The value has to be specified as an absolute integer.

Example

Wait 5 seconds

```
WAIT 5000
```

1.2.61 Wallpaper

Syntax WALLPAPER 'filepath' [/user]

Description Change the wallpaper of the system (default), this is the one, which gets displayed on the logon panel or the user (with /User switch)

Availability Since Version 5.0

Parameter	Description
Filename	Fully qualified name of the bitmap including path. The file must be a Windows Bitmap with the extension ".bmp"
/User	Change the wallpaper of the currently logged on user. This is only valid in the [UserAdd] and [UserRemove] sections of a package
/NoFileSystem Redirection	On 64-Bit operating system: do not turn off file system redirection (even if %_WindowsSystem64% is used)

Note The users wallpaper is changed immediately. While a system wallpaper requires a login/logout or a system reboot to become active.

Example

```
Wallpaper '%_Windows%\MyPicture.bmp' /User  
Wallpaper '%_Windows%\LogonPicture.bmp'
```

1.2.62 WMIRead

Syntax WMIRead '*machine*' '*wmiclass*' '*wmiproperty*' '*wqlstatement*' '*VariableName*'
[/immediate] [/machine|user]

Description Allows to read any WMI inventory data and returns the value in a Columbus variable for use in scripts or forwarding it to the Console.

Parameter	Description
Machine	Name of the machine, where the query should take place. In the moment only the current machine is supported, so this value has to be empty or a dot ".".
WMIclass	Name of the WMI class to be queried
WMIproperty	Name of the property of the specified class, which should be evaluated. Every class can have a lot of properties.
WQLStatement	WQL statement to make the selection more precise. WMI supports a subset of SQL for queries, if a class can have more values, for instance installed printers.
VariableName	The name of the variable to which you want to assign the retrieved value
/Immediate	Needed, when a value gets read in the ServerAdd section and should be used in the same ServerAdd section. Cause variable to be set immediately instead of being written to the machvars.wms, where it would be available in the ClientAdd section
/Machine	Variable set in the machine part. This is the default
/User	When command is used in the UserAdd section and the user has no write access to the machine hive of the registry, this option must be used. Sets the variable in the user hive of the registry.

WMI (Windows Management Instrumentation) is the standard access interface to Windows Inventory data including Hardware, Configuration or installed Software. WMI is available by default on Windows 2000/XP. In order to use it on Windows NT4, you need to download WMI components from Microsoft free of charge.

Using "WMIRead" will allow you to bind installation decisions to inventory parameters (e.g. 'if memory is higher than n and network adapter is y then install). Also you may use "WMIRead" in combination with the "WriteInventory" command to forward the retrieved values to the Consoles feedback file.

A sample package how to extend the Columbus Feedback data is available in Columbus download.

Note Download the Microsoft WMI SDK from the Microsoft website, to find out possible values (class and properties) to query. The syntax for WQL is also described there.

Example

Reads the driveletter of the first connected drive

```
WMIREAD '' 'Win32_LogicalDisk' 'DeviceID' '' 'DriveLetter' /immediate /machine
```

Determine on which driveletter the computers CD Rom drive is and store this in the Columbus variable %CDRomDriveLetter%

```
WMIREAD '' 'Win32_LogicalDisk' 'DeviceID' 'where Description="CD-ROM Disc"'  
'CDRomDriveLetter' /immediate /machine
```

Determine the name of the Computer Model and store this in the Columbus variable %Model%

```
WMIREAD '' 'Win32_ComputerSystem' 'Model' '' 'Model' /immediate /machine
```

1.2.63 WriteInventory

Syntax WriteInventory '*dataclass*' '*dataitem*' '*title*' '*value*' '*valuetype*' [/USER|
/MACHINE] [/APPEND|/DELETE]

Description Adding data to the Columbus Inventory

Availability Since Version 5.1

Parameter	Description																												
Dataclass	<p>The Columbus Inventory can be hierarchically structured. There are two levels. The topmost level is called data class. This can be the numeric ID of the item in Management Console or one of the aliases for the following default classes. More can be defined</p> <table border="0"> <tr> <td>00009</td> <td>SOFTWARE</td> <td>00013</td> <td>OSDEPLOY</td> </tr> <tr> <td>30000</td> <td>PKGCOMPLETE</td> <td>00015</td> <td>ORGANISATION</td> </tr> <tr> <td>30001</td> <td>PKGWAITING</td> <td>00016</td> <td>HELPDESK</td> </tr> <tr> <td>30002</td> <td>PKGERROR</td> <td>00017</td> <td>GENERAL</td> </tr> <tr> <td>00006</td> <td>SYSTEM</td> <td></td> <td></td> </tr> </table>	00009	SOFTWARE	00013	OSDEPLOY	30000	PKGCOMPLETE	00015	ORGANISATION	30001	PKGWAITING	00016	HELPDESK	30002	PKGERROR	00017	GENERAL	00006	SYSTEM										
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30000	PKGCOMPLETE	00015	ORGANISATION																										
30001	PKGWAITING	00016	HELPDESK																										
30002	PKGERROR	00017	GENERAL																										
00006	SYSTEM																												
Dataitem	<p>The data item is the second level in the Columbus Inventory, every data item belongs to a data class. This can be the numeric ID of the item in Management Console or one of the aliases for the following default items</p> <table border="0"> <tr> <td>00001</td> <td>BOARD</td> <td>00008</td> <td>POINTING</td> </tr> <tr> <td>00002</td> <td>BIOS</td> <td>00009</td> <td>PRINTER</td> </tr> <tr> <td>00003</td> <td>PROCESSOR</td> <td>00010</td> <td>DRIVE</td> </tr> <tr> <td>00004</td> <td>RAM</td> <td>00011</td> <td>PORTS</td> </tr> <tr> <td>00005</td> <td>OS</td> <td>00001</td> <td>MSLOG</td> </tr> <tr> <td>00006</td> <td>NETWORK</td> <td>00002</td> <td>Columbus</td> </tr> <tr> <td>00007</td> <td>DISPLAY</td> <td>00099</td> <td>GENERIC</td> </tr> </table>	00001	BOARD	00008	POINTING	00002	BIOS	00009	PRINTER	00003	PROCESSOR	00010	DRIVE	00004	RAM	00011	PORTS	00005	OS	00001	MSLOG	00006	NETWORK	00002	Columbus	00007	DISPLAY	00099	GENERIC
00001	BOARD	00008	POINTING																										
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00003	PROCESSOR	00010	DRIVE																										
00004	RAM	00011	PORTS																										
00005	OS	00001	MSLOG																										
00006	NETWORK	00002	Columbus																										
00007	DISPLAY	00099	GENERIC																										
Title	Every data item contains one or more Titles. This is the title or name of the single item, as to be displayed in Management Console, like Memory Load, Free C:....																												
Value	Reported value																												

Parameter	Description																																
Unit	Type of the value, the following types are available <table border="0"> <tr> <td>1</td> <td>bytes</td> <td>9</td> <td>milliseconds</td> </tr> <tr> <td>2</td> <td>kilobytes</td> <td>10</td> <td>seconds</td> </tr> <tr> <td>3</td> <td>megabytes</td> <td>11</td> <td>minutes</td> </tr> <tr> <td>4</td> <td>gigabytes</td> <td>12</td> <td>hours</td> </tr> <tr> <td>5</td> <td>points</td> <td>13</td> <td>days</td> </tr> <tr> <td>6</td> <td>pixels</td> <td>14</td> <td>time</td> </tr> <tr> <td>7</td> <td>inch</td> <td>15</td> <td>%</td> </tr> <tr> <td>8</td> <td>centimeter</td> <td>16</td> <td>string</td> </tr> </table>	1	bytes	9	milliseconds	2	kilobytes	10	seconds	3	megabytes	11	minutes	4	gigabytes	12	hours	5	points	13	days	6	pixels	14	time	7	inch	15	%	8	centimeter	16	string
1	bytes	9	milliseconds																														
2	kilobytes	10	seconds																														
3	megabytes	11	minutes																														
4	gigabytes	12	hours																														
5	points	13	days																														
6	pixels	14	time																														
7	inch	15	%																														
8	centimeter	16	string																														
/User	Data will be added to the user inventory																																
/Machine	Data will be added to the machine inventory. This is the default if nothing is specified																																
/Append	Appends entries to inventory																																
/Delete	Deletes existing inventory entries WriteInventory /DELETE deletes the complete inventory information Use with caution, static information, which will not be refreshed every time, like the OSDeploy protocol will get lost. You can not destroy the Columbus inventory, because the Columbus default inventory items gets deleted and recreated automatically every time Columbus runs																																

Example

Deleting Inventory entries

```
WriteInventory 'dataclass' 'dataitem' 'title' /DELETE
WriteInventory 'dataclass' 'dataitem' /DELETE
WriteInventory 'dataclass' /DELETE
WriteInventory /DELETE
```

Retrieving MAC Adress from computer with VB Script and write it into the Columbus Inventory

```
...
END SCRIPT
WriteInventory 'SYSTEM' 'NETWORK' 'Primary MAC Address' '%_ReturnValueScript%' 'STRING'
if '%_ReturnValueScript%'='ERROR' then WriteInventory 'SYSTEM' 'NETWORK' 'Primary MAC Address'
'error
retrieving value' 'STRING'
if '%_ReturnValueScript%'='' then WriteInventory 'SYSTEM' 'NETWORK' 'Primary MAC Address' 'n/a'
'STRING'
```

1.3 Performing Special Tasks

1.3.1 Using Windows Scripting Host

Columbus allows you the seamless embedding of Windows Scripting Host code within a WMS Script file. To do so, your system needs first of all Windows Scripting Host to be installed. On Windows 98, 2000, XP and 2003 this is by default the case, while you need to install it separately on Windows NT4. The code for this is available on the Microsoft WEB Site.

Under Windows Vista the default Scripting Environment will be the PowerShell, which is not yet supported for embedding. You will have to execute such scripts using the *run* or *runas* functionality, which by the way is always an alternate method for all kind of scripts.

Why using Scripting Host

Columbus by default is a Software Distribution and Configuration system. All Columbus WMS Commands have been designed for this purpose, but sometimes you have special needs for more flexibility such as a pop-up of a user interface where people can enter some information or you want to look up information in the Active Directory.

The logic required for such action can be extremely complex and is not required by everybody. Also this type of logic and interaction with other technologies may change very often. This for we have decided to use Microsofts embedded scripting support which offers a wide range of functionality while still leaving you the choice of your language with VBScript and JavaScript (other languages such as Python and Kixx may be offered by other companies, but are currently not tested in <BW> although they may be compatible).

How to embed code in a Columbus Script

In general you can write and test your VBScript or Jscript code as documented in Microsoft manuals. Once the code executes as desired, you embed it in a Columbus WMS script as follows:

```
[any package section]
..Columbus code
BEGIN SCRIPT 'VBScript' 'Main' 'parameter1' 'parameter2'
Sub Main (x,y)
    MsgBox "my parameters are: " & x & " and " & y
End Sub
END SCRIPT
..Columbus code
```

Code may be embedded into any section of a Columbus package including repeating sections but you should consider that the handover between two scripting engines is time consuming, so you should avoid making multiple scripts in repeating sections, running at each login.

Also you should be aware (like in the usage of RUN commands), that the user may only see dialog boxes presented out of one of the User sections. Dialog Boxes presented in a ClientAdd section for example would lead into a blocked Columbus System as nobody could press the required buttons. In order to avoid this, we have built in an automatism which stop any scripts in system sections to display output to the user interface. If you try to do so, your script will terminate with a 'permission denied' error.

This also means that you should test your script code carefully to avoid any message boxes from popping up in the system section.

Limitations

Columbus allows you up to 5 Parameters to be passed to the script. Each parameter has a limitation of the length of 1000 characters. All passed parameters are strings. Parameters may contain Columbus variables as well as System variables. Sample: 'My login name is %_User%' is a valid parameter and will be passed to the script with your resolved Windows login name.

The return value from a script is also in string form and will be stored in a Columbus variable named %_ReturnValueScript% which you may use in the WMS script. If the script terminates with an error, Columbus will treat this the same as if a normal Columbus script line will have an error and terminate the whole Columbus script.

Scripting Host Examples

Please check the <BW> knowledge base on the WEB and the example packages of the download for more samples.

Retrieve the MAC Address of a built in adapter

```
[ClientAdd]
BEGIN SCRIPT 'VBScript' 'Main' '%_Machine%'

Function Main(computername)
  Set wmi = GetObject("winmgmts://" & computername)
  macliste = GetMACAddress(wmi)
  Main=macliste
End Function

Function GetMACAddress(wmiobj)
  wql = "select * from win32_NetworkAdapterConfiguration where IPEnabled = true"
  Set result = wmiobj.ExecQuery(wql)
  For each card in result
    list = card.MACAddress
  Next
  GetMACAddress = list
End Function

END SCRIPT
; write value into
WriteInventory 'SYSTEM' 'NETWORK' 'Primary MAC Address' '%_ReturnValueScript%' 'STRING'
if '%_ReturnValueScript%'='ERROR' then WriteInventory 'SYSTEM' 'NETWORK' 'Primary MAC Address'
'error
retrieving value' 'STRING'
if '%_ReturnValueScript%'='' then WriteInventory 'SYSTEM' 'NETWORK' 'Primary MAC Address' 'n/a'
'String'
```

1.3.2 Managing Errors with 'On Error' and 'Error ON/OFF'

During installation of software many error conditions may arise. While default treatment of Columbus is to cancel a failed installation at the failure point and retrying it at a later time, some applications require special treatment for rollback, database recovery or other action in case of a failed installation.

In order to manage Columbus error treatment, we offer 2 commands:

- | | |
|--------------------|--|
| ERROR ON/OFF | Allows to order Columbus to ignore errors |
| ON ERROR <command> | Allows to process any Columbus command including IF or GOTO when an error occurs |

ERROR ON/OFF

By default, at the beginning of any script, error mode is set to ON, which means that errors will be recognized and lead into canceling the running script unless the /NOERRORS switch is used on commands which allow to do so.

Setting ERROR OFF will cause that all command lines being processed after this command will ignore errors which may occur during their processing.

Example

```
ERROR OFF
COPY '%_PkgCache%\User\*.*' TO 'U:\MYFILES\'
```

Will not produce an error even if the U: drive is not accessible or the user has not enough rights. You may turn off this behaviour again by using ERROR ON or it will be turned on automatically when starting to process the next script.

ON ERROR <command>

This command allows you instead of just ignoring an error to take active counteraction such as starting a routine for a database rollback, remapping a drive and many more.

ON ERROR may be followed by any other Columbus command including IF, GOTO or any other. After executing the command behind the ON ERROR clause, the script processing will automatically return to the line which caused the error. Only exception to this is when you are using ON ERROR GOTO... in such case, the script will branch to that label and not return unless you use the RETURN command.

Sample which will abort in case of an error:

```
[section]
ON ERROR Exit 'The installation of the database failed.'
Copy '%source%\database.dbf' to '%target%'.
```

Sample which will not abort

```
[section]
ON ERROR Goto ErrorHandler
Copy '%source%\database.dbf' to '%target%'.
Goto End
:ErrorHandler
; take any counteraction
...
RETURN
:End
```

Sample A

```
On Error goto FIXA
Copy '%_PkgSource%\Server\Test\*.*' to '%_ProgramFiles%' /changed /sub
goto NEXTA

:FIXA
IF a_FIXA='We were already here' THEN EXIT 'label FIXA: Could not recover from error'
attrib '%_ProgramFiles%\Test\*.*' '-R-H-S' /SUB
delete '%_temp%\*.*'
SET a_FIXA='We were already here' /SCRIPT
Return

:NEXTA
;=== Clear the last active error handling event and continue script
processing
On Error
```

Sample B

```
On Error goto FIXB
MSI '%_PkgCache%\Client\MSI\ZfdAgent.msi' 'ACTION="INSTALL"
TRANSFORMS="%_PkgCache%\Client\MSI\ZfdAgent.MST"'

/LOG:"c:\logs\%_PkgIdentifier%\%Computername%.log" /AppendToLog /none
goto NEXT

:FIXB
IF a_FIXB='We were already here' THEN EXIT 'label FIXB: Could not recover from error'

;=== The MSI command returned a soft error, so we will continue
; the script process at the next command
IF '%_ERRORLEVEL%'='3010' THEN GOTO NEXTB

;=== The MSI command returned an ERROR_INSTALL_TEMP_UNWRITABLE error:
; The Temp folder is on a drive that is full or is inaccessible.
; Free up space or verify that you have write permission.
; We will need to clean up the temp directory before we continue with
the script process
IF '%_ERRORLEVEL%'='MSI1632' THEN delete '%_temp%\*.*'

SET a_FIXB='We were already here' /SCRIPT
Return

:NEXTB
;=== Clear the last active error handling event and continue script
processing
On Error
```

CHAPTER 2

Variables Reference

In this chapter

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All modern software is heavily dependent on its environment. This environment is defined by configuration parameters such as user-names, paths in the Windows registry and other configuration files. If you are certain that a package is always going to be used in exactly the same environment, you often may omit variables, but give it a try and you will find that it open a whole new world of options which you will like.

2.1 Using Variables

While the use of system variables in DOS and Windows 3.x has been fairly well known and often practiced in batch files and other languages, Windows 95 and NT have changed and added many new variables – unfortunately not using consistent naming conventions among these operating systems.

The Columbus script engine offers an additional system of variables. This allows you to add your own variables via a SET command, and also automatically generates a basic set of variables containing machine-specific data. The names of the variables are consistent among Windows 95 and Windows NT/2000/XP/2003..., including variables with values that change between language versions of these OS'. So if you use, for example, the variable %_Programs%, you will automatically address the Programs menu folder of the current user, no matter if you are running the script under Windows 95 or NT, and no matter if this is an English, German, or Japanese system. This allows you to provide truly portable packages for worldwide use, but remember that these variables can only be used in Columbus scripts as Windows will not be aware of them.

The values of these variables will vary between systems. If you look for example at the value of the variable '%_StartMenu%', you will find as part of the string in an English environment 'Start Menu', while a German system will show 'Start Menü'. By using these variables, you as a 'Packager' will not have to worry about such differences when creating portable packages for multinational corporations.

Note As Columbus names all automatically generated variables with a leading underscore '_', we recommend that you do not use this in your own variables.

2.2 Description of Variables

Value	Description
VariableName	Name of the variable, all internal Columbus variables name start with an

Value	Description
	underscore " _ "
Description	Short description of the variable <i>Symbols, for the OS, where the variable is available and in which part of the package the variable will be available</i> some samples of variable values
Scope	
NT5	Windows XP
NT6	Windows Vista / Windows Seven / Windows 2008 Server Note on NT6: Please keep in mind that many user specific variables are re-directs.
TS	TS=Terminal Server
M	Defined and stored in the machine part of the registry, for use in the Server-, Client- and UserAdd/Remove section of the package HKLM\Software\Brainware\Variables\Static
(M)	Copy of uservariable stored in the machine part of the registry. When no user is logged on and variable is used in Server or Client Add section, at least the values from the last logged on user are available
S	Script variable, only valid for the currently executed script HKLM\Software\Brainware\Variables\Script\Scriptname
I	Immediate variable, gets calculated everytime, not stored in the registry
U	Defined and stored in the user part of the registry, for use in the UserAdd/Remove section of the package HKCU\Software\Brainware\Variables\Static Do not use in Server- and ClientAdd section of the package, especially not on a terminal server

There are also a lot of other Variables Like `_Office11Version`.

2.3 List of Variables

Variable	Description
_64-BitOS Env: NT 5/6 Scope: M	This variable return if the OS is 64 bit architecture or not. <code>0 1</code>
_AdminPath Env: NT 5/6 Scope: M	Full path to the Software administration folder, where the machine is administered from. Note SWAdmin needs to be set in <code>Columbus.cfg</code> or template. <code>\\<MyColumbusServer>\Columbus</code>
_AdminServer Env: NT 5/6 Scope: M	The name of the server, where the machine is administered from, when path is in UNC notation. Note SWAdmin must be set in <code>Columbus.cfg</code> or template. <code>MyColumbusServer</code>
_AllUsersProfile Env: NT 5/6 Scope: M	Path to the All Users profile folder NT5: <code>C:\Documents and Settings\All Users</code> NT6: <code>C:\ProgramData</code>

Variable	Description
_ApplicationData Env: NT 5/6 Scope: U, (M)	Path to the AppData folder in the userprofile. Default path for storing application settings NT5: C:\Documents and Settings\<user>\Application Data</user> NT6: C:\Users\<user>\AppData\Roaming</user>
_CommonDesktop Env: NT 5/6 Scope: Y	Path to the desktop folder in the All Users profile NT5: C:\Documents and Settings\All Users\Desktop NT6: C:\Users\Public\Desktop
_CommonDocuments Env: NT 5/6 Scope: M	Path to the Documents folder in the All Users profile. Used for favorites in taskbar and bookmarks from IE. NT5: C:\Documents and Settings\All Users\Favorites NT6: C:\Dokumente und Einstellungen\All Users\Favoriten
_CommonFiles Env: NT 5/6 Scope: M	Path to the Common Files folder, the default path for shared components. NT5/6: C:\Program Files\Common Files
_CommonPrograms Env: NT 5/6 Scope: M	Path to the Start Menu\Programs folder in the All Users profile menuoption <i>Programs</i> in the taskbar. NT5: C:\Documents and Settings\All Users\Start Menu\Programs NT6: C:\ProgramData\Microsoft\Windows\Start Menu\Programs
_CommonStartMenu Env: NT 5/6 Scope: M	Path to the Start Menu folder in the All Users profile. Menu items appear in the root of the taskbar (same level as <i>Programs</i>) NT5: C:\Documents and Settings\All Users\Start Menu\Programs NT6: C:\ProgramData\Microsoft\Windows\Start Menu\Programs
_CommonStartup Env: NT 5/6 Scope: M	Path to the Start Menu\Programs\Startup folder in the All Users profile. Menuitems will be started, when any user logs in NT5: C:\Documents and Settings\All Users\Start Menu\Startup NT6: C:\ProgramData\Microsoft\Windows\Start Menu\Startup
_CommonTemplates Env: NT 5/6 Scope: M	Path to the templates folder in the All Users profile NT5: C:\Documents and Settings\All Users\Templates NT6: C:\ProgramData\Microsoft\Windows\Templates
_ComputerFQDN Env: NT 5/6 Scope: M	Contains the fully qualified domain name. If the client is in a workgroup, only the machine name is returned. NT5/6: testxp.acme.local
_CostCenter Env: N/A Scope: M	Costcenter value from the client properties of the console <CustomValue>
_Desktop Env: NT 5/6 Scope: U (M)	Path to the desktop folder in the current users profile NT5: C:\Documents and Settings\<user>\Desktop</user> NT6: C:\Users\<user>\Desktop</user>
_DeviceFiles Env: NT 5/6 Scope: M	Path to the device file folder C:\WINDOWS\INF
_ErrorLevelRun Env: Columbus Scope: S	Returns the exitcode of the started appliaction with the Run " command <application specific>

Variable	Description
_Favorites Env: NT 5/6 Scope: U	Path to the favorites folder in the current users profile NT5: C:\Documents and Settings\<user>\favorites< a=""> NT6: C:\Users\<user>\favorites< a=""></user>\favorites<></user>\favorites<>
_Fonts Env: NT 5/6 Scope: M	Path to the fonts folder, as configured for the current user C:\Windows\Fonts
_GroupAdministrators Env: NT 5/6 Scope: M	Name of the local Administrators Group, which is different in the various language version of the OS Administrators Administrators ...
_GroupEveryone Env: NT 5/6 Scope: M	Name of the local Everyone Group, which is different in the various language version of the OS Local Everyone Group Everyone Jeder ...
_GroupGuests Env: NT 5/6 Scope: M	Name of the local Guest Group, which is different in the various language version of the OS Guests Gäste ...
_GroupPowerUsers Env: NT 5/6 Scope: M	Name of the local PowerUsers Group, which is different in the various language version of the OS Power Users Hauptbenutzer ...
_GroupUsers Env: NT 5/6 Scope: M	Name of the local Users Group, which is different in the various language version of the OS Users Benutzer ...
_IndexDate Env: Columbus Scope: I	Current system date with format <code>yyyymmdd</code> See also: <code>_TimeStamp</code> 20010413
_IndexTime Env: Columbus Scope: I	Current system time with format: <code>hhmmss</code> See also: <code>_TimeStamp</code> 132400
_Machine Env: NT 5/6 Scope: M	Netbios name of the machine, same as variable <code>%Computername%</code> testxp
_MediaFiles Env: NT 5/6 Scope: U	Path to the default folder for multimedia files C:\WINDOWS\MEDIA
_MachineSessionMode Env: NT 5/6 Scope: U	May be used to determine in a USER script if the current session is a Console (local) session or a remote (Terminal Server) session. CONSOLE = local session TERMINAL = Terminal Server Remote Session
_MSICommonFiles Env: NT 5/6 Scope: M	Allows to address the CommonFiles folder as MSI does (C?\...) Allows to relocate MSI based applications to another application folder C?\Program Files\Common Files
_MSIProgramFiles Env: NT 5/6 Scope: M	Allows to address the Program Files folder as MSI does (C?\...) Allows to relocate MSI based applications to another application folder C?\Program Files

Variable	Description
_MSIWindows Env: NT 5/6 Scope: M	Allows to address the Windows default folder as MSI does (C?\...) Allows MSI based applications to function properly, when renaming the Windows folder C?\WINDOWS
_MSIWindowsSystem Env: NT 5/6 Scope: M	Allows to address the Windows system folder as MSI does (C?\...) Allows MSI based applications to function properly, when renaming the Windows folder C?\WINNT\System32 C?\WINDOWS\System32
_MSIPkgTarget Env: NT 5/6 Scope: S	Allows to address the Columbus default application target path as MSI does (C?\...) Allows to relocate MSI based applications to another application folder C?\Apps C?\Progs C?\Program Files ...
_NetHood Env: NT 5/6 Scope: U (M)	Path to the NetHood folder in the current users profile Like favorites only for Network neighborhood, but not widely used yet NT5: C:\Documents and Settings\<user>\NetHood</user> NT6: C:\Users\<user>\AppData\Roaming\Microsoft\Windows\Network Shortcuts</user>
_OSMajorVersion Env: NT 5/6 Scope: M	Major version of the OS
_OSMinorVersion Env: NT 5/6 Scope: M	Minor version of the OS
_OSTechnology Env: NT 5/6 Scope: M	Type of OS you are running on WIN9X = Windows 95/98/ME WINNT= NT5 / NT6
_OSType Env: NT 5/6 Scope: M	This variable shows if the OS is a NT Server, WS or 9X/ME WS. NT_SERVER NT_WORKSTATION
_Personal Env: NT 5/6 Scope: M	Path to the Personal folder in the current users profile Default folder for saving documents, known as My Documents NT5: C:\Documents and Settings\<user>\My Documents</user> NT6: C:\Users\<user>\Documents</user>
_PkgCache Env: Columbus Scope: S	Local cache folder for this package for storing Package.ini , Package.wms and User- and Client part of the package. Client and Userpart installation will be executed out of this folder. C:\WINNT\CACHE\Notes5_GE_02_0 C:\Columbus\Cache\MSOffice2000_EN_01_0
_PkgSource Env: Columbus Scope: S	Package source folder on the package area. Points to the folder, where the Package.ini file is located. Note This variable will be only usable in <i>ServerAdd</i> . In all other Sections the variable has the same value as <code>_PkgCache</code> \\<MyServer\Packages\$MSOffice2000.EN\01.0
_PkgTarget Env: Columbus Scope: S	Configured default target application folder for the Management Client C:\Apps C:\Progs C:\Program Files

Variable	Description
_PrintHood Env: NT 5/6 Scope: U (M)	Path to the PrintHood folder in the current users profile Designed like Network neighbourhood only for printers, but not widely used yet NT5: C:\Documents and Settings\<user>\PrintHood</user> NT6: C:\Users\<user>\AppData\Roaming\Microsoft\Windows\Printer Shortcuts</user>
_ProgramFiles _ProgramFiles32 _ProgramFiles64 Env: NT 5/6 Scope: M	Path to the Program Files folder default installation folder for applications. Please not the difference depending on the OS architecture On 32 bit systems: _ProgramFiles = C:\Program Files On 64 bit systems: _ProgramFiles = C:\Program Files (x86) _ProgramFiles32 = C:\Program Files _ProgramFiles64 = C:\Program Files (x86)
_Programs Env: NT 5/6 Scope: U (M)	Path to the Start Menu\Programs folder in the current users profile menu option <i>Programs</i> in the taskbar NT5: C:\Documents and Settings\<user>\Start Menu\Programs</user> NT6: C:\Users\<user>\AppData\Roaming\Microsoft\Windows\Start Menu\Programs</user>
_Recent Env: NT 5/6 Scope: U (M)	Path to the recent folder in the current users profile. Contains recently opened documents. Those items appear in <i>Documents</i> menu of the taskbar. Normally a package should not copy such items. NT5: C:\Documents and Settings\<user>\Recent</user> NT6: C:\Users\<user>\AppData\Roaming\Microsoft\Windows\Recent</user>
_SendTo Env: NT 5/6 Scope: U (M)	Path to the SendTo folder in the current users profile. Items appear under the "Send To" context menu, when using the right mouse button in explorer NT5: C:\Documents and Settings\<user>\SendTo</user> NT6: C:\Users\<user>\AppData\Roaming\Microsoft\Windows\SendTo</user>
_StartMenu Env: NT 5/6 Scope: U (M)	Path to the Start Menu folder in the current users profile. Menu items appear in the root of the taskbar (same level as "Programs") NT5: C:\Documents and Settings\<user>\Start Menu</user> NT6: C:\Users\<user>\AppData\Roaming\Microsoft\Windows\Start Menu</user>
_Startup Env: NT 5/6 Scope: U (M)	Path to the Start Menu\Programs\Startup folder in the current users profile. Menu items will be started, when this user logs in. NT5: C:\Documents and Settings\MyUserName\Start Menu\Programs\Startup NT6: C:\Users\<user>\Appdata\Roaming\Microsoft\Windows\Start Menu \Programs\Startup</user>
_SystemDrive Env: NT 5/6 Scope: M	Drive, where the OS is installed. Similar to the variable %SystemDrive% under NT/2000/XP, but with trailing backslash. C:\
_SystemLocale Env: NT 5/6 Scope: M	Currently configured default language settings for the system set in ControlPanel/Regional Options \$0407 \$0409

Variable	Description
_TargetMachine Env: Columbus Scope: S	This variable offers you the name of the machine where the package is about to be installed to. Needed, when using the remote installation featur of the Management Client. A machione with the Client running, can install packages onto another machine (fileserver). MyMachineName MyApplicationServerName
_Templates Env: NT 5/6 Scope: U	Path to the templates folder in the current users profile. NT5: C:\Documents and Settings\MyUserName\Templates NT6: C:\Users\<User>\AppData\Roaming\Microsoft\Windows\Templates
_TimeStamp Env: Columbus Scope: I	Current date and time in OS format (yyyymmddhhmmss) See also: _IndexDate , _IndexTime 20010523115000
_User Env: NT 5/6 Scope: U (M)	Login name of the currently logged on user, same as variable %Username% in <User>
_UserAdministrator Env: NT 5/6 Scope: M	Login name of the built in local default account "Administrator", which is different in the various language version of the OS Administrator Administrateur
_UserFullname Env: NT 5/6 Scope: U	Full name of the user as defined on the primary domain controler. If this cannot be found, the local machine will be searched. Use for mailbox name for Microsoft Outlook automation or MS Office user registration. The retrieval of the user full name can take 5 to 20 seconds depending on the domain controller. If this time is too long and the variable is not used in packages, the retrieval of the variable can be switched off, by adding "" to the Columbus config key in the registry. <MyFirstName MyLastName>
_UserLocale Env: NT 5/6 Scope: U	Currently configured language settings for the current user set in ControlPanel/Regional Options \$0407 \$0409
_UserOwner Env: NT 5/6 Scope: U	Name of the built in access control right, which is different in the various language version of the OS CREATOR OWNER ERSTELLER-BESITZER
_UserProfile Env: NT 5/6 Scope: U	Path to the user profile folder of the current user. The users profile folder contains the user registry (NTUser.dat) and all the shell folders like Startmenu, My Documents, Desktop, Favorites... NT5: C:\Documents and Settings\<User> NT6: C:\Users\<User>
_UserSystem Env: NT 5/6 Scope: M	Loginname of the built in local default account "System", which is different in some language versions of the OS. Best used in parameters for tools like regperm, xcacls, grant, net user /add, when started with the run command SYSTEM SYSTEME ...
_Windows Env: NT 5/6 Scope: M	Path to the Windows folder. On a Terminal Server, this folder gets mirrored to the users profile, therefore this is a user variable in Columbus. To get the real Systemroot of the machine on a Terminal Server ue _WindowsInstallDir instead. C:\WINDOWS

Variable	Description
_WindowsInstallDir Env: NT 5/6 Scope: M TS	Path to the original Windows folder on the machine on a Terminal server. Points to the real Systemroot of the machine, also on a Terminal server C:\WINDOWS
_WindowsSystem _WindowsSystem32 _WindowsSystem64 Env: NT 5/6 Scope: M	Path to the Windows system folder. Please the path depends on the OS architecture On 32 Bit systems _WindowsSystem = C:\Windows\System32 On 64 bit systems _WindowsSystem = C:\Windows\System32 _WindowsSystem32 = C:\Windows\Syswow64 _WindowsSystem64 = C:\Windows\System32

2.4 Variables in 8.3 Notation

Some software requires still the 16-Bit 8.3 (short) notation of directory paths. Starting from Columbus 3.5v22, we offer the most common paths also in a 'short' version :

Long Version	Short Version
%_ProgramFiles%	_%_sProgramFiles%
%_CommonFiles%	_%_sCommonFiles%
%_PkgSource%	_%_sPkgSource%
%_PkgCache%	_%_sPkgCache%
%_PkgTarget%	_%_sPkgTarget%

Please use these variables only where necessary as similar directories may cause similar variable values, especially when used in mixed NT and NetWare server environments as their naming conventions are not the same.

2.5 Environment Variables

Columbus variables can only be used in Columbus scripts. They are not set in the environment space of the OS, because there are so many of them and a lot of them make only sense for Columbus scripts.

Besides these Columbus variables, you can also continue to use the standard Windows 95, NT or 2000 system variables.

Note Within a Columbus script, a Columbus variable will override a system variable.

So if you define a new Columbus variable 'TEMP', then the original value of TEMP on the system level will no longer be available in a Columbus script, the Columbus variable will always win.

2.6 Package Run-Time Variables

Like some of the User- and Machine specific variables, which are generated when the system starts or a new user logs on, Columbus prepares a set of special variables for every package that is processed. These variables are only valid for the running script and can not be referenced from other scripts.

This variables are set separately for every script, so there are two sets of run-time variables. The first set is available during processing of the ServerAdd/Remove section of a package, so the actual delivery of an application to the target machine. When the Package gets installed onto a file server all variables will point to the file server and `_PkgSource` to the package server.

The second set is available during processing of the Client- and UserAdd/Remove section of the package. All variables will point to the local machine now. The variable `_PkgSource` is identical with `_PkgCache`. When the package has not been installed onto a file server, all other variables have identical values as for the ServerAdd/Remove section

Variable	Description
<code>_%_PkgSource%</code> <code>_%_sPkgSource%</code>	This variable addresses the storage location where the package is coming from (on your package area). It points to the location where the <code>Package.ini</code> was found and does not include a final <code>\</code> . For the Client- and UserAdd/Remove sections this variable is identical with <code>_PkgCache</code> as all of the configuration steps are based on the contents of the Columbus Cache.
<code>_%_PkgTarget%</code> <code>_%_sPkgTarget%</code> <code>_%_MSIPkgTarget%</code>	This value names the target application directory that was configured for the current machine the package is installed to. When installing Columbus to a machine, the Administrator has to configure such an application path (e.g. <code>C:\Program Files</code> or <code>C:\APPS</code>). Using this value as an application path basis (by appending a application specific directory) will allow you to install a package to servers, desktops and laptops without a change in the package.
<code>_%_PkgCache%</code> <code>_%_sPkgCache%</code>	When delivering an application from the package area to the target machine, where the application will run, Columbus will deposit the items which are required for USERADD and CLIENTADD (so the configuration part of a package) in a cache. The <code>_PkgCache</code> variable points to the exact location where this cache will be stored.
<code>_%_TargetMachine%</code>	This variable offers you the name of the machine where the package is about to be installed to.

CHAPTER 3

Configurations

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The following pages describe all possible configurations entries in the Windows registry for the Columbus Deploy Client.

3.1 Introduction

All configuration settings for the Management Client are stored in the registry under the key

```
HKLM\Software\Brainware\Columbus\7\Client\Config
```

Normally these entries get created automatically, when configuring the Client with the Configuration tool or using a Columbus configuration file (Columbus.cfg).

If Columbus is used and controlled by 3rd party solutions like SMS, Tivoli or through the use of Microsoft Group Policies, you have to know the exact meaning and the possible values of these entries.

3.2 Secure Settings

The following settings contain the vital settings for the Columbus user account. Because this includes the password of a local administrative account, these settings are stored in a special registry key, which is hidden from users.

```
HKLM\Software\Brainware\Columbus\7\Client\Config\Secure
```

Though the password is encrypted, special security is set on this key, so that no user may see the encrypted password, which adds even a higher level of security.

LogonUser

Value <Accountname>

Name of user account, Columbus uses to log on to the machine. MUST have local administrator rights.

```
LogonUser=_Columbus
```

LogonDomain

Value <domainname>

If the Columbus user account is a Domain account enter domain name here

```
LogonDomain=MyDomain
```

LogonPW

Value Encrypted HEX string

Encrypted password of the Columbus user account The tool CRYPTIT.EXE from Columbus 5 must be used to generate the encrypted password.

In the registry, the entry must begin with "H#". If H# is not specified in the Columbus.cfg file, it will be added automatically by Columbus when the entry is written to the registry. When using a local Columbus account, the password can also get generated automatically by Columbus.

```
LogonPW=H#HB777973B2483E148B95B1086E9D8B3DD3C52
```

DoNotAllowColumusCfg

Value	0	No (default)
	1	Yes

This value will be added to the registry as soon as the Columbus service has processed a configuration file (Columbus.cfg). Then the service will not process this file again, so that no unauthorized person can reconfigure Columbus with a file of his own.

3.3 Main Configuration Entries

Company

Value <company name>

Availability Columbus 6.4

Description Name of company exactly as defined in the tree of the Management Console. The value is case sensitive. If more then one company is defined in the Console the Management Client must have this setting to be able to perform an auto registration of new computers to the Columbus database.

Example

```
Company=<BW> Solutions
```


DolgnoreTerminalSession

Value	0	No (default)
	1	Yes

Description

When running in a remote session, the Management Client automatically disables some menus and procedures to protect for example a Terminal Server from being rebooted by a normal end-user logging into a session. Columbus normally recognizes virtual clients as remote user sessions, and the 1:1 relationship between the user and the client in the context of virtualization is not properly supported.

The Management Client can treat a virtual client as a normal client instead of a remote user session with the DolgnoreTerminalSession configuration switch in the Client Configuration. When DolgnoreTerminalSession is set to '1', the Management Client will behave on this system identically to a normal physical PC.

<SigWar> When setting this on a Terminal Server, all users logging in could trigger any pending SW installation which may cause a reboot of the server.

UNCUser

Value <Accountname>

Description

Name of user account, Columbus uses to connect to the software administration and to the package area on the network. We call it the alternate connection account. This is necessary for Novell NDS accounts.

Example

UNCUser=_Columbus

UNCDomain

Value <domainname><Accountname>

Description

If the alternate connection account is a Domain account enter domain name here, leave empty for Novell NDS accounts.

Example

UNCDomain=MyDomain

UNCPassword

Value encrypted HEX string

Description

Encrypted password of the Columbus user account The tool CRYPTIT.EXE from Columbus 5 must be used to generate the encrypted password. In the registry, the entry must begin with "H#", if this is not specified in the Columbus.cfg file it will be added automatically by Columbus during processing.

Example

UNCPassword=HB777973B2483E148B95B1086E9D8B3DD3C52

UNCUseForPersonalSession

Value	0	No (default)
	1	Yes

Description If set to 1, Columbus will use the alternate connection account also for user connections, so you have to manage one account on the network only.

SWAdmin

Value	<Path>	\\<MySWAdminServer>\<Share> <LocalDrive>:\<MySWAdminFolder>
--------------	--------	--

Description Path to location, where the machine is administered from. In this share or folder there must be a subdirectory named data. The path must be in UNC Notation, when located on a server. Every user must have read access to this directory and change right for ..\data\transfer, the Columbus account change rights.

3.4 Communication Settings

For accessing the Columbus database, the Columbus agent can be configured to use <BW>'s own Object Transfer Bus OTB. This is a very efficient and secure, pure IP port based communication layer, which speeds up and reduces the network traffic between client and database. The settings are defined in the registry under [HKLM\Software\Brainware\Columbus\6\Client\Config](#).

Note All these settings require Columbus 6.5 or higher.

OTBActive

Value	0	No (Default)
	1	Yes

If set to 1, the Management Client will communicate with the database over OTB. OTBPort and Host must be specified to and fit the settings on the Infrastructure server (Columbus Base Agent).

`OTBActive=1`

OTBHost

Value <Computername>

Name of the infrastructure server, where the Columbus Base Agent is configured for OTB. The Net BIOS name or IP address may be used.

`Host=MyServer`

OTBPort

Value <portnumber> The default is 24784

Number of the IP port, which should be used for OTB. This port must be opened for Columbus on the network (routers, firewalls...)

OTBPort=24784

OTBCompress

Value 0 No
 1 Yes (default)

If set to 1, Columbus will compress the data sent over OTB. This will reduce network traffic and improves speed.

OTBBandwidth

Value <bytes per second> Default is 0 for no limitation

Maximum data transfer speed in bytes per second between client and server. If different settings are specified on client and server the lower value will be used.

OTBBandwidth=56000

3.5 General Settings Entries

The following settings help to customize the behaviour of the Management Client. The settings are defined in the registry under [HKLM\Software\Brainware\Columbus\7\Client\Config](#).

3.5.1 3rdPartyFeedback

Value 0 No activity(default)
 99999 Package processing running

Shows the status, if Columbus is processing packages or not. This is an internal system entry and must not be modified. External tools can check the status of the Management Client easily by checking this value.

3.5.2 AcceptInactivePackages

Value 0 Do not accept inactive packages and patches
 1 accept inactive packages (default)
 2 accept inactive patches
 3 accept inactive packages and patches

Should packages or patches with wrong check sums be installed? It is not necessary to disable packages or patches with wrong checksum in general in CMC. It is possible to just configure some special critical computer do not accept such packages with this entry.

3.5.3 AllowPackageReinstall

Value	0	No
	1	Yes (default)

If the menu inventory and this entry are enabled, the user can select packages and reinstall them. Then he does not have to call the helpdesk, to do so. If the packages are tested for reinstall, this setting is recommended.

3.5.4 AllowProtectedUserOverwrites

Value	0	No
	1	Yes (default)

Availability Columbus 5.11

If this entry is enabled, it is possible to write some protected user registry entries out of the user part of the package. This enables the creation of policy and group policy entries. Therefore, you can take advantage of group policy settings under Windows 2000 and XP even without Active Directory.

The <BW> hive in the registry cannot be written, because of security reasons.

3.5.5 AllowRepeatingPackagesInOfflineMode

Value	0	No
	1	Yes (default)

Availability Columbus 5.1

Allows the processing of repeating packages, when the Management Client can not connect to the network. This can be used, when Columbus does not process packages, when connected via RAS (RASDoNotProcessPackages is set).

3.5.6 AutomatedPasswordChange

Value	0	No (default)
	1	Yes

Availability Columbus 6.5

When using a local Columbus account, the Columbus service can set a random password for this account, when it creates the account. So no password must be specified. In networked environment you would have to specify an additional network account to reach the SWDepot. See *UNCUser* below.

This setting may be used, when you consider it to be a security issue to have a local administrative account with the same password on every computer.

3.5.7 Bandwidth

Value <n> Default is 0

Allowed maximum of Bytes/Second to be transferred by the COPY command.

3.5.8 CacheConfigActive

Value 0 No (default)
1 Yes

Availability Columbus 6.5.3 only

When set to 1 the Client caches the logon and package information for 15 minutes. Especially providing the package list creates heavy load on the database server and causes some network traffic. Setting this value to 1 will increase overall Columbus performance.

Drawback is, that newly assigned or removed packages will only get processed 15 Minutes after the last run of the client.

With Columbus 6.6 caching is handled automatically by the Management Client.

3.5.9 CacheConnectionsActive

Value 0 No
1 Yes (default)

Availability Columbus 6.5.3 only

When set to 1 the Client keeps the database or OTB connection to the server opened until it completely finished processing. This reduces the load on the database server.

Because of a completely new and optimized connection handling this setting is not needed for Columbus 6.6 anymore.

3.5.10 ClientDesignPath

Value <Path> Default is empty

Path of background images, which change the look of the Client interface. Needed, when images are placed in different folder then Columbus.exe

3.5.11 ColumbusDisplayMode

Value 0 No
1 Yes (default)

Should Management Client pop up and display, which packages are installed?

3.5.12 DisableNetworkedPackageSources

DisableNetworkedPackageSources

Values	0	No (default)
	1	Yes

Availability: Columbus 5.2.3 - 5.2.7, 6.8

With this setting enabled, the Management Client will not access packages over a network, it will only accept packages from local drives, e.g from a cached package area.

This may be useful if a client is offline. Without this switch Columbus may stay opened for a certain time, trying to locate the network package source.

This setting must be set directly in the registry.

3.5.13 DoFriendlyInstall

Value	0	Disabled (default)
	1	Enabled

Should list of new packages be displayed and the user be asked, if he allows the installation to take place

if you activate FriendlyInstall, you should also set the value FriendlyMaxDeny, so that the user can only delay the installation for a certain time. You may also specify FriendlyDefaultAction and FriendlyDefaultTime, as described below.

This setting can be overwritten by single packages, which have Friendly=No configured in their package.ini file.

3.5.14 DoNotAllowRemoteShutdown

DoNotAllowRemoteShutdown

Values	0	Allowed (default)
	1	Not allowed

Availability: Columbus 6.8

By default, a computer running the Columbus service can be forced to shut down remotely from the Console. To prevent some computers from being shut down this setting can be enabled. Then the Client ignores shut down commands

3.5.15 DoNotAutoStartAdminInstall

DoNotAutoStartAdminInstall

Values	0	Started (default)
	1	Not started

By default, the Columbus service automatically starts installing packages two minutes after a computer gets powered on, even when no user is logged on. When you set this entry to 1, the Management Client does not automatically start installing packages.

It is recommended that you leave it disabled, then the computer must just be switched on for package installation, e.g. by Wake on LAN.

Enable it, when you start Columbus out of the logon script, or for e.g. laptops, which are mostly disconnected from the Columbus server or if you want, that the user has to start Columbus manually.

This only applies for server and client parts of packages.

3.5.16 DoNotCheckAdminGroup

DoNotCheckAdminGroup

Values	0	Checked (default)
	1	Not checked

Availability: Columbus 5.1

By default Columbus checks if the Columbus account is member of the local administrators group, if not Columbus will automatically add this account to the local administrators group. If you enable this entry, Columbus will not do this check.

3.5.17 DoNotForceClientRemoveByUser

DoNotForceClientRemoveByUser

Values	0	Disabled
	1	Enabled (highly recommended)

If set to '0' the client part of a package will be removed on the machine, when the package is not assigned to the current user. When another user, having the package assigned, logs on, the client part must be installed again (Reboot!)

If you activate this setting, check the ClientRemove and ClientAdd sections of your packages, if this behavior does no harm.

3.5.18 DoNotReadEnhancedUserInfo

Value	0	Disabled
	1	Enabled (default)

By default Columbus retrieves the full name of the logged on user account from the domain controller. If this takes too long in your environment and the variable `_userfullname` is not needed, this behaviour can be switched off.

3.5.19 DoNotMinimizeAtStartup

Value	0	Disabled (default)
	1	Enabled

Availability Columbus 6.6

Even when ColumbusDisplayMode is set to 1, the Management Client, starting from version 6 on, only pops up from the taskbar, when processing server parts of packages. So the user does not get disturbed by the Columbus window, if nothing gets installed.

Especially when you start Columbus from a login script or any other task, which is waiting for the Management Client to finish, you may set this value to 1. Then the client window gets always displayed and the user sees that he has to wait until the Management Client finishes.

3.5.20 DoNotReboot

Value	0	Disabled (default)
	1	Enabled

Should Columbus never initiate a reboot?

This is indented to be used on Terminal servers for regular users.

3.5.21 DoNotUpdateProtectedFiles

Value	0	Disabled (default)
	1	Enabled

Availability Columbus 5.2.1

You may turn off the functionality, that Columbus is able to update even files, which are under Windows System File Protection.

If this value is set to 1, for instance a Microsoft Internet Explorer update package may fail, because IE needs some updated system files.

3.5.22 FileRenameCleanup

Value	0	Do nothing
	1	Cleanup on Columbus reboot
	2	Cleanup on Columbus service stop
	3	Combines 1 and 2

Availability Columbus 6.7

Columbus checks for eventually registered *Pending Filerename Operations* and makes sure, that only the latest version of a file will get copied to the system at the next reboot. Older versions of the same file will get removed. This is the same functionality as found in the Microsoft tool qchain.exe.

This is very important especially for Patch Management, where multiple patches may try to replace the same file. When this file is in use, a "Pending Filerename Operation" will get registered. But this mechanism does not take care, that the latest version will win.

3.5.23 FriendlyMaxDeny

Value <n> Recommended 3

Number, how often the user can reject the installation, when Friendly Install is enabled. If the counter is reached, installation will take place without asking.

3.5.24 FriendlyReboot

Value 0 No (default)
1 Yes

Should the user be allowed to delay the reboot? If set to 1, the Management Client will display a list of the packages to be installed and asks the user for confirmation. The user can let Columbus install the packages now or delay the installation, then the Management Client will not start processing.

3.5.25 FriendlyDefaultAction

Values INSTALL
DELAY

Requirement DoFriendlyInstall must be 1. FriendlyDefaultTimeout must be set

Availability Columbus 6.5

Defines the default action which should take place, when a user does not react on the display of the friendly install list within the specified Friendly Default Timeout.

Install means, Columbus starts installing the packages, if the user does not click on delay within the time frame.

Delay means Columbus just closes and does not install packages, if the user does not click on install within the time frame.

The recommend value is INSTALL

This setting is not provided by the Client Configuration Template, it must be added to a Columbus.cfg file manually or configured in the registry directly by a package.

3.5.26 FriendlyDefaultTimeout

Value <n> In seconds

Requirement DoFriendlyInstall must be 1. FriendlyDefaultAction must be set

Availability Columbus 6.5

Timeout in seconds, the Management Client will wait for user input unless it continues with the FriendlyDefaultAction. Recommended values would be within 10 to 30 seconds.

This value is not supported in the Client Configuration Template, it must be added to a Columbus.cfg file manually or configured in the registry directly by a package.

3.5.27 FriendlyDelayUnit

Value [empty] default
DAYS

Availability Columbus 6.5

If DoFriendlyInstall is enabled, FriendlyMaxDeny is defined, and this setting is set to Days, then the MaxDeny counter only gets decreased once per day and not at every run of Columbus.

Example

```
DoFriendlyInstall=1  
FriendlyMaxDeny=3  
FriendlyDelayUnit=DAYS
```

With this option, you allow to user to delay a friendly install for 3 days, even if the user logs on to the computer multiple times a day

This value is not supported in the Client Configuration Template, it must be added to a Columbus.cfg file manually or configured in the registry directly by a package.

3.5.28 FriendlyMaxDeny

3.5.29 ForceReboot

Value 0 No (default)
1 Yes

With the default shutdown procedure, the user will be asked to save opened documents and has the option to cancel the reboot. If the system cannot be shut down this way, this registry setting can be set. The Management Client will then do a forced shutdown, which is the same as the command shutdown.exe -F. Please use with caution, the user will not be asked to save opened documents, so it is possible, that a user loses data.

IgnoreConditionalUsage

Value 0 Disabled (default)
1 Enabled

Availability Columbus 6.3

Packages with the setting "AllowConditionalUsage=1" in the Package.ini get installed automatically for every user, where the condition is true.

You may not want this behaviour on certain PCs, for instance in some departments. When IgnoreConditionalUsage is set to 1, the Management Client ignores the conditional usage functionality for user parts. Every package must be assigned to the user to get installed.

Important This setting is set per client and is valid for all packages.

3.5.30 Language

Value xx Empty by default (English)

Availability Columbus 5.1

Code of the language file Columbus_**.ini to load. The language file must exist on the client, otherwise the language stays english.

By default this value is set per machine, but it can also be specified for every user in the user hive of the registry: [HKey_Current_User\Software\Columbus\6\Config](#)

Example

If you name the language file "Columbus_ge.ini", the language code must be "ge".

3.5.31 MenuColorActive

Value <n> Colour code

Availability Columbus 5.1

Font code of menu entries, when you move the mouse cursor over the menu entry or when you click on it.

Generate the code by specifying the color in the Client Configuration Dialog in CMC Client Configuration Template

3.5.32 MenuColorPassive

Value <n> Colour code

Availability Columbus 5.1

Font code of menu entries, when the menu is not selected and the mouse cursor has not been moved over this entry.

Generate the code by specifying the color in the Client Configuration Dialog in CMC Client Configuration Template.

3.5.33 ProcessTimer[n]

n 1-9 Max. 9 timers possible

Single timer YYYYMMDD,HHMM

Date and time or time when software distribution task should be started automatically. Repeated execution on any selection of week days and times (per hour).

Example

Single execution at 2001 Sept. 11th., 04 o'clock

```
ProcessTimer1=20010911,0400
```

3.5.34 ProcessTimerDelay

3.5.35 RASDoNotProcessPackages

Value	0	No (default)
	1	Yes

Availability Columbus 5.1

Does not process any package installations, when a RAS connection is active. But you can allow the processing of repeating packages, by setting AllowRepeatingPackagesInOfflineMode to 1.

3.5.36 RebootCountDown

Value	<n>	n seconds Default is 20 seconds
--------------	-----	------------------------------------

Number of seconds Columbus is waiting until the reboot takes place, if the Friendly reboot is not allowed.

3.5.37 ReducedVerifyAftercopy

Value	0	Full verification after every file copy, if the target file exactly matches the source file, to avoid file corruption caused by bad network connections. This is the default
	1	The file attributes of the copied files will not be verified after a copy or expand operation.
	2	The file attributes and the file size will not be verified after a copy or expand operation.

Availability Columbus 5.2

Switch of verification, if files have to be copied to or from Unix or Linux servers (Samba). File attributes and sometimes size will be different on those systems, though the file has been copied correctly.

3.5.38 SendFeedbackOnProcessingStart

Value	0	No
	1	Yes (default)

Availability Columbus 5.2.2

The Management Client sends feedback to the console before and after processing packages. So actual feedback information is provided, even in case of errors. This behaviour can be deactivated by setting this value to "0", then feedback is written only after processing the packages.

3.5.39 SMSFeedback

Value	0	Disabled (default)
	1	Enabled

Should the complete Columbus Feedback also be provided in MIF files for Microsoft's System Management Server?

3.5.40 SMSLocation

Value Path and name of MIF file

Location where the MIF files will be generated, has to match your SMS configuration.

Example C:\WINNT\ColPkg.mif

Location where the MIF files will be generated, has to match your SMS configuration.

3.5.41 StartColumbus

Value Columbus.exe

Specifies, that Columbus will be started with the run command in the Registry, this means, everytime a user logs on.

3.5.42 TerminateAfterRun

Value	0	Disabled (default)
	1	Enabled

When enabled Columbus will terminate after having processed software delivery. This will save memory, but you loose the remote installation features for the user part.

3.5.43 UserProcessAtStartUp

Value	0	No
	1	Yes (default)

Should Columbus process user parts of packages automatically when Columbus gets started?

If set to 0, the user must start Software Distribution manually (e.g. via menu).

3.6 PowerScheme Entries

MenuHelpdesk

Value	0	Disabled
	1	Enabled (highly recommended)

To make the Helpdesk menu a useful option for the end users, the following Helpdesk settings should be adapted to your company settings.

- 3.6.1 PowerSchemeActive**
 - 3.6.2 PowerSchemeDiskTimeOut_AC**
 - 3.6.3 PowerSchemeDiskTimeOut_DC**
 - 3.6.4 PowerSchemeForceActive**
 - 3.6.5 PowerSchemeHibernateTimeOut_AC**
 - 3.6.6 PowerSchemeHibernateTimeOut_DC**
 - 3.6.7 PowerSchemeMonitorTimeOut_AC**
 - 3.6.8 PowerSchemeMonitorTimeOut_DC**
 - 3.6.9 PowerSchemeName**
 - 3.6.10 PowerSchemeStandByTimeOut_AC**
 - 3.6.11 PowerSchemeStandByTimeOut_DC**
-

3.7 InventoryScanner Entries

DisableEnhancedInventory

Values	0	No (default)
	1	Yes

With this setting enabled, the Management Client will not process any inventory jobs and will not transmit inventory data to the Columbus server

Just the very basic built in inventory and package feedback is provided for proper administration and statusmessages in the Console.

This setting must be set directly in the registry.

InvCreateProducts

Values	0	No (default)
	1	Yes

Enables or disables software product creation from microsoft uninstall information

InvDeleteResultFiles

Values	0	No (default)
	1	Yes

InvFtpPort

InvHwAPM

Values	0	No (default)
	1	Yes

InvHwAudio

Values	0	No (default)
	1	Yes

InvHwCPU

Values	0	No (default)
	1	Yes

InvHwDevices

Values	0	No (default)
	1	Yes

InvHwDrives

Values	0	No (default)
	1	Yes

InvHwEngines

Values	0	No (default)
	1	Yes

InvHwLocation

Values	0	No (default)
	1	Yes

InvHwMainboard

Values	0	No (default)
	1	Yes

InvHwMemory

Values	0	No (default)
	1	Yes

InvHwMonitor

Values	0	No (default)
	1	Yes

InvHwNetwork

Values	0	No (default)
	1	Yes

InvHwPrinters

Values	0	No (default)
	1	Yes

InvHwSoftware

Values	0	No (default)
	1	Yes

InvHwUSB

Values	0	No (default)
	1	Yes

InvHwVideo

Values	0	No (default)
	1	Yes

InvHwWindows

Values	0	No (default)
	1	Yes

InvNetResultsPath

Values	0	No (default)
	1	Yes

InvOtbHost

Values	0	No (default)
	1	Yes

InvOtbLogon

Values	0	No (default)
	1	Yes

InvOtbPassword

Values	0	No (default)
	1	Yes

InvOtbPort

Values	0	No (default)
	1	Yes

InvOtbProductlistPath

Values	0	No (default)
	1	Yes

InvOtbResultsPath

Values	0	No (default)
	1	Yes

InvSvcDrives

Values	CDF all	Drives C, D & F all fixed drives (or value = empty)
--------	------------	--

none do not scan any drive

With this Settings you can define which drives should be scanned.

InvSvcExportPath

Values	0	No (default)
	1	Yes

InvSvcExtensions

Values	0	No (default)
	1	Yes

InvSvcPriority

Values	0	No (default)
	1	Yes

InvSvcScanFeatures

Values	0	No (default)
	1	Yes

InvSvcScanInterval

Values	0	No (default)
	1	Yes

InvSvcStartDelay

Values	0	No (default)
	1	Yes

InvSvcThreads

Values	0	No (default)
	1	Yes

InvSvcTransmitInterval

Values	0	No (default)
	1	Yes

InvSvcUpdateBeforeScan

Values	0	No (default)
	1	Yes

InvTransmissionMethod

Values	0	No (default)
	1	Yes

InvUsrScanFeatures

Values	0	No (default)
	1	Yes

InvUsrScanInterval

Values	0	No (default)
	1	Yes

InvUsrThreads

Values	0	No (default)
	1	Yes

InvUsrTransmitInterval

Values	0	No (default)
	1	Yes

InvUsrUpdateBeforeScan

Values	0	No (default)
	1	Yes

NoInventoryScanning

Values	0	No (default)
	1	Yes

3.8 Backup Entries

MenuHelpdesk

Value	0	Disabled
	1	Enabled (highly recommended)

To make the Helpdesk menu a useful option for the end users, the following Helpdesk settings should be adapted to your company settings.

3.8.1 BlockCachePercent

3.8.2 BackupLocalBlockCache

Value	0	No (default)
	1	Yes

Requirements This setting only works with a Columbus 5 data area, so ConnectionMethod must be SWADMIN!

The Columbus account and the user must have change access to the job files!

3.9 TeRe_PatchScan Entries

MenuHelpdesk

Value	0	Disabled
	1	Enabled (highly recommended)

To make the Helpdesk menu a useful option for the end users, the following Helpdesk settings should be adapted to your company settings.

3.9.1 PatchScanAllowedTimes

3.10 Menu Activation Entries

Every menu can be configured, if it should be available on the Client interface.

All menus appear on the left menu pane on the main page, except the Allow Reinstall which is available when right clicking a package in Inventory / Packages

MenuHelpdesk

Values	0	Disabled
	1	Enabled (highly recommended)

To make the Helpdesk menu a useful option for the end users, the Helpdesk settings should be adapted to your company settings.

MenuInventory

Values	0	Disabled
	1	Enabled (recommended)

Enabled if nothing is specified

MenuProcessSW

Values	0	Disabled
	1	Enabled (recommended)

Enabled if nothing is specified

MenuSOD

Values	0	Disabled
	1	Enabled

Only enable it, if you really want to use this feature. Then also the other Software on Demand settings must be configured properly.

MenuSystemEngineer

Values	0	Disabled (default)
	1	Enabled (not recommended)

Columbus 5 will display some technical information. This menu is not recommended for ordinary user. Only skilled support technicians will need this information.

Beginning with Columbus 6.4 this menu is used for selecting skins. Because Columbus 6 uses database connections, this technical information does not make sense anymore. By default this menu appears, when the folder [C:\Windows\ColumbusSkins] exist. If this folder does not exist and this entry is set to 0, this menu will not appear.

MenuTerminateAllowed

Values	0	Disabled (default)
	1	Enabled (not recommended)

to allow the user to terminate Columbus is not recommended

MenuVisitUsAllowed

Values	0	Disabled
	1	Enabled (default)

This displays "Visit as at <BWWeb>" with a link to our homepage. You may alter the <BW> link 'visit us at...' at the lower left corner of the client to any HTML Link you wish by specifying "MenuVisitUsText"

MenuVisitUsText

Values	Text to display including link in html format
--------	---

This let you display any other link then the "Visit as at <BWWeb>" with a link to your homepage or a release documentation or...

This setting is not available in the Client Configuration dialog in CMC.

Sample:

```
visit us at: <ahref="http://<BWWeb>/"><FONT color="#004080"> <BWWeb>  
</FONT></a>
```

MenuVisitUsHint

Values	Text of the hint to display
--------	-----------------------------

This let you display another text in the hint, which appears when the mouse cursor moves over the link

This setting is not available in the Client Configuration dialog in CMC.

Sample:

connect to the <BW> web site

3.11 Helpdesk Entries

The Management Client provides the end user with a menu Helpdesk, where this support information gets displayed.

MenuHelpdesk

Value	0	Disabled
	1	Enabled (highly recommended)

To make the Helpdesk menu a useful option for the end users, the following Helpdesk settings should be adapted to your company settings.

HelpdeskEMail

Value	E-Mail address
Sample	support@mycompany.com

Enter the E-Mail account that receives the mails sent from the Management Client.

HelpdeskFacsimile

Value	any FAX number
Sample	+41 41 748 22 01

Enter Fax number of your internal Helpdesk or IT department

HelpdeskServicetime

Value	Any text
Sample	Mon-Fri: 09.00 until 17.00

Specify the service time, when your Helpdesk is available for end user requests

HelpdeskSMTPServer

Value	[MailserverName]:[Portnumber]
Sample	mymailserver.mydomain.com:25

Enter the mail server which can send these mails. If the server name contains a ":" the parts after the ":" Sign specify the port number

HelpdeskSMTPUser

Value	Username for the SMTP authentication
Sample	Mailuser

Enter web address of the web page of your internal Helpdesk or an information page for users. Since Columbus 6.6 the link supports unicode and must get specified in HTML syntax.

HelpdeskVoice

Value Any Telefonnummer

Sample +41 41 748 22 00

Enter Phone number of your internal Helpdesk or IT department

HelpdeskWeb

Value Website address in HTML syntax

Sample <ahref="http://<BWWWeb>/"><BWWWeb>

Enter web address of the web page of your internal Helpdesk or an information page for users. Since Columbus 6.6 the link supports unicode and must get specified in HTML syntax.

3.12 Software On Demand Entries

Software on Demand (SOD) or Software shop'n'go allows the user to select and install one or several packages out of a list. For this reason all packages, which are released for SOD, will be displayed for selection in one or more folder trees. In order to configure 'Software on Demand', you have to define if this function is allowed to use and - if yes - which sources are available. In Columbus 6 Packages can also be made available for SOD by specifying *Deploy - Software on Demand*

MenuSOD

Value	0	Disabled (default)
	1	Enabled

Enable or disable the 'Software on Demand' menu on the Management Client. Only enable it, if you really want to use this feature. Then also the other Software on Demand settings must be configured properly.

SODAllowed

Value	0	No(default)
	1	Yes

Should 'Software on Demand' in general be enabled or not? If enabled the user has the option in the Management Client to select packages from a software list himself.

MakeQueueOperationsPermanent

Value	0	No
	1	Yes (recommended)

Should the selected packages be automatically assigned to machine+user in CMC? If Yes, the user will receive updates automatically and the system manager has the possibility to also manage these packages.

SODAllowCD

Value	0	No
	1	Yes

Allows or disallows CD or DVD as a Software on Demand source

You should carefully consider security - any package on this source can be installed

Although CD is a very convenient media, it automatically opens a security hole as virtual anyone can produce packages and burn them on a CD

SODAllowFTP

Value	0	No
	1	Yes

Specifies if this is an allowed source for packages

You should carefully consider security - any package on this source can be installed

SODAllowLocalDrive

Value	0	No
	1	Yes (recommended)

Allows or disallows local drives to be configured as sources for 'Software on Demand'.

You should carefully consider security - any package on this source can be installed

While networked sources may be secured, local sources as well as CD's present a security risk, as virtual anyone can produce packages and produce them if no special security is set

SODAllowUNC

Value	0	No
	1	Yes (recommended)

Allows or disallows the use of 'Software on Demand' sources on a UNC path.

You should carefully consider security - any package on this source can be installed

This is the usual SOD source as this may be managed via standard network security.

SODSelectAll

Value	0	No
	1	Yes

Should the user be able to select all available packages with one click of a button?

SODSource[n]

n 1-9 Maximum 9 sources can be specified

Value	[Path]	Path to the folder containing the packages \\[MyServer][MyShare]... [Drive]:\[Folder]
--------------	--------	---

Path where Software on Demand sources may be found. If UNC sources are specified, SODAllowUNC must be on. If fixed drives are specified, SODAllowLocalDrive must be on. CD Drives/DVD's do not need to be specified, turning on the SODAllowCD is sufficient for them.

SODSource1..SODSource5 are managed via the Client Configuration Template in CMC. SODSource6..SODSource10 are managed manually for local/private sources if necessary.

3.13 PackageDepot Caching

For building special distribution solutions mainly for notebooks, Columbus allows a mixed storage of packages sources

In addition to the software depot on the infrastructure server, a local software depot can be configured, where certain packages can be cached. The package has to exist on the server and the local cache. When the package gets installed, it will always be installed out of the local cache and not from the server. This will save network traffic and allows offline reinstallation.

LocalPackageCache

Value [Path] Local Path to the folder containing the packages
[Drive]:\[Folder]

- Setting this entry enables the functionality
- Only local paths are supported.
- Only 1 path can be specified.

Optional the variables, which are assigned to the computer or user in the sitestructure of the console can get written to a file with INI syntax. This offers additional possibilities to evaluate such variables within a package.

ExportComputerVariables

Value [Path\filename] Full Path and name of the file containing the computer variables.

ExportUserVariables

Value [Path\filename] Full Path and name of the file containing the user variables.

ExportVariablesSection

Value [Sectionname] Name of the section in the INI file for storing site-variables.
Default=Configuration

Optional entry, can only be used in combination with the settings ExportComputerVariables and ExportUserVariables

3.14 Internal Settings

This settings are set by the Management Client itself and must not be modified manually, else some functions of the program will not work properly any more.

FriendlyCountDown

Value <n> Initial value same like FriendlyMaxDeny

If FriendlyInstall is enabled, this entry will count down the FriendlyMaxDeny counter. This is handled by Columbus automatically, do not create this entry manually.

FriendlyLastDelay

Value <date> Date of the last delay

If FriendlyInstall is enabled and FriendlyDelayUnit is set to *Days*, this entry will store the date and time, when a user has delayed a friendly install. This is handled by Columbus automatically, do not create this entry manually.

LastConfigUpdate

Value <OID=date and time>

OID and last modification date/time of the assigned client configuration template, which was processed by the client. When the template changes in the database the Management Client will process it again and update it's configuration.

```
LastConfigUpdate=4B39Rg920Z = 20041103092805
```

LastProcessTimerStartup

Value <date and time>

Last timer, which has been processed.

```
LastProcessTimerStartup=03.11.2004 09:27:58
```

ProcessTimerLastDay

DD.MM.YYYY date

Date when the last repeating timer has been processed. This entry is set automatically by Columbus.

```
ProcessTimerLastDay=03.11.2004
```

TemporaryDoNotReboot

Value 0 No (default)
1 Yes

Internal setting, if Management Client should not reboot after this run. This value will be generated automatically by Columbus

WaitingForFriendlyAllowance

Value	0	No
	1	Yes

Internal setting, if Client has to wait for FriendlyInstall

WatchTerminal

Value \\<Computername>\Watch\User\<Username>

This value will be generated automatically by Columbus

CHAPTER 4

Annex

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4.1 Error Codes

The following list shows all possible error codes in Columbus with a short description. These error codes are used in the [Brainware.log](#) file and the feedback. Some of them are standard Windows or MSI error messages, which will be reported by Columbus.

4.1.1 API Error Codes

```
1: 'ERROR_INVALID_FUNCTION; Incorrect function';
2: 'ERROR_FILE_NOT_FOUND; The system cannot find the file specified';
3: 'ERROR_PATH_NOT_FOUND; The system cannot find the path specified';
4: 'ERROR_TOO_MANY_OPEN_FILES; The system cannot open the file';
5: 'ERROR_ACCESS_DENIED; Access is denied';
6: 'ERROR_INVALID_HANDLE; The handle is invalid';
7: 'ERROR_ARENA_TRASHED; The storage control blocks were destroyed';
8: 'ERROR_NOT_ENOUGH_MEMORY; Not enough storage is available to process this command';
9: 'ERROR_INVALID_BLOCK; The storage control block address is invalid';
10: 'ERROR_BAD_ENVIRONMENT; The environment is incorrect';
11: 'ERROR_BAD_FORMAT; An attempt was made to load a program with an incorrect format';
12: 'ERROR_INVALID_ACCESS; The access code is invalid';
13: 'ERROR_INVALID_DATA; The data is invalid';
14: 'ERROR_OUTOFMEMORY; Not enough storage is available to complete this operation';
15: 'ERROR_INVALID_DRIVE; The system cannot find the drive specified';
16: 'ERROR_CURRENT_DIRECTORY; The directory cannot be removed';
17: 'ERROR_NOT_SAME_DEVICE; The system cannot move the file to a different disk drive';
18: 'ERROR_NO_MORE_FILES; There are no more files';
19: 'ERROR_WRITE_PROTECT; The media is write protected';
20: 'ERROR_BAD_UNIT; The system cannot find the device specified';
21: 'ERROR_NOT_READY; The device is not ready';
22: 'ERROR_BAD_COMMAND; The device does not recognize the command';
23: 'ERROR_CRC; Data error (cyclic redundancy check)';
24: 'ERROR_BAD_LENGTH; The program issued a command but the command length is incorrect';
25: 'ERROR_SEEK; The drive cannot locate a specific area or track on the disk';
26: 'ERROR_NOT_DOS_DISK; The specified disk or diskette cannot be accessed';
27: 'ERROR_SECTOR_NOT_FOUND; The drive cannot find the sector requested';
28: 'ERROR_OUT_OF_PAPER; The printer is out of paper';
29: 'ERROR_WRITE_FAULT; The system cannot write to the specified device';
```

```
30: 'ERROR_READ_FAULT; The system cannot read from the specified device';
31: 'ERROR_GEN_FAILURE; A device attached to the system is not functioning';
32: 'ERROR_SHARING_VIOLATION; The process cannot access the file because it is being used by another process';
33: 'ERROR_LOCK_VIOLATION; The process cannot access the file because another process has locked a portion of the file';
34: 'ERROR_WRONG_DISK; The wrong diskette is in the drive. Insert %2 (Volume Serial Number: %3) into drive %1';
36: 'ERROR_SHARING_BUFFER_EXCEEDED; Too many files opened for sharing';
38: 'ERROR_HANDLE_EOF; Reached the end of the file';
```

```
39: 'ERROR_HANDLE_DISK_FULL; The disk is full';
50: 'ERROR_NOT_SUPPORTED; The network request is not supported';
51: 'ERROR_REM_NOT_LIST; The remote computer is not available';
52: 'ERROR_DUP_NAME; A duplicate name exists on the network';
53: 'ERROR_BAD_NETPATH; The network path was not found';
54: 'ERROR_NETWORK_BUSY; The network is busy';
55: 'ERROR_DEV_NOT_EXIST; The specified network resource or device is no longer available';
56: 'ERROR_TOO_MANY_CMDS; The network BIOS command limit has been reached';
57: 'ERROR_ADAP_HDW_ERR; A network adapter hardware error occurred';
58: 'ERROR_BAD_NET_RESP; The specified server cannot perform the requested operation';
59: 'ERROR_UNEXP_NET_ERR; An unexpected network error occurred';
60: 'ERROR_BAD_REM_ADAP; The remote adapter is not compatible';
61: 'ERROR_PRINTQ_FULL; The printer queue is full';
62: 'ERROR_NO_SPOOL_SPACE; Space to store the file waiting to be printed is not available on the server';
63: 'ERROR_PRINT_CANCELLED; Your file waiting to be printed was deleted';
64: 'ERROR_NETNAME_DELETED; The specified network name is no longer available';
65: 'ERROR_NETWORK_ACCESS_DENIED; Network access is denied';
66: 'ERROR_BAD_DEV_TYPE; The network resource type is not correct';
67: 'ERROR_BAD_NET_NAME; The network name cannot be found';
68: 'ERROR_TOO_MANY_NAMES; The name limit for the local computer network adapter card was exceeded';
69: 'ERROR_TOO_MANY_SESS; The network BIOS session limit was exceeded';
70: 'ERROR_SHARING_PAUSED; The remote server has been paused or is in the process of being started';
71: 'ERROR_REQ_NOT_ACCEP; No more connections can be made to this remote computer at this time because there are already as many connections as the computer can accept';
72: 'ERROR_REDIRECT_PAUSED; The specified printer or disk device has been paused';
80: 'ERROR_FILE_EXISTS; The file exists';
82: 'ERROR_CANNOT_MAKE; The directory or file cannot be created';
83: 'ERROR_FAIL_I24; Fail on INT 24';
84: 'ERROR_OUT_OF_STRUCTURES; Storage to process this request is not available';
85: 'ERROR_ALREADY_ASSIGNED; The local device name is already in use';
86: 'ERROR_INVALID_PASSWORD; The specified network password is not correct';
87: 'ERROR_INVALID_PARAMETER; The parameter is incorrect';
88: 'ERROR_NET_WRITE_FAULT; A write fault occurred on the network';
89: 'ERROR_NO_PROC_SLOTS; The system cannot start another process at this time';
100: 'ERROR_TOO_MANY_SEMAPHORES; Cannot create another system semaphore';
101: 'ERROR_EXCL_SEM_ALREADY_OWNED; The exclusive semaphore is owned by another process';
102: 'ERROR_SEM_IS_SET; The semaphore is set and cannot be closed';
103: 'ERROR_TOO_MANY_SEM_REQUESTS; The semaphore cannot be set again';
104: 'ERROR_INVALID_AT_INTERRUPT_TIME; Cannot request exclusive semaphores at interrupt time';
105: 'ERROR_SEM_OWNER_DIED; The previous ownership of this semaphore has ended';
106: 'ERROR_SEM_USER_LIMIT; Insert the diskette for drive %1';
107: 'ERROR_DISK_CHANGE; The program stopped because an alternate diskette was not inserted';
108: 'ERROR_DRIVE_LOCKED; The disk is in use or locked by another process';
109: 'ERROR_BROKEN_PIPE; The pipe has been ended';
110: 'ERROR_OPEN_FAILED; The system cannot open the device or file specified';
111: 'ERROR_BUFFER_OVERFLOW; The file name is too long';
112: 'ERROR_DISK_FULL; There is not enough space on the disk';
113: 'ERROR_NO_MORE_SEARCH_HANDLES; No more internal file identifiers available';
114: 'ERROR_INVALID_TARGET_HANDLE; The target internal file identifier is incorrect';
117: 'ERROR_INVALID_CATEGORY; The IOCTL call made by the application program is not correct';
118: 'ERROR_INVALID_VERIFY_SWITCH; The verify-on-write switch parameter value is not correct';
119: 'ERROR_BAD_DRIVER_LEVEL; The system does not support the command requested';
120: 'ERROR_CALL_NOT_IMPLEMENTED; This function is not valid on this platform';
121: 'ERROR_SEM_TIMEOUT; The semaphore time-out period has expired.';
122: 'ERROR_INSUFFICIENT_BUFFER; The data area passed to a system call is too small';
123: 'ERROR_INVALID_NAME; The filename, directory name, or volume label syntax is incorrect';
124: 'ERROR_INVALID_LEVEL; The system call level is not correct';
125: 'ERROR_NO_VOLUME_LABEL; The disk has no volume label';
126: 'ERROR_MOD_NOT_FOUND; The specified module could not be found';
127: 'ERROR_PROC_NOT_FOUND; The specified procedure could not be found';
128: 'ERROR_WAIT_NO_CHILDREN; There are no child processes to wait for';
129: 'ERROR_CHILD_NOT_COMPLETE; The %1 application cannot be run in Windows NT mode';
130: 'ERROR_DIRECT_ACCESS_HANDLE; Attempt to use a file handle to an open disk partition for an operation other than raw disk I/O';
131: 'ERROR_NEGATIVE_SEEK; An attempt was made to move the file pointer before the beginning of the file';
132: 'ERROR_SEEK_ON_DEVICE; The file pointer cannot be set on the specified device or file';
133: 'ERROR_IS_JOIN_TARGET; A JOIN or SUBST command cannot be used for a drive that contains previously joined drives';
134: 'ERROR_IS_JOINED; An attempt was made to use a JOIN or SUBST command on a drive that has already been joined';
135: 'ERROR_IS_SUBSTED; An attempt was made to use a JOIN or SUBST command on a drive that has already been substituted';
136: 'ERROR_NOT_JOINED; The system tried to delete the JOIN of a drive that is not joined';
```

137: 'ERROR_NOT_SUBSTED; The system tried to delete the substitution of a drive that is not substituted';
138: 'ERROR_JOIN_TO_JOIN; The system tried to join a drive to a directory on a joined drive';
139: 'ERROR_SUBST_TO_SUBST; The system tried to substitute a drive to a directory on a substituted drive';
140: 'ERROR_JOIN_TO_SUBST; The system tried to join a drive to a directory on a substituted drive';
141: 'ERROR_SUBST_TO_JOIN; The system tried to SUBST a drive to a directory on a joined drive';
142: 'ERROR_BUSY_DRIVE; The system cannot perform a JOIN or SUBST at this time';
143: 'ERROR_SAME_DRIVE; The system cannot join or substitute a drive to or for a directory on the same drive';
144: 'ERROR_DIR_NOT_ROOT; The directory is not a subdirectory of the root directory';
145: 'ERROR_DIR_NOT_EMPTY; The directory is not empty';
146: 'ERROR_IS_SUBST_PATH; The path specified is being used in a substitute';
147: 'ERROR_IS_JOIN_PATH; Not enough resources are available to process this command';
148: 'ERROR_PATH_BUSY; The path specified cannot be used at this time';
149: 'ERROR_IS_SUBST_TARGET; An attempt was made to join or substitute a drive for which a directory on the drive is the target of a previous substitute';
150: 'ERROR_SYSTEM_TRACE; System trace information was not specified in your CONFIG.SYS file, or tracing is disallowed';
151: 'ERROR_INVALID_EVENT_COUNT; The number of specified semaphore events for DosMuxSemWait is not correct';
152: 'ERROR_TOO_MANY_MUXWAITERS; DosMuxSemWait did not execute; too many semaphores are already set';
153: 'ERROR_INVALID_LIST_FORMAT; The DosMuxSemWait list is not correct';
154: 'ERROR_LABEL_TOO_LONG; The volume label you entered exceeds the label character limit of the target file system';
155: 'ERROR_TOO_MANY_TCBS; Cannot create another thread';
156: 'ERROR_SIGNAL_REFUSED; The recipient process has refused the signal';
157: 'ERROR_DISCARDED; The segment is already discarded and cannot be locked';
158: 'ERROR_NOT_LOCKED; The segment is already unlocked';
159: 'ERROR_BAD_THREADID_ADDR; The address for the thread ID is not correct';
160: 'ERROR_BAD_ARGUMENTS; The argument string passed to DosExecPgm is not correct';
161: 'ERROR_BAD_PATHNAME; The specified path is invalid';
162: 'ERROR_SIGNAL_PENDING; A signal is already pending';
164: 'ERROR_MAX_THRDS_REACHED; No more threads can be created in the system';
167: 'ERROR_LOCK_FAILED; Unable to lock a region of a file';
170: 'ERROR_BUSY; The requested resource is in use';
173: 'ERROR_CANCEL_VIOLATION; A lock request was not outstanding for the supplied cancel region';
174: 'ERROR_ATOMIC_LOCKS_NOT_SUPPORTED; The file system does not support atomic changes to the lock type';
180: 'ERROR_INVALID_SEGMENT_NUMBER; The system detected a segment number that was not correct';
182: 'ERROR_INVALID_ORDINAL; The operating system cannot run %1';
183: 'ERROR_ALREADY_EXISTS; Cannot create a file when that file already exists';
186: 'ERROR_INVALID_FLAG_NUMBER; The flag passed is not correct';
187: 'ERROR_SEM_NOT_FOUND; The specified system semaphore name was not found';
188: 'ERROR_INVALID_STARTING_CODESEG; The operating system cannot run %1';
189: 'ERROR_INVALID_STACKSEG; The operating system cannot run %1';
190: 'ERROR_INVALID_MODULETYPE; The operating system cannot run %1';
191: 'ERROR_INVALID_EXE_SIGNATURE; Cannot run %1 in Windows NT mode';
192: 'ERROR_EXE_MARKED_INVALID; The operating system cannot run %1';
193: 'ERROR_BAD_EXE_FORMAT; Is not a valid application';
194: 'ERROR_ITERATED_DATA_EXCEEDS_64k; The operating system cannot run %1';
195: 'ERROR_INVALID_MINALLOCSIZE; The operating system cannot run %1';
196: 'ERROR_DYNLINK_FROM_INVALID_RING; The operating system cannot run this application program';
197: 'ERROR_IOPL_NOT_ENABLED; The operating system is not presently configured to run this application';
198: 'ERROR_INVALID_SEGDPL; The operating system cannot run %1';
199: 'ERROR_AUTODATASEG_EXCEEDS_64k; The operating system cannot run this application program';
200: 'ERROR_RING2SEG_MUST_BE_MOVABLE; The code segment cannot be greater than or equal to 64K';
201: 'ERROR_RELOC_CHAIN_XCEEDS_SEGLIM; The operating system cannot run %1';
202: 'ERROR_INFLOOP_IN_RELOC_CHAIN; The operating system cannot run %1';
203: 'ERROR_ENVVAR_NOT_FOUND; The system could not find the environment option that was entered';
205: 'ERROR_NO_SIGNAL_SENT; No process in the command subtree has a signal handler';
206: 'ERROR_FILENAME_EXCED_RANGE; The filename or extension is too long';
207: 'ERROR_RING2_STACK_IN_USE; The ring 2 stack is in use';
208: 'ERROR_META_EXPANSION_TOO_LONG; The global filename characters, * or ?, are entered incorrectly or too many global filename characters are specified';
209: 'ERROR_INVALID_SIGNAL_NUMBER; The signal being posted is not correct';
210: 'ERROR_THREAD_1_INACTIVE; The signal handler cannot be set';
212: 'ERROR_LOCKED; The segment is locked and cannot be reallocated';
214: 'ERROR_TOO_MANY_MODULES; Too many dynamic-link modules are attached to this program or dynamic-link module';
215: 'ERROR_NESTING_NOT_ALLOWED; Can't nest calls to LoadModule';
216: 'ERROR_EXE_MACHINE_TYPE_MISMATCH; The image file %1 is valid, but is for a machine type other than the current machine';
230: 'ERROR_BAD_PIPE; The pipe state is invalid';
231: 'ERROR_PIPE_BUSY; All pipe instances are busy';
232: 'ERROR_NO_DATA; The pipe is being closed';
233: 'ERROR_PIPE_NOT_CONNECTED; No process is on the other end of the pipe';
234: 'ERROR_MORE_DATA; More data is available';
240: 'ERROR_VC_DISCONNECTED; The session was canceled';

254: 'ERROR_INVALID_EA_NAME; The specified extended attribute name was invalid';
255: 'ERROR_EA_LIST_INCONSISTENT; The extended attributes are inconsistent';
259: 'ERROR_NO_MORE_ITEMS; No more data is available';
266: 'ERROR_CANNOT_COPY; The copy functions cannot be used';
267: 'ERROR_DIRECTORY; The directory name is invalid';
275: 'ERROR_EAS_DIDNT_FIT; The extended attributes did not fit in the buffer';
276: 'ERROR_EA_FILE_CORRUPT; The extended attribute file on the mounted file system is corrupt';
277: 'ERROR_EA_TABLE_FULL; The extended attribute table file is full';
278: 'ERROR_INVALID_EA_HANDLE; The specified extended attribute handle is invalid';
282: 'ERROR_EAS_NOT_SUPPORTED; The mounted file system does not support extended attributes';
288: 'ERROR_NOT_OWNER; Attempt to release mutex not owned by caller';
298: 'ERROR_TOO_MANY_POSTS; Too many posts were made to a semaphore';
299: 'ERROR_PARTIAL_COPY; Only part of a ReadProcessMemory or WriteProcessMemory request was completed';
317: 'ERROR_MR_MID_NOT_FOUND; The system cannot find message text for message number 0x%1 in the message file for %2';
487: 'ERROR_INVALID_ADDRESS; Attempt to access invalid address';
534: 'ERROR_ARITHMETIC_OVERFLOW; Arithmetic result exceeded 32 bits';
535: 'ERROR_PIPE_CONNECTED; There is a process on other end of the pipe';
536: 'ERROR_PIPE_LISTENING; Waiting for a process to open the other end of the pipe';
994: 'ERROR_EA_ACCESS_DENIED; Access to the extended attribute was denied';
995: 'ERROR_OPERATION_ABORTED; The I/O operation has been aborted because of either a thread exit or an application request';
996: 'ERROR_IO_INCOMPLETE; Overlapped I/O event is not in a signaled state';
997: 'ERROR_IO_PENDING; Overlapped I/O operation is in progress';
998: 'ERROR_NOACCESS; Invalid access to memory location';
999: 'ERROR_SWAPERROR; ERROR performing inpage operation';
1001: 'ERROR_STACK_OVERFLOW; Recursion too deep; the stack overflowed';
1002: 'ERROR_INVALID_MESSAGE; The window cannot act on the sent message';
1003: 'ERROR_CAN_NOT_COMPLETE; Cannot complete this function';
1004: 'ERROR_INVALID_FLAGS; Invalid flags';
1005: 'ERROR_UNRECOGNIZED_VOLUME; The volume does not contain a recognized file system. Please make sure that all required file system drivers are loaded and that the volume is not corrupted';
1006: 'ERROR_FILE_INVALID; The volume for a file has been externally altered so that the opened file is no longer valid';
1007: 'ERROR_FULLSCREEN_MODE; The requested operation cannot be performed in full-screen mode';
1008: 'ERROR_NO_TOKEN; An attempt was made to reference a token that does not exist';
1009: 'ERROR_BADDB; The configuration registry database is corrupt';
1010: 'ERROR_BADKEY; The configuration registry key is invalid';
1011: 'ERROR_CANTOPEN; The configuration registry key could not be opened';
1012: 'ERROR_CANTREAD; The configuration registry key could not be read';
1013: 'ERROR_CANTWRITE; The configuration registry key could not be written';
1014: 'ERROR_REGISTRY_RECOVERED; One of the files in the registry database had to be recovered by use of a log or alternate copy. The recovery was successful';
1015: 'ERROR_REGISTRY_CORRUPT; The registry is corrupted.';
1016: 'ERROR_REGISTRY_IO_FAILED; An I/O operation initiated by the registry failed unrecoverably. The registry could not read in, or write out, or flush, one of the files that contain the system's image of the registry';
1017: 'ERROR_NOT_REGISTRY_FILE; The system has attempted to load or restore a file into the registry, but the specified file is not in a registry file format';
1018: 'ERROR_KEY_DELETED; Illegal operation attempted on a registry key that has been marked for deletion';
1019: 'ERROR_NO_LOG_SPACE; System could not allocate the required space in a registry log';
1020: 'ERROR_KEY_HAS_CHILDREN; Cannot create a symbolic link in a registry key that already has subkeys or values';
1021: 'ERROR_CHILD_MUST_BE_VOLATILE; Cannot create a stable subkey under a volatile parent key';
1022: 'ERROR_NOTIFY_ENUM_DIR; A notify change request is being completed and the information is not being returned in the caller's buffer. The caller now needs to enumerate the files to find the changes';
1051: 'ERROR_DEPENDENT_SERVICES_RUNNING; A stop control has been sent to a service that other running services are dependent on';
1052: 'ERROR_INVALID_SERVICE_CONTROL; The requested control is not valid for this service';
1053: 'ERROR_SERVICE_REQUEST_TIMEOUT; The service did not respond to the start or control request in a timely fashion';
1054: 'ERROR_SERVICE_NO_THREAD; A thread could not be created for the service';
1055: 'ERROR_SERVICE_DATABASE_LOCKED; The service database is locked';
1056: 'ERROR_SERVICE_ALREADY_RUNNING; An instance of the service is already running';
1057: 'ERROR_INVALID_SERVICE_ACCOUNT; The account name is invalid or does not exist';
1058: 'ERROR_SERVICE_DISABLED; The specified service is disabled and cannot be started';
1059: 'ERROR_CIRCULAR_DEPENDENCY; Circular service dependency was specified';
1060: 'ERROR_SERVICE_DOES_NOT_EXIST; The specified service does not exist as an installed service';
1061: 'ERROR_SERVICE_CANNOT_ACCEPT_CTRL; The service cannot accept control messages at this time';
1062: 'ERROR_SERVICE_NOT_ACTIVE; The service has not been started';
1063: 'ERROR_FAILED_SERVICE_CONTROLLER_CONNECT; The service process could not connect to the service controller';
1064: 'ERROR_EXCEPTION_IN_SERVICE; An exception occurred in the service when handling the control request';
1065: 'ERROR_DATABASE_DOES_NOT_EXIST; The database specified does not exist';
1066: 'ERROR_SERVICE_SPECIFIC_ERROR; The service has returned a service-specific error code';
1067: 'ERROR_PROCESS_ABORTED; The process terminated unexpectedly';
1068: 'ERROR_SERVICE_DEPENDENCY_FAIL; The dependency service or group failed to start';

1069: 'ERROR_SERVICE_LOGON_FAILED; The service did not start due to a logon failure';
1070: 'ERROR_SERVICE_START_HANG; After starting, the service hung in a start-pending state';
1071: 'ERROR_INVALID_SERVICE_LOCK; The specified service database lock is invalid';
1072: 'ERROR_SERVICE_MARKED_FOR_DELETE; The specified service has been marked for deletion';
1073: 'ERROR_SERVICE_EXISTS; The specified service already exists';
1074: 'ERROR_ALREADY_RUNNING_LKG; The system is currently running with the last-known-good configuration';
1075: 'ERROR_SERVICE_DEPENDENCY_DELETED; The dependency service does not exist or has been marked for deletion';
1076: 'ERROR_BOOT_ALREADY_ACCEPTED; The current boot has already been accepted for use as the last-known-good control set';
1077: 'ERROR_SERVICE_NEVER_STARTED; No attempts to start the service have been made since the last boot';
1078: 'ERROR_DUPLICATE_SERVICE_NAME; The name is already in use as either a service name or a service display name';
1079: 'ERROR_DIFFERENT_SERVICE_ACCOUNT; The account specified for this service is different from the account specified for other services running in the same process';
1100: 'ERROR_END_OF_MEDIA; The physical end of the tape has been reached';
1101: 'ERROR_FILEMARK_DETECTED; A tape access reached a filemark';
1102: 'ERROR_BEGINNING_OF_MEDIA; The beginning of the tape or partition was encountered';
1103: 'ERROR_SETMARK_DETECTED; A tape access reached the end of a set of files';
1104: 'ERROR_NO_DATA_DETECTED; No more data is on the tape';
1105: 'ERROR_PARTITION_FAILURE; Tape could not be partitioned';
1106: 'ERROR_INVALID_BLOCK_LENGTH; When accessing a new tape of a multivolume partition, the current block size is incorrect';
1107: 'ERROR_DEVICE_NOT_PARTITIONED; Tape partition information could not be found when loading a tape';
1108: 'ERROR_UNABLE_TO_LOCK_MEDIA; Unable to lock the media eject mechanism';
1109: 'ERROR_UNABLE_TO_UNLOAD_MEDIA; Unable to unload the media';
1110: 'ERROR_MEDIA_CHANGED; The media in the drive may have changed';
1111: 'ERROR_BUS_RESET; The I/O bus was reset';
1112: 'ERROR_NO_MEDIA_IN_DRIVE; No media in drive';
1113: 'ERROR_NO_UNICODE_TRANSLATION; No mapping for the Unicode character exists in the target multibyte code page';
1114: 'ERROR_DLL_INIT_FAILED; A dynamic link library (DLL) initialization routine failed';
1115: 'ERROR_SHUTDOWN_IN_PROGRESS; A system shutdown is in progress';
1116: 'ERROR_NO_SHUTDOWN_IN_PROGRESS; Unable to abort the system shutdown because no shutdown was in progress';
1117: 'ERROR_IO_DEVICE; The request could not be performed because of an I/O device error';
1118: 'ERROR_SERIAL_NO_DEVICE; No serial device was successfully initialized. The serial driver will unload';
1119: 'ERROR_IRQ_BUSY; Unable to open a device that was sharing an interrupt request (IRQ) with other devices. At least one other device that uses that IRQ was already opened';
1120: 'ERROR_MORE_WRITES; A serial I/O operation was completed by another write to the serial port. The IOCTL_SERIAL_XOFF_COUNTER reached zero.';');
1121: 'ERROR_COUNTER_TIMEOUT; A serial I/O operation completed because the time-out period expired. (The IOCTL_SERIAL_XOFF_COUNTER did not reach zero.';');
1122: 'ERROR_FLOPPY_ID_MARK_NOT_FOUND; No ID address mark was found on the floppy disk';
1123: 'ERROR_FLOPPY_WRONG_CYLINDER; Mismatch between the floppy disk sector ID field and the floppy disk controller track address';
1124: 'ERROR_FLOPPY_UNKNOWN_ERROR; The floppy disk controller reported an error that is not recognized by the floppy disk driver';
1125: 'ERROR_FLOPPY_BAD_REGISTERS; The floppy disk controller returned inconsistent results in its registers';
1126: 'ERROR_DISK_RECALIBRATE_FAILED; While accessing the hard disk, a recalibrate operation failed, even after retries';
1127: 'ERROR_DISK_OPERATION_FAILED; While accessing the hard disk, a disk operation failed even after retries';
1128: 'ERROR_DISK_RESET_FAILED; While accessing the hard disk, a disk controller reset was needed, but even that failed';
1129: 'ERROR_EOM_OVERFLOW; Physical end of tape encountered';
1130: 'ERROR_NOT_ENOUGH_SERVER_MEMORY; Not enough server storage is available to process this command';
1131: 'ERROR_POSSIBLE_DEADLOCK; A potential deadlock condition has been detected';
1132: 'ERROR_MAPPED_ALIGNMENT; The base address or the file offset specified does not have the proper alignment';
1140: 'ERROR_SET_POWER_STATE_VETOED; An attempt to change the system power state was vetoed by another application or driver';
1141: 'ERROR_SET_POWER_STATE_FAILED; The system BIOS failed an attempt to change the system power state';
1142: 'ERROR_TOO_MANY_LINKS; An attempt was made to create more links on a file than the file system supports';
1150: 'ERROR_OLD_WIN_VERSION; The specified program requires a newer version of Windows';
1151: 'ERROR_APP_WRONG_OS; The specified program is not a Windows or MS-DOS program';
1152: 'ERROR_SINGLE_INSTANCE_APP; Cannot start more than one instance of the specified program';
1153: 'ERROR_RMODE_APP; The specified program was written for an earlier version of Windows';
1154: 'ERROR_INVALID_DLL; One of the library files needed to run this application is damaged';
1155: 'ERROR_NO_ASSOCIATION; No application is associated with the specified file for this operation';
1156: 'ERROR_DDE_FAIL; An error occurred in sending the command to the application';
1157: 'ERROR_DLL_NOT_FOUND; One of the library files needed to run this application cannot be found';
1200: 'ERROR_BAD_DEVICE; The specified device name is invalid';
1201: 'ERROR_CONNECTION_UNAVAIL; The device is not currently connected but it is a remembered connection';
1202: 'ERROR_DEVICE_ALREADY_REMEMBERED; An attempt was made to remember a device that had previously been remembered';
1203: 'ERROR_NO_NET_OR_BAD_PATH; No network provider accepted the given network path';
1204: 'ERROR_BAD_PROVIDER; The specified network provider name is invalid';
1205: 'ERROR_CANNOT_OPEN_PROFILE; Unable to open the network connection profile';
1206: 'ERROR_BAD_PROFILE; The network connection profile is corrupt';
1207: 'ERROR_NOT_CONTAINER; Cannot enumerate a noncontainer';
1208: 'ERROR_EXTENDED_ERROR; An extended error has occurred';

1209: 'ERROR_INVALID_GROUPNAME; The format of the specified group name is invalid';
1210: 'ERROR_INVALID_COMPUTERNAME; The format of the specified computer name is invalid';
1211: 'ERROR_INVALID_EVENTNAME; The format of the specified event name is invalid';
1212: 'ERROR_INVALID_DOMAINNAME; The format of the specified domain name is invalid';
1213: 'ERROR_INVALID_SERVICENAME; The format of the specified service name is invalid';
1214: 'ERROR_INVALID_NETNAME; The format of the specified network name is invalid';
1215: 'ERROR_INVALID_SHARENAME; The format of the specified share name is invalid';
1216: 'ERROR_INVALID_PASSWORDNAME; The format of the specified password is invalid';
1217: 'ERROR_INVALID_MESSAGE_NAME; The format of the specified message name is invalid';
1218: 'ERROR_INVALID_MESSAGEDEST; The format of the specified message destination is invalid';
1219: 'ERROR_SESSION_CREDENTIAL_CONFLICT; The credentials supplied conflict with an existing set of credentials';
1220: 'ERROR_REMOTE_SESSION_LIMIT_EXCEEDED; An attempt was made to establish a session to a network server, but there are already too many sessions established to that server';
1221: 'ERROR_DUP_DOMAINNAME; The workgroup or domain name is already in use by another computer on the network';
1222: 'ERROR_NO_NETWORK; The network is not present or not started';
1223: 'ERROR_CANCELLED; The operation was canceled by the user';
1224: 'ERROR_USER_MAPPED_FILE; The requested operation cannot be performed on a file with a user-mapped section open';
1225: 'ERROR_CONNECTION_REFUSED; The remote system refused the network connection';
1226: 'ERROR_GRACEFUL_DISCONNECT; The network connection was gracefully closed';
1227: 'ERROR_ADDRESS_ALREADY_ASSOCIATED; The network transport endpoint already has an address associated with it';
1228: 'ERROR_ADDRESS_NOT_ASSOCIATED; An address has not yet been associated with the network endpoint';
1229: 'ERROR_CONNECTION_INVALID; An operation was attempted on a nonexistent network connection';
1230: 'ERROR_CONNECTION_ACTIVE; An invalid operation was attempted on an active network connection';
1231: 'ERROR_NETWORK_UNREACHABLE; The remote network is not reachable by the transport';
1232: 'ERROR_HOST_UNREACHABLE; The remote system is not reachable by the transport';
1233: 'ERROR_PROTOCOL_UNREACHABLE; The remote system does not support the transport protocol';
1234: 'ERROR_PORT_UNREACHABLE; No service is operating at the destination network endpoint on the remote system';
1235: 'ERROR_REQUEST_ABORTED; The request was aborted';
1236: 'ERROR_CONNECTION_ABORTED; The network connection was aborted by the local system';
1237: 'ERROR_RETRY; The operation could not be completed. A retry should be performed';
1238: 'ERROR_CONNECTION_COUNT_LIMIT; A connection to the server could not be made because the limit on the number of concurrent connections for this account has been reached';
1239: 'ERROR_LOGIN_TIME_RESTRICTION; Attempting to log in during an unauthorized time of day for this account';
1240: 'ERROR_LOGIN_WKSTA_RESTRICTION; The account is not authorized to log in from this station.';
1241: 'ERROR_INCORRECT_ADDRESS; The network address could not be used for the operation requested';
1242: 'ERROR_ALREADY_REGISTERED; The service is already registered';
1243: 'ERROR_SERVICE_NOT_FOUND; The specified service does not exist';
1244: 'ERROR_NOT_AUTHENTICATED; The operation being requested was not performed because the user has not been authenticated';
1245: 'ERROR_NOT_LOGGED_ON; The operation being requested was not performed because the user has not logged on to the network. The specified service does not exist';
1246: 'ERROR_CONTINUE; Caller to continue with work in progress';
1247: 'ERROR_ALREADY_INITIALIZED; An attempt was made to perform an initialization operation when initialization has already been completed';
1248: 'ERROR_NO_MORE_DEVICES; No more local devices';
1300: 'ERROR_NOT_ALL_ASSIGNED; Not all privileges referenced are assigned to the caller';
1301: 'ERROR_SOME_NOT_MAPPED; Some mapping between account names and security IDs was not done';
1302: 'ERROR_NO_QUOTAS_FOR_ACCOUNT; No system quota limits are specifically set for this account';
1303: 'ERROR_LOCAL_USER_SESSION_KEY; No encryption key is available. A well-known encryption key was returned';
1304: 'ERROR_NULL_LM_PASSWORD; The password is too complex to be converted to a LAN Manager password. The LAN Manager password returned is a NULL string';
1305: 'ERROR_UNKNOWN_REVISION; The revision level is unknown';
1306: 'ERROR_REVISION_MISMATCH; Indicates two revision levels are incompatible';
1307: 'ERROR_INVALID_OWNER; This security ID may not be assigned as the owner of this object';
1308: 'ERROR_INVALID_PRIMARY_GROUP; This security ID may not be assigned as the primary group of an object';
1309: 'ERROR_NO_IMPERSONATION_TOKEN; An attempt has been made to operate on an impersonation token by a thread that is not currently impersonating a client';
1310: 'ERROR_CANT_DISABLE_MANDATORY; The group may not be disabled';
1311: 'ERROR_NO_LOGON_SERVERS; There are currently no logon servers available to service the logon request';
1312: 'ERROR_NO_SUCH_LOGON_SESSION; A specified logon session does not exist. It may already have been terminated';
1313: 'ERROR_NO_SUCH_PRIVILEGE; A specified privilege does not exist';
1314: 'ERROR_PRIVILEGE_NOT_HELD; A required privilege is not held by the client';
1315: 'ERROR_INVALID_ACCOUNT_NAME; The name provided is not a properly formed account name';
1316: 'ERROR_USER_EXISTS; The specified user already exists';
1317: 'ERROR_NO_SUCH_USER; The specified user does not exist';
1318: 'ERROR_GROUP_EXISTS; The specified group already exists';
1319: 'ERROR_NO_SUCH_GROUP; The specified group does not exist';
1320: 'ERROR_MEMBER_IN_GROUP; Either the specified user account is already a member of the specified group, or the specified group cannot be deleted because it contains a member';
1321: 'ERROR_MEMBER_NOT_IN_GROUP; The specified user account is not a member of the specified group account';
1322: 'ERROR_LAST_ADMIN; The last remaining administration account cannot be disabled or deleted';

1323: 'ERROR_WRONG_PASSWORD; Unable to update the password. The value provided as the current password is incorrect';
1324: 'ERROR_ILL_FORMED_PASSWORD; Unable to update the password. The value provided for the new password contains values that are not allowed in passwords';
1325: 'ERROR_PASSWORD_RESTRICTION; Unable to update the password because a password update rule has been violated';
1326: 'ERROR_LOGON_FAILURE; Logon failure: unknown user name or bad password';
1327: 'ERROR_ACCOUNT_RESTRICTION; Logon failure: user account restriction';
1328: 'ERROR_INVALID_LOGON_HOURS; Logon failure: account logon time restriction violation';
1329: 'ERROR_INVALID_WORKSTATION; Logon failure: user not allowed to log on to this computer';
1330: 'ERROR_PASSWORD_EXPIRED; Logon failure: the specified account password has expired';
1331: 'ERROR_ACCOUNT_DISABLED; Logon failure: account currently disabled';
1332: 'ERROR_NONE_MAPPED; No mapping between account names and security IDs was done';
1333: 'ERROR_TOO_MANY_LUIDS_REQUESTED; Too many local user identifiers (LUIDs) were requested at one time';
1334: 'ERROR_LUIDS_EXHAUSTED; No more local user identifiers (LUIDs) are available';
1335: 'ERROR_INVALID_SUB_AUTHORITY; The subauthority part of a security ID is invalid for this particular use';
1336: 'ERROR_INVALID_ACL; The access control list (ACL) structure is invalid';
1337: 'ERROR_INVALID_SID; The security ID structure is invalid';
1338: 'ERROR_INVALID_SECURITY_DESCR; The security descriptor structure is invalid';
1340: 'ERROR_BAD_INHERITANCE_ACL; The inherited access control list (ACL) or access control entry (ACE) could not be built';
1341: 'ERROR_SERVER_DISABLED; The server is currently disabled';
1342: 'ERROR_SERVER_NOT_DISABLED; The server is currently enabled';
1343: 'ERROR_INVALID_ID_AUTHORITY; The value provided was an invalid value for an identifier authority';
1344: 'ERROR_ALLOTTED_SPACE_EXCEEDED; No more memory is available for security information updates';
1345: 'ERROR_INVALID_GROUP_ATTRIBUTES; The specified attributes are invalid, or incompatible with the attributes for the group as a whole';
1346: 'ERROR_BAD_IMPERSONATION_LEVEL; Either a required impersonation level was not provided, or the provided impersonation level is invalid';
1347: 'ERROR_CANT_OPEN_ANONYMOUS; Cannot open an anonymous level security token';
1348: 'ERROR_BAD_VALIDATION_CLASS; The validation information class requested was invalid';
1349: 'ERROR_BAD_TOKEN_TYPE; The type of the token is inappropriate for its attempted use';
1350: 'ERROR_NO_SECURITY_ON_OBJECT; Unable to perform a security operation on an object that has no associated security';
1351: 'ERROR_CANT_ACCESS_DOMAIN_INFO; Indicates a Windows NT Server could not be contacted or that objects within the domain are protected such that necessary information could not be retrieved';
1352: 'ERROR_INVALID_SERVER_STATE; The security account manager (SAM) or local security authority (LSA) server was in the wrong state to perform the security operation';
1353: 'ERROR_INVALID_DOMAIN_STATE; The domain was in the wrong state to perform the security operation';
1354: 'ERROR_INVALID_DOMAIN_ROLE; This operation is only allowed for the Primary Domain Controller of the domain';
1355: 'ERROR_NO_SUCH_DOMAIN; The specified domain did not exist';
1356: 'ERROR_DOMAIN_EXISTS; The specified domain already exists';
1357: 'ERROR_DOMAIN_LIMIT_EXCEEDED; An attempt was made to exceed the limit on the number of domains per server';
1358: 'ERROR_INTERNAL_DB_CORRUPTION; Unable to complete the requested operation because of either a catastrophic media failure or a data structure corruption on the disk';
1359: 'ERROR_INTERNAL_ERROR; The security account database contains an internal inconsistency';
1360: 'ERROR_GENERIC_NOT_MAPPED; Generic access types were contained in an access mask which should already be mapped to nongeneric types';
1361: 'ERROR_BAD_DESCRIPTOR_FORMAT; A security descriptor is not in the right format (absolute or self-relative)';
1362: 'ERROR_NOT_LOGON_PROCESS; The requested action is restricted for use by logon processes only. The calling process has not registered as a logon process';
1363: 'ERROR_LOGON_SESSION_EXISTS; Cannot start a new logon session with an ID that is already in use';
1364: 'ERROR_NO_SUCH_PACKAGE; A specified authentication package is unknown';
1365: 'ERROR_BAD_LOGON_SESSION_STATE; The logon session is not in a state that is consistent with the requested operation';
1366: 'ERROR_LOGON_SESSION_COLLISION; The logon session ID is already in use';
1367: 'ERROR_INVALID_LOGON_TYPE; A logon request contained an invalid logon type value';
1368: 'ERROR_CANNOT_IMPERSONATE; Unable to impersonate using a named pipe until data has been read from that pipe';
1369: 'ERROR_RXACT_INVALID_STATE; The transaction state of a registry subtree is incompatible with the requested operation';
1370: 'ERROR_RXACT_COMMIT_FAILURE; An internal security database corruption has been encountered';
1371: 'ERROR_SPECIAL_ACCOUNT; Cannot perform this operation on built-in accounts';
1372: 'ERROR_SPECIAL_GROUP; Cannot perform this operation on this built-in special group';
1373: 'ERROR_SPECIAL_USER; Cannot perform this operation on this built-in special user';
1374: 'ERROR_MEMBERS_PRIMARY_GROUP; The user cannot be removed from a group because the group is currently the user's primary group';
1375: 'ERROR_TOKEN_ALREADY_IN_USE; The token is already in use as a primary token';
1376: 'ERROR_NO_SUCH_ALIAS; The specified local group does not exist';
1377: 'ERROR_MEMBER_NOT_IN_ALIAS; The specified account name is not a member of the local group';
1378: 'ERROR_MEMBER_IN_ALIAS; The specified account name is already a member of the local group';
1379: 'ERROR_ALIAS_EXISTS; The specified local group already exists';
1380: 'ERROR_LOGON_NOT_GRANTED; Logon failure: the user has not been granted the requested logon type at this computer';
1381: 'ERROR_TOO_MANY_SECRETS; The maximum number of secrets that may be stored in a single system has been exceeded';
1382: 'ERROR_SECRET_TOO_LONG; The length of a secret exceeds the maximum length allowed';
1383: 'ERROR_INTERNAL_DB_ERROR; The local security authority database contains an internal inconsistency';
1384: 'ERROR_TOO_MANY_CONTEXT_IDS; During a logon attempt, the user's security context accumulated too many security IDs';

1385: 'ERROR_LOGON_TYPE_NOT_GRANTED; Logon failure: the user has not been granted the requested logon type at this computer';
1386: 'ERROR_NT_CROSS_ENCRYPTION_REQUIRED; A cross-encrypted password is necessary to change a user password';
1387: 'ERROR_NO_SUCH_MEMBER; A new member could not be added to a local group because the member does not exist';
1388: 'ERROR_INVALID_MEMBER; A new member could not be added to a local group because the member has the wrong account type';
1389: 'ERROR_TOO_MANY_SIDS; Too many security IDs have been specified';
1390: 'ERROR_LM_CROSS_ENCRYPTION_REQUIRED; A cross-encrypted password is necessary to change this user password';
1391: 'ERROR_NO_INHERITANCE; Indicates an ACL contains no inheritable components';
1392: 'ERROR_FILE_CORRUPT; The file or directory is corrupted and non-readable';
1393: 'ERROR_DISK_CORRUPT; The disk structure is corrupted and non-readable';
1394: 'ERROR_NO_USER_SESSION_KEY; There is no user session key for the specified logon session';
1395: 'ERROR_LICENSE_QUOTA_EXCEEDED; The service being accessed is licensed for a particular number of connections. No more connections can be made to the service at this time because there are already as many connections as the service can accept';
1400: 'ERROR_INVALID_WINDOW_HANDLE; Invalid window handle';
1401: 'ERROR_INVALID_MENU_HANDLE; Invalid menu handle';
1402: 'ERROR_INVALID_CURSOR_HANDLE; Invalid cursor handle';
1403: 'ERROR_INVALID_ACCEL_HANDLE; Invalid accelerator table handle';
1404: 'ERROR_INVALID_HOOK_HANDLE; Invalid hook handle';
1405: 'ERROR_INVALID_DWP_HANDLE; Invalid handle to a multiple-window position structure';
1406: 'ERROR_TLW_WITH_WSCHILD; Cannot create a top-level child window';
1407: 'ERROR_CANNOT_FIND_WND_CLASS; Cannot find window class';
1408: 'ERROR_WINDOW_OF_OTHER_THREAD; Invalid window, it belongs to another thread';
1409: 'ERROR_HOTKEY_ALREADY_REGISTERED; Hot key is already registered';
1410: 'ERROR_CLASS_ALREADY_EXISTS; Class already exists';
1411: 'ERROR_CLASS_DOES_NOT_EXIST; Class does not exist';
1412: 'ERROR_CLASS_HAS_WINDOWS; Class still has open windows';
1413: 'ERROR_INVALID_INDEX; Invalid index';
1414: 'ERROR_INVALID_ICON_HANDLE; Invalid icon handle';
1415: 'ERROR_PRIVATE_DIALOG_INDEX; Using private DIALOG window words';
1416: 'ERROR_LISTBOX_ID_NOT_FOUND; The list box identifier was not found';
1417: 'ERROR_NO_WILDCARD_CHARACTERS; No wildcards were found';
1418: 'ERROR_CLIPBOARD_NOT_OPEN; Thread does not have a clipboard open';
1419: 'ERROR_HOTKEY_NOT_REGISTERED; Hot key is not registered';
1420: 'ERROR_WINDOW_NOT_DIALOG; The window is not a valid dialog window';
1421: 'ERROR_CONTROL_ID_NOT_FOUND; Control ID not found';
1422: 'ERROR_INVALID_COMBOBOX_MESSAGE; Invalid message for a combo box because it does not have an edit control';
1423: 'ERROR_WINDOW_NOT_COMBOBOX; The window is not a combo box';
1424: 'ERROR_INVALID_EDIT_HEIGHT; Height must be less than 256';
1425: 'ERROR_DC_NOT_FOUND; Invalid device context (DC) handle.';
1426: 'ERROR_INVALID_HOOK_FILTER; Invalid hook procedure type';
1427: 'ERROR_INVALID_FILTER_PROC; Invalid hook procedure';
1428: 'ERROR_HOOK_NEEDS_HMOD; Cannot set nonlocal hook without a module handle';
1429: 'ERROR_GLOBAL_ONLY_HOOK; This hook procedure can only be set globally';
1430: 'ERROR_JOURNAL_HOOK_SET; The journal hook procedure is already installed';
1431: 'ERROR_HOOK_NOT_INSTALLED; The hook procedure is not installed';
1432: 'ERROR_INVALID_LB_MESSAGE; Invalid message for single-selection list box';
1433: 'ERROR_SETCOUNT_ON_BAD_LB; LB_SETCOUNT sent to non-lazy list box';
1434: 'ERROR_LB_WITHOUT_TABSTOPS; This list box does not support tab stops';
1435: 'ERROR_DESTROY_OBJECT_OF_OTHER_THREAD; Cannot destroy object created by another thread';
1436: 'ERROR_CHILD_WINDOW_MENU; Child windows cannot have menus';
1437: 'ERROR_NO_SYSTEM_MENU; The window does not have a system menu';
1438: 'ERROR_INVALID_MSGBOX_STYLE; Invalid message box style';
1439: 'ERROR_INVALID_SPI_VALUE; Invalid system-wide (SPI_*) parameter';
1440: 'ERROR_SCREEN_ALREADY_LOCKED; Screen already locked';
1441: 'ERROR_HWNDS_HAVE_DIFF_PARENT; All handles to windows in a multiple-window position structure must have the same parent';
1442: 'ERROR_NOT_CHILD_WINDOW; The window is not a child window';
1443: 'ERROR_INVALID_GW_COMMAND; Invalid GW_* command';
1444: 'ERROR_INVALID_THREAD_ID; Invalid thread identifier';
1445: 'ERROR_NON_MDICHILD_WINDOW; Cannot process a message from a window that is not a multiple document interface (MDI) window';
1446: 'ERROR_POPUP_ALREADY_ACTIVE; Popup menu already active';
1447: 'ERROR_NO_SCROLLBARS; The window does not have scroll bars';
1448: 'ERROR_INVALID_SCROLLBAR_RANGE; Scroll bar range cannot be greater than 0x7FFF';
1449: 'ERROR_INVALID_SHOWWIN_COMMAND; Cannot show or remove the window in the way specified';
1450: 'ERROR_NO_SYSTEM_RESOURCES; Insufficient system resources exist to complete the requested service';
1451: 'ERROR_NONPAGED_SYSTEM_RESOURCES; Insufficient system resources exist to complete the requested service';
1452: 'ERROR_PAGED_SYSTEM_RESOURCES; Insufficient system resources exist to complete the requested service';
1453: 'ERROR_WORKING_SET_QUOTA; Insufficient quota to complete the requested service';

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1454: 'ERROR_PAGEFILE_QUOTA; Insufficient quota to complete the requested service';
1455: 'ERROR_COMMITMENT_LIMIT; The paging file is too small for this operation to complete';
1456: 'ERROR_MENU_ITEM_NOT_FOUND; A menu item was not found';
1457: 'ERROR_INVALID_KEYBOARD_HANDLE; Invalid keyboard layout handle';
1458: 'ERROR_HOOK_TYPE_NOT_ALLOWED; Hook type not allowed';
1459: 'ERROR_REQUIRES_INTERACTIVE_WINDOWSTATION; This operation requires an interactive window station';
1460: 'ERROR_TIMEOUT; This operation returned because the time-out period expired';
1500: 'ERROR_EVENTLOG_FILE_CORRUPT; The event log file is corrupted';
1501: 'ERROR_EVENTLOG_CANT_START; No event log file could be opened, so the event logging service did not start';
1502: 'ERROR_LOG_FILE_FULL; The event log file is full';
1503: 'ERROR_EVENTLOG_FILE_CHANGED; The event log file has changed between read operations';//MSI
1700: 'RPC_S_INVALID_STRING_BINDING; The string binding is invalid';
1701: 'RPC_S_WRONG_KIND_OF_BINDING; The binding handle is not the correct type';
1702: 'RPC_S_INVALID_BINDING; The binding handle is invalid';
1703: 'RPC_S_PROTSEQ_NOT_SUPPORTED; The RPC protocol sequence is not supported';
1704: 'RPC_S_INVALID_RPC_PROTSEQ; The RPC protocol sequence is invalid';
1705: 'RPC_S_INVALID_STRING_UUID; The string universal unique identifier (UUID) is invalid';
1706: 'RPC_S_INVALID_ENDPOINT_FORMAT; The endpoint format is invalid';
1707: 'RPC_S_INVALID_NET_ADDR; The network address is invalid';
1708: 'RPC_S_NO_ENDPOINT_FOUND; No endpoint was found';
1709: 'RPC_S_INVALID_TIMEOUT; The time-out value is invalid';
1710: 'RPC_S_OBJECT_NOT_FOUND; The object universal unique identifier (UUID) was not found';
1711: 'RPC_S_ALREADY_REGISTERED; The object universal unique identifier (UUID) has already been registered';
1712: 'RPC_S_TYPE_ALREADY_REGISTERED; The type universal unique identifier (UUID) has already been registered';
1713: 'RPC_S_ALREADY_LISTENING; The RPC server is already listening';
1714: 'RPC_S_NO_PROTSEQS_REGISTERED; No protocol sequences have been registered';
1715: 'RPC_S_NOT_LISTENING; The RPC server is not listening';
1716: 'RPC_S_UNKNOWN_MGR_TYPE; The manager type is unknown';
1717: 'RPC_S_UNKNOWN_IF; The interface is unknown';
1718: 'RPC_S_NO_BINDINGS; There are no bindings';
1719: 'RPC_S_NO_PROTSEQS; There are no protocol sequences';
1720: 'RPC_S_CANT_CREATE_ENDPOINT; The endpoint cannot be created';
1721: 'RPC_S_OUT_OF_RESOURCES; Not enough resources are available to complete this operation';
1722: 'RPC_S_SERVER_UNAVAILABLE; The RPC server is unavailable';
1723: 'RPC_S_SERVER_TOO_BUSY; The RPC server is too busy to complete this operation';
1724: 'RPC_S_INVALID_NETWORK_OPTIONS; The network options are invalid';
1725: 'RPC_S_NO_CALL_ACTIVE; There is not a remote procedure call active in this thread';
1726: 'RPC_S_CALL_FAILED; The remote procedure call failed';
1727: 'RPC_S_CALL_FAILED_DNE; The remote procedure call failed and did not execute';
1728: 'RPC_S_PROTOCOL_ERROR; A remote procedure call (RPC) protocol error occurred';
1730: 'RPC_S_UNSUPPORTED_TRANS_SYN; The transfer syntax is not supported by the RPC server';
1732: 'RPC_S_UNSUPPORTED_TYPE; The universal unique identifier (UUID) type is not supported';
1733: 'RPC_S_INVALID_TAG; The tag is invalid';
1734: 'RPC_S_INVALID_BOUND; The array bounds are invalid';
1735: 'RPC_S_NO_ENTRY_NAME; The binding does not contain an entry name';
1736: 'RPC_S_INVALID_NAME_SYNTAX; The name syntax is invalid';
1737: 'RPC_S_UNSUPPORTED_NAME_SYNTAX; The name syntax is not supported';
1739: 'RPC_S_UUID_NO_ADDRESS; No network address is available to use to construct a universal unique identifier (UUID)';
1740: 'RPC_S_DUPLICATE_ENDPOINT; The endpoint is a duplicate';
1741: 'RPC_S_UNKNOWN_AUTHN_TYPE; The authentication type is unknown';
1742: 'RPC_S_MAX_CALLS_TOO_SMALL; The maximum number of calls is too small';
1743: 'RPC_S_STRING_TOO_LONG; The string is too long';
1744: 'RPC_S_PROTSEQ_NOT_FOUND; The RPC protocol sequence was not found';
1745: 'RPC_S_PROCNUM_OUT_OF_RANGE; The procedure number is out of range';
1746: 'RPC_S_BINDING_HAS_NO_AUTH; The binding does not contain any authentication information';
1747: 'RPC_S_UNKNOWN_AUTHN_SERVICE; The authentication service is unknown';
1748: 'RPC_S_UNKNOWN_AUTHN_LEVEL; The authentication level is unknown';
1749: 'RPC_S_INVALID_AUTH_IDENTITY; The security context is invalid';
1750: 'RPC_S_UNKNOWN_AUTHZ_SERVICE; The authorization service is unknown';
1751: 'EPT_S_INVALID_ENTRY; The entry is invalid';
1752: 'EPT_S_CANT_PERFORM_OP; The server endpoint cannot perform the operation';
1753: 'EPT_S_NOT_REGISTERED; There are no more endpoints available from the endpoint mapper';
1754: 'RPC_S_NOTHING_TO_EXPORT; No interfaces have been exported';
1755: 'RPC_S_INCOMPLETE_NAME; The entry name is incomplete';
1756: 'RPC_S_INVALID_VERS_OPTION; The version option is invalid';
1757: 'RPC_S_NO_MORE_MEMBERS; There are no more members';
1758: 'RPC_S_NOT_ALL_OBJS_UNEXPORTED; There is nothing to unexport';
1759: 'RPC_S_INTERFACE_NOT_FOUND; The interface was not found';
1760: 'RPC_S_ENTRY_ALREADY_EXISTS; The entry already exists';
1761: 'RPC_S_ENTRY_NOT_FOUND; The entry is not found';
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1762: 'RPC_S_NAME_SERVICE_UNAVAILABLE; The name service is unavailable';
1763: 'RPC_S_INVALID_NAF_ID; The network address family is invalid';
1764: 'RPC_S_CANNOT_SUPPORT; The requested operation is not supported';
1765: 'RPC_S_NO_CONTEXT_AVAILABLE; No security context is available to allow impersonation';
1766: 'RPC_S_INTERNAL_ERROR; An internal error occurred in a remote procedure call (RPC)';
1767: 'RPC_S_ZERO_DIVIDE; The RPC server attempted an integer division by zero';
1768: 'RPC_S_ADDRESS_ERROR; An addressing error occurred in the RPC server';
1769: 'RPC_S_FP_DIV_ZERO; A floating-point operation at the RPC server caused a division by zero';
1770: 'RPC_S_FP_UNDERFLOW; A floating-point underflow occurred at the RPC server';
1771: 'RPC_S_FP_OVERFLOW; A floating-point overflow occurred at the RPC server';
1772: 'RPC_X_NO_MORE_ENTRIES; The list of RPC servers available for the binding of auto handles has been exhausted';
1773: 'RPC_X_SS_CHAR_TRANS_OPEN_FAIL; Unable to open the character translation table file';
1774: 'RPC_X_SS_CHAR_TRANS_SHORT_FILE; The file containing the character translation table has fewer than 512 bytes';
1775: 'RPC_X_SS_IN_NULL_CONTEXT; A null context handle was passed from the client to the host during a remote procedure call';
1777: 'RPC_X_SS_CONTEXT_DAMAGED; The context handle changed during a remote procedure call';
1778: 'RPC_X_SS_HANDLES_MISMATCH; The binding handles passed to a remote procedure call do not match';
1779: 'RPC_X_SS_CANNOT_GET_CALL_HANDLE; The stub is unable to get the remote procedure call handle';
1780: 'RPC_X_NULL_REF_POINTER; A null reference pointer was passed to the stub';
1781: 'RPC_X_ENUM_VALUE_OUT_OF_RANGE; The enumeration value is out of range';
1782: 'RPC_X_BYTE_COUNT_TOO_SMALL; The byte count is too small';
1783: 'RPC_X_BAD_STUB_DATA; The stub received bad data';
1784: 'ERROR_INVALID_USER_BUFFER; The supplied user buffer is not valid for the requested operation';
1785: 'ERROR_UNRECOGNIZED_MEDIA; The disk media is not recognized. It may not be formatted';
1786: 'ERROR_NO_TRUST_LSA_SECRET; The workstation does not have a trust secret';
1787: 'ERROR_NO_TRUST_SAM_ACCOUNT; The SAM database on the Windows NT Server does not have a computer account for this workstation trust relationship';
1788: 'ERROR_TRUSTED_DOMAIN_FAILURE; The trust relationship between the primary domain and the trusted domain failed';
1789: 'ERROR_TRUSTED_RELATIONSHIP_FAILURE; The trust relationship between this workstation and the primary domain failed';
1790: 'ERROR_TRUST_FAILURE; The network logon failed';
1791: 'RPC_S_CALL_IN_PROGRESS; A remote procedure call is already in progress for this thread';
1792: 'ERROR_NETLOGON_NOT_STARTED; An attempt was made to logon, but the network logon service was not started';
1793: 'ERROR_ACCOUNT_EXPIRED; The user's account has expired';
1794: 'ERROR_REDIRECTOR_HAS_OPEN_HANDLES; The redirector is in use and cannot be unloaded';
1795: 'ERROR_PRINTER_DRIVER_ALREADY_INSTALLED; The specified printer driver is already installed';
1796: 'ERROR_UNKNOWN_PORT; The specified port is unknown';
1797: 'ERROR_UNKNOWN_PRINTER_DRIVER; The printer driver is unknown';
1798: 'ERROR_UNKNOWN_PRINTPROCESSOR; The print processor is unknown';
1799: 'ERROR_INVALID_SEPARATOR_FILE; The specified separator file is invalid';
1800: 'ERROR_INVALID_PRIORITY; The specified priority is invalid';
1801: 'ERROR_INVALID_PRINTER_NAME; The printer name is invalid';
1802: 'ERROR_PRINTER_ALREADY_EXISTS; The printer already exists';
1803: 'ERROR_INVALID_PRINTER_COMMAND; The printer command is invalid';
1804: 'ERROR_INVALID_DATATYPE; The specified data type is invalid';
1805: 'ERROR_INVALID_ENVIRONMENT; The environment specified is invalid';
1806: 'RPC_S_NO_MORE_BINDINGS; There are no more bindings';
1807: 'ERROR_NOLOGON_INTERDOMAIN_TRUST_ACCOUNT; The account used is an interdomain trust account. Use your global user account or local user account to access this server';
1808: 'ERROR_NOLOGON_WORKSTATION_TRUST_ACCOUNT; The account used is a computer account. Use your global user account or local user account to access this server';
1809: 'ERROR_NOLOGON_SERVER_TRUST_ACCOUNT; The account used is a server trust account. Use your global user account or local user account to access this server';
1810: 'ERROR_DOMAIN_TRUST_INCONSISTENT; The name or security ID (SID) of the domain specified is inconsistent with the trust information for that domain';
1811: 'ERROR_SERVER_HAS_OPEN_HANDLES; The server is in use and cannot be unloaded';
1812: 'ERROR_RESOURCE_DATA_NOT_FOUND; The specified image file did not contain a resource section';
1813: 'ERROR_RESOURCE_TYPE_NOT_FOUND; The specified resource type cannot be found in the image file';
1814: 'ERROR_RESOURCE_NAME_NOT_FOUND; The specified resource name cannot be found in the image file';
1815: 'ERROR_RESOURCE_LANG_NOT_FOUND; The specified resource language ID cannot be found in the image file';
1816: 'ERROR_NOT_ENOUGH_QUOTA; Not enough quota is available to process this command';
1817: 'RPC_S_NO_INTERFACES; No interfaces have been registered';
1818: 'RPC_S_CALL_CANCELLED; The server was altered while processing this call';
1819: 'RPC_S_BINDING_INCOMPLETE; The binding handle does not contain all required information';
1820: 'RPC_S_COMM_FAILURE; Communications failure';
1821: 'RPC_S_UNSUPPORTED_AUTHN_LEVEL; The requested authentication level is not supported';
1822: 'RPC_S_NO_PRINC_NAME; No principal name registered';
1823: 'RPC_S_NOT_RPC_ERROR; The error specified is not a valid Windows NT RPC error code';
1824: 'RPC_S_UUID_LOCAL_ONLY; A UUID that is valid only on this computer has been allocated';
1825: 'RPC_S_SEC_PKG_ERROR; A security package specific error occurred';
1826: 'RPC_S_NOT_CANCELLED; Thread is not canceled';

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1827: 'RPC_X_INVALID_ES_ACTION; Invalid operation on the encoding/decoding handle';
1828: 'RPC_X_WRONG_ES_VERSION; Incompatible version of the serializing package';
1829: 'RPC_X_WRONG_STUB_VERSION; Incompatible version of the RPC stub';
1830: 'RPC_X_INVALID_PIPE_OBJECT; The idl pipe object is invalid or corrupted';
1831: 'RPC_X_INVALID_PIPE_OPERATION; The operation is invalid for a given idl pipe object';
1832: 'RPC_X_WRONG_PIPE_VERSION; The idl pipe version is not supported';
1898: 'RPC_S_GROUP_MEMBER_NOT_FOUND; The group member was not found';
1899: 'EPT_S_CANT_CREATE; The endpoint mapper database could not be created';
1900: 'RPC_S_INVALID_OBJECT; The object universal unique identifier (UUID) is the nil UUID';
1901: 'ERROR_INVALID_TIME; The specified time is invalid';
1902: 'ERROR_INVALID_FORM_NAME; The specified form name is invalid';
1903: 'ERROR_INVALID_FORM_SIZE; The specified form size is invalid';
1904: 'ERROR_ALREADY_WAITING; The specified printer handle is already being waited on';
1905: 'ERROR_PRINTER_DELETED; The specified printer has been deleted';
1906: 'ERROR_INVALID_PRINTER_STATE; The state of the printer is invalid';
1907: 'ERROR_PASSWORD_MUST_CHANGE; The user must change his password before he logs on the first time';
1908: 'ERROR_DOMAIN_CONTROLLER_NOT_FOUND; Could not find the domain controller for this domain';
1909: 'ERROR_ACCOUNT_LOCKED_OUT; The referenced account is currently locked out and may not be logged on to';
1910: 'OR_INVALID_OXID; The object exporter specified was not found';
1911: 'OR_INVALID_OID; The object specified was not found';
1912: 'OR_INVALID_SET; The object resolver set specified was not found';
1913: 'RPC_S_SEND_INCOMPLETE; Some data remains to be sent in the request buffer';
2000: 'ERROR_INVALID_PIXEL_FORMAT; The pixel format is invalid';
2001: 'ERROR_BAD_DRIVER; The specified driver is invalid';
2002: 'ERROR_INVALID_WINDOW_STYLE; The window style or class attribute is invalid for this operation';
2003: 'ERROR_METAFILE_NOT_SUPPORTED; The requested metafile operation is not supported';
2004: 'ERROR_TRANSFORM_NOT_SUPPORTED; The requested transformation operation is not supported';
2005: 'ERROR_CLIPPING_NOT_SUPPORTED; The requested clipping operation is not supported';
2102: 'NERR_NetNotStarted; The workstation driver is not installed.';
2103: 'NERR_UnknownServer; The server could not be located.';
2104: 'NERR_ShareMem; An internal error occurred. The network cannot access a shared memory segment.';
2106: 'NERR_RemoteOnly; This operation is not supported on workstations.';
2107: 'NERR_DevNotRedirected; The device is not connected.';
2114: 'NERR_ServerNotStarted; The Server service is not started.';
2115: 'NERR_ItemNotFound; The queue is empty.';
2116: 'NERR_UnknownDevDir; The device or directory does not exist.';
2117: 'NERR_RedirectedPath; The operation is invalid on a redirected resource.';
2118: 'NERR_DuplicateShare; The name has already been shared.';
2119: 'NERR_NoRoom; The server is currently out of the requested resource.';
2121: 'NERR_TooManyItems; Requested addition of items exceeds the maximum allowed.';
2122: 'NERR_InvalidMaxUsers; The Peer service supports only two simultaneous users.';
2123: 'NERR_BufTooSmall; The API return buffer is too small.';
2127: 'NERR_RemoteErr; A remote API error occurred.';
2131: 'NERR_LanmanIniError; An error occurred when opening or reading the configuration file.';
2136: 'NERR_NetworkError; A general network error occurred.';
2137: 'NERR_WkstaInconsistentState; The Workstation service is in an inconsistent state. Restart the computer before restarting the Workstation service.';
2138: 'NERR_WkstaNotStarted; The Workstation service has not been started.';
2139: 'NERR_BrowserNotStarted; The requested information is not available.';
2140: 'NERR_InternalError; An internal Windows NT error occurred.';
2141: 'NERR_BadTransactConfig; The server is not configured for transactions.';
2142: 'NERR_InvalidAPI; The requested API is not supported on the remote server.';
2143: 'NERR_BadEventName; The event name is invalid.';
2144: 'NERR_DupNameReboot; The computer name already exists on the network. Change it and restart the computer.';
2146: 'NERR_CfgCompNotFound; The specified component could not be found in the configuration information.';
2147: 'NERR_CfgParamNotFound; The specified parameter could not be found in the configuration information.';
2149: 'NERR_LineTooLong; A line in the configuration file is too long.';
2150: 'NERR_QNotFound; The printer does not exist.';
2151: 'NERR_JobNotFound; The print job does not exist.';
2152: 'NERR_DestNotFound; The printer destination cannot be found.';
2153: 'NERR_DestExists; The printer destination already exists.';
2154: 'NERR_QExists; The printer queue already exists.';
2155: 'NERR_NoNetworkResource; A network resource shortage occurred.';
2156: 'NERR_JobNoRoom; No more print jobs can be added.';
2157: 'NERR_DestNoRoom; No more printer destinations can be added.';
2158: 'NERR_DestIdle; This printer destination is idle and cannot accept control operations.';
2159: 'NERR_DestInvalidOp; This printer destination request contains an invalid control function.';
2160: 'NERR_ProcNoRespond; The print processor is not responding.';
2161: 'NERR_SpoolerNotLoaded; The spooler is not running.';
2162: 'NERR_DestInvalidState; This operation cannot be performed on the print destination in its current state.';
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2163: 'NERR_QInvalidState; This operation cannot be performed on the printer queue in its current state.';
2164: 'NERR_JobInvalidState; This operation cannot be performed on the print job in its current state.';
2165: 'NERR_SpoolNoMemory; A spooler memory allocation failure occurred.';
2166: 'NERR_DriverNotFound; The device driver does not exist.';
2167: 'NERR_DataTypeInvalid; The data type is not supported by the print processor.';
2168: 'NERR_ProcNotFound; The print processor is not installed.';
2180: 'NERR_ServiceTableLocked; The service database is locked.';
2181: 'NERR_ServiceTableFull; The service table is full.';
2182: 'NERR_ServiceInstalled; The requested service has already been started.';
2183: 'NERR_ServiceEntryLocked; The service does not respond to control actions.';
2184: 'NERR_ServiceNotInstalled; The service has not been started.';
2185: 'NERR_BadServiceName; The service name is invalid.';
2186: 'NERR_ServiceCtlTimeout; The service is not responding to the control function.';
2187: 'NERR_ServiceCtlBusy; The service control is busy.';
2188: 'NERR_BadServiceProgName; The configuration file contains an invalid service program name.';
2189: 'NERR_ServiceNotCtrl; The service could not be controlled in its present state.';
2190: 'NERR_ServiceKillProc; The service ended abnormally.';
2191: 'NERR_ServiceCtlNotValid; The requested pause or stop is not valid for this service.';
2192: 'NERR_NotInDispatchTbl; The service control dispatcher could not find the service name in the dispatch table.';
2193: 'NERR_BadControlRecv; The service control dispatcher pipe read failed.';
2194: 'NERR_ServiceNotStarting; A thread for the new service could not be created.';
2200: 'NERR_AlreadyLoggedOn; This workstation is already logged on to the local-area network.';
2201: 'NERR_NotLoggedOn; The workstation is not logged on to the local-area network.';
2202: 'NERR_BadUsername; The user name or group name parameter is invalid.';
2203: 'NERR_BadPassword; The password parameter is invalid.';
2204: 'NERR_UnableToAddName_W; @W The logon processor did not add the message alias.';
2205: 'NERR_UnableToAddName_F; The logon processor did not add the message alias.';
2206: 'NERR_UnableToDelName_W; @W The logoff processor did not delete the message alias.';
2207: 'NERR_UnableToDelName_F; The logoff processor did not delete the message alias.';
2209: 'NERR_LogonsPaused; Network logons are paused.';
2210: 'NERR_LogonServerConflict; A centralized logon-server conflict occurred.';
2211: 'NERR_LogonNoUserPath; The server is configured without a valid user path.';
2212: 'NERR_LogonScriptError; An error occurred while loading or running the logon script.';
2214: 'NERR_StandaloneLogon; The logon server was not specified. Your computer will be logged on as STANDALONE.';
2215: 'NERR_LogonServerNotFound; The logon server could not be found.';
2216: 'NERR_LogonDomainExists; There is already a logon domain for this computer.';
2217: 'NERR_NonValidatedLogon; The logon server could not validate the logon.';
2219: 'NERR_ACFNotFound; The security database could not be found.';
2220: 'NERR_GroupNotFound; The group name could not be found.';
2221: 'NERR_UserNotFound; The user name could not be found.';
2222: 'NERR_ResourceNotFound; The resource name could not be found.';
2223: 'NERR_GroupExists; The group already exists.';
2224: 'NERR_UserExists; The user account already exists.';
2225: 'NERR_ResourceExists; The resource permission list already exists.';
2226: 'NERR_NotPrimary; This operation is only allowed on the primary domain controller of the domain.';
2227: 'NERR_ACFNotLoaded; The security database has not been started.';
2228: 'NERR_ACFNoRoom; There are too many names in the user accounts database.';
2229: 'NERR_ACFFileIOFail; A disk I/O failure occurred.';
2230: 'NERR_ACFTooManyLists; The limit of 64 entries per resource was exceeded.';
2231: 'NERR_UserLogon; Deleting a user with a session is not allowed.';
2232: 'NERR_ACFNoParent; The parent directory could not be located.';
2233: 'NERR_CanNotGrowSegment; Unable to add to the security database session cache segment.';
2234: 'NERR_SpeGroupOp; This operation is not allowed on this special group.';
2235: 'NERR_NotInCache; This user is not cached in user accounts database session cache.';
2236: 'NERR_UserInGroup; The user already belongs to this group.';
2237: 'NERR_UserNotInGroup; The user does not belong to this group.';
2238: 'NERR_AccountUndefined; This user account is undefined.';
2239: 'NERR_AccountExpired; This user account has expired.';
2240: 'NERR_InvalidWorkstation; The user is not allowed to log on from this workstation.';
2241: 'NERR_InvalidLogonHours; The user is not allowed to log on at this time.';
2242: 'NERR_PasswordExpired; The password of this user has expired.';
2243: 'NERR_PasswordCantChange; The password of this user cannot change.';
2244: 'NERR_PasswordHistConflict; This password cannot be used now.';
2245: 'NERR_PasswordTooShort; The password is shorter than required.';
2246: 'NERR_PasswordTooRecent; The password of this user is too recent to change.';
2247: 'NERR_InvalidDatabase; The security database is corrupted.';
2248: 'NERR_DatabaseUpToDate; No updates are necessary to this replicant network/local security database.';
2249: 'NERR_SyncRequired; This replicant database is outdated; synchronization is required.';
2250: 'NERR_UseNotFound; The network connection could not be found.';
2251: 'NERR_BadAsgType; This asg_type is invalid.';
```


2252: 'NERR_DeviceIsShared; This device is currently being shared.';

2270: 'NERR_NoComputerName; The computer name could not be added as a message alias. The name may already exist on the network.';

2271: 'NERR_MsgAlreadyStarted; The Messenger service is already started.';

2272: 'NERR_MsgInitFailed; The Messenger service failed to start.';

2273: 'NERR_NameNotFound; The message alias could not be found on the network.';

2274: 'NERR_AlreadyForwarded; This message alias has already been forwarded.';

2275: 'NERR_AddForwarded; This message alias has been added but is still forwarded.';

2276: 'NERR_AlreadyExists; This message alias already exists locally.';

2277: 'NERR_TooManyNames; The maximum number of added message aliases has been exceeded.';

2278: 'NERR_DelComputerName; The computer name could not be deleted.';

2279: 'NERR_LocalForward; Messages cannot be forwarded back to the same workstation.';

2280: 'NERR_GrpMsgProcessor; An error occurred in the domain message processor.';

2281: 'NERR_PausedRemote; The message was sent.';

2282: 'NERR_BadReceive; The message was sent but not received.';

2283: 'NERR_NameInUse; The message alias is currently in use. Try again later.';

2284: 'NERR_MsgNotStarted; The Messenger service has not been started.';

2285: 'NERR_NotLocalName; The name is not on the local computer.';

2286: 'NERR_NoForwardName; The forwarded message alias could not be found on the network.';

2287: 'NERR_RemoteFull; The message alias table on the remote station is full.';

2288: 'NERR_NameNotForwarded; Messages for this alias are not currently being forwarded.';

2289: 'NERR_TruncatedBroadcast; The broadcast message was truncated.';

2294: 'NERR_InvalidDevice; This is an invalid device name.';

2295: 'NERR_WriteFault; A write fault occurred.';

2297: 'NERR_DuplicateName; A duplicate message alias exists on the network.';

2298: 'NERR_DeleteLater; @W This message alias will be deleted later.';

2299: 'NERR_IncompleteDel; The message alias was not successfully deleted from all networks.';

2300: 'NERR_MultipleNets; This operation is not supported on computers with multiple networks.';

2310: 'NERR_NetNameNotFound; This shared resource does not exist.';

2311: 'NERR_DeviceNotShared; This device is not shared.';

2312: 'NERR_ClientNameNotFound; A session does not exist with that computer name.';

2314: 'NERR_FileIdNotFound; There is not an open file with that identification number.';

2315: 'NERR_ExecFailure; A failure occurred when executing a remote administration command.';

2316: 'NERR_TmpFile; A failure occurred when opening a remote temporary file.';

2317: 'NERR_TooMuchData; The data returned from a remote administration command has been truncated to 64K.';

2318: 'NERR_DeviceShareConflict; This device cannot be shared as both a spooled and a non-spooled resource.';

2319: 'NERR_BrowserTableIncomplete; The information in the list of servers may be incorrect.';

2320: 'NERR_NotLocalDomain; The computer is not active in this domain.';

2321: 'NERR_IsDfsShare; The share must be removed from the Distributed File System before it can be deleted.';

2331: 'NERR_DevInvalidOpCode; The operation is invalid for this device.';

2332: 'NERR_DevNotFound; This device cannot be shared.';

2333: 'NERR_DevNotOpen; This device was not open.';

2334: 'NERR_BadQueueDevString; This device name list is invalid.';

2335: 'NERR_BadQueuePriority; The queue priority is invalid.';

2337: 'NERR_NoCommDevs; There are no shared communication devices.';

2338: 'NERR_QueueNotFound; The queue you specified does not exist.';

2340: 'NERR_BadDevString; This list of devices is invalid.';

2341: 'NERR_BadDev; The requested device is invalid.';

2342: 'NERR_InUseBySpooler; This device is already in use by the spooler.';

2343: 'NERR_CommDevInUse; This device is already in use as a communication device.';

2351: 'NERR_InvalidComputer; This computer name is invalid.';

2354: 'NERR_MaxLenExceeded; The string and prefix specified are too long.';

2356: 'NERR_BadComponent; This path component is invalid.';

2357: 'NERR_CantType; Could not determine the type of input.';

2362: 'NERR_TooManyEntries; The buffer for types is not big enough.';

2370: 'NERR_ProfileFileTooBig; Profile files cannot exceed 64K.';

2371: 'NERR_ProfileOffset; The start offset is out of range.';

2372: 'NERR_ProfileCleanup; The system cannot delete current connections to network resources.';

2373: 'NERR_ProfileUnknownCmd; The system was unable to parse the command line in this file.';

2374: 'NERR_ProfileLoadErr; An error occurred while loading the profile file.';

2375: 'NERR_ProfileSaveErr; @W Errors occurred while saving the profile file. The profile was partially saved.';

2377: 'NERR_LogOverflow; Log file %1 is full.';

2378: 'NERR_LogFileChanged; This log file has changed between reads.';

2379: 'NERR_LogFileCorrupt; Log file %1 is corrupt.';

2380: 'NERR_SourceIsDir; The source path cannot be a directory.';

2381: 'NERR_BadSource; The source path is illegal.';

2382: 'NERR_BadDest; The destination path is illegal.';

2383: 'NERR_DifferentServers; The source and destination paths are on different servers.';

2385: 'NERR_RunSrvPaused; The Run server you requested is paused.';

2389: 'NERR_ErrCommRunSrv; An error occurred when communicating with a Run server.';

2391: 'NERR_ErrorExecingGhost; An error occurred when starting a background process.';
2392: 'NERR_ShareNotFound; The shared resource you are connected to could not be found.';
2400: 'NERR_InvalidLana; The LAN adapter number is invalid.';
2401: 'NERR_OpenFiles; There are open files on the connection.';
2402: 'ERROR_ACTIVE_CONNECTIONS; Active connections still exist';
2403: 'NERR_BadPasswordCore; This share name or password is invalid.';
2404: 'NERR_DevInUse; The device is being accessed by an active process.';
2405: 'NERR_LocalDrive; The drive letter is in use locally.';
2430: 'NERR_AlertExists; The specified client is already registered for the specified event.';
2431: 'NERR_TooManyAlerts; The alert table is full.';
2432: 'NERR_NoSuchAlert; An invalid or nonexistent alert name was raised.';
2433: 'NERR_BadRecipient; The alert recipient is invalid.';
2434: 'NERR_AcctLimitExceeded; A user's session with this server has been deleted because the user's logon hours are no longer valid.';
2440: 'NERR_InvalidLogSeek; The log file does not contain the requested record number.';
2450: 'NERR_BadUasConfig; The user accounts database is not configured correctly.';
2451: 'NERR_InvalidUASOp; This operation is not permitted when the Netlogon service is running.';
2452: 'NERR_LastAdmin; This operation is not allowed on the last administrative account.';
2453: 'NERR_DCNotFound; Could not find domain controller for this domain.';
2454: 'NERR_LogonTrackingError; Could not set logon information for this user.';
2455: 'NERR_NetlogonNotStarted; The Netlogon service has not been started.';
2456: 'NERR_CanNotGrowUASFile; Unable to add to the user accounts database.';
2457: 'NERR_TimeDiffAtDC; This server's clock is not synchronized with the primary domain controller's clock.';
2458: 'NERR_PasswordMismatch; A password mismatch has been detected.';
2460: 'NERR_NoSuchServer; The server identification does not specify a valid server.';
2461: 'NERR_NoSuchSession; The session identification does not specify a valid session.';
2462: 'NERR_NoSuchConnection; The connection identification does not specify a valid connection.';
2463: 'NERR_TooManyServers; There is no space for another entry in the table of available servers.';
2464: 'NERR_TooManySessions; The server has reached the maximum number of sessions it supports.';
2465: 'NERR_TooManyConnections; The server has reached the maximum number of connections it supports.';
2466: 'NERR_TooManyFiles; The server cannot open more files because it has reached its maximum number.';
2467: 'NERR_NoAlternateServers; There are no alternate servers registered on this server.';
2470: 'NERR_TryDownLevel; Try down-level (remote admin protocol) version of API instead.';
2480: 'NERR_UPSDriverNotStarted; The UPS driver could not be accessed by the UPS service.';
2481: 'NERR_UPSInvalidConfig; The UPS service is not configured correctly.';
2482: 'NERR_UPSInvalidCommPort; The UPS service could not access the specified Comm Port.';
2483: 'NERR_UPSSignalAsserted; The UPS indicated a line fail or low battery situation. Service not started.';
2484: 'NERR_UPSShutdownFailed; The UPS service failed to perform a system shut down.';
2500: 'NERR_BadDosRetCode; The program below returned an MS-DOS error code.';
2501: 'NERR_ProgNeedsExtraMem; The program below needs more memory.';
2502: 'NERR_BadDosFunction; The program below called an unsupported MS-DOS function.';
2503: 'NERR_RemoteBootFailed; The workstation failed to boot.';
2504: 'NERR_BadFileChecksum; The file below is corrupt.';
2505: 'NERR_NoRplBootSystem; No loader is specified in the boot-block definition file.';
2506: 'NERR_RplLoadrNetBiosErr; NetBIOS returned an error: The NCB and SMB are dumped above.';
2507: 'NERR_RplLoadrDiskErr; A disk I/O error occurred.';
2508: 'NERR_ImageParamErr; Image parameter substitution failed.';
2509: 'NERR_TooManyImageParams; Too many image parameters cross disk sector boundaries.';
2510: 'NERR_NonDosFloppyUsed; The image was not generated from an MS-DOS diskette formatted with /S.';
2511: 'NERR_RplBootRestart; Remote boot will be restarted later.';
2512: 'NERR_RplSrvrCallFailed; The call to the Remoteboot server failed.';
2513: 'NERR_CantConnectRplSrvr; Cannot connect to the Remoteboot server.';
2514: 'NERR_CantOpenImageFile; Cannot open image file on the Remoteboot server.';
2515: 'NERR_CallingRplSrvr; Connecting to the Remoteboot server...';
2516: 'NERR_StartingRplBoot; Connecting to the Remoteboot server...';
2517: 'NERR_RplBootServiceTerm; Remote boot service was stopped; check the error log for the cause of the problem.';
2518: 'NERR_RplBootStartFailed; Remote boot startup failed; check the error log for the cause of the problem.';
2519: 'NERR_RPL_CONNECTED; A second connection to a Remoteboot resource is not allowed.';
2550: 'NERR_BrowserConfiguredToNotRun; The browser service was configured with MaintainServerList='No.'';
2610: 'NERR_RplNoAdaptersStarted; Service failed to start since none of the network adapters started with this service.';
2611: 'NERR_RplBadRegistry; Service failed to start due to bad startup information in the registry.';
2612: 'NERR_RplBadDatabase; Service failed to start because its database is absent or corrupt.';
2613: 'NERR_RplRplfilesShare; Service failed to start because RPLFILES share is absent.';
2614: 'NERR_RplNotRplServer; Service failed to start because RPLUSER group is absent.';
2615: 'NERR_RplCannotEnum; Cannot enumerate service records.';
2616: 'NERR_RplWkstaInfoCorrupted; Workstation record information has been corrupted.';
2617: 'NERR_RplWkstaNotFound; Workstation record was not found.';
2618: 'NERR_RplWkstaNameUnavailable; Workstation name is in use by some other workstation.';
2619: 'NERR_RplProfileInfoCorrupted; Profile record information has been corrupted.';
2620: 'NERR_RplProfileNotFound; Profile record was not found.';

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2621: 'NERR_RplProfileNameUnavailable; Profile name is in use by some other profile.';
2622: 'NERR_RplProfileNotEmpty; There are workstations using this profile.';
2623: 'NERR_RplConfigInfoCorrupted; Configuration record information has been corrupted.';
2624: 'NERR_RplConfigNotFound; Configuration record was not found.';
2625: 'NERR_RplAdapterInfoCorrupted; Adapter id record information has been corrupted.';
2626: 'NERR_RplInternal; An internal service error has occurred.';
2627: 'NERR_RplVendorInfoCorrupted; Vendor id record information has been corrupted.';
2628: 'NERR_RplBootInfoCorrupted; Boot block record information has been corrupted.';
2629: 'NERR_RplWkstaNeedsUserAcct; The user account for this workstation record is missing.';
2630: 'NERR_RplNeedsRPLUSERAcct; The RPLUSER local group could not be found.';
2631: 'NERR_RplBootNotFound; Boot block record was not found.';
2632: 'NERR_RplIncompatibleProfile; Chosen profile is incompatible with this workstation.';
2633: 'NERR_RplAdapterNameUnavailable; Chosen network adapter id is in use by some other workstation.';
2634: 'NERR_RplConfigNotEmpty; There are profiles using this configuration.';
2635: 'NERR_RplBootInUse; There are workstations';
2636: 'NERR_RplBackupDatabase; Service failed to backup Remoteboot database.';
2637: 'NERR_RplAdapterNotFound; Adapter record was not found.';
2638: 'NERR_RplVendorNotFound; Vendor record was not found.';
2639: 'NERR_RplVendorNameUnavailable; Vendor name is in use by some other vendor record.';
2640: 'NERR_RplBootNameUnavailable; (boot name, vendor id) is in use by some other boot block record.';
2641: 'NERR_RplConfigNameUnavailable; Configuration name is in use by some other configuration.';
2660: 'NERR_DfsInternalCorruption; The internal database maintained by the Dfs service is corrupt.';
2661: 'NERR_DfsVolumeDataCorrupt; One of the records in the internal Dfs database is corrupt.';
2662: 'NERR_DfsNoSuchVolume; There is no volume whose entry path matches the input Entry Path.';
2663: 'NERR_DfsVolumeAlreadyExists; A volume with the given name already exists.';
2664: 'NERR_DfsAlreadyShared; The server share specified is already shared in the Dfs.';
2665: 'NERR_DfsNoSuchShare; The indicated server share does not support the indicated Dfs volume.';
2666: 'NERR_DfsNotALeafVolume; The operation is not valid on a non-leaf volume.';
2667: 'NERR_DfsLeafVolume; The operation is not valid on a leaf volume.';
2668: 'NERR_DfsVolumeHasMultipleServers; The operation is ambiguous because the volume has multiple servers.';
2669: 'NERR_DfsCantCreateJunctionPoint; Unable to create a junction point.';
2670: 'NERR_DfsServerNotDfsAware; The server is not Dfs Aware.';
2671: 'NERR_DfsBadRenamePath; The specified rename target path is invalid.';
2672: 'NERR_DfsVolumeIsOffline; The specified Dfs volume is offline.';
2673: 'NERR_DfsNoSuchServer; The specified server is not a server for this volume.';
2674: 'NERR_DfsCyclicalName; A cycle in the Dfs name was detected.';
2675: 'NERR_DfsNotSupportedInServerDfs; The operation is not supported on a server-based Dfs.';
2690: 'NERR_DfsInternalError; Dfs internal error.';
3000: 'ERROR_UNKNOWN_PRINT_MONITOR; The specified print monitor is unknown';
3001: 'ERROR_PRINTER_DRIVER_IN_USE; The specified printer driver is currently in use';
3002: 'ERROR_SPOOL_FILE_NOT_FOUND; The spool file was not found';
3003: 'ERROR_SPL_NO_STARTDOC; A StartDocPrinter call was not issued';
3004: 'ERROR_SPL_NO_ADDJOB; An AddJob call was not issued';
3005: 'ERROR_PRINT_PROCESSOR_ALREADY_INSTALLED; The specified print processor has already been installed';
3006: 'ERROR_PRINT_MONITOR_ALREADY_INSTALLED; The specified print monitor has already been installed';
3007: 'ERROR_INVALID_PRINT_MONITOR; The specified print monitor does not have the required functions';
3008: 'ERROR_PRINT_MONITOR_IN_USE; The specified print monitor is currently in use';
3009: 'ERROR_PRINTER_HAS_JOBS_QUEUED; The requested operation is not allowed when there are jobs queued to the printer';
3010: 'ERROR_SUCCESS_REBOOT_REQUIRED; The requested operation is successful. Changes will not be effective until the system is rebooted';
3011: 'ERROR_SUCCESS_RESTART_REQUIRED; The requested operation is successful. Changes will not be effective until the service is restarted';
4000: 'ERROR_WINS_INTERNAL; WINS encountered an error while processing the command';
4001: 'ERROR_CAN_NOT_DEL_LOCAL_WINS; The local WINS can not be deleted';
4002: 'ERROR_STATIC_INIT; The importation from the file failed';
4003: 'ERROR_INC_BACKUP; The backup failed. Was a full backup done before?';
4004: 'ERROR_FULL_BACKUP; The backup failed. Check the directory to which you are backing the database';
4005: 'ERROR_REC_NON_EXISTENT; The name does not exist in the WINS database';
4006: 'ERROR_RPL_NOT_ALLOWED; Replication with a nonconfigured partner is not allowed';
6118: 'ERROR_NO_BROWSER_SERVERS_FOUND; The list of servers for this workgroup is not currently available';
```

4.1.2 Columbus Error Codes

20000: End of File. (E20000)

20001: File could not be located. (E20001)

20002: No free internal filehandle. (E20002)

20003: Could not access inputfile as ReadOnly. (E20003)

20004: An invalid FileID was passed. (E20004)

20005: Requested script section could not be found. (E20005)

20006: Label for GoTo operation could not be found. (E20006)

20007: Program could not be started. (E20007)

20008: Could not create targetfile. (E20008)

20009: Could not write to targetfile. Disk may be full or non existing. (E20009)

20010: Could not change to requested directory. (E20010)

20011: Requested network ressource could not be connected. Possible wrong UserID/Password. (E20011)

20012: Could not delete file. Maybe you have insufficient rights. (E20012)

20013: Could not rename file or directory. (E20013)

20014: Deleting existing targetfile before copy operation failed. (E20014)

20015: Reset file attribute of existing targetfile before copy operation failed. (E20015)

20016: Systemdrive has less than 25MB space. Copy has been stopped to protect the system. (E20016)

20017: Could not write to INI file. (E20017)

20018: Could not read from sourcefile. File may be opened exclusive. (E20018)

20019: Destination does not exist. (E20019)

20020: Problem during file operation. Please check BRAINWARE.LOG. (E20020)

20021: Waiting for external program to terminate timed out. (E20021)

20030: Error reading file. Probably not a text file. (E20030)

20031: Could not convert input to a numeric value. (E20031)

20032: No script line available - eventually section not found or script not loaded. (E20032)

20033: The maximum number of valid tokens exceeded. You may have a syntax problem in your input line (E20033)

20034: Could not create directory. (E20034)

20035: Destination must be specified. (E20035)

20036: Can not update/delete the file since it is protected from the operating system. (E20036)

20037: The RunAs command is allowed only in UserAdd / Userrepeat sections. (E20037)

20038: Could not open sourcefile. (E20038)

20040: The script file has too many lables and sections. (E20040)

20500: Logon with specified Service Account failed (E20500)

21000: Could not establish DDE link to PROGMAN. (E21000)

21001: DDE Create of menu failed. (E21001)

21500: No corresponding value in registry. (E21500)

22000: Could not connect network ressource. (E22000)

25000: Illegal character in variable name. (E25000)

25001: Missing second % for variable name. (E25001)

26000: Unable to load information from encrypted external file. (E26000)

27000: Unable to performa action because of license restriction(s). (E27000)

30000: Unknown command. (E30000)
30001: String delimiter expected. (E30001)
30002: <Blank> char expected. (E30002)
30003: Unknown registry mainkey used. (E30003)
30004: Combination of command options not allowed. (E30004)
30005: <=> char expected. (E30005)
30006: value after <=> expected. (E30006)
30007: <T0> keyword expected. (E30007)
30008: </> character expected. (E30008)
30009: Illegal switch used. (E30009)
30010: Illegal keyword in commandline. (E30010)
30011: Illegal or misspelled parameter(s) in commandline. (E30011)
30012: File or directory must exist prior to /8.3 operation. (E30012)
30013: String parameter expected. (E30013)
30014: Insufficient list of parameters for this command. (E30014)
30015: Wrong or missing parameter type in command. (E30015)
30016: The section name within the ini file must not be empty. (E30016)
30017: The key name within the ini file must not be empty. (E30017)
30020: Failed to turn off/on filesystem redirection. (E30020)
30099: Command is not allowed for current license type. (E30099)
31000: Could not write to registry. (E31000)
31100: Registry key does not exist. (E31100)
31101: A general error occurred during setting registry permissions. (E31101)
31102: Could not open registry key for writing. (E31102)
31105: Could not open / create registry key. (E31105)
31106: Invalid data for registry value. (E31106)
32000: Error processing ZIP file. (E32000)
32500: Failed to use Windows Scripting Host subsystem. (E32500)
32610: Failed to access Powershell script engine. (E32610)
32615: Failed to access Powershell script engine. (E32615)
32616: Failed to use Powershell script engine. (E32616)
32620: Failed to use Powershell script engine. (E32620)
33000: Command not supported on current operating system. (E33000)
33001: MSI command may be used on NT4 from [Client..] or [Server...] sections only when using local the MSI source from local drives. Please use MSIEXEC command for remote installations instead. (E33001)
34001: Could not Add/Remove font. (E34001)
34002: Font file does not exist. (E34002)
34005: Could not set file attributes. (E34005)
34011: Could not create file handle. (E34011)
34012: File does not contain Selfregister routine. (E34012)
34020: Failed to initialize Microsoft Installer Services. (E34020)
34100: Failed to load external DLL, possibly the operating system does not support this function. (E34100)
34102: Failed to find the declared function call in the external DLL. (E34102)
34105: Failed to create system restore point. (E34105)
34109: Unable to process system restore point operation. (E34109)

35000: Failed to stop Service for removal. (E35000)
35001: Failed to remove Service after stopping. (E35001)
35002: Failed to open ServiceManager (insufficient rights ?).(E35002)
35003: Failed to open ServiceManager (Service not installed ?).(E35003)
35004: Failed to create Service (insufficient rights ?).(E35004)
35005: Failed to start Service.(E35005)
35006: Failed to control service.(E35006)
35100: Driver name not available. (E35100)
35101: Alias already exists. (E35101)
35109: Error adding alias. (E35109)
35200: Unable to pass execute command line via Desktop interaction queue. (E35200)
35201: Unexpected result. (E35201)
36000: Source and target file size do not match after copy.(E36000)
36001: Source and target file timestamps do not match after copy.(E36001)
37000: Failed to change password.(E37000)
38000: Failed to add audit event to database.(E38000)
38001: Failed to audit event because db was not initialized properly.(E38001)
40000: Directory create failed. (E40000)
60000: A general exception occurred. (E60000)
60001: "TRUSTEDINSTALLER" service not supported by OS

4.1.3 MSI Error Codes

```
1602: 'MSI1602: User cancel installation.';
1603: 'MSI1603: Fatal error during installation.';
1604: 'MSI1604: Installation suspended, incomplete.';
1605: 'MSI1605: This action is only valid for products that are currently installed.';
1606: 'MSI1606: Feature ID not registered.';
1607: 'MSI1607: Component ID not registered.';
1608: 'MSI1608: Unknown property.';
1609: 'MSI1609: Handle is in an invalid state.';
1610: 'MSI1610: The configuration data for this product is corrupt.';
1611: 'MSI1611: Component qualifier not present.';
1612: 'MSI1612: The installation source for this product is not available.';
1616: 'MSI1616: Record field does not exist.';
1601: 'MSI1601: The Windows Installer service could not be accessed.';
1613: 'MSI1613: This installation package cannot be installed by the Windows Installer service. You need a newer version of MSI.';
1615: 'MSI1615: SQL query syntax invalid or unsupported.';
1618: 'MSI1618: Another installation is already in progress.';
1619: 'MSI1619: This installation package could not be opened. Verify that the package exists and that you can access it.';
1620: 'MSI1620: This installation package could not be opened.';
1621: 'MSI1621: There was an error starting the Windows Installer service user interface.';
1622: 'MSI1622: Error opening installation log file. Verify that the specified log file location exists and is writable.';
1623: 'MSI1623: This language of this installation package is not supported by your system.';
1625: 'MSI1625: The system administrator has set policies to prevent this installation.';
1626: 'MSI1626: Function could not be executed.';
1627: 'MSI1627: Function failed during execution.';
1628: 'MSI1628: Invalid or unknown table specified.';
1629: 'MSI1629: Data supplied is of wrong type.';
1630: 'MSI1630: Data of this type is not supported.';
1631: 'MSI1631: The Windows Installer service failed to start.';
1632: 'MSI1632: The Temp folder is on a drive that is full or is inaccessible. Free up space or verify that you have write permission.';
1633: 'MSI1633: This installation package is not supported by this processor type.';
1634: 'MSI1634: Component not used on this machine';
1624: 'MSI1624: Error applying transforms. Verify that the specified transform paths are valid.';
1635: 'MSI1635: This patch package could not be opened. Verify that the patch package exists and that you can access it.';
1636: 'MSI1636: This patch package could not be opened.';
1637: 'MSI1637: This patch package cannot be processed by the Windows Installer service. You need a newer version of MSI.';
1638: 'MSI1638: Another version of this product is already installed. Installation of this version cannot continue.';
1639: 'MSI1639: Invalid command line argument.';
1640: 'MSI1640: Configuration of this product is not permitted from remote sessions.';
1642: 'MSI1642: The patch cannot be installed by MSI because the program to be upgraded may be missing or be the wrong version.';
```

4.2 Rights and Roles

RID	RDESCRIPTION
CO_ACTIVATE	Allows activating or deactivating a machine or user
CO_ADDMACH	Allows you to add machines
CO_ADDSWGRP1	Allows defining new software groups. This right is valid for the whole company and may not be limited to a container
CO_ADDTREE1	Allows adding new containers and therefore modify the tree structure
CO_ADDTREE2	Allows adding of companies to the tree structure
CO_ADDUSER	Allows you to add users
CO_ASSIGNMACH1	Allow an individual to assign machines to a new container
CO_ASSIGNUSER1	Assign users to a new tree container
CO_BACKUPCONF	Allows you to configure the Backup agent
CO_BACKUPSCHED	Allows you to schedule whe then Backup of your database(s) should execute
CO_C5CONF	Allows you to configure the settings for the agent that synchronizes the database and exisintg C5 SWAmin files structure
CO_C5SCHED	Allows you to schedule when the C5 sync agent should execute
CO_CCTASS	Allows you assign client configuration templates to tree objects and/or machines.
CO_CCTLIST	Allows you to see a list of available client configuration templates.
CO_CCTMGMT	Allows you to add, update and delete client configuration templates.
CO_CFGVAR	Manage client variables which are used by the Management Client for package processing
CO_COMCONF	Allows you to configure the COM interface agent
CO_CONFIGMGMT	Allows you adapt the database configuration entries.
CO_CULIST	Allows you to view the list of the user for connections to other machines.
CO_CUMGMT	Allows you to manage (add, update, delete) the users that are used to connect to other machines.
CO_DBMAINT	Allows you to directly access/update the database via Maintenance window
CO_DELACT1	Allows deleting of scheduled actions
CO_DELALLDATA	Allows to perform a function which deletes all database contents
CO_DELINFRA1	Allows to delete infrastructure object like Managent Servers
CO_DELMACH1	Allows deleting machines
CO_DELSWGRP1	Allows deleting software groups. This right is valid for the whole company and may not be limited to a container
CO_DELTREE1	Allows deleting of tree containers (excl. company names)
CO_DELUSER1	Allows deleting users
CO_EDITCORP1	Allows editing of company details such as name and address
CO_EDITMACH1	Update machine details (like name, cost center, MAC adress)
CO_EDITOBJPRO1	Allows editing tree object properties such as title or icon
CO_EDITTREE1	Allows editing of tree titles (excl. company names) in the tree
CO_EDITUSER1	Update user details (like name, full name, cost center)

RID	RDESCRIPTION
CO_EDTJOBACT1	Manage inventory job activation status
CO_EDTSWACT1	Allows activating/deactivating software packages
CO_EDTSWADD1	Allows adding software to containers
CO_EDTSWADD2	Allows adding software to objects
CO_EDTSWDET	Allows you to manage software details, e.g. patch severity
CO_EDTSWDIS1	Allows changing the definition if software is available via Software-On-Demand and Software-On-Order
CO_EDTSWGRP1	Allows editing software group contents. This right is valid for the whole company and may not be limited to a container
CO_EDTSWREM1	Allows removing software or groups from objects
CO_EDTSWREM2	Allows removing software denials which block software inheritance in the tree
CO_EDTSWREP1	Allows reinstalling software or software groups
CO_EXPMGMT	Manage Exporter configuration / jobs
CO_EXPSCHED	Allows you to schedule / execute exporter jobs
CO_INVCONF	Allows you to configure the Inventory collection agent
CO_INVSCHED	Allows you to schedule when then Inventory collection list refresh should execute
CO_LDAPCONF	Allows you to configure the settings for the LDAP sync agent which can import data from LDAP, NT4 and Novell servers
CO_LDAPSCHED	Allows you to schedule when the LDAP sync agent should execute
CO_LISTACT1	Allows listing of scheduled actions such as machine installations or list refreshes
CO_LISTCONTNER1	Allows displaying current container and subcontainers
CO_LISTINFRA1	Allows listing infrastructure machines
CO_LISTMACH1	Allows listing machines in a container and viewing their properties
CO_LISTORDER1	Allows listing all software orders of a company
CO_LISTOS1	Allows listing of OS releases and assigned sites
CO_LISTPKG1	Allows listing software packages and viewing their properties
CO_LISTPKG2	Allows listing software package groups and viewing their properties
CO_LISTRIGHT1	Allows listing individual right definitions in security tables
CO_LISTRIGHT2	Allows listing right role definitions in security tables
CO_LISTTREEALL	List all tree item, regardless of security in subtrees
CO_LISTUSER1	Allows listing users in a container and viewing their properties
CO_LISTUSER2	Allows listing users which own the right to logon to the console
CO_LOGONCONSOLE	Allow an individual to logon to the Management Console
CO_MACHBACKUP	Allows you to perform a backup of a machine (or disk partition)
CO_MACHRESTORE	Allows you to perform a restore of a machine (or disk partition)
CO_MANAGEATT	Allows you to add / Delete attachments
CO_MANAGEINFRA1	Allows you to Manage infrastructure objects, e.g. assign agents to companies, reporting
CO_MANAGERIGHTS	Allows to manage object rights
CO_MANAGESEARCH	Allows changes on search conditions
CO_MANASSET	Allows to manage assets manually
CO_MGMTAUDIT	Manage Auditing (enable / disable / activate auditing events)

RID	RDESCRIPTION
CO_OPENATT	Allows you to open/print attachments
CO_OSCONF	Allows you to configure the Operatin Systems depot agent
CO_OSCONFIG	Assign or edit the configuration of the OS of a computer
CO_OSDEPLOY	Schedule an OS deployment to computers
CO_OSSCHED	Allows you to schedule whe then Operatin Systems refresh should execute
CO_PAMCONF	Allows you to configure the Patch Management agent
CO_PAMSCHED	Allows you to schedule when then Patch Management refresh should execute
CO_POWERMACH1	Allows to send Wake-On-LAN signals to computers
CO_PRODMANAGE	Allows changes on the product-definitions, used for InventoryScanner
CO_PRODQAMANAG E	Allows changes on the product-definitions, used for InventoryScanner
CO_PSSCHED	Allows you to schedule patch scanning jobs
CO_PXEMAINT	Allows you to perform maintenance jobs via PXE
CO_REPCONF	Allows you to configure the Reporting agent
CO_REPCUST	Allows you to open your own reports.
CO_REPSCHED	Allows you to schedule whe then Reporting jobs should be executed
CO_REPSTD1	Allows you to open reports that are limited to data within a single company
CO_REPSTD2	Allows you to open reports that might affect all objects (from multiple companied)
CO_ROLLOUT	Allows to rollout client / infrastructure etc. items, either direct or via agent
CO_SHUTMACH	Allows to send shutdown signal / save shutdown action
CO_SWCONF	Allows you to configure the Software depot agent
CO_SWSCHED	Allows you to schedule whe then Software list refresh should execute
CR_INFRAMGR	Manage and configure Infrastructure Services
CR_OSMGR	Manage and assign Operating Systems
CR_SUPPORT1	Read all data for Helpdesk and Reporting purpose
CR_SUPPORT2	Read all data and allow Repair of Software and OS
CR_SUPPORT3	Allows to perform most SW and OS assignment and repair tasks
CR_SWMGR	Manage and assign Software
CR_SYSADMIN	Allows to perform all actions

4.3 Machine state / Computer and User coloring

State	Description
0	No errors
1	Software deploy error only
2	Patch requirement only
3	Software deploy error and patch requirement
4	OS deploy error only
5	OS and software deploy error
6	OS deploy error and patch requirement
7	OS and software deploy error and patch requirement
8	Unknown error
9	Reset