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## Plug-In Uses

Use plug-in functions to manipulate the value of an attribute when you import the attribute into Cisco Unified MeetingPlace. Plug-in functions allow you to do the following tasks:

- Extract, append, or replace attributes
- Concatenate attributes
- Assign random attribute values
- Filter attribute values

## Plug-In Guidelines

The standard syntax for using a plug-in function is `&fn(att)`, where `fn` refers to the function name and `att` refers to the attribute.

Guidelines for using plug-in functions are as follows:

- The ASCII code for `\` is `\5C`.
- Each plug-in function has a predefined set of optional and required parameters.
- A percent sign (`%`) preceding an attribute means that it must have a value.
- The asterisk (`*`) character represents the all-values qualifier, which, when prefixing an attribute name, means that all of the values of the attribute should be used, excluding blank values. This qualifier has no effect on a single-valued source attribute and is illegal for a single-valued destination attribute.

Functions must be declared in the [Conversion Functions] section of the MetaLink configuration file to be usable. For more information, see the [Synchronizing a Single-Server Cisco Unified MeetingPlace Directory Services System with a Corporate Directory Server](#).

## Available Plug-In Functions for Cisco Unified MeetingPlace Directory Services

Table: Available Plug-in Functions for Cisco Unified MeetingPlace Directory Services lists alphabetically by name the plug-in functions that are available in Directory Services.

Table: Table A-1 Available Plug-in Functions for Cisco Unified MeetingPlace Directory Services

Function Name	Declaration	Description
AND	AND = dcmlkcnv.dll,mlkAMapAND	Takes any number of attributes as parameters and returns the value "TRUE" if all attributes specified contain a value. If any of the attributes specified do not contain a value, then no value is returned.
attrHasValue	attrHasValue = dcmlkcnv.dll,mlkAMapAttrHasValue	Takes an attribute as the first parameter and a string literal as the second parameter. If the attribute has a value that matches the string specified, this value is returned; if not, no value is returned.
BitMask	BitMask = MPPlugin.dll,mlkBitMask	Tests the attribute given as the first parameter against the bitmask in the second parameter. If the attribute value matches the bitmask value, the function returns "1"; if not, it returns "0."
CaseAllLower	CaseAllLower= dcmlkcnv.dll,mlkAMapCase,AllLower	Takes a single attribute as a parameter and performs case transformation according to the value of the optional parameter in the registration, returning the transformed values.  AllLower-converts all characters to lowercase.
CaseAllUpper	CaseAllUpper = dcmlkcnv.dll,mlkAMapCase,AllUpper	Takes a single attribute as a parameter and performs case transformation according to the value of the optional parameter in the registration, returning the transformed values.  AllUpper-converts all characters to uppercase.  AllLower-converts all characters to lowercase.
CaseFirstNormal	CaseFirstNormal = dcmlkcnv.dll,mlkAMapCase,FirstNormal	Takes a single attribute as a parameter and performs case transformation according to the value of the optional parameter in the registration, returning the transformed values.  FirstNormal-converts first character to uppercase.

		and remaining characters to lowercase.
CaseFirstUpper	CaseFirstUpper = dcmlkcnv.dll,mlkAMapCase,FirstUpper	<p>Takes a single attribute as a parameter and case transformation according to the value of optional parameter in the registration, return the transformed values.</p> <p>FirstUpper-converts first character to uppercase.</p> <p>FirstNormal-converts first character to uppercase and remaining characters to lowercase.</p> <p>WordUpper-converts first character of each word to uppercase.</p>
CaseWordLower	CaseWordLower = dcmlkcnv.dll,mlkAMapCase,WordLower	<p>Takes a single attribute as a parameter and case transformation according to the value of optional parameter in the registration, return the transformed values.</p> <p>WordLower-converts all characters except first character to lowercase.</p> <p>WordNormal-converts first character of each word to uppercase and remaining characters to lowercase.</p>
CaseWordNormal	CaseWordNormal = dcmlkcnv.dll,mlkAMapCase,WordNormal	<p>Takes a single attribute as a parameter and case transformation according to the value of optional parameter in the registration, return the transformed values.</p> <p>WordNormal-converts first character of each word to uppercase and remaining characters to lowercase.</p>
CaseWordUpper	CaseWordUpper = dcmlkcnv.dll,mlkAMapCase,WordUpper	<p>Takes a single attribute as a parameter and case transformation according to the value of optional parameter in the registration, return the transformed values.</p> <p>WordUpper-converts first character of each word to uppercase.</p>
CreateDate	Createdate = mpplugin.dll,mlkCreateDate	Creates a time-date stamp for any attribute calls the function.
FilterAND	FilterAnd = MPPlugIn.dll,mlkFilterAND	Adds two or more expressions.

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FilterBuiltin	FilterBuiltin = MPPlugIn.dll,mlkFilterBuiltin	Filters out any entries with an attribute equal to the given value.
FilterNOT	FilterNOT = MPPlugIn.dll,mlkFilterNOT	Inverts an expression.
GenNum	GenNum = MPPlugIn.dll,mlkGenNum	Generates an increment number by given length (first argument) and increment value (second argument).  <b>Note:</b> This plug-in uses the registry to keep track of the latest number. The value can be found at HKEY_LOCAL_MACHINE > SOFTWARE > Cisco Systems > Cisco MeetingPlace > PlugIn > LastNum
GetMailboxAddress	GetMailBoxAddress = dcmlkcnv.dll,mlkAMapGetMailboxAddress,SMTP	Used for synchronizing an e-mail address from an Exchange server. It extracts a specific type of e-mail address from those stored in an Exchange mailbox.
HexString	HexString = MPPlugIn.dll,mlkHexString	Converts each character in a string to its 2-character hexadecimal equivalent. Can be used in a correlation rule to convert the Active Directory objectGUID value to a unique hex string.
LDAPtoDN	LDAPtoDN = dcmlkcnv.dll,mlkAMapConvertLDAPDN,LDAP	Takes a single attribute as a parameter, converts DC-DNs between DC-Directory and LDAP format according to the optional parameter, returning the converted values.
ManyToOne	ManyToOne = dcmlkcnv.dll,mlkAMapManyToOne	Takes multiple attributes as parameters, returns a single list that contains all of the values of the attributes. It can take a maximum of ten attributes.
MapString	MapString = MPPlugIn.dll,mlkStringMap	Maps a string according to a file-based table. The table is passed via a filename.
MidString	MidString = MPPlugIn.dll,mlkStringMid	Returns a substring from a given starting index containing given <i>n</i> characters.  <b>Note:</b> If the strlen(string) < (start + <i>n</i> ), MidString returns an error that is logged to the suspension log. Use StringMidNoEnd if necessary to avoid length errors.
MultiValToSingle	MultiValToSingle = dcmlkcnv.dll,mlkAMapMultiValToSingle	Takes a single attribute as a parameter and returns all of the values of that attribute to a single value by concatenating the values, by using the optional separator.

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		parameter as a delimiter. Any occurrences of the delimiter string within the values are escaped with a backslash. Backslashes are also escaped with backslashes.
NormalizeInitials	NormalizeInitials = dcmlkcnv.dll, mlkAMapInitials	Takes a single attribute as a parameter; each value is converted to uppercase and followed by a period (.), returning the normalized values. This is used to normalize initial attributes.
NOT	NOT = dcmlkcnv.dll,mlkAMapNOT	Takes one attribute as a parameter, returning a value "TRUE" if the attribute specified does not contain any values. If the attribute specified does contain a value, then no value is returned.
Random	Random = MPPlugIn.dll,mlkRnd	Returns a random value from 0 to <i>n</i> .
RandomPickUnique	RandomPickUnique = MPPlugIn.dll,mlkRandNumberUnique	<p>Returns a random and unique Cisco Unified MeetingPlace profile number (VUName) that is compared to existing VUNames on the Cisco Unified MeetingPlace Audio Server.</p> <p>The first parameter is the number of digits (1 to 32) for the generated value. The second parameter is the flag option and can be either: (1) to create a new value with writing into the registry or (2) to read from the registry the previously generated value in this manner.</p> <p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>• There is only one registry placeholder for this function; it is at <code>HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems\Cisco MeetingPlace Directory Services\Plugin\LastRandomNum</code>.</li> <li>• If you use this function for a single profile, it will automatically not create a duplicate VUName.</li> <li>• If you use this function for multiple profiles ("bulk load"), it may return a low number of duplicated return values (approx. 1 to 5 per 1000 profiles with 6-digit generated values). The function does not add profiles with duplicate VUNames to Cisco Unified MeetingPlace but saves them in export logs. Replot these files after fixing VUNames manually.</li> <li>• The number of profiles to be synchronized must be less than the maximum number of generated values. For example, the</li> </ul>

		scope of generated values is 10 <sup>x</sup> . We recommend that the number of probes be at least 1000 times lower than the number of generated values.
RemoveRDN	RemoveRDN= dcmlkcnv.dll, mlkAMapRemoveRDN	Removes a number of RDNs from the end of a given DN string. The first parameter is the DN string and the second parameter is the number of RDNs to remove from the end of the DN. If the number of RDNs to remove is greater than the number of RDNs present, then a null string is returned.
ReparentDN	ReparentDN = dcmlkcnv.dll,mlkAMapReparentDN	Used to map a DN in one subtree to an equivalent position in a different subtree. The first parameter is an attribute parameter; the next two parameters are string literals. The second parameter is the initial parent DN; the third parameter is the new parent DN. The DNs must be in DC-Directory form rather than in LDAP form.
ReplaceSubstring	ReplaceSubstring = dcmlkcnv.dll,mlkAMapReplaceSubstring	Used to perform a substring replacement on the values of the attribute, replacing all instances of a specified string with an alternative value. The first parameter is an attribute parameter; the second and third parameters are string literals. The second parameter is the string to search for; the third parameter is the replacement string.
SingleSpace	SingleSpace = dcmlkcnv.dll, mlkAMapSingleSpace	Takes a single attribute as a parameter and replaces any occurrence of multiple consecutive space characters with a single space character, returning the modified values.
SingleValToMulti	SingleValToMulti = dcmlkcnv.dll,mlkAMapSingleValToMulti	Takes a single attribute as a parameter and converts a single value to a list of values.
SpaceNormRDNValue	SpaceNormRDNValue= dcmlkcnv.dll, mlkAMapSpaceNormDCDRDN	This function takes a single RDN value as a parameter and normalizes it by removing all leading and trailing spaces from the beginning or end of the value and replacing any instances of repeated spaces with a single space. This normalized value is then returned. This function should be used to normalize RDNs returned from DC-Directory through Remote DCD Sync and LDAP Sync with DC-Directory MetaLink agreements.
String2Number	String2Number = MPPlugIn.dll,mlkString2Number	Converts a string to a number based on the standard telephone pad.
StringExtASCII	StringExtASCII = MPPlugIn.dll,mlkStringUTF2ASCII	Converts a string with extended ASCII to ASCII.
StringLeft	StringLeft = MPPlugIn.dll,mlkStringLeft	Returns everything to the left of the first occurrence of a given character.
StringMidNoEnd	StringMidNoEnd = MPPlugIn.dll,mlkStringMidNoEnd	Returns a substring from a given starting index and containing given <i>n</i> characters.  <b>Note:</b> Unlike MidString, StringMidNoEnd does not produce an error if the strlen(string) < (

		<i>n</i> ).
StringMidNoStartNoEnd	StringMidNoStartNoEnd =MPPlugin.dll, mlkStringMidNoStartNoEnd	Returns a substring from a given starting in and containing given <i>n</i> characters.  <b>Note:</b> Unlike MidString, StringMidNoEnd not produce an error if the strlen(string) < ( <i>n</i> ),or if strlen(string) < (end - <i>n</i> ).
StringRemoveNonDigit	StringRemoveNonDigit = MPPlugIn.dll,mlkStringRemoveNonDigit	Removes all nondigit characters in a given This function is useful for mapping a phone number to vuname.
StringRight	StringRight = MPPlugIn.dll,mlkStringRight	Returns everything to the right of the first occurrence of a given character, starting from right.
StringRightN	StringRightN = MPPlugIn.dll,mlkStringRightN	Returns a substring of <i>n</i> characters, starting right end of a given string.
TelephoneValidate	TelephoneValidate = dcmlkcnv.dll, mlkAMapTelValidate	Takes a single attribute as a parameter and normalizes it by removing all characters other than those allowed in the standard international representation of a phone number (that is, the digits 0 to 9, space, and the + symbol), returns the normalized number.
TrimWhiteSpace	TrimWhiteSpace = dcmlkcnv.dll,mlkAMapTrim	Removes blank spaces from start to end of value.
Truncate	Truncate= dcmlkcnv.dll, mlkAMapTruncate	Truncates a string value. The first parameter string value to be truncated, and the optional parameter on registration is an integer specifying the length to which the string is truncated.
UnixDate	UnixDate = MPPlugIn.dll,mlkUnixDate	Converts a standard date (mmddyyyy) to U time format or vice versa.