CFEngine Vocabulary Primer

Based on the works of Mark Burgess and CFEngine AS.

Preface

CFEngine is designed to be comprehensive and to let you model nearly any aspect of system configuration using promises (statements of intention).

There are over 500 promise attributes in CFEngine 3. They enable you to detail the desired system state.

This document presents a "starting set" of commonly used ones. We suggest you learn them first.

For more detail on the below, use the "Search CFEngine docs" search box at http://cf-learn.info/ (on the bottom right), or go to https://cfengine.com/docs/

For professional CFEngine training, visit http://www.verticalsysadmin.com

Promise Types

Arranged in the order CFEngine checks them (see "Normal Ordering" in the Reference Manual):

vars	A promise to be a variable, representing a value.
classes	A promise to be a boolean variable representing true/on/1.
files	A promise about a file, including its existence, attributes and contents.
delete_lines	A promise about file contents (that specified content is absent).
field_edits	A promise about file contents (concerning values in text fields)
insert_lines	A promise about file contents (that specified content is present).
replace_patterns	A promise about file contents (that specified content is absent, replaced by another).
packages	A promise concerning a package, including its presence (or absence) and version.
processes	A promise concerning items in the system process table.
services	A promise concerning the state (on/off) of a service (a group of one or more processes that runs in the background).
commands	A promise to execute a command.
reports	A promise to report a message.

Promise Attributes

What follows is a listing of promise attributes by promise type.

Any

These promise attributes can be used in **any** promise.

comment	A comment about this promise's intention that follows through the program
depends_on	A list of promise handles that this promise depends on somehow.
handle	A unique id-tag string for referring to this as a promisee elsewhere

classes:

expression	Evaluate string expression of classes
and	Combine class sources with AND - useful for including functions
or	Combine class sources with inclusive OR - useful for including functions

reports:

report_to_file	The path and filename to which output should be appended

vars:

string	A string
int	An integer
real	A real number (an integer with a fractional component)
slist	A list of strings
ilist	A list of integers
rlist	A list of real numbers

commands:

args	String of arguments for the command

files:

copy_from	(external body) Used to copy files - see Standard Library section.
create	true/false whether to create non-existing file
edit_line	Specifies name of edit_line bundle

edit_template	The name of a special CFEngine template file to expand
perms	(external body) Used to set file attributes like permissions, ownership, etc. See Standard Library section.
touch	true/false whether to touch time stamps on file
transformer	Command (with full path) used to transform current file (no shell wrapper used)

packages:

package_architectures	Select architecture for package selection
package_policy	Criteria for package installation/upgrade on the current system (e.g. "add", "delete")

processes:

process_stop	A command used to stop a running process gracefully
restart_class	A class to be defined globally if the process is not running, so that a commands: rule can be referred to restart the process
signals	Signals to be sent to a process

services:

service_policy	Policy for service (start/stop)

Attributes in CFEngine Standard Library

Type	Attribute	Value	Description
*	action	immediate	Do it, do it nowww!
*	action	log_repaired	Log a repair
*	classes	if_repaired	Set class(es) if a promise was repaired
files	replace_with	value	Search and replace
files	copy_from	local_cp	Copy files locally
files	copy_from	remote_cp	Copy files from remote server
files	changes	detect_all_change	File integrity check
files	delete	tidy	Delete files, including symlinks to directories and empty directories.
files	perms	mog	Set mode, owner, group attributes on a file

files	edit_line	insert_lines	Make sure file contains lines
files	edit_line	expand_template	Make sure file contains content expanded from a template
files	edit_line	set_config_values	Set config values in a file
files	depth_search	depth	Maximum depth level for search (use with depth("inf") to turn on unbounded recursion)
files	file_select	days_old(days)	Select files by age
files	file_select	name_age(name,days)	Select files by name and age
files	location	before	Insert text before specified location
files	location	after	Insert text after specified location
packages	package_method	yum	Interface with YUM package manager
packages	package_method	apt	Interface with APT package manager
commands	contain	useshell	Run the command in a shell to use I/O redirection or pipelining

Special Functions

fileexists()	Returns "true" if the named file can be accessed
classmatch()	Returns "true" if the regular expression matches any currently defined class

Special Variables

$(sys.date)	Current time and date
$(sys.host)	Hostname
$(sys.policy_hub)	Hostname or address of our policy server.