

State of the CFEngine

Or Since last time at Config Management Camp

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Releases

7 releases since 2017-01-01

Version	Date
3.7.5	2017-03-30
3.10.1	2017-03-30
3.10.2	2017-08-11
3.11.0	2017-08-11
3.7.6	2017-09-12
3.10.3	2018-02-02
3.7.7	2018-02-02

Contributions

	Core	MPF	Docs
Commits	256	163	207
Contributors	24	14	17
New Contributors	9	4	6

with attribute

```
bundle agent main
{
  vars:
    "todo" slist => { "a 1", "b 2", "c 3" };
    # Here, 'with' is the canonified version of $(todo), [

    # intermediate canonification array.
    "$(with)" string => "$(todo)", with => canonify($(todo)

    "complex" data => '
{
  "x": 200,
  "y": [ 1, 2, null, true, false ]
}
';

  reports:
    "For iterable '$(todo)' we created variable '$(with)'"
```

with attribute

R: For iterable 'a 1' we created variable 'a_1' and its value

R: For iterable 'b 2' we created variable 'b_2' and its value

R: For iterable 'c 3' we created variable 'c_3' and its value

R: We can print a data container compactly without creating a text

R: We can print a data container fully without creating a text

```
"x": 200,
```

```
"y": [
```

```
  1,
```

```
  2,
```

```
  null,
```

```
  true,
```

```
  false
```

```
]
```

```
}
```

inline_mustache

You are no longer required to use an external file template. Now you can provide the template directly within the policy.

```
bundle agent main
{
  vars:
    "d" data => '{ "hello": "world", "feature": [ "render",

  files:

    "/tmp/example.txt"
    create => "true",
    template_method => "inline_mustache",
    edit_template_string => "{{%-top-}}",
    template_data => @(d);

}
```

Figure: Example template method inline_mustache

inline_mustache

Results in /tmp/example.txt having this content.

```
{
  "feature": [
    "render",
    "inline",
    "mustache"
  ],
  "hello": "world"
}
```

Figure: Example template_method inline_mustache

Multiple augments

NOTE: Current implementation discussion in progress in CFE-2741.
Please consider participating.

```
{
  "vars":{
    "my_var": "defined in def.json",
    "my_other_var": "Defined ONLY in def.json"
  },
  "augments": [
    "/tmp/$(sys.flavor).json"
  ]
}
```

Figure: Example /tmp/def.json

Multiple augments

```
{  
  "vars": {  
    "my_var": "Overridden in centos_6.json",  
    "centos_6_var": "Defined ONLY in centos_6.json"  
  }  
}
```

Figure: Example /tmp/centos_6.json

Multiple augments

```
[root@hub tmp]# cf-agent -KIif ./example.cf  
R: def.my_var == Overridden in centos_6.json  
R: def.my_other_var == Defined ONLY in def.json  
R: def.centos_6_var == Defined ONLY in centos_6.json
```

missing_ok

Augments - Append the bundlesequence of promises.cf and update.cf

- ▶ control_common_bundlesequence_end
- ▶ control_common_update_bundlesequence_end

```
{  
  "vars":{  
    "control_common_bundlesequence_end": [ "mybundle1", "mybundle2" ],  
    "control_common_update_bundlesequence_end": [ "my_update1", "my_update2" ]  
  }  
}
```

- ▶ Order of bundle actuation not guaranteed.
- ▶ Agent errors if named bundle is missing.

Augments - Log file retention and rotation limits

`mpf_log_files_max_size` Max file size before rotation

`mpf_log_file_retention` Number of file rotations to keep

`mpf_log_dir_retention` Number of file rotations to keep in outputs, reports, and the Enterprise application log directory.

```
{
  "vars": {
    "mpf_log_file_retention": "5",
    "mpf_log_file_max_size": "10M",
    "mpf_log_dir_retention": "7"
  }
}
```

Augments - Execution schedule

`control_executor_schedule` Classes that trigger execution of cf-agent.

```
{  
  "vars": {  
    "control_executor_schedule": [ "Min00", "Min30" ]  
  }  
}
```

Augments - splaytime

`control_executor_splaytime` Maximum number of minutes
exec_commad should wait before executing.

```
{  
  "vars": {  
    "control_executor_splaytime": "3"  
  }  
}
```


Augments - allowlegacyconnects

`control_server_allowlegacyconnects` List of subnets allowed to connect using legacy protocol (versions prior to 3.7.0).

```
{
  "vars": {
    "control_server_allowlegacyconnects": [ "0.0.0.0/0" ]
  }
}
```

Augments - maxconnections

`control_serverd_maxconnections` Maximum number of connections allowed by cf-serverd.

```
{  
  "vars":{  
    "control_serverd_maxconnections": "1000"  
  }  
}
```

Augments - Client initiated reporting (Enterprise)

`control_hub_exclude_hosts` List of subnets to exclude from hub initiated report collection.

`client_initiated_reporting_enabled` List of classes that if defined should initiate reporting to an enterprise hub.

`control_server_call_collect_interval` Number of minutes between client initiated reporting.

```
{
  "vars": {
    "control_server_call_collect_interval": "1",
    "control_hub_exclude_hosts": [ "0.0.0.0/0" ]
  },

  "classes" {
    "client_initiated_reporting_enabled": [ "any" ]
  }
}
```

Augments - files_single_copy

`control_agent_files_single_copy` List of regular expressions matching files that should not be copied more than once.

```
{  
  "vars":{  
    "control_agent_files_single_copy": [ ".*" ]  
  }  
}
```

Augments - default_repository

`mpf_control_agent_default_repository` List of classes class will cause these backups to be placed in `$(sys.workdir)/backups`.

`control_agent_default_backup` Directory where backups should be placed (defaults to `$(sys.workdir/backups)`).

```
{
  "classes": {
    "mpf_control_agent_default_repository": [ "any" ]
  },

  "vars": {
    "control_agent_default_repository": "/var/cfengine/edit.
  }
}
```

templates shortcut

`dir_templates` Path to common template directory. Shortcut provided by cf-serverd as templates/.

```
{
  "vars": {
    "dir_templates": "/var/cfengine/mytemplate"
  }
}
```

bundle agent example

```
{
  files:

    "$(def.dir_templates)/mytemplate.mustache" -> { "myserv

    copy_from => remote_dcp( "templates/mytemplate.mustache"
                           $(sys.policy_server) ),

    comment => "mytemplate is necessary in order to render
               ..."
```

Automatically restart components on related data change

While the agent itself will reload its config upon notice of policy change this bundle specifically handles changes to variables used in the MPF which may come from external data sources which are unknown to the components themselves.

`mpf_augments_control_enabled` List of classes that automatic component restart on related data change should be enabled for.

```
{
  "classes":{
    "mpf_augments_control_enabled": [ "any" ]
  }
}
```

Host info report now now renders inventory variables

```
cf-agent -KIb host_info_report
```

```
### Inventory
```

```
#### Variables tagged for inventory
```

```
{  
  "default:cfe_autorun_inventory_disk.free": "5.00",  
  "default:cfe_autorun_inventory_listening_ports.ports": [  
    "22",  
    "25",  
    "53",  
  ],  
  "default:cfe_autorun_inventory_memory.total": "32050.27",  
  "default:sys.arch": "x86_64",  
  "default:sys.cf_version": "3.11.0",  
  "default:sys.class": "linux",  
  "default:sys.cpus": "4",  
}
```


UI responsiveness

- ▶ Testing with 50,000 host data sets

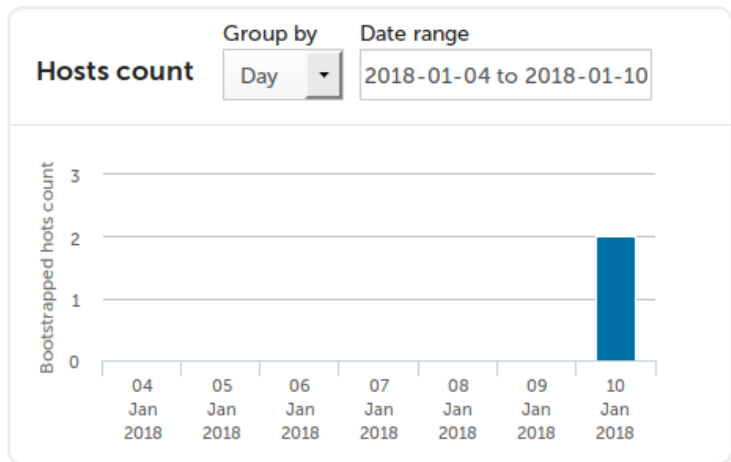
Global Host Search

- ▶ Easily find hosts by name, ip or identity



The image shows a user interface for a search function. On the left, a blue rectangular area contains the text "Find host:" in white. To the right of this label is a white search input field. Inside the input field, the word "hub" is written in a brownish-orange font. Below the input field, a white dropdown menu is open, displaying the word "hub" in a blue font. The entire interface is set against a light gray background.

host count trend widget



mail settings

- ▶ Exported reports can now be sent as attachments in emails

The screenshot displays the CFEngine web interface. The top navigation bar is blue with the CFEngine logo on the left and search, health, and user information on the right. A left sidebar contains icons and labels for Dashboard, Hosts, Reports, Monitoring, and Design Center. The main content area is titled 'Mail settings' in orange. It features a 'Send test email' button in the top right. The settings are organized into sections: 'Mail protocol' with radio buttons for 'Sendmail' and 'SMTP' (selected); 'Default from email' with a text input; 'Max email attachment size (MB)' with a text input set to '10'; 'SMTP host' with a text input; 'SMTP user' with a text input; 'SMTP password' with a text input and a 'Password is set' label; 'SMTP port' with a text input; and 'SMTP encryption' with a dropdown menu set to 'none'. An 'Apply' button is located at the bottom right of the settings area.

CFEngine

Find host: 1 host Health HA status N/A Hello, admin

Dashboard

- User management
- Active tokens
- Preferences
- Manage apps
- Version control repository
- Host identifier
- Custom notification scripts
- Mail settings
- About CFEngine

Hosts

Reports

Monitoring

Design Center

Mail settings

Send test email

Mail protocol ☐ Sendmail ☒ SMTP

Default from email

Max email attachment size (MB)

SMTP host

SMTP user

SMTP password

SMTP port

SMTP encryption

Apply

LDAP settings API

User management

Active tokens

Preferences

Manage apps

Version control repository

Host identifier

Custom notification scripts

Mail settings

Authentication settings

About CFEngine

Authentication settings

Authentication method

☐ Internal ☒ LDAP

LDAP API Url

https://127.0.0.1/ldap

Ldap Host

The full domain name of the directory server e.g test.cfengine.com

Port

389

Encryption

☒ None ☐ SSL ☐ STARTTLS

Base DN

Base domain name of the directory server e.g dc=test,dc=cfengine,dc=com

Login attribute

Used as user name, e.g uid or sAMAccountName

Ldap filter

Filter to use when searching user objects e.g '(objectClass=inetOrgPerson)'

LDAP bind user name

This user needs to have search permissions

LDAP bind password

Password is set

A set of small, light blue navigation icons typically found in presentation software, including arrows, a search icon, and a refresh icon.


default roles

User management

Users

Roles

Add role

Name	Description	Default role 	Actions
admin	Admin role	<input type="checkbox"/>	
cf_remoteagent	Allow execution of cf-runagent	<input type="checkbox"/>	

New OOTB Inventory Attributes

- ▶ Policy Release Id
- ▶ AIX OS Level

Inventory API

```
curl --user admin -X POST \  
  -H 'content-type: application/json' \  
  https://hub/api/inventory -d '{ "select": [ "Host name", "0
```

Figure: Example API Query

Inventory API

```
{
  "data": [
    {
      "header": [
        {
          "columnName": "Host name",
          "columnType": "STRING"
        },
        {
          "columnName": "OS type",
          "columnType": "STRING"
        }
      ],
      "queryTimeMs": 11,
      "rowCount": 2,
      "rows": [
        "host001".
```