SaltStack extension for sapcontrol

Release 1.0.0

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COMPLETE LIST OF SAP_CONTROL

1.1 Execution Modules

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1.1.1 saltext.sap_control._modules.sap_control

SaltStack extension for sapcontrol Copyright (C) 2022 SAP UCC Magdeburg

sapcontrol execution module

SaltStack execution module that wraps sapcontrol functions.

codeauthor
: Benjamin Wegener, Alexander Wilke

maturity
: new

depends
: zeep, requests

platform
: Linux

This module wraps different functions of the sapcontrol by calling the corresponding SOAP services. For controlling the state of the sapcontrol, you **should** create a custom systemd service and use the service module.

By default, the functions will try to connect to the SAP Host Agent over HTTPS on port 5##14 and can optionally fall back to HTTP communication on port 5##13.

Note: Because functions are called over SOAP, only authenticated requests are accepted.

Currently, only basic authentication (username/password) is implemented.

Note: This module was only tested on linux platforms.

saltext.sap_control._modules.sap_control.**__virtual__**()

Only load this module if all libraries are available. Only work on POSIX-like systems.

saltext.sap_control._modules.sap_control.**status**(*instance_number*, *username*, *password*, *fallback=True*, *fqdn=None*, ***kwargs*)

Retrieve the current status of sapcontrol.

instance_number
Instance number for the sapcontrol instance.

username
Username to use for connecting to sapcontrol.

password
Password to use for connecting to sapcontrol.

fallback
If set to `True`, a HTTP connection will be opened in case of HTTPS connection failures. Default is `True`.

fqdn
The fully qualified domain name on which the sapcontrol instance is running. If none is given, the FQDN of the current host is used. Default is `None`.

CLI Example:

```
salt "*" sap_control.status instance_number="00" username="sapadm" password=
↪"Abcd1234"
```

saltext.sap_control._modules.sap_control.**start**(*sid*, *instance_number*, *username*, *password*, *timeout=60*, ***kwargs*)

Starts sapcontrol for a given SID and instance number.

sid
SID of the SAP system for which sapcontrol should be started.

instance_number
Instance number for the sapcontrol instance.

username
Username to use for connecting to sapcontrol.

password
Password to use for connecting to sapcontrol.

timeout
Timeout for sapcontrol to start. Default is `60`.

CLI Example:

```
salt "*" sap_control.start sid="S4H" instance_number="00" username="sapadm"␣
↪password="Abcd1234"
```

saltext.sap_control._modules.sap_control.**stop**(*instance_number*, *username*, *timeout=60*, ***kwargs*)

Stops sapcontrol for a given instance number.

instance_number
Instance number for the sapcontrol instance.

username
Username to use for connecting to sapcontrol.

timeout
Timeout for sapcontrol to stop. Default is `60`.

CLI Example:

```
salt "*" sap_control.stop sid="S4H" instance_number="00" username="sapadm"
```

saltext.sap_control._modules.sap_control.**restart**(*sid*, *instance_number*, *username*, *password*, *fallback=True*, *fqdn=None*, ***kwargs*)

Restarts sapcontrol for a given SID and instance number.

sid
SID of the SAP system for which sapcontrol should be stopped.

instance_number
Instance number for the sapcontrol instance.

username
Username to use for connecting to sapcontrol.

password
Password to use for connecting to sapcontrol.

fallback
If set to `True`, a HTTP connection will be opened in case of HTTPS connection failures. Default is `True`.

fqdn
The fully qualified domain name on which the sapcontrol instance is running. If none is given, the FQDN of the current host is used. Default is `None`.

CLI Example:

```
salt "*" sap_control.restart sid="S4H" instance_number="00" username="sapadm"␣
↪password="Abcd1234"
```

saltext.sap_control._modules.sap_control.**instance_status**(*instance_number*, *username*, *password*, *fallback=True*, *fqdn=None*, ***kwargs*)

Retrieves the status of an SAP instance based on the instance number.

Returns one of the following status:
SAPCONTROL_GRAY = 1 => instance stopped SAPCONTROL_GREEN = 2 => instance running SAPCONTROL_YELLOW = 3 => instance starting / stopping SAPCONTROL_RED = 4 => instance error

instance_number
Instance number for the sapcontrol instance.

username
Username to use for connecting to sapcontrol.

password
Password to use for connecting to sapcontrol.

fallback
If set to `True`, a HTTP connection will be opened in case of HTTPS connection failures. Default is `True`.

fqdn
The fully qualified domain name on which the sapcontrol instance is running. If none is given, the FQDN of the current host is used. Default is `None`.

CLI Example:

```
salt "*" sap_control.instance_status instance_number="00" username="sapadm"␣
↪password="Abcd1234"
```

saltext.sap_control._modules.sap_control.**instance_start**(*instance_number*, *username*, *password*, *fallback=True*, *fqdn=None*, *timeout=300*, ***kwargs*)

Starts an SAP instance based on the instance number.

instance_number
Instance number for the sapcontrol instance.

username
Username to use for connecting to sapcontrol.

password
Password to use for connecting to sapcontrol.

fallback
If set to `True`, a HTTP connection will be opened in case of HTTPS connection failures. Default is `True`.

fqdn
The fully qualified domain name on which the sapcontrol instance is running. If none is given, the FQDN of the current host is used. Default is `None`.

timeout
Timeout for the instance to start. Default is `300`.

CLI Example:

```
salt "*" sap_control.instance_start instance_number="00" username="sapadm" password=
↪"Abcd1234"
```

saltext.sap_control._modules.sap_control.**instance_stop**(*instance_number*, *username*, *password*, *fallback=True*, *fqdn=None*, *timeout=300*, ***kwargs*)

Stops an SAP instance based on the instance number.

instance_number
Instance number for the sapcontrol instance.

username
Username to use for connecting to sapcontrol.

password
Password to use for connecting to sapcontrol.

fallback
If set to `True`, a HTTP connection will be opened in case of HTTPS connection failures. Default is `True`.

fqdn
The fully qualified domain name on which the sapcontrol instance is running. If none is given, the FQDN of the current host is used. Default is `None`.

timeout
Timeout for the instance to stop. Default is `300`.

CLI Example:

```
salt "*" sap_control.instance_stop instance_number="00" username="sapadm" password=
↪"Abcd1234"
```

saltext.sap_control._modules.sap_control.**system_start**(*instance_number*, *username*, *password*, *level='ALL'*, *fallback=True*, *fqdn=None*, *timeout=300*, ***kwargs*)

Starts an SAP system with a certain level.

instance_number
Instance number for the sapcontrol instance.

username
Username to use for connecting to sapcontrol.

password
Password to use for connecting to sapcontrol.

level
Configuration of the system to start, can be on of: `ALL|SCS|DIALOG|ABAP|J2EE|TREX|ENQREP|HDB|ALLNOHDB`. Default is `ALL`.

fallback
If set to `True`, a HTTP connection will be opened in case of HTTPS connection failures. Default is `True`.

fqdn
The fully qualified domain name on which the sapcontrol instance is running. If none is given, the FQDN of the current host is used. Default is `None`.

timeout
Timeout for the system to start. Default is `300`.

Note: There is no implementation of WaitForStarted as a sapcontrol webservice.

CLI Example:

```
salt "*" sap_control.system_start instance_number="00" username="sapadm" password=
↪"Abcd1234"
```

saltext.sap_control._modules.sap_control.**system_stop**(*instance_number*, *username*, *password*, *level='ALL'*, *fallback=True*, *fqdn=None*, *timeout=300*, ***kwargs*)

Stops an SAP system with a certain level.

instance_number
Instance number for the sapcontrol instance.

username
Username to use for connecting to sapcontrol.

password
Password to use for connecting to sapcontrol.

level
Configuration of the system to stop, can be on of: `ALL|SCS|DIALOG|ABAP|J2EE|TREX|ENQREP|HDB|ALLNOHDB`. Default is `ALL`.

fallback
If set to `True`, a HTTP connection will be opened in case of HTTPS connection failures. Default is `True`.

fqdn
The fully qualified domain name on which the sapcontrol instance is running. If none is given, the FQDN of the current host is used. Default is `None`.

timeout
Timeout for the system to stop. Default is `300`.

Note: There is no implementation of WaitForStarted as a sapcontrol webservice.

CLI Example:

```
salt "*" sap_control.system_stop instance_number="00" username="sapadm" password=
↪"Abcd1234"
```

saltext.sap_control._modules.sap_control.**get_system_instance_list**(*instance_number*, *username*, *password*, *fallback=True*, *fqdn=None*, *timeout=300*, ***kwargs*)

Retrieve a list of system instances on the host.

instance_number
Instance number for the sapcontrol instance.

username
Username to use for connecting to sapcontrol.

password
Password to use for connecting to sapcontrol.

fallback
If set to `True`, a HTTP connection will be opened in case of HTTPS connection failures. Default is `True`.

fqdn
The fully qualified domain name on which the sapcontrol instance is running. If none is given, the FQDN of the current host is used. Default is `None`.

timeout
Timeout to retrieve the list of system instances. Default is `300`.

CLI Example:

```
salt "*" sap_control.get_system_instance_list instance_number="00" username="sapadm
↪" password="Abcd1234"
```

saltext.sap_control._modules.sap_control.**get_instance_properties**(*instance_number*, *username*, *password*, *fallback=True*, *fqdn=None*, ***kwargs*)

Retrieve the properties for an SAP instance.

instance_number
Instance number for the sapcontrol instance.

username
Username to use for connecting to sapcontrol.

password
Password to use for connecting to sapcontrol.

fallback
If set to `True`, a HTTP connection will be opened in case of HTTPS connection failures. Default is `True`.

fqdn
The fully qualified domain name on which the sapcontrol instance is running. If none is given, the FQDN of the current host is used. Default is `None`.

CLI Example:

```
salt "*" sap_control.get_instance_properties instance_number="00" username="sapadm"␣
↪password="Abcd1234"
```

saltext.sap_control._modules.sap_control.**parameter_value**(*instance_number*, *parameter*, *username*, *password*, *fallback=True*, *fqdn=None*, ***kwargs*)

Retrieve a parameter value from an SAP instance. Will return `(Success, Data)`, e.g. `(<True|False>, <some_value>)`.

instance_number
Instance number for the sapcontrol instance.

parameter
Parameter name to retrieve.

username
Username to use for connecting to sapcontrol.

password
Password to use for connecting to sapcontrol.

fallback
If set to `True`, a HTTP connection will be opened in case of HTTPS connection failures. Default is `True`.

fqdn
The fully qualified domain name on which the sapcontrol instance is running. If none is given, the FQDN of the current host is used. Default is `None`.

CLI Example:

```
salt "*" sap_control.parameter_value instance_number="00" parameter="icm/host_name_
↪full" username="sapadm" password="Abcd1234"
```

saltext.sap_control._modules.sap_control.**get_abap_component_list**(*instance_number*, *username*, *password*, *fallback=True*, *fqdn=None*, ***kwargs*)

Retrieve a list of ABAP components of a system.

Note: This of only works for SAP NetWeaver AS ABAP instances.

---

instance_number
Instance number for the sapcontrol instance.

username
Username to use for connecting to sapcontrol.

password
Password to use for connecting to sapcontrol.

fallback
If set to `True`, a HTTP connection will be opened in case of HTTPS connection failures. Default is `True`.

fqdn
The fully qualified domain name on which the sapcontrol instance is running. If none is given, the FQDN of the current host is used. Default is `None`.

CLI Example:

```
salt "*" sap_control.get_abap_component_list instance_number="00" username="sapadm"␣
↪password="Abcd1234"
```

saltext.sap_control._modules.sap_control.**process_status**(*instance_number*, *process_name*, *username*, *password*, *fallback=True*, *fqdn=None*, ***kwargs*)

Retrieves the status of a process of an SAP instance.

Returns one of the following status:
SAPCONTROL_GRAY = 1 => process stopped SAPCONTROL_GREEN = 2 => process running SAPCONTROL_YELLOW = 3 => process starting / stopping SAPCONTROL_RED = 4 => process error

instance_number
Instance number for the sapcontrol instance.

process_name
Name of the process for which the status should be retrieved.

username
Username to use for connecting to sapcontrol.

password
Password to use for connecting to sapcontrol.

fallback
If set to `True`, a HTTP connection will be opened in case of HTTPS connection failures. Default is `True`.

fqdn
The fully qualified domain name on which the sapcontrol instance is running. If none is given, the FQDN of the current host is used. Default is `None`.

CLI Example:

```
salt "*" sap_control.process_status instance_number="00" process_name="webdisp"␣
↪username="sapadm" password="Abcd1234"
```

saltext.sap_control._modules.sap_control.**get_pid**(*instance_number*, *process_name*, *username*, *password*, *fallback=True*, *fqdn=None*, *timeout=300*, ***kwargs*)

Retrieves the PID of an Process of an SAP instance.

instance_number
Instance number for the sapcontrol instance.

process_name
Name of the process for which the pid should be retrieved.

username
Username to use for connecting to sapcontrol.

password
Password to use for connecting to sapcontrol.

fallback
If set to `True`, a HTTP connection will be opened in case of HTTPS connection failures. Default is `True`.

fqdn
The fully qualified domain name on which the sapcontrol instance is running. If none is given, the FQDN of the current host is used. Default is `None`.

CLI Example:

```
salt "*" sap_control.get_pid instance_number="00" process_name="webdisp" username=
↪"sapadm" password="Abcd1234"
```

saltext.sap_control._modules.sap_control.**get_syslog_errors**(*timestamp_from*, *instance_number*, *username*, *password*, *severities=['SAPControl-RED']*, *fallback=True*, *fqdn=None*, ***kwargs*)

Retrieves syslog entries for the system.

Note: This of only works for SAP NetWeaver AS ABAP instances.

timestamp_from
Timestamp from which entries should be retrieved. Must be a datetime object or a string in the format `%Y-%m-%d %H:%M:%S`.

instance_number
Instance number for the sapcontrol instance.

username
Username to use for connecting to sapcontrol.

password
Password to use for connecting to sapcontrol.

severities
List of severities for which entries should be retrieved. By default, this list only contains `SAPControl-RED`

fallback
If set to `True`, a HTTP connection will be opened in case of HTTPS connection failures. Default is `True`.

fqdn
The fully qualified domain name on which the sapcontrol instance is running. If none is given, the FQDN of the current host is used. Default is `None`.

CLI Example:

```
salt "*" sap_control.get_syslog_errors timestamp_from="2022-12-31 14:59:38"␣
↪instance_number="00" username="sapadm" password="Abcd1234"
```

saltext.sap_control._modules.sap_control.**get_workprocess_table**(*instance_number*, *username*, *password*, *fallback=True*, *fqdn=None*, ***kwargs*)

Retrieves the current workprocess table for a given instance.

Note: This of only works for SAP NetWeaver AS ABAP instances.

instance_number
Instance number for the sapcontrol instance.

username
Username to use for connecting to sapcontrol.

password
Password to use for connecting to sapcontrol.

fallback
If set to `True`, a HTTP connection will be opened in case of HTTPS connection failures. Default is `True`.

fqdn
The fully qualified domain name on which the sapcontrol instance is running. If none is given, the FQDN of the current host is used. Default is `None`.

CLI Example:

```
salt "*" sap_control.get_workprocess_table instance_number="00" username="sapadm"␣
↪password="Abcd1234"
```

1.2 State Modules

saltext.sap_control._states.sap_control	SaltStack extension for sapcontrol Copyright (C) 2022 SAP UCC Magdeburg

1.2.1 saltext.sap_control._states.sap_control

SaltStack extension for sapcontrol Copyright (C) 2022 SAP UCC Magdeburg

sapcontrol state module

SaltStack module that implements states based on sapcontrol functionality.

codeauthor
Benjamin Wegener, Alexander Wilke

maturity
new

depends
N/A

platform
Linux

This module implements states that utilize sapcontrol functionality.

Note: This module can only run on linux platforms.

saltext.sap_control._states.sap_control.**running**(*name*, *instance*, *username*, *password*, *restart=False*, ***kwargs*)

Ensure that sapcontrol is started for an SID / instance.

name
The SID for which sapcontrol should be running.

instance
The instance for which sapcontrol should be running.

username
User with which to run all operations.

password
Passwort for the user.

restart
Boolean if sapcontrol should be restarted if it is already running, defualt is `False`.

Example:

```
sapcontrol for S4H / instance 00 is running:
  sap_control.running:
    - name: S4H
    - instance: '00'
    - username: sapadm
    - password: __slot__:salt:vault.read_secret(path="os", key="sapadm")
```

Note: This should not be used. Instead, a proper systemd service should be created that handles sapcontrol.

saltext.sap_control._states.sap_control.**dead**(*name*, *instance*, *username*, *password*, ***kwargs*)

Ensure that sapcontrol is stopped for an SID / instance.

name
The SID for which sapcontrol should be stopped.

instance
The instance for which sapcontrol should be stopped.

username
User with which to run all operations.

password
Passwort for the user.

Example:

```
sapcontrol for S4h / instance 00 is stopped:
  sap_control.dead:
    - name: S4H
    - instance: '00'
    - username: sapadm
    - password: __slot__:salt:vault.read_secret(path="os", key="sapadm")
```

Note: This should not be used. Instead, a proper systemd service should be created that handles sapcontrol.

saltext.sap_control._states.sap_control.**sld_registered**(*name*, *sid*, *instance_number*, *username*, *password*, *sld_user*, *sld_password*, *sld_host*, *sld_port*, *log_files=None*, *remove_logs=True*, *overwrite=False*, *sld_check_timeout=60*, ***kwargs*)

Ensure that a sapcontrol instance is registered at an SLD / LMDB. If log files are defined (see argument `log_files`), then each file will be checked for a correct HTTP return code.

name
Target slddest.cfg file.

sid
SID of the system.

instance_number
Instance number for which the SLD registration should take place.

username
Username for the sapcontrol connection.

password
Password for the sapcontrol connection.

sld_user
SLD connection username.

sld_password
SLD connection password.

sld_host
SLD connection fqdn.

sld_port
SLD connection port.

log_files
List of log files to check for success (full path).

remove_logs
Remove the logs before restarting the service. Default is `True`.

overwrite
Configuration will not be checked but overwritten. Default is `False`.

sld_check_timeout
How long the system will wait for a positive HTTP return code from the SLD in the defined logs. Default is `60`.

Warning: In order to trigger the data transfer, sapcontrol will be restarted!

Note: No password check will be performed if all other configuration parameters fit. To circumvent this, set overwrite=True.

Example:

```
SLD is configured and data is transfered for S4H / 00:
  sap_control.sld_registered:
    - name: /usr/sap/S4H/SYS/global/slddest.cfg
    - sid: S4H
    - instance_number: '00'
    - username: s4hadm
    - password: __slot__:salt:vault.read_secret(path="os", key="s4hadm")
    - sld_user: SLD_DS_USER
    - sld_password: __slot__:salt:vault.read_secret(path="sld", key="SLD_DS_USER")
    - sld_host: sol.my.domain
    - sld_port: 50000
    - log_files:
      - /usr/sap/S4H/D00/work/dev_sldregs
      - /usr/sap/S4h/D00/work/dev_sldregk
      - /usr/sap/S4H/D00/work/dev_krnlreg
```

saltext.sap_control._states.sap_control.**system_health_ok**(*name*, *check_from*, *instance_number*, *username*, *password*, ***kwargs*)

This state checks the system health by looking for Critical Syslog Entries and Work Process Errors. If errors are present in the system, the state will return `False` as result.

name
SID of the SAP system.

check_from
Date from which on the system health should be checked (e.g. for log entries) in the format 31129999 or 01012000.

instance_number
Instance number for which syslog errors should be retrieved.

username
Username for the sapcontrol connection.

password
Password for the sapcontrol connection.

Note: This state does not implement `__opts__["test"]` since no data is changed.

Example:

```
System healh is OK for SAP NetWeaver AS ABAP system S4H (SM50 / SM21):
  sap_control.system_health_ok:
    - name: 'S4H'
    - check_from: {{ None | strftime("%d%m%Y") }}  {# renders to current date, e.g.␣
↪31082002 #}
    - instance_number: '00'
    - username: s4hadm
    - password: __slot__:salt:vault.read_secret(path="os", key="s4hadm")
```

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