



Linux Ubuntu 26.04 Manual Pages on command 'busctl.1'

\$ man busctl.1

BUSCTL(1) busctl BUSCTL(1)

NAME

busctl - Introspect the bus

SYNOPSIS

busctl [OPTIONS...] [COMMAND] [NAME...]

DESCRIPTION

busctl may be used to introspect and monitor the D-Bus bus.

COMMANDS

The following commands are understood:

list

Show all peers on the bus, by their service names. By default, shows both unique and well-known names, but this may be changed with the --unique and --acquired switches.

This is the default operation if no command is specified.

Added in version 209.

status [SERVICE]

Show process information and credentials of a bus service (if one is specified by its unique or well-known name), a process (if one is specified by its numeric PID), or the owner of the bus (if no parameter is specified).

Added in version 209.

monitor [SERVICE...]

Dump messages being exchanged. If SERVICE is specified, show messages to or from this peer, identified by its well-known or unique name. Otherwise, show all messages on the

bus. Use Ctrl+C to terminate the dump.

Added in version 209.

capture [SERVICE...]

Similar to monitor but writes the output in pcapng format (for details, see PCAP Next Generation (pcapng) Capture File Format[1]). Make sure to redirect standard output to a file or pipe. Tools like wireshark(1) may be used to dissect and view the resulting files.

Added in version 218.

tree [SERVICE...]

Shows an object tree of one or more services. If SERVICE is specified, show object tree of the specified services only. Otherwise, show all object trees of all services on the bus that acquired at least one well-known name.

Added in version 218.

introspect SERVICE OBJECT [INTERFACE]

Show interfaces, methods, properties and signals of the specified object (identified by its path) on the specified service. If the interface argument is passed, the output is limited to members of the specified interface.

Added in version 218.

call SERVICE OBJECT INTERFACE METHOD [SIGNATURE [ARGUMENT...]]

Invoke a method and show the response. Takes a service name, object path, interface name and method name. If parameters shall be passed to the method call, a signature string is required, followed by the arguments, individually formatted as strings. For details on the formatting used, see below. To suppress output of the returned data, use the --quiet option.

Added in version 218.

emit OBJECT INTERFACE SIGNAL [SIGNATURE [ARGUMENT...]]

Emit a signal. Takes an object path, interface name and method name. If parameters shall be passed, a signature string is required, followed by the arguments, individually formatted as strings. For details on the formatting used, see below. To specify the destination of the signal, use the --destination= option.

Added in version 242.

wait [SERVICE] OBJECT INTERFACE SIGNAL

Wait for a signal. Takes an object path, interface name, and signal name. To suppress output of the returned data, use the --quiet option. The service name may be omitted, in

which case busctl will match signals from any sender.

Added in version 257.

get-property SERVICE OBJECT INTERFACE PROPERTY...

Retrieve the current value of one or more object properties. Takes a service name, object path, interface name and property name. Multiple properties may be specified at once, in which case their values will be shown one after the other, separated by newlines. The output is, by default, in terse format. Use --verbose for a more elaborate output format.

Added in version 218.

set-property SERVICE OBJECT INTERFACE PROPERTY SIGNATURE ARGUMENT...

Set the current value of an object property. Takes a service name, object path, interface name, property name, property signature, followed by a list of parameters formatted as strings.

Added in version 218.

help

Show command syntax help.

Added in version 209.

OPTIONS

The following options are understood:

--address=ADDRESS

Connect to the bus specified by ADDRESS instead of using suitable defaults for either the system or user bus (see --system and --user options).

Added in version 209.

--show-machine

When showing the list of peers, show a column containing the names of containers they belong to. See systemd-machined.service(8).

Added in version 209.

--unique

When showing the list of peers, show only "unique" names (of the form ":number.number").

Added in version 209.

--acquired

The opposite of --unique ? only "well-known" names will be shown.

Added in version 209.

`--activatable`

When showing the list of peers, show only peers which have actually not been activated yet, but may be started automatically if accessed.

Added in version 209.

`--match=MATCH`

When showing messages being exchanged, show only the subset matching MATCH. See `sd_bus_add_match(3)`.

Added in version 209.

`--size=`

When used with the capture command, specifies the maximum bus message size to capture ("snaplen"). Defaults to 4096 bytes.

Added in version 218.

`--list`

When used with the tree command, shows a flat list of object paths instead of a tree.

Added in version 218.

`-q, --quiet`

When used with the call command, suppresses display of the response message payload.

Note that even if this option is specified, errors returned will still be printed and the tool will indicate success or failure with the process exit code.

Added in version 218.

`--verbose`

When used with the call or get-property command, shows output in a more verbose format.

Added in version 218.

`--xml-interface`

When used with the introspect call, dump the XML description received from the D-Bus `org.freedesktop.DBus.Introspectable.Introspect` call instead of the normal output.

Added in version 243.

`--expect-reply=BOOL`

When used with the call command, specifies whether busctl shall wait for completion of the method call, output the returned method response data, and return success or failure via the process exit code. If this is set to "no", the method call will be issued but no response is expected, the tool terminates immediately, and thus no response can be shown, and no success or failure is returned via the exit code. To only suppress output

of the reply message payload, use `--quiet` above. Defaults to "yes".

Added in version 218.

`--auto-start=BOOL`

When used with the `call` or `emit` command, specifies whether the method call should implicitly activate the called service, should it not be running yet but is configured to be auto-started. Defaults to "yes".

Added in version 218.

`--allow-interactive-authorization=BOOL`

When used with the `call` command, specifies whether the services may enforce interactive authorization while executing the operation, if the security policy is configured for this. Defaults to "yes".

Added in version 218.

`--timeout=SECS`

When used with the `call` command, specifies the maximum time to wait for method call completion. When used with the `monitor` command, since version v257, specifies the maximum time to wait for messages before automatically exiting. If no time unit is specified, assumes seconds. The usual other units are understood, too (ms, us, s, min, h, d, w, month, y). Note that this timeout does not apply if `--expect-reply=no` is used, when combined with the `call` command, as the tool does not wait for any reply message then. When not specified or when set to 0, the default of "25s" is assumed for the `call` command, and it is disabled for the `monitor` command.

Added in version 218.

`--limit-messages=NUMBER, -N NUMBER`

When used with the `monitor` command, if enabled will make `busctl` exit when the specified number of messages have been received and printed. This is useful in combination with `--match=`, to wait for the specified number of occurrences of specific D-Bus messages.

Added in version 257.

`--augment-creds=BOOL`

Controls whether credential data reported by `list` or `status` shall be augmented with data from `/proc/`. When this is turned on, the data shown is possibly inconsistent, as the data read from `/proc/` might be more recent than the rest of the credential information. Defaults to "yes".

Added in version 218.

`--watch-bind=BOOL`

Controls whether to wait for the specified AF_UNIX bus socket to appear in the file system before connecting to it. Defaults to off. When enabled, the tool will watch the file system until the socket is created and then connect to it.

Added in version 237.

`--destination=SERVICE`

Takes a service name. When used with the emit command, a signal is emitted to the specified service.

Added in version 242.

`--user`

Talk to the service manager of the calling user, rather than the service manager of the system.

`--system`

Talk to the service manager of the system. This is the implied default.

`-H, --host=`

Execute the operation remotely. Specify a hostname, or a username and hostname separated by "@", to connect to. The hostname may optionally be suffixed by a port ssh is listening on, separated by ":", and then a container name, separated by "/", which connects directly to a specific container on the specified host. This will use SSH to talk to the remote machine manager instance. Container names may be enumerated with `machinectl -H HOST`. Put IPv6 addresses in brackets.

`-M, --machine=`

Execute operation on a local container. Specify a container name to connect to, optionally prefixed by a user name to connect as and a separating "@" character. If the special string ".host" is used in place of the container name, a connection to the local system is made (which is useful to connect to a specific user's user bus: `--user --machine=lennart@.host`). If the "@" syntax is not used, the connection is made as root user. If the "@" syntax is used either the left hand side or the right hand side may be omitted (but not both) in which case the local user name and ".host" are implied.

`-C, --capsule=`

Execute operation on a capsule. Specify a capsule name to connect to. See `capsule@.service(5)` for details about capsules.

Added in version 256.

-l, --full

Do not ellipsize the output in list command.

Added in version 245.

--json=MODE

Shows output formatted as JSON. Expects one of "short" (for the shortest possible output without any redundant whitespace or line breaks), "pretty" (for a pretty version of the same, with indentation and line breaks) or "off" (to turn off JSON output, the default).

-j

Equivalent to --json=pretty if running on a terminal, and --json=short otherwise.

--no-pager

Do not pipe output into a pager.

--no-legend

Do not print the legend, i.e. column headers and the footer with hints.

-h, --help

Print a short help text and exit.

--version

Print a short version string and exit.

PARAMETER FORMATTING

The call and set-property commands take a signature string followed by a list of parameters formatted as string (for details on D-Bus signature strings, see the Type system chapter of the D-Bus specification[2]). For simple types, each parameter following the signature should simply be the parameter's value formatted as string. Positive boolean values may be formatted as "true", "yes", "on", or "1"; negative boolean values may be specified as "false", "no", "off", or "0". For arrays, a numeric argument for the number of entries followed by the entries shall be specified. For variants, the signature of the contents shall be specified, followed by the contents. For dictionaries and structs, the contents of them shall be directly specified.

For example,

s jawoll

is the formatting of a single string "jawoll".

a{sv} 3 hello world foobar

is the formatting of a string array with three entries, "hello", "world" and "foobar".

a{sv} 3 One s Eins Two u 2 Yes b true

is the formatting of a dictionary array that maps strings to variants, consisting of three entries. The string "One" is assigned the string "Eins". The string "Two" is assigned the 32-bit unsigned integer 2. The string "Yes" is assigned a positive boolean.

Note that the call, get-property, introspect commands will also generate output in this format for the returned data. Since this format is sometimes too terse to be easily understood, the call and get-property commands may generate a more verbose, multi-line output when passed the --verbose option.

EXAMPLES

Example 1. Write and Read a Property

The following two commands first write a property and then read it back. The property is found on the "/org/freedesktop/systemd1" object of the "org.freedesktop.systemd1" service.

The name of the property is "LogLevel" on the "org.freedesktop.systemd1.Manager" interface.

The property contains a single string:

```
# busctl set-property org.freedesktop.systemd1 /org/freedesktop/systemd1 org.freedesktop.systemd1.Manager
LogLevel s debug

# busctl get-property org.freedesktop.systemd1 /org/freedesktop/systemd1 org.freedesktop.systemd1.Manager
LogLevel
s "debug"
```

Example 2. Terse and Verbose Output

The following two commands read a property that contains an array of strings, and first show it in terse format, followed by verbose format:

```
$ busctl get-property org.freedesktop.systemd1 /org/freedesktop/systemd1 org.freedesktop.systemd1.Manager
Environment
as 2 "LANG=en_US.UTF-8" "PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin"

$ busctl get-property --verbose org.freedesktop.systemd1 /org/freedesktop/systemd1
org.freedesktop.systemd1.Manager Environment
ARRAY "s" {
    STRING "LANG=en_US.UTF-8";
    STRING "PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin";
};
```

Example 3. Invoking a Method

The following command invokes the "StartUnit" method on the

"org.freedesktop.systemd1.Manager" interface of the "/org/freedesktop/systemd1" object of

the "org.freedesktop.systemd1" service, and passes it two strings "cups.service" and "replace". As a result of the method call, a single object path parameter is received and shown:

```
# busctl call org.freedesktop.systemd1 /org/freedesktop/systemd1 org.freedesktop.systemd1.Manager StartUnit ss
"cups.service" "replace"
o "/org/freedesktop/systemd1/job/42684"
```

SEE ALSO

dbus-daemon(1), D-Bus[3], sd-bus(3), varlinkctl(1), systemd(1), machinectl(1), wireshark(1)

NOTES

1. PCAP Next Generation (pcapng) Capture File Format

<https://github.com/pcapng/pcapng/>

2. Type system chapter of the D-Bus specification

<https://dbus.freedesktop.org/doc/dbus-specification.html#type-system>

3. D-Bus

<https://www.freedesktop.org/wiki/Software/dbus>

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