

NAME

`ares_set_servers_csv`, `ares_set_servers_ports_csv`, `ares_get_servers_csv` – Set or Get a list of DNS servers used for queries.

SYNOPSIS

```
#include <ares.h>
```

```
int ares_set_servers_csv(ares_channel_t *channel, const char* servers)
```

```
int ares_set_servers_ports_csv(ares_channel_t *channel, const char* servers)
```

```
char *ares_get_servers_csv(const ares_channel_t *channel)
```

DESCRIPTION

The **`ares_set_servers_csv`** and **`ares_set_servers_ports_csv`** functions set the list of DNS servers that c-ares will query. As of v1.22.0 this function can be called on an active channel with running queries, previously it would return `ARES_ENOTIMP`.

Though not recommended, passing `NULL` for servers will clear all configured servers and make an inoperable channel, this may be advantageous for test simulation but unlikely to be useful in production.

The **`ares_get_servers_csv`** retrieves the list of servers in comma delimited format.

The input and output format is a comma separated list of servers. Two formats are available, the typical **`resolv.conf(5)`** *nameserver* format, as well as a *URI* format. Both formats can be used at the same time in the provided CSV string.

The *nameserver* format is:

```
ip[:port][%iface]
```

The **ip** may be encapsulated in square brackets ([]), and must be if using ipv6 and also specifying a port.

The **port** is optional, and will default to 53 or the value specified in **`ares_init_options(3)`**.

The **iface** is specific to IPv6 link-local servers (fe80::/10) and should not otherwise be used.

nameserver format examples:

```
192.168.1.100
192.168.1.101:53
[1:2:3::4]:53
[fe80::1]:53%eth0
```

The *URI* format is made up of these defined schemes:

dns:// - Normal DNS server (UDP + TCP). We need to be careful not to conflict with query params defined in RFC4501 since we'd technically be extending this URI scheme. Port defaults to 53.

dns+tls:// - DNS over TLS. Port defaults to 853.

dns+https:// - DNS over HTTPS. Port defaults to 443.

Query parameters are defined as below. Additional parameters may be defined in the future.

tcpport - TCP port to use, only for *dns://* scheme. The port specified as part of the authority component of the URI will be used for both UDP and TCP by default, this option will override the TCP port.

ipaddr - Only for *dns+tls://* and *dns+https://*. If the authority component of the URI contains a hostname, this is used to specify the ip address of the hostname. If not specified, will need to use a non-secure server to perform a DNS lookup to retrieve this information. It is always recommended to have both the ip address and fully qualified domain name specified.

hostname - Only for *dns+tls://* and *dns+https://*. If the authority component of the URI contains an ip address, this is used to specify the fully qualified domain name of the server. If not specified, will need to use a non-secure server to perform a DNS reverse lookup to retrieve this information. It is always recommended to have both the ip address and fully qualified domain name specified.

domain - If specified, this server is a domain-specific server. Any queries for this domain will be routed to this server. Multiple servers may be tagged with the same domain.

URI format Examples:

```
dns://8.8.8.8
dns://[2001:4860:4860::8888]
dns://[fe80::b542:84df:1719:65e3%en0]
dns://192.168.1.1:55
dns://192.168.1.1?tcpport=1153
dns://10.0.1.1?domain=myvpn.com
dns+tls://8.8.8.8?hostname=dns.google
dns+tls://one.one.one.one?ipaddr=1.1.1.1
```

NOTE: While we are defining the scheme for things like domain-specific servers, DNS over TLS and DNS over HTTPS, the underlying implementations for those features do not yet exist and therefore will result in errors if they are attempted to be used.

As of c-ares 1.24.0, **ares_set_servers_csv** and **ares_set_servers_ports_csv** are identical. Prior versions would simply omit ports in **ares_set_servers_csv** but due to the addition of link local interface support, this difference was removed.

EXAMPLE

```
192.168.1.100,[fe80::1]:53%eth0,dns://192.168.1.1?tcpport=1153
```

RETURN VALUES

ares_set_servers_csv(3) and **ares_set_servers_ports_csv(3)** may return any of the following values:

ARES_SUCCESS

The name servers configuration was successfully initialized.

ARES_ENOMEM

The process's available memory was exhausted.

ARES_ENODATA

The channel data identified by *channel* was invalid.

ARES_ENOTINITIALIZED

c-ares library initialization not yet performed.

ares_get_servers_csv(3) returns a string representing the servers configured which must be freed with **ares_free_string(3)**. If it returns NULL, this is an out of memory condition.

SEE ALSO

ares_set_servers(3)

AVAILABILITY

ares_set_servers_csv was added in c-ares 1.7.2 **ares_set_servers_ports_csv** was added in c-ares 1.11.0. **ares_get_servers_csv** was added in c-ares 1.24.0. *URI* support was added in c-ares 1.34.0.