ngrok – documentation

ngrok.com/docs

Documentation

Expose a local web server to the internet

ngrok allows you to expose a web server running on your local machine to the internet. Just tell ngrok what port your web server is listening on.

If you don't know what port your web server is listening on, it's probably port 80, the default for HTTP.

Example: Expose a web server on port 80 of your local machine to the internet

```
ngrok http 80
```

When you start ngrok, it will display a UI in your terminal with the public URL of your tunnel and other status and metrics information about connections made over your tunnel.

The ngrok console UI

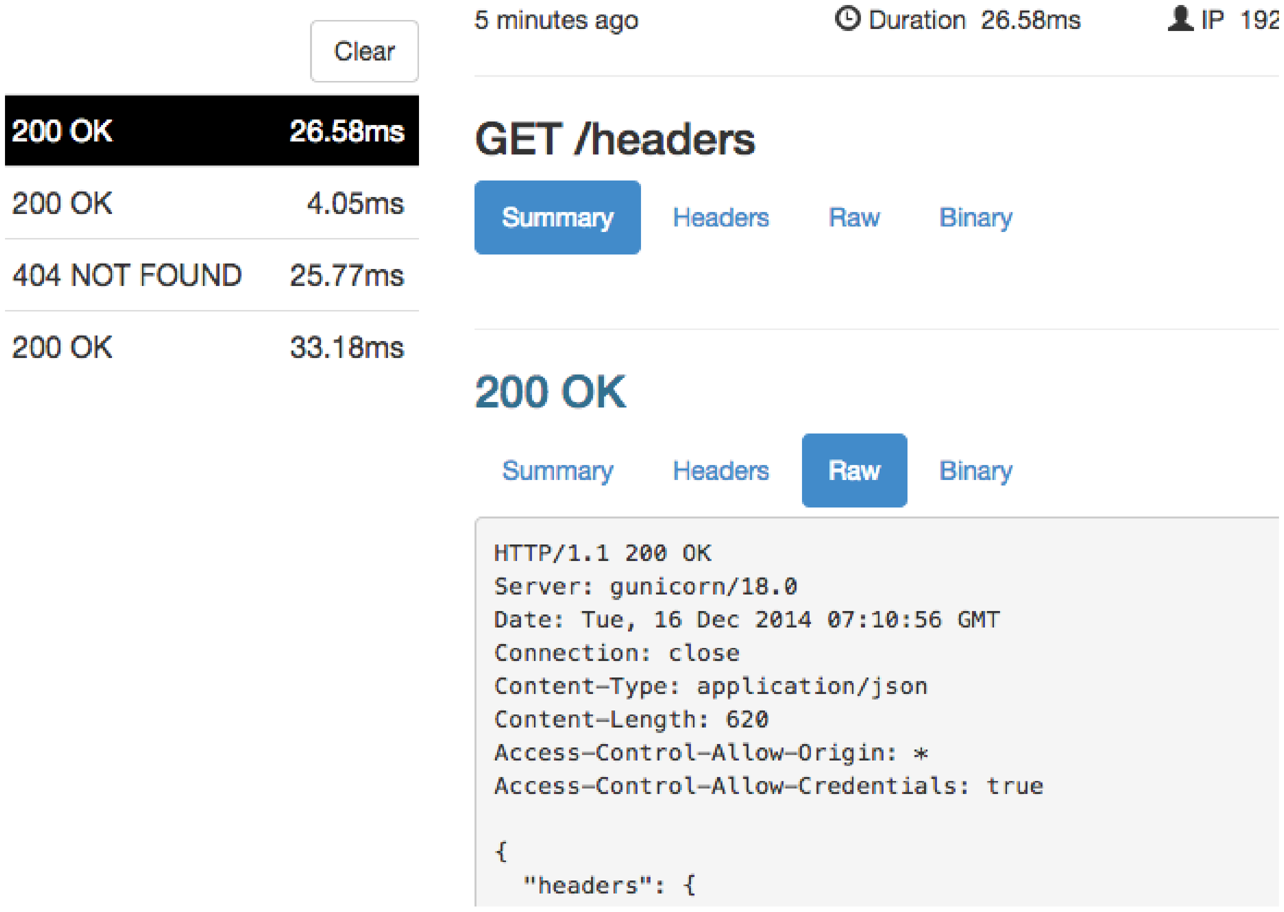
```
ngrok by @inconshreveable

Tunnel Status                 online
Version                    2.0/2.0
Web Interface                 http://127.0.0.1:4040
Forwarding                   http://92832de0.ngrok.io -> localhost:80
Forwarding                   https://92832de0.ngrok.io -> localhost:80

Connnections                  ttl     opn     rt1     rt5     p50     p90
                          0       0       0.00    0.00    0.00    0.00
```

Inspecting your traffic

ngrok provides a real-time web UI where you can introspect all of the HTTP traffic running over your tunnels. After you've started ngrok, just open http://localhost:4040 in a web browser to inspect request details.

Try making a request to your public URL. After you have, look back at the inspection UI. You will see all of the details of the request and response including the time, duration, headers, query parameters and request payload as well as the raw bytes on the wire.

Detailed introspection of HTTP requests and responses

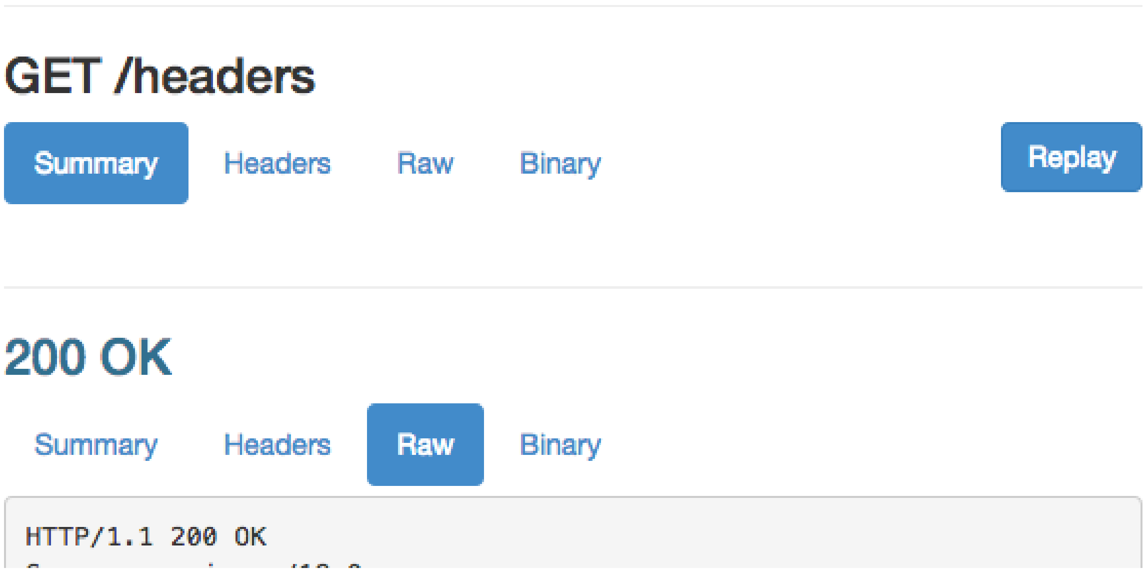


```
HTTP/1.1 200 OK
Server: gunicorn/18.0
Date: Tue, 16 Dec 2014 07:10:56 GMT
Connection: close
Content-Type: application/json
Content-Length: 620
Access-Control-Allow-Origin: *
Access-Control-Allow-Credentials: true

{
  "headers": {
```

Replaying requests

Developing for webhooks issued by external APIs can often slow down your development cycle by requiring you do some work, like dialing a phone, to trigger the hook request. ngrok allows you to replay any request with a single click dramatically speeding up your iteration cycle. Click the **Replay** button at the top-right corner of any request on the web inspection UI to replay it.

Replay any request against your tunneled web server with one click



```
HTTP/1.1 200 OK
```

Installing your Authtoken

Many advanced features of the ngrok.com service described in further sections require that you sign up for an account. Once you've signed up, you need to configure ngrok with the authtoken that appears on your dashboard. This will grant you access to account-only features. ngrok has a simple 'authtoken' command to make this easy. Under the hood, all the authtoken command does is to add (or modify) the `authtoken` property in your ngrok configuration file.

Install your authtoken

```
ngrok authtoken <YOUR_AUTHTOKEN>
```

Getting a stable URL

On the free plan, ngrok's URLs are randomly generated and temporary. If you want to use the same URL every time, you need to upgrade to a paid plan so that you can use the subdomain option for a stable URL with HTTP or TLS tunnels and the remote-addr option for a stable address with TCP tunnels.

HTTP Tunnels

Custom subdomain names

ngrok assigns random hexadecimal names to the HTTP tunnels it opens for you. This is okay for one-time personal uses. But if you're displaying the URL at a hackathon or integrating with a third-party webhook, it can be frustrating if the tunnel name changes or is difficult to read. You can specify a custom subdomain for your tunnel URL with the `-subdomain` switch.

Example: Open a tunnel with the subdomain 'inconshreveable'

```
ngrok http -subdomain=inconshreveable 80
```

```
ngrok by @inconshreveable

...
Forwarding                    http://inconshreveable.ngrok.io -> 127.0.0.1:80
Forwarding                    https://inconshreveable.ngrok.io -> 127.0.0.1:80
```

Password protecting your tunnel

Anyone who can guess your tunnel URL can access your local web server unless you protect it with a password. You can make your tunnels secure with the `-auth` switch. This enforces HTTP Basic Auth on all requests with the username and password you specify as an argument.

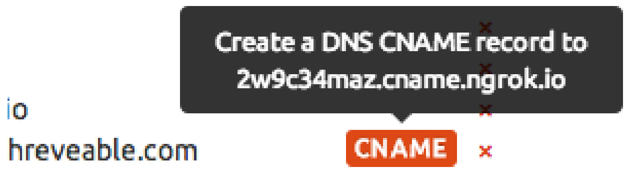
Example: Password-protect your tunnel

```
ngrok http -auth="username:password" 8080
```

Tunnels on custom domains (white label URLs)

Instead of your tunnel appearing as a subdomain of `ngrok.io`, you can run ngrok tunnels over your domains. To run a tunnel over `dev.example.com`, follow these steps:

1. Navigate to the Domains tab of your ngrok.com dashboard and click 'Add a domain'. Enter `dev.example.com` as a Reserved Domain. This guarantees that no one else can hijack your domain name with their own tunnel.
2. On your dashboard, click on the 'CNAME' icon to copy your CNAME target.



Create a DNS CNAME record to 2w9c34maz.cname.ngrok.io

3. Create a DNS CNAME record from `dev.example.com` to your CNAME target. In this example, we would point the CNAME record to `2w9c34maz.cname.ngrok.io`
4. Invoke ngrok with the `-hostname` switch and specify the name of your custom domain as an argument. Make sure the `-region` you specify matches the region in which you reserved your domain.
   Example: Run a tunnel over a custom domain

   ```
   ngrok http -region=us -hostname=dev.example.com 8000
   ```

Accessing custom domain tunnels over HTTPS will still work, but the certificate will not match. If you have a TLS certificate/key pair, try using a TLS tunnel.

Local HTTPS servers

ngrok assumes that the server it is forwarding to is listening for unencrypted HTTP traffic, but what if your server is listening for encrypted HTTPS traffic? You can specify a URL with an `https://` scheme to request that ngrok speak HTTPS to your local server.

Forward to an https server by specifying the https:// scheme

```
ngrok http https://localhost:8443
```

As a special case, ngrok assumes that if you forward to port 443 on any host that it should send HTTPS traffic and will act as if you specified an `https://` URL.

Forward to the default https port on localhost

```
ngrok http 443
```

ngrok assumes that your local network is private and it **does not do any validation of the TLS certificate presented by your local server**.

Rewriting the Host header

When forwarding to a local port, ngrok does not modify the tunneled HTTP requests at all, they are copied to your server byte-for-byte as they are received. Some application servers like WAMP and MAMP and use the `Host` header for determining which development site to display. For this reason, ngrok can rewrite your requests with a modified Host header. Use the `-host-header` switch to rewrite incoming HTTP requests.

If `rewrite` is specified, the `Host` header will be rewritten to match the hostname portion of the forwarding address. Any other value will cause the `Host` header to be rewritten to that value.

Rewrite the Host header to 'site.dev'

```
ngrok http -host-header=rewrite site.dev:80
```

Rewrite the Host header to 'example.com'

```
ngrok http -host-header=example.com 80
```

Serving local directories with ngrok's built-in fileserver

ngrok can serve local file system directories by using its own built-in fileserver, no separate server needed! You can serve files using the `file://` scheme when specifying the forwarding URL.

All paths must be specified as absolute paths, the `file://` URL scheme has no notion of relative paths.

Share a folder on your computer with authentication

```
ngrok http -auth="user:password" file:///Users/alan/share
```

File URLs can look a little weird on Windows, but they work the same:

Share a folder on your Windows computer

```
ngrok http "file:///C:\Users\alan\Public Folder"
```

Tunneling only HTTP or HTTPS

By default, when ngrok runs an HTTP tunnel, it opens endpoints for both HTTP and HTTPS traffic. If you wish to only forward HTTP or HTTPS traffic, but not both, you can toggle this behavior with the `-bind-tls` switch.

Example: Only listen on an HTTP tunnel endpoint

```
ngrok http -bind-tls=false site.dev:80
```

Example: Only listen on an HTTPS tunnel endpoint

```
ngrok http -bind-tls=true site.dev:80
```

Disabling Inspection

ngrok records each HTTP request and response over your tunnels for inspection and replay. While this is really useful for development, when you're running ngrok on production services, you may wish to disable it for security and performance. Use the `-inspect` switch to disable inspection on your tunnel.

Example: An http tunnel with no inspection

```
ngrok http -inspect=false 80
```

Websockets

Websocket endpoints work through ngrok's http tunnels without any changes. However, there is currently no support for introspecting them beyond the initial 101 Switching Protocols response.

TLS Tunnels

HTTPS tunnels terminate all TLS (SSL) traffic at the ngrok.com servers using ngrok.com certificates. For production-grade services, you'll want your tunneled traffic to be encrypted with your own TLS key and certificate. ngrok makes this extraordinarily easy with TLS tunnels.

Forward TLS traffic to a local HTTPS server on port 443

```
ngrok tls -subdomain=encrypted 443
```

Once your tunnel is running, try accessing it with curl.

```
curl --insecure https://encrypted.ngrok.io
```

TLS Tunnels without certificate warnings

Notice that `--insecure` option in the previous `curl` command example? You need to specify that because your local HTTPS server doesn't have the TLS key and certificate necessary to terminate traffic for any `ngrok.io` subdomains. If you try to load up that page in a web browser, you'll notice that it tells you the page could be insecure because the certificate does not match.

If you want your certificates to match and be protected from man-in-the-middle attacks, you need two things. First, you'll need to buy an SSL (TLS) certificate for a domain name that you own and configure your local web server to use that certificate and its private key to terminate TLS connections. How to do this is specific to your web server and SSL certificate provider and beyond the scope of this documentation. For the sake of example, we'll assume that you were issued an SSL certificate for the domain `secure.example.com`.

Once you have your key and certificate and have installed them properly, it's now time to run a TLS tunnel on your own custom domain name. The instructions to set this up are identical to those described in the HTTP tunnels section: Tunnels on custom domains. The custom domain you register should be the same as the one in your SSL certificate (`secure.example.com`). After you've set up the custom domain, use the `-hostname` argument to start the TLS tunnel on your own domain.

Forward TLS traffic over your own custom domain

```
ngrok tls -region=us -hostname=secure.example.com 443
```

Terminating TLS connections

It's possible that the service you're trying to expose may not have the capability to terminate TLS connections. The ngrok client can do this for you so that you can encrypt your traffic end-to-end but not have to worry about whether the local service has TLS support. Specify both the `-crt` and `-key` command line options to specify the filesystem paths to your TLS certificate and key and the ngrok client will take care of terminating TLS connections for you.

Offload TLS Termination to the ngrok client

```
ngrok tls -region=us -hostname secure.example.com -key /path/to/tls.key -crt /path/to/tls.crt
80
```

Running non-HTTP services over TLS tunnels

ngrok TLS tunnels make **no assumptions about the underlying protocol** being transported. All examples in this documentation use HTTPS because it is the most common use case, but you can run run any TLS-wrapped protocol over a TLS tunnel (e.g. imaps, smtps, sips, etc) without any changes.

Compatible Clients

TLS tunnels work by inspecting the data present in the Server Name Information (SNI) extension on incoming TLS connections. Not all clients that initiate TLS connections support setting the SNI extension data. These clients will not work properly with ngrok's TLS tunnels. Fortunately, nearly all modern browsers use SNI. Some modern software libraries do not though. The following list of clients do not support SNI and will not work with TLS tunnels:

- Microsoft Internet Explorer 6.0
- Microsoft Internet Explorer 7 & 8 on Windows XP or earlier
- Native browser on Android 2.X
- Java <=1.6
- Python 2.X, 3.0, 3.1 if required modules are not installed

A more complete list can be found on the Server Name Indiciation page on Wikipedia

TCP Tunnels

Not all services you wish to expose are HTTP or TLS based. ngrok TCP tunnels allow you to expose any networked service that runs over TCP. This is commonly used to expose SSH, game servers, databases and more. Starting a TCP tunnel is easy.

Expose a TCP based service running on port 1234

```
ngrok tcp 1234
```

Examples

Expose an SSH server listening on the default port

```
ngrok tcp 22
```

Expose a Postgres server listening on the default port

```
ngrok tcp 5432
```

Expose an RDP server listening on the default port

```
ngrok tcp 3389
```

Listening on a reserved remote address

Normally, the remote address and port is assigned randomly each time you start a TCP tunnel. For production services (and convenience) you often want a stable, guaranteed remote address. To do this, first, log in to your ngrok.com dashboard and click "Reserve Address" in the "Reserved TCP Addresses" section. Then use the `-remote-addr` option when invoking ngrok to bind a tunnel on your reserved TCP address. Make sure the `-region` you specify matches the region in which you reserved your address.

Bind a TCP tunnel on a reserved remote address

```
ngrok tcp --region=us --remote-addr 1.tcp.ngrok.io:20301 22
```

More Tunneling Options

Wildcard domains

ngrok permits you to bind HTTP and TLS tunnels to wildcard domains. All wildcard domains, even those that are subdomains of `ngrok.io` must first be reserved for your account on your dashboard. When using `-hostname` or `-subdomain`, specify a leading asterisk to bind a wildcard domain.

Bind a tunnel to receive traffic on all subdomains of `example.com`

```
ngrok http --region=us --hostname *.example.com 80
```

Wildcard domain rules

The use of wildcard domains creates ambiguities in some aspects of the ngrok.com service. The following rules are used to resolve these situations and are important to understand if you are using wildcard domains.

For the purposes of example, assume you have reserved the address `*.example.com` for your account.

- Connections to nested subdomains (e.g. `foo.bar.baz.example.com`) will route to your wildcard tunnel.
- You may bind tunnels on any valid subdomain of `example.com` without creating an additional reserved domain entry.
- No other account may reserve `foo.example.com` or any other subdomain that would match a wildcard domain reserved by another account.
- Connections are routed to the most specific matching tunnel online. If you are running tunnels for both `foo.example.com` and `*.example.com`, requests to `foo.example.com` will always route to `foo.example.com`

Forwarding to servers on a different machine (non-local services)

ngrok can forward to services that aren't running on your local machine. Instead of specifying a port number, just specify a network address and port instead.

Example: Forward to a web server on a different machine

```
ngrok http 192.168.1.1:8080
```

The ngrok configuration file

Sometimes your configuration for ngrok is too complex to be expressed in command line options. ngrok supports an optional, **extremely simple YAML configuration file** which provides you with the power to run multiple tunnels simultaneously as well as to tweak some of ngrok's more arcane settings.

Configuration file location

You may pass a path to an explicit configuration file with the `-config` option. This is recommended for all production deployments.

Explicitly specify a configuration file location

```
ngrok http -config=/opt/ngrok/conf/ngrok.yml 8000
```

You may pass the `-config` option more than once. If you do, the first configuration is parsed and each successive configuration is merged on top of it. This allows you to have per-project ngrok configuration files with tunnel definitions but a master configuration file in your home directory with your authtoken and other global settings.

Specify an additional configuration file with project-specific overrides

```
ngrok start -config ~/ngrok.yml -config ~/projects/example/ngrok.yml demo admin
```

Default configuration file location

If you don't specify a location for a configuration file, ngrok tries to read one from the default location `$HOME/.ngrok2/ngrok.yml`. The configuration file is optional; no error is emitted if that path does not exist.

In the default path, $HOME is the home directory for the current user as defined by your operating system. It is **not the environment variable $HOME**, although they are often the same. For major operating systems, if your username is `example` the default configuration would likely be found at the following paths:

OS X	`/Users/example/.ngrok2/ngrok.yml`
Linux	`/home/example/.ngrok2/ngrok.yml`
Windows	`C:\Users\example\.ngrok2\ngrok.yml`

Tunnel definitions

The most common use of the configuration file is to define tunnel configurations. Defining tunnel configurations is useful because you may then start pre-configured tunnels by name from your command line without remembering all of the right arguments every time.

Tunnels are defined as mapping of name -> configuration under the `tunnels` property in your configuration file.

Define two tunnels named 'httpbin' and 'demo'

```
tunnels:
  httpbin:
    proto: http
    addr: 8000
    subdomain: alan-httpbin
  demo:
    proto: http
    addr: 9090
    hostname: demo.inconshreveable.com
    inspect: false
    auth: "demo:secret"
```

Start the tunnel named 'httpbin'

```
ngrok start httpbin
```

Each tunnel you define is a map of configuration option names to values. The name of a configuration option is usually the same as its corresponding command line switch. Every tunnel must define `proto` and `addr`. Other properties are available and many are protocol-specific.

Tunnel Configuration Properties

proto	required all	tunnel protocol name, one of `http` , `tcp` , `tls`
addr	required all	forward traffic to this local port number or network address
inspect	all	enable http request inspection
auth	http	HTTP basic authentication credentials to enforce on tunneled requests
host_header	http	Rewrite the HTTP Host header to this value, or `preserve` to leave it unchanged
bind_tls	http	bind an HTTPS or HTTP endpoint or both `true` , `false` , or `both`
subdomain	http tls	subdomain name to request. If unspecified, uses the tunnel name
hostname	http tls	hostname to request (requires reserved name and DNS CNAME)
crt	tls	PEM TLS certificate at this path to terminate TLS traffic before forwarding locally
key	tls	PEM TLS private key at this path to terminate TLS traffic before forwarding locally
client_cas	tls	PEM TLS certificate authority at this path will verify incoming TLS client connection certificates.
remote_addr	tcp	bind the remote TCP port on the given address
metadata	all	arbitrary user-defined metadata that will appear in the ngrok service API when listing tunnels

Running multiple simultaneous tunnels

You can pass multiple tunnel names to `ngrok start` and ngrok will run them all simultaneously.

Start three named tunnels from the configuration file

```
ngrok start admin ssh metrics
```

```
ngrok by @inconshreveable

Tunnel Status                 online
Version                     2.0/2.0
Web Interface                 http://127.0.0.1:4040
Forwarding                   http://admin.ngrok.io -> 10.0.0.1:9001
Forwarding                   http://device-metrics.ngrok.io -> localhost:2015
Forwarding                   https://admin.ngrok.io -> 10.0.0.1:9001
Forwarding                   https://device-metrics.ngrok.io -> localhost:2015
Forwarding                   tcp://0.tcp.ngrok.io:48590 -> localhost:22
...
```

You can also ask ngrok to start all of the tunnels defined in the configuration file with the `--all` switch.

Start all tunnels defined in the configuration file

```
ngrok start --all
```

Conversely, you may ask ngrok to run without starting any tunnels with the `--none` switch. This is useful if you plan to manage ngrok's tunnels entirely via the API.

Run ngrok without starting any tunnels

```
ngrok start --none
```

Example Configuration Files

Example configuration files are presented below. The subsequent section contains full documentation for all configuration parameters shown in these examples.

Run tunnels for multiple virtual hosted development sites

```
authtoken: 4nq9771bPxe8ctg7LKr_2ClH7Y15Zqe4bWLWF9p
tunnels:
  app-foo:
    addr: 80
    proto: http
    host_header: app-foo.dev
  app-bar:
    addr: 80
    proto: http
    host_header: app-bar.dev
```

Tunnel a custom domain over both http and https with your own certificate

```
authtoken: 4nq9771bPxe8ctg7LKr_2ClH7Y15Zqe4bWLWF9p
tunnels:
  myapp-http:
    addr: 80
    proto: http
    hostname: example.com
    bind_tls: false
  mypp-https:
    addr: 443
    proto: tls
    hostname: example.com
```

Expose ngrok's web inspection interface and API over a tunnel

```
authtoken: 4nq9771bPxe8ctg7LKr_2ClH7Y15Zqe4bWLWF9p
tunnels:
  myapp-http:
    addr: 4040
    proto: http
    subdomain: myapp-inspect
    auth: "user:secretpassword"
    inspect: false
```

Example configuration file with all options

```
authtoken: 4nq9771bPxe8ctg7LKr_2ClH7Y15Zqe4bWLWF9p
region: us
console_ui: true
http_proxy: false
inspect_db_size: 50000000
log_level: info
log_format: json
log: /var/log/ngrok.log
metadata: '{"serial": "00012xa-33rUtz9", "comment": "For customer alan@example.com"}'
root_cas: trusted
socks5_proxy: "socks5://localhost:9150"
update: false
update_channel: stable
web_addr: localhost:4040
tunnels:
  website:
    addr: 8888
    auth: bob:bobpassword
    bind_tls: true
    host_header: "myapp.dev"
    inspect: false
    proto: http
    subdomain: myapp

  e2etls:
    addr: 9000
    proto: tls
    hostname: myapp.example.com
    crt: example.crt
    key: example.key

  ssh-access:
    addr: 22
    proto: tcp
    remote_addr: 1.tcp.ngrok.io:12345
```

Configuration Options

authtoken

This option specifies the authentication token used to authenticate this client when it connects to the ngrok.com service. After you've created an ngrok.com account, your dashboard will display the authtoken assigned to your account.

ngrok.yml specifying an authtoken

```
authtoken: 4nq9771bPxe8ctg7LKr_2ClH7Y15Zqe4bWLWF9p
```

console_ui

`true`	enable the console UI

`false`		disable the console UI
`iftty`	default	enable the UI only if standard out is a TTY (not a file or pipe)

`console_ui_color`

`transparent`		don't set a background color when displaying the console UI
`black`	default	set the console UI's background to black

`http_proxy`

URL of an HTTP proxy to use for establishing the tunnel connection. Many HTTP proxies have connection size and duration limits that will cause ngrok to fail. Like many other networking tools, ngrok will also respect the environment variable `http_proxy` if it is set.

Example of ngrok over an authenticated HTTP proxy

```
http_proxy: "http://user:password@proxy.company:3128"
```

`inspect_db_size`

positive integers		size in bytes of the upper limit on memory to allocate to save requests over HTTP tunnels for inspection and replay.
`0`	default	use the default allocation limit, 50MB
`-1`		disable the inspection database; this has the effective behavior of disabling inspection for all tunnels

`log_level`

Logging level of detail. In increasing order of verbosity, possible values are: `crit` , `warn` , `error` , `info` , `debug`

`log_format`

Format of written log records.

`logfmt`	human and machine friendly key/value pairs
`json`	newline-separated JSON objects

`term`	default	custom colored human format if standard out is a TTY, otherwise same as `logfmt`

`log`

Write logs to this target destination.

`stdout`		write to standard out
`stderr`		write to standard error
`false`	default	disable logging
other values		write log records to file path on disk

```
log: /var/log/ngrok.log
```

`metadata`

Opaque, user-supplied string that will be returned as part of the ngrok.com API response to the List Online Tunnels resource for all tunnels started by this client. This is a useful mechanism to identify tunnels by your own device or customer identifier. Maximum 4096 characters.

```
metadata: bad8c1c0-8fce-11e4-b4a9-0800200c9a66
```

`region`

Choose the region where the ngrok client will connect to host its tunnels.

`us`	default	United States
`eu`		Europe
`ap`		Asia/Pacific
`au`		Australia
`sa`		South America
`jp`		Japan
`in`		India

`root_cas`

The root certificate authorities used to validate the TLS connection to the ngrok server.

`trusted`	default	use only the trusted certificate root for the ngrok.com tunnel service
`host`		use the root certificates trusted by the host's operating system. You will likely want to use this option to connect to third-party ngrok servers.
other values		path to a certificate PEM file on disk with certificate authorities to trust

`socks5_proxy`

URL of a SOCKS5 proxy to use for establishing a connection to the ngrok server.

```
socks5_proxy: "socks5://localhost:9150"
```

`tunnels`

A map of names to tunnel definitions. See Tunnel definitions for more details.

`update`

`true`		automatically update ngrok to the latest version, when available
`false`	default	never update ngrok unless manually initiated by the user

`update_channel`

The update channel determines the stability of released builds to update to. Use 'stable' for all production deployments.

`stable`	default	channel
`beta`		update to new beta builds when available

`web_addr`

Network address to bind on for serving the local web interface and api.

network address		bind to this network address
`127.0.0.1:4040`	default	default network address
`false`		disable the web UI

Web Inspection Interface

The ngrok client ships with a powerful realtime inspection interface which allows you to see what traffic is sent to your application server and what responses your server is returning.

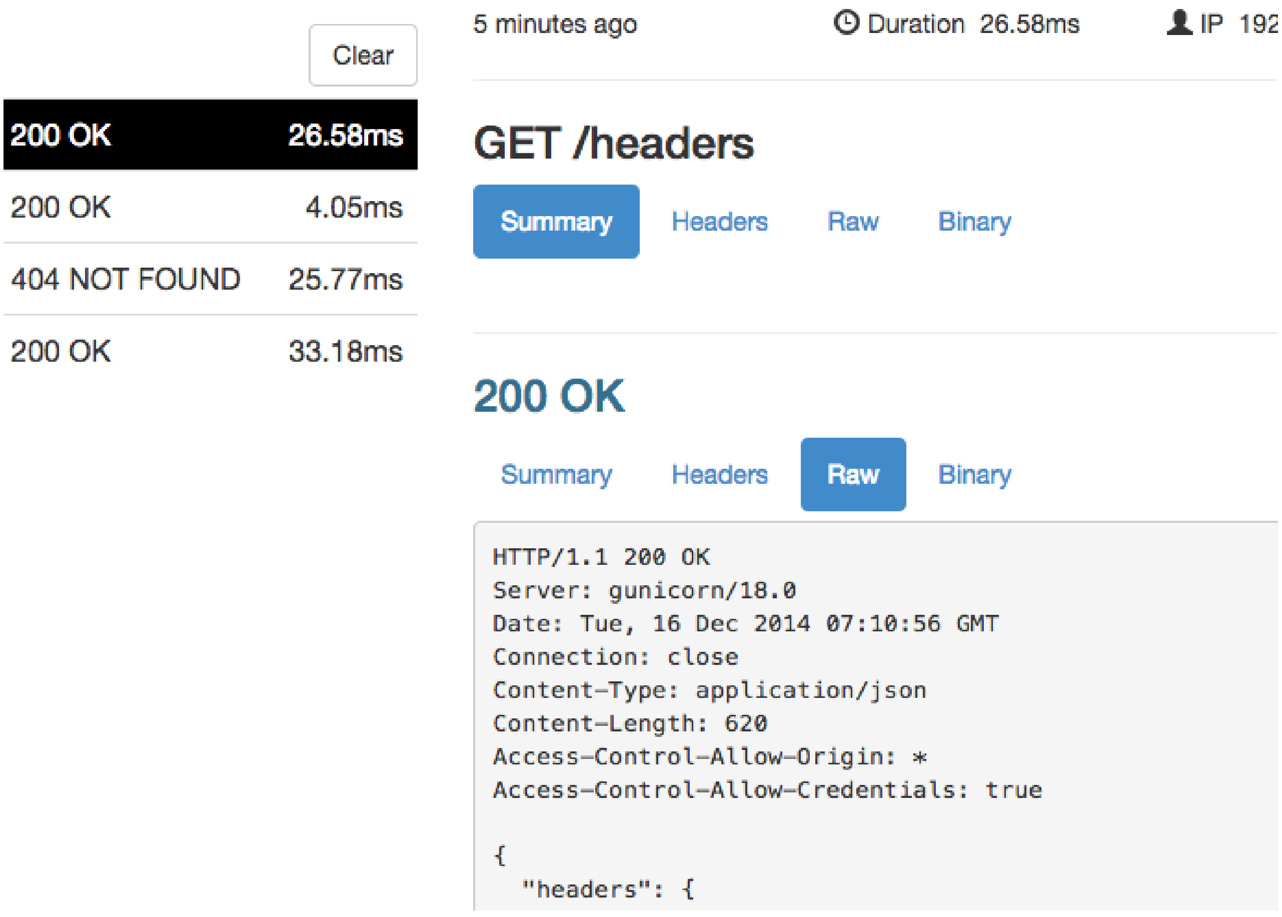
Inspecting requests

Every HTTP request through your tunnels will be displayed in the inspection interface. After you start ngrok, open http://localhost:4040 in a browser. You will see all of the details of every request and response including the time, duration, source IP, headers, query parameters, request payload and response body as well as the raw bytes on the wire.

The inspection interface has a few limitations. If an entity-body is too long, ngrok may only capture the initial portion of the request body. Furthermore, ngrok does not display provisional 100 responses from a server.

Inspection is only supported for `http` tunnels. `tcp` and `tls` tunnels do not support any inspection.

Detailed introspection of HTTP requests and responses

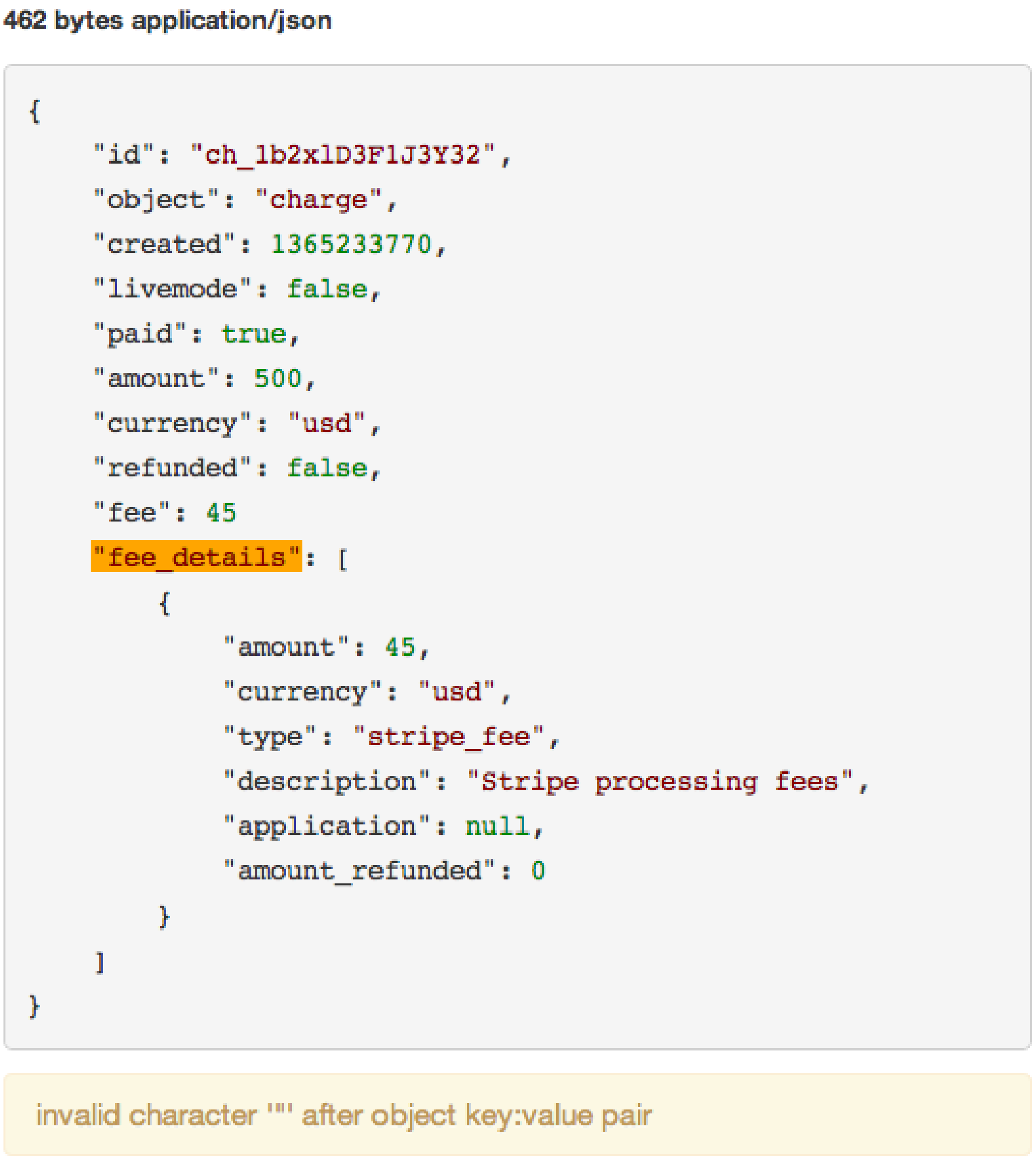


```
HTTP/1.1 200 OK
Server: gunicorn/18.0
Date: Tue, 16 Dec 2014 07:10:56 GMT
Connection: close
Content-Type: application/json
Content-Length: 620
Access-Control-Allow-Origin: *
Access-Control-Allow-Credentials: true

{
  "headers": {
```

Request body validation

ngrok has special support for the most common data interchange formats in use on the web. Any XML or JSON data in request or response bodies is automatically pretty-printed for you and checked for syntax errors.

The location of a JSON syntax error is highlighted



462 bytes application/json

```
{
    "id": "ch_1b2x1D3F1J3Y32",
    "object": "charge",
    "created": 1365233770,
    "livemode": false,
    "paid": true,
    "amount": 500,
    "currency": "usd",
    "refunded": false,
    "fee": 45
    "fee_details": [
        {
            "amount": 45,
            "currency": "usd",
            "type": "stripe_fee",
            "description": "Stripe processing fees",
            "application": null,
            "amount_refunded": 0
        }
    ]
}
```

invalid character '"' after object key:value pair

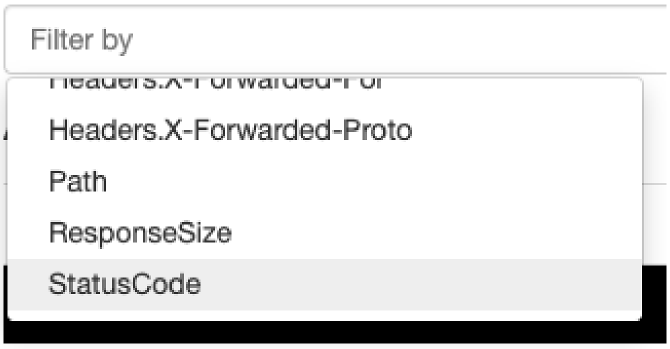
Filtering requests

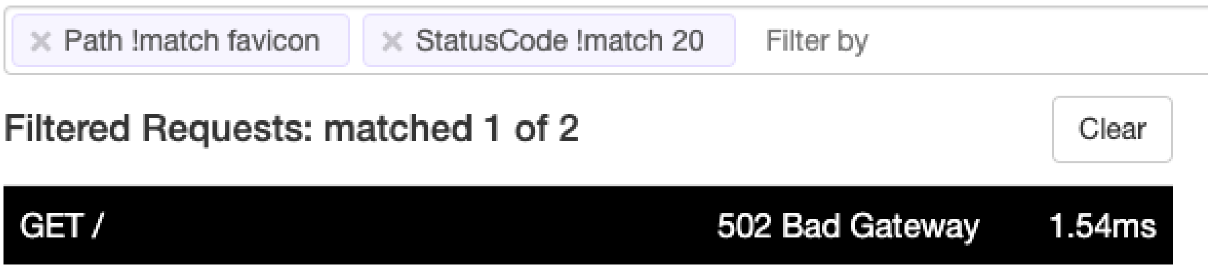
Your application server may receive many requests, but you are often only interested in inspecting some of them. You can filter the requests that ngrok displays to you. You can filter based on the request path, response status code, size of the response body, duration of the request and the value of any header.

Click the filter bar for filtering options

You may specify multiple filters. If you do, requests will only be shown if they much all filters.

Filter requests by path and status code

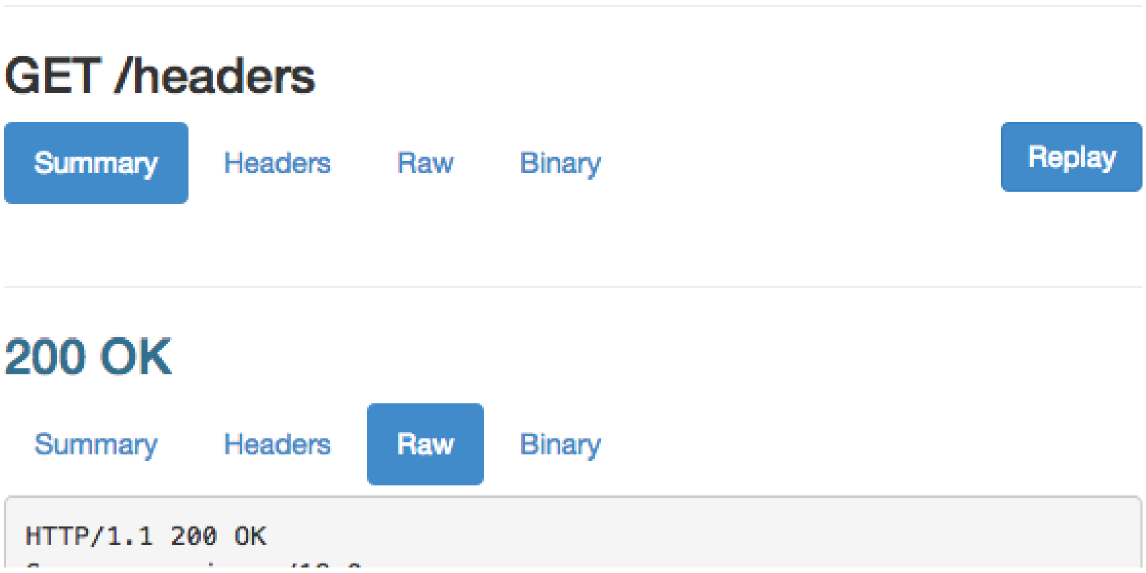




Replaying requests

Developing for webhooks issued by external APIs can often slow down your development cycle by requiring you do some work, like dialing a phone, to trigger the hook request. ngrok allows you to replay any request with a single click, dramatically speeding up your iteration cycle. Click the **Replay** button at the top-right corner of any request on the web inspection UI to replay it.

Replay any request against your tunneled web server with one click

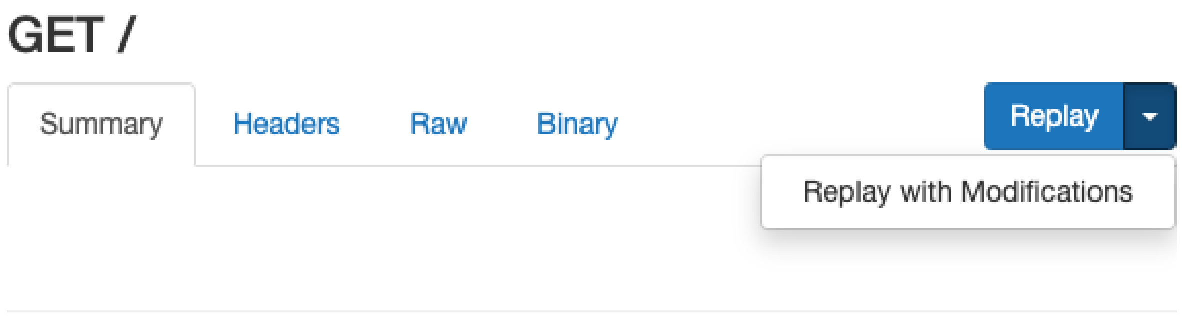


```
HTTP/1.1 200 OK
```

Replaying modified requests

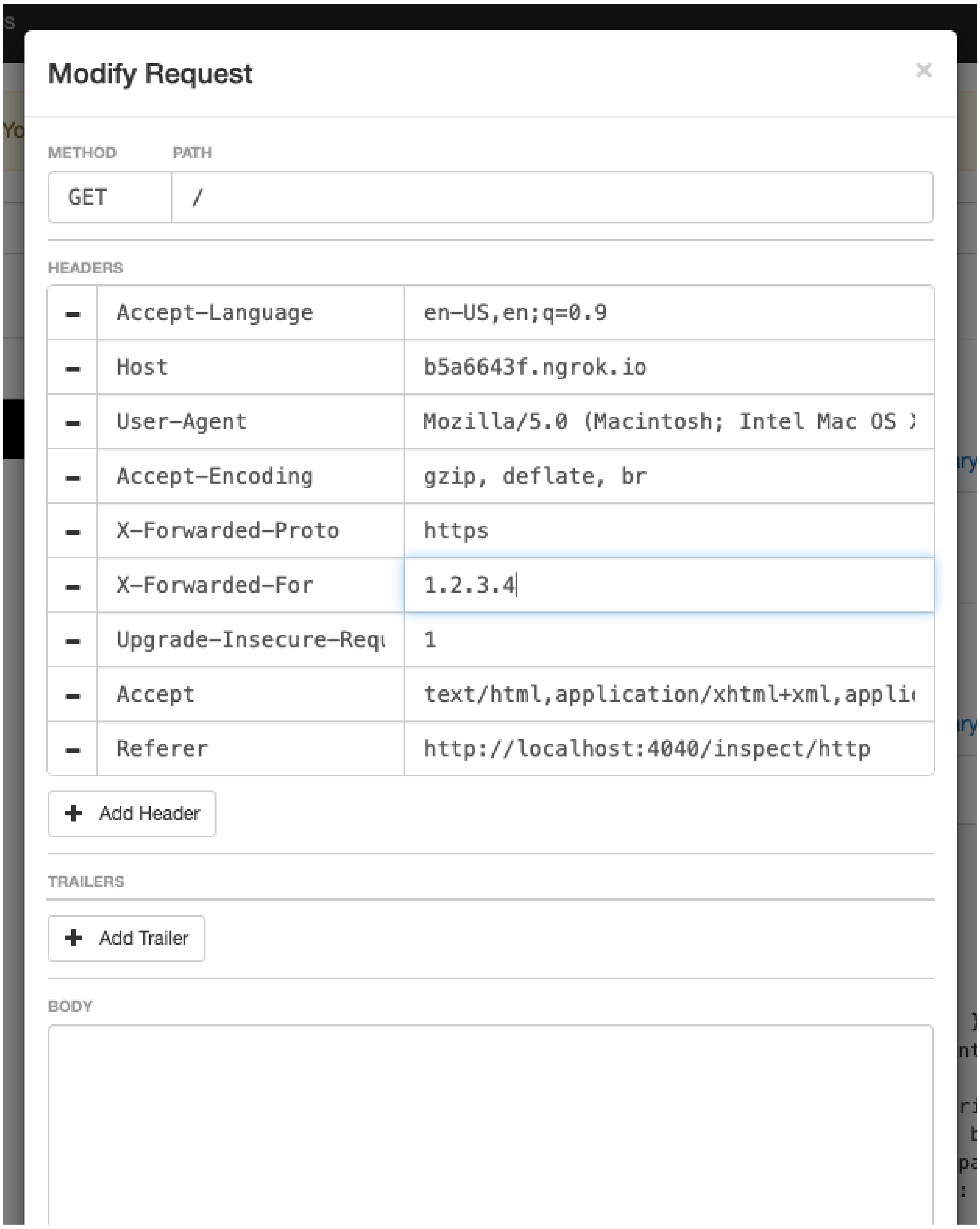
Sometimes you want to modify a request before you replay it to test a new behavior in your application server.

Click the dropdown arrow on the 'Replay' button to modify a request before it is replayed



The replay editor allows you to modify every aspect of the http request before replaying it, including the method, path, headers, trailers and request body.

The request replay modification editor



METHOD	PATH
GET	/

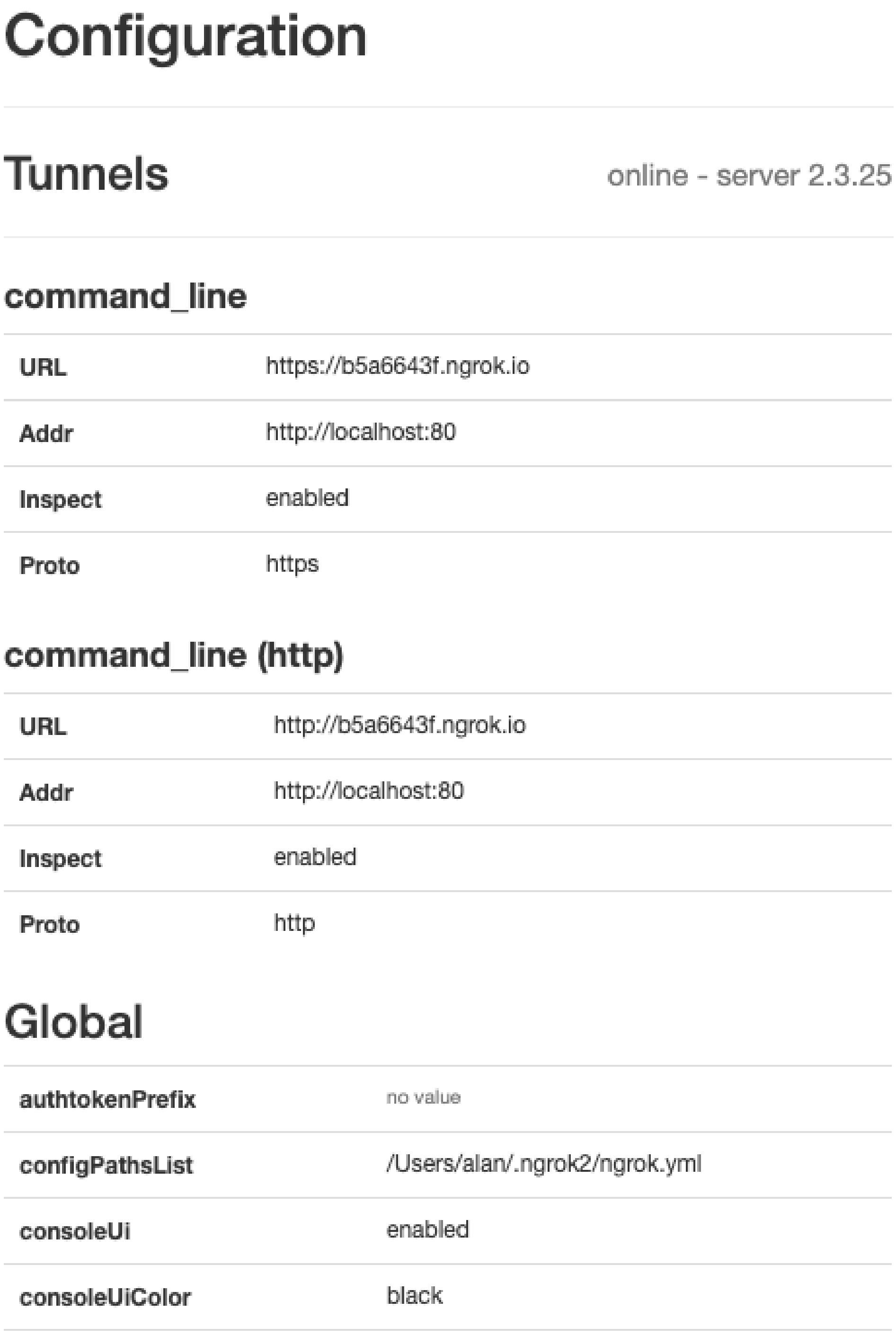
−	Accept-Language	en-US,en;q=0.9
−	Host	b5a6643f.ngrok.io
−	User-Agent	Mozilla/5.0 (Macintosh; Intel Mac OS
−	Accept-Encoding	gzip, deflate, br
−	X-Forwarded-Proto	https
−	X-Forwarded-For	1.2.3.4
−	Upgrade-Insecure-Requ	1
−	Accept	text/html,application/xhtml+xml,appli
−	Referer	http://localhost:4040/inspect/http

Status page: metrics and configuration

ngrok's local web interface has a dedicated status page that shows configuration and metrics information about the running ngrok process. You can access it at http://localhost:4040/status.

The status page displays the configuration of each running tunnel and any global configuration options that ngrok has parsed from its configuration file.

Tunnel and global configuration



Configuration

Tunnels — online - server 2.3.25

command_line

URL	https://b5a6643f.ngrok.io
Addr	http://localhost:80
Inspect	enabled
Proto	https

command_line (http)

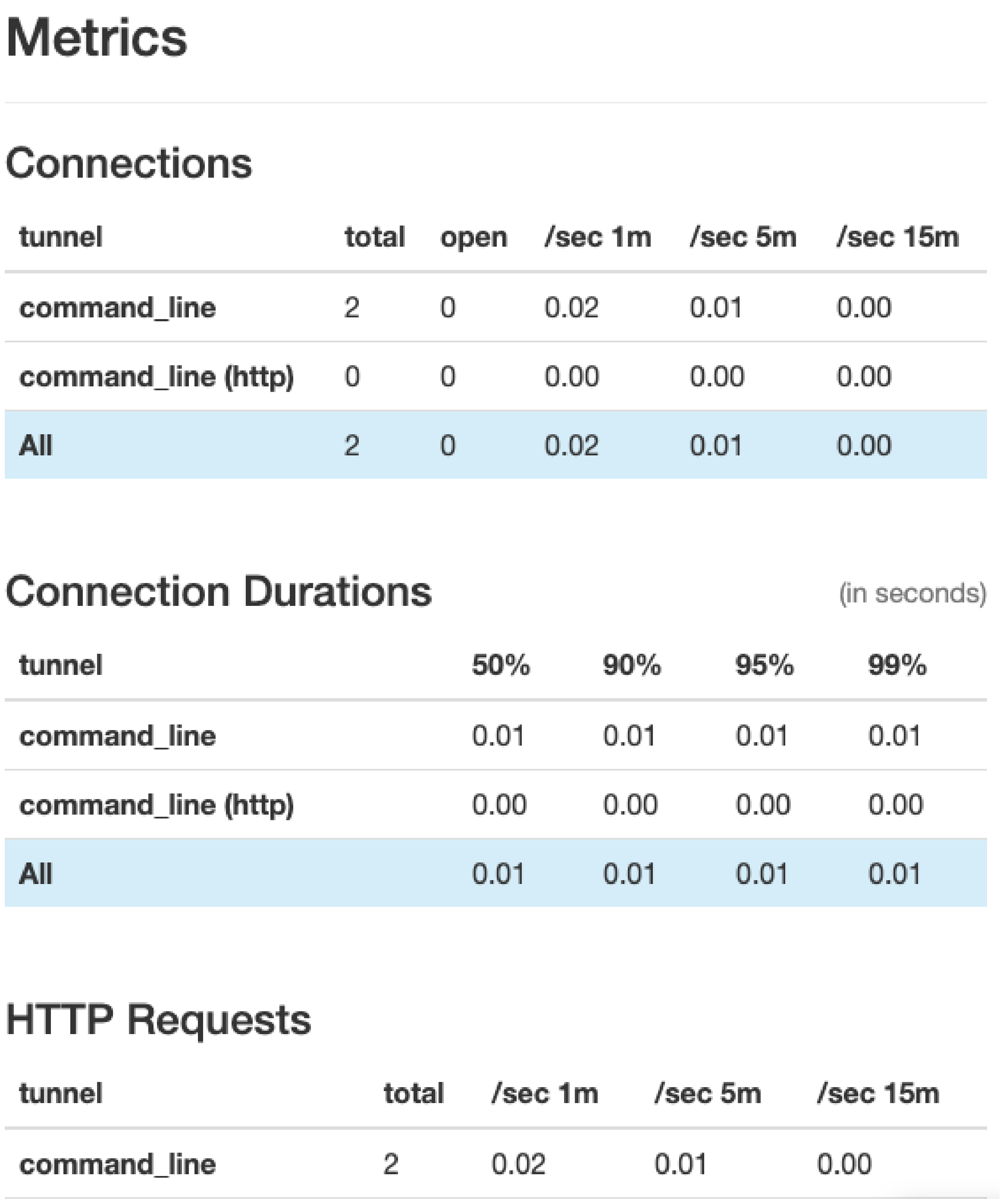
URL	http://b5a6643f.ngrok.io
Addr	http://localhost:80
Inspect	enabled
Proto	http

Global

authtokenPrefix	no value
configPathsList	/Users/alan/.ngrok2/ngrok.yml
consoleUi	enabled
consoleUiColor	black

The status page also display metrics about the traffic through each tunnel. It display connection rates and connection duration percentiles for all tunnels. For http tunnels, it also displays http request rates and http response duration percentiles.

Tunnel traffic metrics



Metrics

Connections

tunnel	total	open	/sec 1m	/sec 5m	/sec 15m
command_line	2	0	0.02	0.01	0.00
command_line (http)	0	0	0.00	0.00	0.00
All	2	0	0.02	0.01	0.00

Connection Durations

(in seconds)

tunnel	50%	90%	95%	99%
command_line	0.01	0.01	0.01	0.01
command_line (http)	0.00	0.00	0.00	0.00
All	0.01	0.01	0.01	0.01

HTTP Requests

tunnel	total	/sec 1m	/sec 5m	/sec 15m
command_line	2	0.02	0.01	0.00

IP Whitelisting Tunnel Access

You may whitelist access to tunnel endpoints on your account. The whitelist is enforced by the ngrok.com servers. It is applied globally to all of your tunnel endpoints. Any incoming connection to any of your tunnel endpoints is checked to guarantee that the source IP address of the connection matches at least one entry in your whitelist. If a connection does not match the whitelist it is terminated immediately and never forwarded to an ngrok client.

As a special case, **if your whitelist is empty, all connections are allowed**.

Managing the whitelist

You can manage the IP whitelist on the auth tab of your ngrok dashboard. Enter a new IP address under the "IP Whitelist" section and then click **Add Whitelist Entry**. Changes to the IP Whitelist can take up to 30 seconds to take effect.

IP Ranges

Sometimes, you may wish to whitelist an entire range of IPs. Instead of entering just a single IP address, you may instead specify a block of IP addresses using CIDR notation. For example, to allow all IP addresses from 10.1.2.0 to 10.1.2.255, you would add 10.1.2.0/24 to your whitelist.

Global infrastructure

ngrok runs globally distributed tunnel servers around the world to enable fast, low latency traffic to your applications.

Locations

ngrok runs tunnel servers in datacenters around the world. The location of the datacenter within a given region may change without notice (e.g. the European servers may move from Frankfurt to London).

- us - United States (Ohio)
- eu - Europe (Frankfurt)
- ap - Asia/Pacific (Singapore)
- au - Australia (Sydney)
- sa - South America (Sao Paulo)
- jp - Japan (Tokyo)
- in - India (Mumbai)

Usage

If you do not explicitly pick a region, your tunnel will be hosted in the default region, the United States. Picking the region closest to you is as easy as specifying setting the `-region` command line flag or setting the `region` property in your configuration file. For example, to start a tunnel in the Europe region:

```
ngrok http -region eu 8080
```

Reserved domains and reserved addresses are allocated for a specific region (the US region by default). When you reserve a domain or address, you must select a target region. You may not bind a domain or address reserved in another region other than the one it was allocated for. Attempting to do so will yield an error and prevent your tunnel session from initializing.

Limitations

An ngrok client may only be connected a single region. This may change in the future, but at the moment a single ngrok client cannot host tunnels in multiple regions simultaneously. Run multiple ngrok clients if you need to do this.

A domain cannot be reserved for multiple regions simultaneously. It is not possible to geo-balance DNS to the same tunnel name in multiple regions. Use region-specific subdomains or TLDs if you need to do this (`eu.tunnel.example.com` , `us.tunnel.example.com` , etc).

SSH Gateway

SSH reverse tunneling is an alternative mechanism to start an ngrok tunnel without even needing to download or run the ngrok client. You can start tunnels via SSH without downloading an ngrok client by running an SSH reverse tunnel command.

The SSH gateway functionality should not be confused with exposing an SSH server via ngrok. If you want to expose your own SSH server for remote access, please refer to the documentation on TCP tunnels.

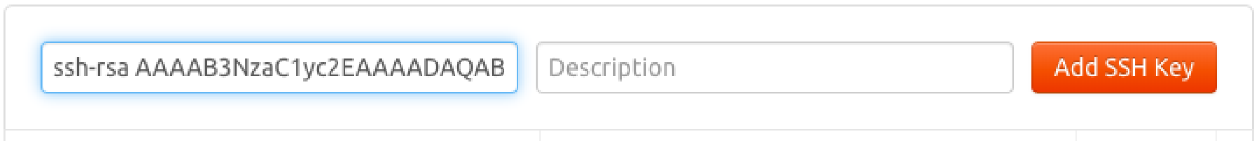
Uploading a Public Key

Before you can start a tunnel via the SSH gateway, you'll need to upload your SSH public key. To upload your SSH public key, open the file `~/.ssh/id_rsa.pub` and copy its contents. Then go to the Auth tab on your dashboard and paste the contents into the SSH Key input and optionally enter a human description (like the name of your machine). You should now be able to start SSH tunnels!

Copy your SSH public key on Mac OS X

```
cat ~/.ssh/id_rsa.pub | pbcopy
```

Add your SSH key by pasting it into the ngrok dashboard.



Examples

ngrok tries to honor the syntax of `ssh -R` for all of the tunnel commands in its SSH gateway. You may wish to consult `man ssh` , and the section devoted to the `-R` option for additional details. ngrok uses additional command line options to implement features that are not otherwise available via the `-R` syntax.

The following examples demonstrate how to use the SSH gateway and provide the equivalent ngrok client command to help you best understand how to achieve similar functionality.

Start an http tunnel forwarding to port 80

```
# equivalent: `ngrok http 80`
ssh -R 80:localhost:80 tunnel.us.ngrok.com http
```

Start an http tunnel on a custom subdomain forwarding to port 8080

```
# equivalent: `ngrok http -subdomain=custom-subdomain 8080`
ssh -R custom-subdomain.ngrok.io:80:localhost:8080 tunnel.us.ngrok.com http
```

Start an http tunnel on a custom domain with auth

```
# equivalent: `ngrok http -hostname=example.com 8080`
ssh -R example.com:80:localhost:8080 tunnel.us.ngrok.com http -auth="user:password"
```

Start a TCP tunnel

```
# equivalent: `ngrok tcp 22`
ssh -R 0:localhost:22 tunnel.us.ngrok.com tcp 22
```

Start a TCP tunnel on a reserved address

```
# equivalent: `ngrok tcp --remote-addr=1.tcp.ngrok.io:24313 22`
ssh -R 1.tcp.ngrok.io:24313:localhost:22 tunnel.us.ngrok.com tcp
```

Start a TLS tunnel

```
# equivalent: `ngrok tls 8443`
ssh -R 443:localhost:8443 tunnel.us.ngrok.com tls
```

Start a tunnel in a different region

```
# equivalent: `ngrok http -region=eu 80`
ssh -R 80:localhost:80 tunnel.eu.ngrok.com http
```

Using ngrok with …

Wordpress

To make ngrok work properly with Wordpress installations you usually need to do two things:

1. You must ensure that Wordpress issues relative URLS. You can do so by installing the following plugin:

   http://wordpress.org/plugins/relative-url/

- You must ensure that Wordpress understands that it is meant to serve itself from your tunneled hostname. You can configure Wordpress to do that by modifying your `wp-config` to include the following lines:

```
define('WP_SITEURL', 'http://' . $_SERVER['HTTP_HOST']);
define('WP_HOME', 'http://' . $_SERVER['HTTP_HOST']);
```

- You must also instruct ngrok to rewrite the host header, like so:

```
ngrok http -host-header=rewrite https://your-site.dev
```

Virtual hosts (MAMP, WAMP, etc)

Popular web servers such as MAMP and WAMP rely on a technique popularly referred to as 'Virtual Hosting' which means that they consult the HTTP request's `Host` header to determine which of their multiple sites they should serve. To expose a site like this it is possible to ask ngrok to rewrite the `Host` header of all tunneled requests to match what your web server expects. You can do this by using the `-host-header` option (see: Rewriting the Host header) to pick which virtual host you want to target. For example, to route to your local site `myapp.dev`, you would run:

```
ngrok http -host-header=myapp.dev 80
```

Visual Studio / IIS Express

Use dproterho's visual studio extension which adds ngrok support directly into Visual Studio: ngrok extension for Visual Studio

An outbound proxy

ngrok works correctly through an HTTP or SOCKS5 proxy. ngrok respects the standard unix environment variable `http_proxy`. You may also set proxy configuration explicitly in the ngrok configuration file:

node.js

Use bubenshchykov's npm package for interacting with ngrok from node.js:

Puppet

Use gabe's puppet module for installing and configuring ngrok resources and ensure the ngrok client process is running: ngrok module for Puppet

Troubleshooting

CORS with HTTP basic authentication

Yes, but you cannot use ngrok's `-auth` option. ngrok's http tunnels allow you to specify basic authentication credentials to protect your tunnels. However, ngrok enforces this policy on *all* requests, including the preflight `OPTIONS` requests that are required by the CORS spec. In this case, your application must implement its own basic authentication. For more details, see this github issue.

ngrok Client API

The ngrok client exposes a REST API that grants programmatic access to:

- Collect status and metrics information
- Collect and replay captured requests
- Start and stop tunnels dynamically

Base URL and Authentication

Base URL	`http://127.0.0.1:4040/api`
Authentication	**None**

The ngrok client API is exposed as part of ngrok's local web inspection interface. Because it is served on a local interface, the API has no authentication. The Base URL will change if you override `web_addr` in your configuration file.

Access the root API resource of a running ngrok client

```
curl http://localhost:4040/api/
```

Supported Content Types

Request parameters must be encoded to the API using `application/json`. Ensure that your client sets the request's `Content-Type` header appropriately. All responses returned by the API are `application/json`.

Versioning and API Stability

The ngrok client API guarantees that breaking changes to the API will never be made unless the caller explicitly opts in to a newer version. The mechanism by which a caller opts into a new version of the API will be determined in the future when it becomes necessary. Examples of non-breaking changes to the API that will not be opt-in include the following.

- The addition of new resources
- The addition of new methods to existing resources
- The addition of new fields on existing resource representations
- Bug fixes which change the API to match documented behavior

List Tunnels

Returns a list of running tunnels with status and metrics information.

Request

GET/api/tunnels

Response

Parameters

tunnels	list of all running tunnels. See theTunnel detail resource for docs on the parameters of each tunnel object

Example Response

```
{
 "tunnels": [
    {
       "name": "command_line",
       "uri": "/api/tunnels/command_line",
       "public_url": "https://d95211d2.ngrok.io",
       "proto": "https",
       "config": {
          "addr": "localhost:80",
          "inspect": true,
       },
       "metrics": {
          "conns": {
             "count": 0,
             "gauge": 0,
             "rate1": 0,
             "rate5": 0,
             "rate15": 0,
             "p50": 0,
             "p90": 0,
             "p95": 0,
             "p99": 0
          },
          "http": {
             "count": 0,
             "rate1": 0,
             "rate5": 0,
             "rate15": 0,
             "p50": 0,
             "p90": 0,
             "p95": 0,
             "p99": 0
          }
       }
    },
    ...
 ],
 "uri": "/api/tunnels"
}
```

Start tunnel

Dynamically starts a new tunnel on the ngrok client. The request body parameters are the same as those you would use to define the tunnel in the configuration file.

Request

POST/api/tunnels

Parameters

Parameter names and behaviors are identical to those those defined in the configuration file. Use the tunnel definitions section as a reference for configuration parameters and their behaviors.

Example request body

```
{
  "addr": "22",
  "proto": "tcp",
  "name": "ssh"
}
```

Response

201 status code with a response body describing the started tunnel. See the Tunnel detail resource for docs on the parameters of the response object

Example Response

```
{
  "name": "",
  "uri": "/api/tunnels/",
  "public_url": "tcp://0.tcp.ngrok.io:53476",
  "proto": "tcp",
  "config": {
     "addr": "localhost:22",
     "inspect": false,
  },
  "metrics": {
     "conns": {
        "count": 0,
        "gauge": 0,
        "rate1": 0,
        "rate5": 0,
        "rate15": 0,
        "p50": 0,
        "p90": 0,
        "p95": 0,
        "p99": 0
     },
     "http": {
        "count": 0,
        "rate1": 0,
        "rate5": 0,
        "rate15": 0,
        "p50": 0,
        "p90": 0,
        "p95": 0,
        "p99": 0
     }
  }
}
```

Tunnel detail

Get status and metrics about the named running tunnel

Request

GET/api/tunnels/:name

Response

Example Response

```
{
 "name": "command_line",
 "uri": "/api/tunnels/command_line",
 "public_url": "https://ac294125.ngrok.io",
 "proto": "https",
 "config": {
    "addr": "localhost:80",
    "inspect": true,
 },
 "metrics": {
    "conns": {
       "count": 0,
       "gauge": 0,
       "rate1": 0,
       "rate5": 0,
       "rate15": 0,
       "p50": 0,
       "p90": 0,
       "p95": 0,
       "p99": 0
    },
    "http": {
       "count": 0,
       "rate1": 0,
       "rate5": 0,
       "rate15": 0,
       "p50": 0,
       "p90": 0,
       "p95": 0,
       "p99": 0
    }
 }
}
```

Stop tunnel

Stop a running tunnel

Request

DELETE/api/tunnels/:name

Response

204 status code with an empty body

List Captured Requests

Returns a list of all HTTP requests captured for inspection. This will only return requests that are still in memory (ngrok evicts captured requests when their memory usage exceeds `inspect_db_size`)

Request

GET/api/requests/http

Query Parameters

`limit`	maximum number of requests to return
`tunnel_name`	filter requests only for the given tunnel name

Example Request

```
curl http://localhost:4040/api/requests/http?limit=50
```

Response

`requests`	list of captured requests. See the Captured Request Detail resource for docs on the request objects

Example Response

```
{
  "uri": "/api/requests/http",
  "requests": [
      {
          "uri": "/api/requests/http/548fb5c700000002",
          "id": "548fb5c700000002",
          "tunnel_name": "command_line (http)",
          "remote_addr": "192.168.100.25",
          "start": "2014-12-15T20:32:07-08:00",
          "duration": 3893202,
          "request": {
              "method": "GET",
              "proto": "HTTP/1.1",
              "headers": {
                  "Accept": [
                      "*/*"
                  ],
                  "Accept-Encoding": [
                      "gzip, deflate, sdch"
                  ],
                  "Accept-Language": [
                      "en-US,en;q=0.8"
                  ],
                  "Connection": [
                      "keep-alive"
                  ],
                  "User-Agent": [
                      "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_9_5) AppleWebKit/537.36 (KHTML, like
Gecko) Chrome/39.0.2171.71 Safari/537.36"
                  ],
                  "X-Original-Host": [
                      "c159663f.ngrok.io"
                  ]
              },
              "uri": "/favicon.ico",
              "raw": ""
          },
          "response": {
              "status": "502 Bad Gateway",
              "status_code": 502,
              "proto": "HTTP/1.1",
              "headers": {
                  "Content-Length": [
                      "1716"
                  ]
              },
              "raw": "",
          }
      },
      ...
  ]
}
```

Replay Captured Request

Replays a request against the local endpoint of a tunnel

Request

POST/api/requests/http

Parameters

`id`	id of request to replay
`tunnel_name`	name of the tunnel to play the request against. If unspecified, the request is played against the same tunnel it was recorded on

Example Request

```
curl -H "Content-Type: application/json" -d '{"id": "548fb5c700000002"}'
http://localhost:4040/api/requests/http
```

Response

204 status code with an empty body

Delete Captured Requests

Deletes all captured requests

Request

DELETE/api/requests/http

Response

204 status code with no response body

Captured Request Detail

Returns metadata and raw bytes of a captured request. The raw data is base64-encoded in the JSON response. The `response` value maybe `null` if the local server has not yet responded to a request.

Request

GET/api/requests/http/:request_id

Response

Example Response

```
{
  "uri": "/api/requests/http/548fb5c700000002",
  "id": "548fb5c700000002",
  "tunnel_name": "command_line (http)",
  "remote_addr": "192.168.100.25",
  "start": "2014-12-15T20:32:07-08:00",
  "duration": 3893202,
  "request": {
     "method": "GET",
     "proto": "HTTP/1.1",
     "headers": {
        "Accept": [
           "*/*"
        ],
        "Accept-Encoding": [
           "gzip, deflate, sdch"
        ],
        "Accept-Language": [
           "en-US,en;q=0.8"
        ],
        "Connection": [
           "keep-alive"
        ],
        "User-Agent": [
           "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_9_5) AppleWebKit/537.36 (KHTML, like
Gecko) Chrome/39.0.2171.71 Safari/537.36"
        ],
        "X-Original-Host": [
           "c159663f.ngrok.io"
        ]
     },
     "uri": "/favicon.ico",
     "raw": ""
  },
  "response": {
     "status": "502 Bad Gateway",
     "status_code": 502,
     "proto": "HTTP/1.1",
     "headers": {
        "Content-Length": [
           "1716"
        ]
     },
     "raw": "",
  }
}
```

Backward Compatibility

ngrok makes promises about the compatibility and stability of its interfaces so that you can can confidently build integrations on top and know what changes to expect when upgrading to newer versions.

Compatibility promise

- **Point Release (2.0.0 -> 2.0.1)** - ngrok promises no breaking changes across point releases
- **Minor Version Change (2.0 -> 2.1)** - ngrok may make small changes that break compatibility for functionality that affects very small minority of users across a minor version change.
- **Major Version Change (2.0 -> 3.0)** - ngrok makes no promise that any interfaces are stable across a major version change.

What interfaces are subject to the promise?

- The ngrok command line interface: the commands and their options
- The ngrok configuration file
- The ngrok client API

Anything other interface like the logging format or the web UI is not subject to any compatibility promise and may change without warning between versions.

Changes in 2.3

If asked to forward to port 443, ngrok will now automatically forward HTTPS traffic instead of HTTP. This change would only affect you if you previously ran a server accepting unencrypted HTTP on port 443. To workaround this, you may specify an explicit http URL if you need the old behavior: `ngrok http http://localhost:443`.

If run under sudo, the ngrok client previously consulted the sudo-ing user's home directory file when looking for its default configuration file. It now consults the home directory of the assumed user. To workaround this, you may specify an explicit configuration file location with the `-config` option.

Changes in 2.2

The ngrok client API no longer accepts `application/x-www-form-urlencoded` request bodies. In practice, this only affects the `/api/requests/http/:id` endpoint because posting to the `/api/tunnels` endpoint with this type of request body previously caused ngrok to crash.

This change was made to help protect against maliciously crafted web pages that could cause a user to inadvertently interact with their local ngrok API.

Changes in 2.1

Behavior changes for `http` and `tls` tunnels defined in the configuration file or started via the API that do not have a `subdomain` or `hostname` property.

```
tunnels:
  webapp:
  proto: http
  addr: 80
```

Given this example tunnel configuration, behavior will change in the following ways.

Old Behavior

Starts a tunnel using the name of the tunnel as the subdomain resulting in the URL `http://webapp.ngrok.io`

New Behavior

Starts a tunnel with a random subdomain, for example a URL like `http://d95211d2.ngrok.io`

How to keep the old behavior

Add a `subdomain` property with the same name as the tunnel:

```
tunnels:
  webapp:
  proto: http
  addr: 80
  subdomain: webapp
```

This behavior changed in order to make it possible to launch tunnels with random domains. This was preventing the use of the configuration file and client API to free tier users.

ngrok 1.x sunset

The ngrok 1.X service shut down on April 4, 2016. More details can be found on the ngrok 1.x sunset announcement

FAQ

What information is stored about my tunnels?

ngrok does not log or store any data transmitted through your tunneled connections. ngrok does log some information about the connections which are used for debugging purposes and metrics like the name of the tunnel and the duration of connections. For complete end-to-end security, use a TLS tunnel.

How do I pronounce ngrok?

en-grok