

**NAME**

git-http-backend - Server side implementation of Git over HTTP

**SYNOPSIS**

*git http-backend*

**DESCRIPTION**

A simple CGI program to serve the contents of a Git repository to Git clients accessing the repository over `http://` and `https://` protocols. The program supports clients fetching using both the smart HTTP protocol and the backwards-compatible dumb HTTP protocol, as well as clients pushing using the smart HTTP protocol.

It verifies that the directory has the magic file `git-daemon-export-ok`, and it will refuse to export any Git directory that hasn't explicitly been marked for export this way (unless the `GIT_HTTP_EXPORT_ALL` environmental variable is set).

By default, only the `upload-pack` service is enabled, which serves *git fetch-pack* and *git ls-remote* clients, which are invoked from *git fetch*, *git pull*, and *git clone*. If the client is authenticated, the `receive-pack` service is enabled, which serves *git send-pack* clients, which is invoked from *git push*.

**SERVICES**

These services can be enabled/disabled using the per-repository configuration file:

`http.getanyfile`

This serves Git clients older than version 1.6.6 that are unable to use the `upload-pack` service. When enabled, clients are able to read any file within the repository, including objects that are no longer reachable from a branch but are still present. It is enabled by default, but a repository can disable it by setting this configuration item to `false`.

`http.uploadpack`

This serves *git fetch-pack* and *git ls-remote* clients. It is enabled by default, but a repository can disable it by setting this configuration item to `false`.

`http.receivepack`

This serves *git send-pack* clients, allowing push. It is disabled by default for anonymous users, and enabled by default for users authenticated by the web server. It can be disabled by setting this item to `false`, or enabled for all users, including anonymous users, by setting it to `true`.

**URL TRANSLATION**

To determine the location of the repository on disk, *git http-backend* concatenates the environment variables `PATH_INFO`, which is set automatically by the web server, and `GIT_PROJECT_ROOT`, which must be set manually in the web server configuration. If `GIT_PROJECT_ROOT` is not set, *git http-backend* reads `PATH_TRANSLATED`, which is also set automatically by the web server.

**EXAMPLES**

All of the following examples map `http://hostname/git/foo/bar.git` to `/var/www/git/foo/bar.git`.

Apache 2.x

Ensure `mod_cgi`, `mod_alias`, and `mod_env` are enabled, set `GIT_PROJECT_ROOT` (or `DocumentRoot`) appropriately, and create a `ScriptAlias` to the CGI:

```
SetEnv GIT_PROJECT_ROOT /var/www/git
SetEnv GIT_HTTP_EXPORT_ALL
ScriptAlias /git/ /usr/libexec/git-core/git-http-backend/
```

To enable anonymous read access but authenticated write access, require authorization for both the initial ref advertisement (which we detect as a push via the service parameter in the query string), and the `receive-pack` invocation itself:

```
RewriteCond %{QUERY_STRING} service=git-receive-pack [OR]
```

```

RewriteCond %{REQUEST_URI} /git-receive-pack$
RewriteRule ^/git/ - [E=AUTHREQUIRED:yes]

<LocationMatch ^/git/>
Order Deny,Allow
Deny from env=AUTHREQUIRED

AuthType Basic
AuthName Git Access
Require group committers
Satisfy Any
...
</LocationMatch>

```

If you do not have `mod_rewrite` available to match against the query string, it is sufficient to just protect `git-receive-pack` itself, like:

```

<LocationMatch ^/git/.*git-receive-pack$>
AuthType Basic
AuthName Git Access
Require group committers
...
</LocationMatch>

```

In this mode, the server will not request authentication until the client actually starts the object negotiation phase of the push, rather than during the initial contact. For this reason, you must also enable the `http.receivepack` config option in any repositories that should accept a push. The default behavior, if `http.receivepack` is not set, is to reject any pushes by unauthenticated users; the initial request will therefore report 403 Forbidden to the client, without even giving an opportunity for authentication.

To require authentication for both reads and writes, use a `Location` directive around the repository, or one of its parent directories:

```

<Location /git/private>
AuthType Basic
AuthName Private Git Access
Require group committers
...
</Location>

```

To serve gitweb at the same url, use a `ScriptAliasMatch` to only those URLs that *git http-backend* can handle, and forward the rest to gitweb:

```

ScriptAliasMatch
(?x) ^/git/(.*/(HEAD |
info/refs |
objects/(info/[^/]+ |
[0-9a-f]{2}/[0-9a-f]{38} |
pack/pack-[0-9a-f]{40}.(pack|idx)) |
git-(upload|receive)-pack))$
/usr/libexec/git-core/git-http-backend/$1

ScriptAlias /git/ /var/www/cgi-bin/gitweb.cgi/

```

To serve multiple repositories from different [git namespaces\(7\)](#) in a single repository:

```

SetEnvIf Request_URI ^/git/([^/]*) GIT_NAMESPACE=$1
ScriptAliasMatch ^/git/[^/]*(.*) /usr/libexec/git-core/git-http-backend/storage.git$1

```

Accelerated static Apache 2.x

Similar to the above, but Apache can be used to return static files that are stored on disk. On many systems this may be more efficient as Apache can ask the kernel to copy the file contents from the file system directly to the network:

```
SetEnv GIT_PROJECT_ROOT /var/www/git

AliasMatch ^/git/(.*objects/[0-9a-f]{2}/[0-9a-f]{38})$ /var/www/git/$1
AliasMatch ^/git/(.*objects/pack/pack-[0-9a-f]{40}.(pack|idx))$ /var/www/git/$1
ScriptAlias /git/ /usr/libexec/git-core/git-http-backend/
```

This can be combined with the gitweb configuration:

```
SetEnv GIT_PROJECT_ROOT /var/www/git

AliasMatch ^/git/(.*objects/[0-9a-f]{2}/[0-9a-f]{38})$ /var/www/git/$1
AliasMatch ^/git/(.*objects/pack/pack-[0-9a-f]{40}.(pack|idx))$ /var/www/git/$1
ScriptAliasMatch
(?x) ^/git/(.*(HEAD |
info/refs |
objects/info/[^/]+ |
git-(upload|receive)-pack))$
/usr/libexec/git-core/git-http-backend/$1
ScriptAlias /git/ /var/www/cgi-bin/gitweb.cgi/
```

#### Lighttpd

Ensure that `mod_cgi`, `mod_alias`, `mod_auth`, `mod_setenv` are loaded, then set `GIT_PROJECT_ROOT` appropriately and redirect all requests to the CGI:

```
alias.url += ( /git => /usr/lib/git-core/git-http-backend )
$http[url] =~ ^/git {
cgi.assign = ( => )
setenv.add-environment = (
GIT_PROJECT_ROOT => /var/www/git,
GIT_HTTP_EXPORT_ALL =>
)
}
```

To enable anonymous read access but authenticated write access:

```
$http[querystring] =~ service=git-receive-pack {
include git-auth.conf
}
$http[url] =~ ^/git/.*/git-receive-pack$ {
include git-auth.conf
}
```

where `git-auth.conf` looks something like:

```
auth.require = (
/ => (
method => basic,
realm => Git Access,
require => valid-user
)
)
# ...and set up auth.backend here
```

To require authentication for both reads and writes:

```
$http[url] =~ ^/git/private {
include git-auth.conf
```

```
}
```

## ENVIRONMENT

*git http-backend* relies upon the CGI environment variables set by the invoking web server, including:

- `PATH_INFO` (if `GIT_PROJECT_ROOT` is set, otherwise `PATH_TRANSLATED`)
- `REMOTE_USER`
- `REMOTE_ADDR`
- `CONTENT_TYPE`
- `QUERY_STRING`
- `REQUEST_METHOD`

The `GIT_HTTP_EXPORT_ALL` environmental variable may be passed to *git-http-backend* to bypass the check for the `git-daemon-export-ok` file in each repository before allowing export of that repository.

The backend process sets `GIT_COMMITTER_NAME` to `REMOTE_USER` and `GIT_COMMITTER_EMAIL` to `{REMOTE_USER}@http.{REMOTE_ADDR}`, ensuring that any reflogs created by *git-receive-pack* contain some identifying information of the remote user who performed the push.

All CGI environment variables are available to each of the hooks invoked by the *git-receive-pack*.

## GIT

Part of the [git\(1\)](#) suite