
zmNinja Documentation

Pliable Pixels

May 31, 2020

Contents

| | | |
|----------|--|-----------|
| 1 | zmNinja FAQ | 1 |
| 1.1 | What is the minimum supported version of ZoneMinder, Android and iOS? | 1 |
| 1.2 | zmNinja Help | 1 |
| 1.3 | Asking for refunds | 1 |
| 1.4 | Things you should own up to | 2 |
| 1.5 | How to report errors | 3 |
| 1.6 | Profile information storage related | 4 |
| 1.7 | Connection/Authentication issues | 4 |
| 1.8 | Live streaming issues | 6 |
| 1.9 | Event images/streaming related | 10 |
| 1.10 | Other misc. issues | 11 |
| 1.11 | What is this Event Server? | 13 |
| 1.12 | Is zmNinja free? | 13 |
| 1.13 | Who are the developers behind this? | 14 |
| 1.14 | The code needs improvement | 14 |
| 1.15 | Is zmNinja an official ZoneMinder product? | 14 |
| 1.16 | I want to donate money | 14 |
| 1.17 | How does zmNinja use my personal data? | 14 |
| 1.18 | I want to donate time/expertise/code | 14 |
| 2 | Validating APIs | 15 |
| 2.1 | Please make sure you go through this before you wonder why zmNinja is not working. | 15 |
| 2.2 | zmNinja API notes: | 16 |
| 3 | Desktop port tips | 19 |
| 3.1 | Scope | 19 |
| 3.2 | Command Line parameters | 19 |
| 3.3 | Multiple instances | 19 |
| 3.4 | Hotkeys | 20 |
| 3.5 | Keyboard bindings | 20 |
| 3.6 | Desktop data storage locations | 21 |
| 4 | Contributing a new language | 23 |
| 4.1 | Adding a new language | 23 |
| 4.2 | Main Language file | 23 |
| 4.3 | Translating Help language file | 24 |
| 4.4 | How to recognize a new language: | 24 |

| | | |
|----------|--|-----------|
| 5 | Building from Source | 25 |
| 5.1 | Install Dependencies - needed for all platforms | 26 |
| 5.2 | Download zmNinja | 26 |
| 5.3 | Configure build configure zmNinja and get all required plugins | 26 |
| 5.4 | Making an iOS build | 27 |
| 5.5 | Making an Android build | 28 |
| 5.6 | Making a desktop build | 28 |
| 5.7 | Troubleshooting | 28 |

1.1 What is the minimum supported version of ZoneMinder, Android and iOS?

You need a minimum of ZM 1.30.4 with APIs working. You may get it to run in previous versions, but I don't support them, so you are on your own.

zmNinja is supported only on IOS 11+ and Android 5.0+

1.2 zmNinja Help

All screens have annotated descriptions now. They are maintained in a google document, so I can easily edit it in future. Click [here](#) for the document.

1.3 Asking for refunds

For iOS: To get a refund, Apple wants you to contact them directly using [this link](#). There used to be a time when I could process a refund myself, but it seems Apple doesn't provide that interface anymore.

For Android: If you're not happy with zmNinja and have bought the app, please [send me an email](#) **with your order id**.

Note that depending on how long ago you made the order, I may not be able to refund. Its not my policy - The app/play stores disable the refund option. For example, I could not refund an app a user purchased 2 years ago.

Also, please read *Things you should own up to*

1.4 Things you should own up to

1.4.1 Read the app description

Both the Apple and Android stores have a clearly visible note on the app description that it requires a working API for ZoneMinder. If you are not willing to ensure the API works, please save yourself and me time. I'm sorry this is the first post, but I get emails from too many entitled/rude folks about APIs not working. Not my problem. Read below. Breathe.

1.4.2 Try before buy

Some users legitimately look around for an option to try before they buy and they are not savvy enough to [download the code](#) and compile (*Building from Source*) for themselves. Fair enough. In that case, [download the Desktop version](#) of zmNinja. It's free and is the same code as mobile. Make sure the desktop version works before you buy the mobile version.

The reason I don't have a "trial mobile version" is that I find the process too complex using in-app-purchases and chose not to do it to make life simpler for me. As a substitute, I do make the full code available for free and offer a desktop binary version free too.

1.4.3 zmNinja doesn't work. Actually, even ZoneMinder web console doesn't work. You should fix this!

Yeah, look - I understand zmNinja won't work if ZoneMinder web console doesn't work. That being said, I really don't have time to help you debug ZoneMinder issues. I only develop the app (zmNinja). If you can't set up ZoneMinder properly, please post your questions in the [ZM forum](#). You'll find more qualified people to help you. I don't develop nor control ZoneMinder. It's a different set of folks. Now, I'll help you, but only after you have spent sufficient time trying your best and provide sufficient logs of what you have done. Also remember, if you buy zmNinja, **I'm happy to refund it anytime - just send me an email.**

In short, I don't have the time to support ZoneMinder install issues - sorry about that

1.4.4 zmNinja doesn't work. Zoneminder works, but I have no idea why APIs don't work. You should fix this!

Sigh. I don't maintain ZoneMinder. I only develop the app. *You* need to make sure ZoneMinder APIs work. ZoneMinder web console doesn't use APIs. Neither does zmView. zmNinja does. It says so in the description of the app in the store. So feel free to fix your APIs, or ask me for a refund. Just don't whine to me, please, if your APIs are broken. I'm *not* going to fix them for you, especially if you act like its not your problem. [I'm perfectly fine if you choose not to use my app](#), which is why I refund, anytime.

1.4.5 I can't compile zmNinja, help me!

I put out the source code, so people who know how to compile are able to do it themselves. I also hope this will encourage folks to PR changes (though this has rarely happened). The problem however, is that dependencies/libraries keep changing. I just don't have the time to help debug. If it happens to me, I'll fix it. If it doesn't I have very limited time to remotely debug your setup issues. I'd much appreciate if you figured it out on your own. Feel free to create an issue after you've tried enough, but I can't guarantee I'll spend a lot of time on source code compile issues.

1.5 How to report errors

- I don't know why something is not working if you don't provide sufficient inputs. Start by creating a [GitHub issue](#) and please fill in the template correctly. If you don't want to post debug logs in the issue, [email](#) them to me and mention in the issue you've emailed them (you can email by going to logs screen and tapping on the envelope button (mobile) or you can download logs (cloud icon, desktop version))
- If zmNinja was working, but it stopped after you upgraded ZoneMinder be sure to mention which version was working and which was not. In this case, please make sure you have validated the APIs work
- Before you create an issue, please make sure you have read the sections on *connection issues* and *streaming issues* and Step 6 of *Validating APIs*
- Its often hard to infer a problem especially when its due to some unique apache/nginx mungling you might have done but haven't told me about it. In such cases, try and give me remote access to your ZM for a day. Configure a limited user with just one monitor. It will save hours of frustration (mostly on my side). Thanks
- I have released the desktop version free - download it [here](#). Its always easier to debug on the desktop version - give it a try. If you hit Shift+Cmd/Ctrl+D it brings up a debug window - it helps debugging
- Always tell me what your ZoneMinder & zmNinja versions are
- If your app suddenly stopped working:
 - Send me DEBUG logs of the app
 - tell me what changed (got to be something. You updated the app, you upgraded ZM)
 - What exactly is not working?

1.5.1 If zmNinja does not start on your device

In this case, I'll need logs.

Case 1: The app does work, but it got stuck and you can't get out

In this case, it is easier to extract logs. If you are using Android, use one of the many free android file explorer applications (google for it and install the one that works for you) and extract the log file (`zmNinjaLog.txt`). A common place for it to reside is in `/data/data/com.pliablepixels.zmninja_pro/files`. If you are using iOS, you can use an app like [IExplorer](#) to connect to your phone. The app is paid for, but the demo license works just fine to extract the logs. In my case, logs were in `Apps->zmNinja->Library->NoCloud->zmNinjaLog.txt`

Case 2: The app doesn't work at all and it gets stuck on the splash screen

There are some odd cases, where zmNinja does not start (or gets stuck in the splash screen) on specific devices. It is very hard for me to know why it fails on certain devices, but I can try. Here is what you need to do:

You have to send me system logs of the device. To get system logs:

- You will have to install `adb` (Android Debug Bridge). [This XDA post](#) describes the process of downloading and installing the tools.
- Once ADB is installed, connect the phone to the browser (make sure you have allowed debugging on the phone menu - it should ask) and type in `adb logcat >result.txt` and try to start the app. A lot of logs will be generated. Please [email them to me](#). Note that to just filter out zmNinja logs, you can use `adb logcat | grep "filelogger.min.js"`.

- For iOS, use the method described in Case 1 above.

1.6 Profile information storage related

1.6.1 zmNinja is not saving my information. It keeps asking me to re-enter all my data

I've seen this happen in two cases:

- You are running out of space. Clean up some space and try again
- On specific Android devices, typically running Android OS less than 6.0, some (2-3) users have reported this issue. I still don't have a good answer. Please update to the latest app version and send me debug logs, please

1.6.2 I updated my zmNinja app and all my server settings were cleared. Why?

Sorry. I've made several releases where due to programming errors, settings got wiped out. However, starting v1.3.021 for Android and v1.3.025 for Android, I've introduced the facility to sync with the cloud (Google Drive/iCloud). This is the settings option. It is enabled by default. This means if you uninstall the app and install again, the settings should get restored. Note that both in iOS and Android, backup schedule is managed by the OS. You can force a backup going to settings and forcing a backup, or wait till the OS backups (typically a few hours/phone plugged in/not being used)

Do also note that 1.3.027 and beyond use a new WebView called WKWebView (because iOS deprecated the old webview). If you disabled iCloud you will have to re-enter your settings again (only once). This may not affect Android, but I don't know for sure.

1.7 Connection/Authentication issues

1.7.1 General tips

Important: Make sure you have the following settings in ZM:

- AUTH_RELAY is set to hashed
- A valid AUTH_HASH_SECRET is provided (not empty)
- AUTH_HASH_IPS is disabled
- OPT_USE_APIS is enabled
- If you are using any version lower than ZM 1.34, OPT_USE_GOOG_RECAPTCHA is disabled
- If you are NOT using authentication at all in ZM, that is OPT_USE_AUTH is disabled, then make sure you also disable authentication in zmNinja, otherwise it will keep waiting for auth keys.
- I don't quite know why, but on some devices, connection issues are caused because ZoneMinder's CSRF code causes issues. See [this](#) thread, for example. In this case, try turning off CSRF checks by going to ZM->Options->System and disable "Enable CSRF magic". You will then have to delete zmNinja's API cache (Menu->Clear API Cache) and restart the app.

-
- Disable server redirects like 302 and then try if using the mobile app

- To make sure there are no connection issues, launch your **phone browser** and try to reach ZoneMinder. If that doesn't work, neither with zmNinja. Many users try to access ZoneMinder from a desktop browser and/or on the same server it is running and forget the phone is a different device!
- Some phones need the SSL certificate installed in the device
- Specific SSL settings can cause issues with Android or iOS
- Don't use funky/special characters in passwords - try changing it to a complex password without funky characters and try
- Use the wizard - I've seen many examples of typos when the user thinks they don't have a typo
- If you are using basic authentication, make sure your credentials are correct. A good way to test is to first disable basic auth and enable it after you are sure things work without basic auth.
- Please note zmNinja does NOT support Digest authentication. So please don't put in digest auth info when zmNinja asks for basic authentication
- Look at your ZM logs and zmNinja logs - they help isolate the problem

1.7.2 Server Redirects

If the Wizard fails to connect in the mobile app but works in the desktop app, it may be that your server is sending redirects. Unfortunately, the current mobile HTTP stack doesn't handle cookies with redirects well. Till this bug is fixed by the plugin author Wizard won't work. Note that if you are running ZM 1.32 or above, you can directly enter your settings without using the wizard and it will work because it will try and use the new ZM 1.32 `login.json` API first.

1.7.3 Self signed certs

A lot of people use self-signed certs. I'd strongly recommend you use [LetsEncrypt](#) if you can. It's free. That being said zmNinja does support self signed certs. Make sure "Enable Strict SSL" is off in Developer settings. You will need to restart the app.

1.7.4 SSL settings

If you are getting `SSL protocol/handshake errors` in your logs, you very likely have specific ssl settings enabled server side that your device network stack does not support. Note that just because it works with the device browser does not mean it will work with zmNinja as zmNinja does not use the browser HTTP implementation in mobile devices.

One user reported that a setting of `ssl_ecdh_curve secp384r1` in his nginx config was resulting in zmNinja Android not being able to connect to the server. Changing it to `ssl_ecdh_curve secp521r1:secp384r1:prime256v1`; worked for him.

I'd strongly recommend you remove all special ssl settings except the certificate and key file locations, make it work and then add the settings back one by one and see what works/does not work.

1.7.5 Everything works when I use LAN IP, but I get "not authenticated" when I use WAN IP

This is likely happening if you use self signed SSL certs. If you are using self signed certificated, you should make sure the "common name" matches the hostname (or public IP) of the server you are installing ZM in. If not, zmNinja's SSL handshake will fail.

If you have used ‘make-ssl-cert’ or a similar tool that automatically generates the cert for you, its very likely you have certificate that uses the ‘unix hostname’ of your server. That will not work.

Assuming you are using apache and have SSL enabled, here is how to regenerate the certs (ubuntu specific, may need to tweak it for your distro)

This will create a self-signed certificate/key pair and store it in /etc/apache2/ssl (you may have to create that directory, or store it elsewhere)

```
sudo openssl req -x509 -nodes -days 365 -newkey rsa:2048 -keyout /etc/apache2/ssl/  
↳zoneminder.key -out /etc/apache2/ssl/zoneminder.crt
```

Next up, edit your apache ssl config (example /etc/apache2/sites-available/default-ssl.conf) And add/modify the following lines:

```
SSLCertificateFile /etc/apache2/ssl/zoneminder.crt  
SSLCertificateKeyFile /etc/apache2/ssl/zoneminder.key
```

restart apache

```
sudo service apache2 restart
```

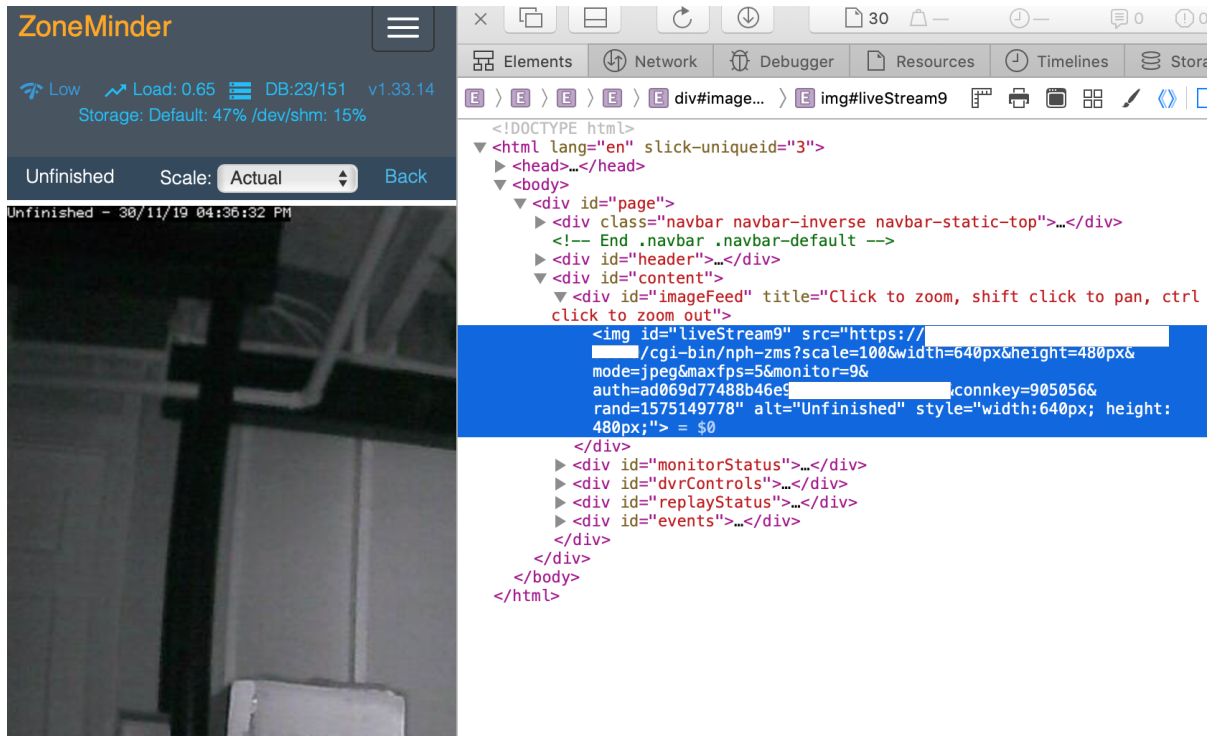
1.8 Live streaming issues

1.8.1 Summary of Everything works, but I can't see live feed

Please be diligent in reviewing this list. You'd be surprised how many times I've had users tell me 'they have checked this list' only to find out later they skimmed details.

- Please enable `AUTH_HASH_LOGINS` as well as set `AUTH_RELAY` to “hashed”
- If you are NOT using authentication in ZM, please turn OFF authentication in zmNinja too. If you don't, zmNinja will keep waiting for an authentication token
- Your `cgi-bin` setting in zmNinja is incorrect. Please run the wizard. There are times when the wizard can fail. In those cases, open up ZM web console, go to view the monitor and do an “Inspect Source” in the browser. That will show you the `cgi-bin` link that you can use in zmNinja. **Special Note:** Many people miss looking closely at `cgi-bin`. Your browser may show `/cgi-bin/` while your zmNinja may be set to `<domain>/zm/cgi-bin/`. So the solution here is to remove `/zm` from zmNinja.

For example:



In the above case my zmNinja cgi-bin setting is `https://myserver:myport/zm/cgi-bin`

- If you are using multi-server, please make sure the user account has “System View” permissions. This is needed to get access to the server API. If zmNinja is unable to read the API, it will use the default portal URL, which may fail.
- You think your APIs are working, but they are really not. If you open a browser and type in `https://yourserver/zm/api/monitors.json` and you see some text on top followed by monitor data, your APIs are *not* working. You need to search the forums and figure out how to get rid of that text.
- Your ZoneMinder live view from the web console doesn’t work either. If this is the case, fix ZoneMinder first. Before you say “web console works fine”, make sure you are running it from a different computer from where ZM is running.
- The phone/computer running zmNinja does not have access to your ZM server. For example, many people test the web console on their LAN but test zmNinja on a WAN connection
- Always try with the [free desktop version](#) first. Enable debug view by hitting Ctrl/Cmd+Shift+D and you can see debug logs in the console view. I can’t emphasize enough how useful this is.
- You are using Basic Authentication. See [here](#)
- You have ‘multi-server’ configuration enabled and you have done it wrong. Go to ZM Web Console->Options->Servers - if you see any entries there and you don’t know what multi-server is, or you don’t use it, please disable multi-server
- When trying to view live images, look at your *webserver* error logs - example Apache’s `error.log` - see any `image/jpg` errors? That means you are missing libraries
- You have set up a multi-server install of ZM without knowing you did See [here](#)
- Look at zmNinja, ZoneMinder and web server error logs at the time of error - one of them should give more clues. Please send me *all* the logs if you ask for help
- Read the set of notes below

1.8.2 General note

To debug streaming notes, always try with the free desktop version first. When trying to stream simultaneously look at the debug logs of zmNinja (Ctrl/Cmd+Alt+D in desktop build, console and/or network tab) and your webserver error logs.

1.8.3 I can't see stream: And I can't see streams in ZoneMinder webconsole either

Check if streaming works in the web interface. If it does not work, zmNinja won't work either. Fix ZM first

1.8.4 I can't see streams: I use basic auth

Starting Chrome v59, the browser changed basic credential behavior. The issue report is [here](#). Here is the core issue: zmNinja constructs URLs as `http://user:password@server` when you have basic auth (and starting v1.3 uses the `Authorization` header). However, since images are rendered using `` there is no option but to put in a `user:password` in the URL. Chrome allows this format for direct requests (such as API calls) but will strip out the `user:password` part for *embedded* requests (like `` tags inside a page). So what happens is your APIs work, but you won't see images. There is a reason why Chrome does this - its bad to pass on a `user:password` in a URL as its clear text (even if you are on HTTPS, as its in the URL). As I said earlier, The *right* way to do this is to replace the `user:pass` with an `Authorization` header but there is no way to do that with images that are rendered with `` (There are several plugins that attempt to do this, but don't work with streaming MJPEG images). Bottom line, this is a problem for apps like zmNinja and it affects you.

How this affects you: - If you are using HTTP Basic Authentication then your images won't show.

Possible Workarounds: - Configure your web server to skip basic authentication for `nph-zms` URLs - If you are using a ReverseProxy, you can insert the authorization header inside the apache proxy - Disable HTTP Basic auth for now - Downgrade Chrome (but this may no longer be an option, Chrome will not revert to the old behavior any more)

Skipping auth for `nph-zms` URLs

Here is what I've used that works with basic-auth. This requires a basic auth portal login and once logged in allows skipping of image URLs (the idea comes from [Adam Outler](#) - he uses a different approach using reverse proxies, which I link to later)

```
# this configuration assumes your server portal is server:port/zm
# and cgi-path is /zm/cgi-bin. Please change it to your specific environment
# Also requires Apache 2.4 or above

<Location />
    SetEnvIf Request_URI ^/zm/cgi-bin/ noauth=1
    SetEnvIf Request_URI ^/zm/index.php noauth=1
    AuthType Basic
    AuthName "Auth Required"
    AuthUserFile "/etc/apache2/.htpasswd"
    <RequireAny>
        Require valid-user
        Require env noauth
    </RequireAny>
</Location>
```

Authorization with a ReverseProxy

Simple starter

STEP 1: Enable “Append basic auth tokens in images” option in zmNinja->Developer Settings and save. What this does is that image URLs will append a “basicauth” token parameter with your basic authentication credentials. This token can then be parsed by Apache and inserted as a valid Authorization header. Don’t enable this option if you are not using HTTPS because the request-URI will be transmitted without encryption and it will contain your basic auth credentials, encoded in base64, which is trivial to decode.

STEP 2 (Apache): Use mod_rewrite and mod_header to convert the token into an authorization in your Apache config. Add this to the relevant section (VirtualHost or others)

```
RewriteEngine on
RewriteCond %{QUERY_STRING} (?:^|&)basicauth=([^&]+)
RewriteRule (.*) - [E=QS_TOKEN:%1]
RequestHeader set Authorization "Basic %{QS_TOKEN}e" env=QS_TOKEN
```

STEP 2 (Nginx): Thanks to user [@ysammy](#)

```
location /zm/cgi-bin/nph-zms {
    proxy_pass http://<IP>:<PORT>/zm/cgi-bin/nph-zms;
    proxy_set_header Authorization "Basic $arg_basicauth";
}
```

A more complete and more secure option

User [Adam Outler](#) has contributed the following process: see [HERE](#). Adam also has this to say about why proxies should be recommended for HTTPS enabled ZoneMinder instances:

A proxy server should be on the list of recommendations for Zoneminder. HTTPS requires processing to encrypt and decrypt. This takes processor cycles away from Zoneminder’s recording. Since HTTPS is now basically a requirement, there should be a page dedicated to proxy, https, auth, and their nuances. I just picked up 2-4K cameras and processing suddenly became an issue :).

1.8.5 I can’t see streams: Multi-server is enabled

The chances are very high that you have enabled ZoneMinder’s [Multi-Server](#) option and you entered something like `localhost` in server settings. **DON’T. You can’t enter localhost.** If you are not using multi-server, remove any server settings. If you are using multi-server, you need to put in a valid server IP or hostname, not `localhost`. BTW, if you did put in `localhost` you will note that your ZM web console also won’t work if you try to launch your browser on a different machine from where ZM is running.

1.8.6 I can’t see streams: you have cgi-bin issues

- Try to use the wizard. If it fails,
- Go to zmNinja settings and fix your cgi-bin path. the automatic path that is filled in won’t work. Here is a hint, go to zoneminder->options->paths and check the value of the cgi-bin path - your zmNinja path will be “base path of your server” + cgi-bin path.

1.8.7 I can't see some streams (some work): you have multi-server access issues

If you are in a situation where some live streams work and some don't, it is possible you are using multi-server. In this case, you need to make sure the user account has "view" privileges for "System". zmNinja uses the `/server.json` API to get multi-server data so it can figure out which IP:port is used for streaming for that server. If it fails, it will fallback to the portal URL which will likely be wrong.

1.8.8 zmNinja montage does not seem smooth - feeds seem a little delayed compared to ZM console

zmNinja does not use `nph-zms` to display live feeds in montage. This is because Chrome only allows a maximum of 6 connections per (sub)domain which means you can't have more than 6 active TCP connections to a single domain at the same time. This also means that you can't display more than 6 monitors together. To avoid this, I use the zoneminder "snapshot" feature that displays a still from the monitor and then refresh it every X seconds (by default X=2 unless you switch to low bandwidth mode. You can change X in developer settings)

That being said, starting v1.3.0 of zmNinja onwards, I now support multi-port (available in ZM 1.32 onwards) that lets you stream as many monitors as you need. Read [this](#) post for more details.

1.9 Event images/streaming related

1.9.1 General note

To debug streaming notes, always try with the free desktop version first. When trying to stream simultaneously look at the debug logs of zmNinja (`Ctrl/Cmd+Alt+D` in desktop build, console and/or network tab) and your webserver error logs.

Also, Starting ZM 1.32 and beyond, please enable `AUTH_HASH_LOGINS` as well as set `AUTH_RELAY` to "hashed"

1.9.2 Event stream viewing does not work

- Look at apache error logs - it often gives you hints

1.9.3 Video Not Playable

- Mobile devices have more restrictions to video playback than desktops. Make sure you first check if the video is playable in Chrome using the same phone you are using zmNinja on
- There could be other reasons due to which the video is not playable:
- There is an encoding issue in the video generated
- The video resolution is too big (see [this thread](#))
- In general, to get to the root of what is going on, you'll need device logs using ADB (see [this](#))

1.9.4 Event thumbnails/images don't show

Starting zmNinja 1.3.26 and beyond, if you are using `OPT_AUTH` you need to enable `AUTH_HASH_LOGINS` or you won't be able to see image snapshots and thumbnails. Only applicable for mobiles.

1.9.5 When viewing individual frames, some event frames show, but some don't

This can happen if you are using Video Storage (Passthru or X264 Encode) and have disabled frame (JPEG) storage completely. What happens is ZoneMinder uses `ffmpeg` to extract frames from timestamps and sometimes it is unable to extract a frame for a specific timestamp, resulting in this issue. If you see HTTP 404 messages for some frames, but the video plays fine, then this is why.

1.9.6 zmNinja montage screen shows all my monitors, but in Event Montage, I only see 5?

You are likely using Chrome (Android or desktop version). Chrome allows a total of 6 simultaneous connections to a domain/sub-domain. ZoneMinder uses a long running TCP stream for each monitor display (keeps sending jpeg images). This means you can only display 6 streams at a time in Chrome. I work around this problem by *not* asking for live streams in montages - I ask for 'snapshots' and keep refreshing snapshots every 2 seconds. This makes montage display non-realtime, but scales to as many monitors you have. In Event Montage however, I am using `zms` to display long running streams - trying to do snapshots in event montage is a lot of work and I need to keep track of when the event ends, move to next image etc. I limit this to 5 because I need 1 for control messages.

1.10 Other misc. issues

1.10.1 APIs seem to work in the browser but zmNinja says APIs don't work

There could be several reasons, but this one is common: look in the logs. If you see something like:

```
DEBUG **EXCEPTION**SyntaxError: Unexpected token < in JSON at position 0 caused by_
↪undefined.
```

Then that means the ZM API layer is throwing warning messages which you don't see in your browser, but will show up if you do an inspect source. The solution is to edit `/usr/share/zoneminder/www/api/app/Config/core.php` (or whichever path your ZM is installed in) and around line 34-ish, you'll see something like `Configure::write('debug', 2)`. Change it to `Configure::write('debug', 0)`

1.10.2 I suddenly see an error message saying I need to enable ZM_AUTH_HASH_LOGINS. This wasn't there before

Yes. Starting 1.3.027 onwards, due to a new UI web rendering engine that enforces CORS, I've had to change my strategy on how network calls are made. Briefly, on mobile devices, I now use a native HTTP stack and not the browser HTTP stack. However, images are rendered using the browser HTTP stack which causes this message. In short, you need to enable it, and restart ZM.

1.10.3 zmNinja 1.2.515 and beyond says "Need API Upgrade" for the 24hr review feature. What does that mean?

You need to update an API file in Zoneminder server. ZoneMinder folks haven't yet (as of Apr 2018) made a release with that API change. To do it manually, simply replace your `EventsController.php` (typically in `/usr/share/zoneminder/www/api/app/Controller`) with [this one](#).

1.10.4 I upgraded ZoneMinder to 1.30.2 or above and zmNinja stopped working!

ZoneMinder changed API packaging with ZM 1.30.2 and above. You will have to read your distro notes on how to **properly** update. Read [this](#) thread. Before you think zmNinja is the problem, make sure your APIs are working (see [Validating APIs](#))

Summary of reasons why zmNinja might have stopped working: - You did not check if your APIs are working after the upgrade - You did not upgrade properly (just updating the ZM package without following distro instructions with ZM is not sufficient) - You are missing some key CakePHP modules, likely `php5-apc` which would have been installed if you read all the package instructions. You can install it manually - You might need to restart your system after upgrading (properly)

1.10.5 I am running ZM on a custom port. zmNinja is unable to reach my ZoneMinder server but I tried on a regular browser (Firefox/Opera/IE) and it I can reach it

zmNinja on Android and Desktops uses an embedded chrome browser. Chrome marks certain ports as “unsafe” and won’t allow connections to go out. The list of ports to avoid are [here](#)

1.10.6 The Montage screen is causing issues with my ZM server - I get connection timeout issues or MySQL connection problems

- zmNinja uses a different approach to display montage than ZoneMinder. In zmNinja montage screen, I display a snapshot of each monitor and refresh it every few seconds. This results in many short TCP connections constantly being opened and closed. The reason I have to do this is Chrome only allows 6 connections to a domain, which means if I don’t keep terminating TCP connections, I won’t be able to show more than 6 monitors. Each time I open a new TCP connection for a snapshot, the ZM backend invokes MySQL to authenticate the request. You will need to increase MySQL `max_connections` in `my.cnf` if you are facing `time_wait/timeout` issues.

1.10.7 The app works great - except it doesn’t work on ONE Android phone - works in others!

zmNinja uses an embedded chrome browser in its app. If you have safe browsing enabled, it may affect zmNinja. However, if you are facing this problem, its likely you can’t access ZM from a mobile web browser either. The problem that might be occurring is that zmNinja is trying to reach your ZM server and your settings prohibit it from reaching ZM, so it fails. See [this](#) discussion

1.10.8 APIs are not working ! ZM console works fine.

[Validating APIs](#)

1.10.9 I’m using mocord/record and I don’t see events without alarms

Tap on the “...” menu option and toggle “Show all events”. By default, it shows events with at least one alarm frame

1.10.10 Taking snapshots or downloading videos don't work in Android

If you are unable to download/save, look at your logs. If you see something like "exception": "java.security.cert.CertPathValidatorException: Trust anchor for certification path not found.", chances are you are using self-signed certs. You need to install the certificate on your phone. Installing is as easy as emailing yourself the ".crt" file and tapping on it from your device to install it. In general, both Apple and Google have been incrementally tightening rules for self signed certificates - they generally discourage usage of such certs and over time both Chrome (Android) and WkWebView (iOS) have added new restrictions/checks which affects usage.

1.10.11 Pan/Tilt/Zoom doesn't work

Tilt/Zoom/Presets support has not been added. But for this to work, PTZ needs to work in ZM first. Once it works in ZM, try it in ZMNinja. Also note that you may need to disable CSRF in your Options in ZoneMinder - it seems to cause all sorts of issues.

1.11 What is this Event Server?

The Event Server is a contribution I made to ZoneMinder that adds a daemon to the existing list. It listens for new events using shared memory (aka very efficient) and then sends notifications of events to listeners (you can write your own app that listen as well as use zmNinja). This is a chapter on its own, and I have a dedicated page/project for this [here](#). I'd encourage you to install and use it - its very nice.

1.11.1 It looks like you allow me to modify the frequency of push notifications. Very cool - will it send me all events that I missed if I make the frequency of a monitor event push to say, 600 seconds?

Nope. It only sends the latest events. What it does is before sending push notifications, it checks if the last time a push was sent for this monitor is < the time you specified. If it is, it does not send. That's all.

1.11.2 When I switch languages, date/time inputs don't follow my locale in zmNinja Desktop

The only screen I am aware of where there is a date/time input is `Events->Filter Events`. This happens because the desktop version uses an embedded chromium version which seems to default to `en-us`. To work around this, you can start the desktop app with a `--lang='<locale code>'` option. Example `--lang='ru'`. Note that you will have to do this each time and is completely related to any language you may choose in zmNinja. The language in zmNinja is only used to translate text strings. Nothing else. For an extended discussion see [this issue](#).

1.12 Is zmNinja free?

The source code is free, grab it, compile it, use it. The desktop ports are free as of today. I may charge for it some day. The mobile ports are in Appstore/Playstore for a fee.

1.13 Who are the developers behind this?

Me.

1.14 The code needs improvement

You are being nice. I know the code is terrible. I'm not a coder by profession. This was my first project to learn how to write a mobile app. So the app evolved from no knowledge to some knowledge. It comprises of terrible to passable to reasonable code. There is a reason why my [profile](#) says what it says. But hey, if you can improve it, please PR!

1.15 Is zmNinja an official ZoneMinder product?

No. But the ZM developers are amazing people who have been very helpful.

1.16 I want to donate money

You could either [donate to Zoneminder](#) or [donate to zmNinja](#). Donations to ZoneMinder don't contribute to zmNinja, but the ZoneMinder devs will benefit from it, which is fine too.

1.17 How does zmNinja use my personal data?

Please read [this](#)

1.18 I want to donate time/expertise/code

Great. Make sure you read the [license](#) , read the [contributing guidelines](#) and if it works for you, happy to see what you'd like to do.

2.1 Please make sure you go through this before you wonder why zmNinja is not working.

Assumption: Your ZM server is accessible at `http://server/zm` -> replace this with your actual path

Important: Make sure you have the following settings in ZM:

- AUTH_RELAY is set to hashed
 - A valid AUTH_HASH_SECRET is provided (not empty)
 - AUTH_HASH_IPS is disabled
 - OPT_USE_APIS is enabled
 - If you are using any version lower than ZM 1.34, OPT_USE_GOOG_RECAPTCHA is disabled
 - If you are NOT using authentication at all in ZM, that is OPT_USE_AUTH is disabled, then make sure you also disable authentication in zmNinja, otherwise it will keep waiting for auth keys.
-

2.1.1 Make sure ZM APIs are working:

Note 1: nginx users, if you are facing API issues, please see if [this page](#) helps)

Note 2: It is **important** that you run the API tests from the device you plan to use zmNinja with. Very often, I've seen folks doing API tests on the same server ZM is running on and then face issues (mostly due to network connectivity) when using zmNinja because it is running on a different device. So, I'd recommend you open a chrome browser on the device you plan to use zmNinja on (desktop or mobile) and then run these tests.

- Step 1: Open up a browser
- Step 2: Log into ZM

- Step 3: Open another tab in the same browser (**IMPORTANT**: Has to be from the same browser you logged into ZM)
- Step 4: Type in `http://server/zm/api/host/getVersion.json` → you should see a response like:

```
{
  "version": "1.30.0",
  "apiversion": "1.0"
}
```

version/apiversion may be different. If you don't see such a response, your APIs are **not** working

- Step 5: Make sure you can see monitors and events:

Type in `http://server/zm/api/monitors.json` → you should see a response like:

```
{
  "monitors": [
    {
      "Monitor": {
        /*lots of additional details*/
      },
      /*more monitor objects if you have more than one*/
    }
  ]
}
```

- Step 6: (If you find your APIs show ok, but zmNinja has issues)
 - Open a browser, log into ZM
 - Open a new tab, enter `http://server/zm/api/host/getVersion.json`
 - Now, right click and do a `View Source` in your browser (different browsers may have different names for it). This brings up a full source code view of the page. Do you **ONLY** see the JSON output or do you see gobs of HTML on top like `<pre class=` and lots of cake related messages? If you do, you need to fix it.

if you find the page empty, your APIs/permissions have a problem. Please post in the ZM forums (**please DON'T** contact me first as its not a zmNinja bug)

Type in `http://server/zm/api/events.json` → you should see a response like: (this list may be an empty set if you don't have events but you will still see the `{"events": []}` text - if you find the page empty, your APIs have a problem. Please post in the ZM forums (please **DON'T** contact me first, as its not a zmNinja bug)

```
{"events": [{"Event": { /* many more details */ } } ] }
```

Top reasons why monitors and events API returns blank while getVersion works:

- You don't have monitor/event view permissions allocated
- You don't have system view permissions (zmNinja needs this to access `/servers.json` API)
- You have an invalid camera definition (happens sometimes when you remove and re-add cameras)

2.2 zmNinja API notes:

- Please make sure the user credentials you use has:
 - view or edit access to monitors
 - view or edit access to streams

- view or edit access to system
- If you are accessing zmNinja remotely, make sure you first access ZM remotely from your desktop browser, ensure it works and then use the same DNS/IP for zmNinja
- If you are sure everything looks good, but zmNinja is causing issues, also try and clear API cache (menu->clear API cache)

3.1 Scope

This page is dedicated to the Desktop version of zmNinja and tips & tricks

3.2 Command Line parameters

The following command line parameters are supported:

```
--path=<dir> - starts zmNinja and stores user profile information to that directory.
              This allows you to switch between different user settings.

--fs          - starts zmNinja in full screen mode

--lang        - specifies a language profile that will be used to display input
              dates etc. Just switching a "language" in zmNinja does not affect
↳ browser     default language. I currently don't know how to wire this to zmNinja
↳ 's language as this is electron stuff so you'll have to pass it as command line.
```

3.3 Multiple instances

It is actually possible to launch multiple instances of the same desktop app from command line. This allows you to watch different servers at the same time as well as use multiple monitors. I strongly recommend you use unique `--path` arguments with each instance because otherwise one instance will conflict with another.

So lets say you want to run 2 copies of zmNinja at the same time:

```
mkdir -p /path/to/instance1
mkdir -p /path/to/instance2
```

And then:

```
# for linux
zmninjapro-1.3.22-x86_64.AppImage --path=/path/to/instance1
zmninjapro-1.3.22-x86_64.AppImage --path=/path/to/instance2

#for OSX. Note the -n is critical to launch a new instance
open -n ./zmninjapro.app --args --path=/path/to/instance1 &
open -n ./zmninjapro.app --args --path=/path/to/instance2 &
```

3.4 Hotkeys

The following hotkeys are supported while the app is running:

```
[Cmd/Ctrl] + L      -> Lock app (if pin code is being used)
[Cmd/Ctrl] + Shift + F -> toggle between full screen and windowed mode
[Cmd/Ctrl] + Shift + D -> opens the debug window.
                        Super useful to see what is going on,
                        especially when things don't work
```

3.5 Keyboard bindings

Live Monitor View (single view, not montage):

```
Arrow Left -> move to previous monitor
Arrow Right -> move to next monitor
Esc        -> remove live view
P          -> toggle PTZ
```

PTZ Operations to move (PTZ should be toggled to on first):

```
Q W E -> UpLeft, Up, UpRight
A S D -> Left, Home, Right
Z X C -> DownLeft, Down, DownRight
```

Event Footage View:

```
Arrow Left -> move to previous event
Arrow Right -> move to next event
Enter      -> play the event if in snapshot mode (shows red play button)
Esc       -> remove event footage view
```

Timeline:

```
Arrow Up   -> Zoom In
Arrow Down -> Zoom Out
Arrow Left -> Pan Left
Arrow Right -> Pan Right
Esc       -> Fit timeline back to view (reset)
```

(continues on next page)

(continued from previous page)

| | |
|---|-----------------|
| A | -> Previous Day |
| D | -> Next Day |

3.6 Desktop data storage locations

User data is typically stored in the following locations:

- ~/Library/Application Support/zmNinjaDesktop for OSX
- %APPDATA%/zmNinjaDesktop for Windows
- \$XDG_CONFIG_HOME/zmNinjaDesktop or ~/.config/zmNinjaDesktop for Linux

To completely remove the app, you may want to delete both the app bundle/binary and these locations as applicable on your system

Contributing a new language

If you are familiar with using git, I'd prefer if you follow the Pull Request process [here](#).

4.1 Adding a new language

- Languages translations are available [here](#)
- To contribute a new language, add a new `locale-xx.json` (where `xx` is your language code).
- Ideally, you should also provide a language translation for the `zmNinja` help file inside [lang/help](#)

The best way is to simply look at an existing language translation and follow the same model for yours. If any language translation keywords are missed, it will fallback to English.

4.2 Main Language file

- Make sure there is no comma after the last element
- Comments are not allowed
- Make sure you don't add ellipsis "... " anywhere, they are added to messages in code when needed
- After you complete the translation file, do the following:

(replace `-it` with the language you are working on)

```
python ./checklang.py -f locale-it.json -b
```

This validates your JSON file, makes sure all keys are in sync with `-en` and if valid, creates `pretty-locale-it.json`. If you are sure it looks good,

```
python ./checklang.py -f locale-it.json -b -o
```

This validates your JSON file, makes sure all keys are in sync with `-en` and if valid, **OVERWRITES** your local file with a pretty formatted version, which is what you should PR

4.3 Translating Help language file

- Located inside lang/help
- Please be careful not to mess up the html tags, please only focus on text translation

4.4 How to recognize a new language:

(This is only for zmNinja developers. Not relevant for language translators)

- Modify languages array in NVR.js (look for `var languages`)
- Register language glob code in app.js - make sure its added to array list and mapping (look for `registerAvailableLanguageKeys`)

Building from Source

NOTE If you want to run it on your desktop, you can directly download desktop binaries [here](#) and if you want it for Android/iOS you can get from the play/appstore. This is only for those who *want* to run from source.

Note: If you are building from source, you are mostly on your own. I have very limited time to debug environment differences/package differences between what I have and what you may have. I'm not a nodejs/grunt etc expert and stuff seems to change all the time.

Version note: The code is compiled using the following versions of tools. **If you are using newer versions of ionic the code may not compile - I don't have the time to upgrade yet. Finally, if you choose to go the source route, I expect you to spend a lot of time yourself debugging first before you create an issue. Even if you do create an issue, I have very limited bandwidth to debug source compilation issues for you.** Thanks.

Output of `ionic info`

```
Ionic:

  ionic (Ionic CLI) : 4.5.0 (/usr/local/lib/node_modules/ionic)
  Ionic Framework  : ionic1 1.3.5
  @ionic/v1-toolkit : 1.0.19

Cordova:

  cordova (Cordova CLI) : 8.1.2 (cordova-lib@8.1.1)
  Cordova Platforms     : android 7.1.4, ios 5.0.0
  Cordova Plugins       : cordova-plugin-ionic-keyboard 2.1.3, cordova-plugin-ionic-
↳webview 2.2.0,
  (and 30 other plugins)

System:

  Android SDK Tools : 26.1.1 (/Users/pp/Library/Android/sdk/)
  ios-deploy        : 2.0.0
  ios-sim           : 7.0.0
  NodeJS            : v8.11.2 (/usr/local/bin/node)
  npm               : 5.6.0
```

(continues on next page)

(continued from previous page)

```
OS           : macOS Mojave
Xcode        : Xcode 10.1 Build version 10B61
```

5.1 Install Dependencies - needed for all platforms

5.1.1 Install NodeJS

Install NodeJS from [here](#). As of Dec 2018, I'm using Node v8.11.2. I use `n` to manage node versions and switch between them.

5.1.2 Install cordova and ionic

```
npm install -g cordova@8.1.2 ionic
npm install @ionic/v1-toolkit --save-dev
```

Don't install later versions of cordova. I found compilation issues with cordova 9.

And some more:

```
npm install -g gulp
npm install node-sass
npm install async
npm install jshint
```

(Note you may need to do `sudo` depending on how your system is set up. It's **better you don't**, but if you must, well, you must)

You also need to install cocoapods (some of the plugins depend on them):

```
sudo gem install cocoapods
```

If you don't have `gem` that means you need to install ruby. Installing ruby installs gobs of nonsense. Too bad.

5.2 Download zmNinja

```
git clone --depth 1 https://github.com/pliablepixels/zmNinja.git
```

5.3 Configure build configure zmNinja and get all required plugins

```
cd zmNinja
npm install
ionic cordova platform add android (or ios)
cordova prepare
```

5.4 Making an iOS build

Note: You need to be doing this on a mac, with Xcode and the SDK installed. You also need to have your developer certificates/etc. (I am not going to detail this out - there are many internet resources on this)

5.4.1 (Harder) If you need picture notification support in push

As of Mar 2019, cordova-ios does not support multiple targets, nor does it support automatic building of notification extensions. So there is manual work to be done:

- Open up `platforms/ios/zmNinja.xcworkspace` in XCode
- Go to `File->Workspace Settings` and select `Legacy Build System`
- Go to `Target->zmNinja->Build Settings` and set “Swift Language Version” to `Swift 4`
- Go to `File->New->Target->Notification Service Extension`, select `Objective C`
- In the “Product Name” put in `zmNinjaNotification` (your `BundleID` should now read `com.pliablepixels.zmninja-pro.zmNinjaNotification`)
- Say “Yes” to “Activate `zmNinjaNotification` scheme?” popup
- Now go to `zmNinjaNotification` target and make version and build same as `zmNinja`
- Now in XCode Targets, select `zmNinjaNotification`, and make sure you select a Team and make sure `Deployment Target` is 11 or above
- Change `Deployment target` to 11 or above (same as `zmNinja` target)
- `cp etc/NotificationService.m platforms/ios/zmNinjaNotification/`
- `cd platforms/ios/`
- `pod install`

You can now do `build_ios.sh`. However, after you build, you will have to go back to XCode after the build to make the following changes:

1. Sync notification version with app version
2. Change notification bundle ID back to `com.pliablepixels.zmninja-pro.zmNinjaNotification` (cordova removes the last word)

5.4.2 (Easier) If you don’t need picture notification support in push

There are a few steps you need to take to get the iOS build working for the first time. If you don’t do this, you may get a compilation error that says `ld: library not found for -lGoogleToolboxForMac`

```
cd platforms/ios
pod install
```

This does not produce an iOS ready ipa. What you need to do then is to open `platforms/ios/zmNinja.xcworkspace` in Xcode, and run.

To compile a debug build for iOS from command line, from `zmNinja` project root: First edit `./build-auto.json` and change the `developmentTeam` id to yours. Then:

```
./build_ios.sh
```

To compile using XCode, open `platforms/ios/zmNinja.xcworkspace` - You need to use “Legacy Build” system if you are on XCode 10+. You can change this in XCode File->Workspace Settings and then build usual. Also switch to the Capabilities tab and make sure “Remote Notifications” is on in Background Modes and in iCloud section, Key-Value storage is enabled. If you see a “Fix issue” there, clicking on that button resolves everything.

5.5 Making an Android build

Note that you need the [Android SDK](#) installed and configured properly for this to work.

From the zmNinja project root:

```
./build_android.sh --debug (or --release)
```

If this complains of missing SDKs, you need to install the SDK version it requests This should produce an APK file. To install it on your phone over adb, you’d do something like

```
adb install -r debug_files/android-debug.apk #if you did --debug
or,
adb install -r release_files/zmNinja.apk #if you did --release
```

5.6 Making a desktop build

I use [electron](#) to build the desktop app.

5.6.1 For versions 1.3.018 and beyond

I’ve migrated to using [electron-builder](#) to automate the build process better.

Make sure you have all the dependencies

Typically, just running

```
npm install
```

Should have installed everything. Validate by checking you have `electron` installed by invoking it on the command line

You now have the following options:

```
npm run dist-all # builds linux, mac and windows packages
npm run dist-mac # only builds mac packages
npm run dist-lin # only builds linux packages (32bit, 64bit, arm)
npm run dist-win # only builds win packages (32bit, 64bit)
```

Your packages will be created in the `dist` folder

5.7 Troubleshooting

Lots of things can go wrong.

- Please make sure you don't post issues about why your own build is not working - please figure it out
- Look carefully at error messages

[Github Repository](#)

zmNinja FAQ A detailed FAQ for zmNinja, including common issues related to installation, streaming and troubleshooting

Validating APIs How to make sure your ZoneMinder installation has working/usable APIs

Desktop port tips Various tips/tricks/shortcuts for the desktop port of zmNinja

Contributing a new language Would you like to see zmNinja in your own language? It's easy. Here's how to go about contributing a new language for zmNinja

Building from Source For the brave souls who want to build from source, your questions answered

Event Notification Server Documentation for the Machine Learning Event Notification server

Help for Each Screen Describes each zmNinja screen in more detail and what the options do