Tinyboard Code Analysis
Expert Report

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Prepared By: Nathan Zaugg

This report was paid for by Kirk Cottom.

Analyst Biography

Mindfire Technology does software consulting and also specialized code analysis for legal cases.

Nathan (Nate) Zaugg earned his Bachelor of Science in Computer Science – System Integration from Weber State University in 2004. He has been working in software professionally for the past 20+ years, most of that time in consulting, which allowed an exposure to many different technologies in many different industries. He is a founding member of Utah Geek Events where he sits on its board. Utah Geek Events is a 501(c)(3) organization that brings high-tech training to Utah. Nate is also the President of Northern Utah .NET Users Group which has been running free monthly training meetings since 2010. He is recognized as a leader in the local community for his efforts in making tech training accessible to all and for bringing the tech community together for these events to share ideas.

Nate is an adjunct instructor for his *alma mater*, Weber State University. He teaches mostly upper-division computer science courses.

Nate is also a founding member of Mindfire Technology, a tech company that builds custom software and proviceslegal code analysis. He currently holds the title of CIO/COO within the organization.

Nate has obtained the following certifications:

1. ExpertRating C++ Certification
2. Microsoft Certified Professional
3. Microsoft Certified Applications Developer
4. Microsoft Certified Solutions Developer
5. Microsoft Certified Technology Specialist

Nate has also been involved in analyzing code and preparing exhibits for several legal Intellectual Property (IP) and trademark cases.

Introduction

There were three questions that we were asked to answer definitively. They are as follows:

1. Does Tinyboard have a visitors [sic] table?
2. Does Tinyboard issue session ids to clients?
3. Does Tinyboard track user activity in any way?

The analysis was done on the code found at the URL: https://github.com/savetheinternet/Tinyboard The revision analyzed the commit `b0babb3323def8821330cb3b80166dbc1858ce1f` committed on Jul 8, 2014. This version of the repo contains 687 files in 71 folders. This project appears to be abandoned as there haven't been any commits to the project in many years.

In answering the questions below the software was analyzed and a copy of the system was set up in a sandboxed environment (Docker). The traffic going back and forth between the code and the browser was analyzed, and a deeper analysis of the source code was employed if there were questions about what data was going to/from the site.

Answers to Questions

Question #1 – Does Tinyboard have a visitors [sic] table?

The answer is no, there is no visitors table in the Tinyboard MySQL database schema. In addition, as far as can reasonably be determined, the Tinyboard code does not in any way record a visit to posts. Some IP addresses are recorded in various circumstances, but these actions require more interaction than a typical visitor would likely encounter. More details about these tables can be found in the answer to question #3.

In figure 1 below there is no table named visitors that exists in the schema for the Tinyboard database.

antispam
- ◇ board VARCHAR(58)
- ◇ thread INT
- 🔑 hash CHAR(40)
- ◇ created INT
- ◇ expires INT
- ◇ passed SMALLINT
- Indexes
- PRIMARY
- board
- expires

robot
- 🔑 hash VARCHAR(40)
- Indexes
- PRIMARY

modlogs
- ◇ mod INT
- ◇ ip VARCHAR(39)
- ◇ board VARCHAR(58)
- ◇ time INT
- ◇ text TEXT
- Indexes
- time
- mod

ip_notes
- ◇ id INT
- ◇ ip VARCHAR(39)
- ◇ mod INT
- ◇ time INT
- ◇ body TEXT
- Indexes
- id
- ip_lookup

boards
- 🔑 uri VARCHAR(58)
- ◇ title TINYTEXT
- ◇ subtitle TINYTEXT
- Indexes
- PRIMARY

noticeboard
- ◇ id INT
- ◇ mod INT
- ◇ time INT
- ◇ subject TEXT
- ◇ body TEXT
- Indexes
- id
- time

flood
- 🔑 id INT
- ◇ ip VARCHAR(39)
- ◇ board VARCHAR(58)
- ◇ time INT
- ◇ posthash CHAR(32)
- ◇ filehash CHAR(32)
- ◇ isreply TINYINT(1)
- Indexes
- PRIMARY
- ip
- posthash
- filehash
- time

ban_appeals
- 🔑 id INT
- ◇ ban_id INT
- ◇ time INT
- ◇ message TEXT
- ◇ denied TINYINT(1)
- Indexes
- PRIMARY
- ban_id

reports
- 🔑 id INT
- ◇ time INT
- ◇ ip VARCHAR(39)
- ◇ board VARCHAR(58)
- ◇ post INT
- ◇ reason TEXT
- Indexes
- PRIMARY

cites
- ◇ board VARCHAR(58)
- ◇ post INT
- ◇ target_board VARCHAR(58)
- ◇ target INT
- Indexes
- target
- post

theme_settings
- ◇ theme VARCHAR(40)
- ◇ name VARCHAR(40)
- ◇ value TEXT
- Indexes
- theme

bans
- 🔑 id INT
- ◇ ipstart VARBINARY(16)
- ◇ ipend VARBINARY(16)
- ◇ created INT
- ◇ expires INT
- ◇ board VARCHAR(58)
- ◇ creator INT
- ◇ reason TEXT
- ◇ seen TINYINT(1)
- ◇ post BLOB
- Indexes
- PRIMARY
- expires
- ipstart

pms
- 🔑 id INT
- ◇ sender INT
- ◇ to INT
- ◇ message TEXT
- ◇ time INT
- ◇ unread TINYINT(1)
- Indexes
- PRIMARY
- to

mutes
- ◇ ip VARCHAR(39)
- ◇ time INT
- Indexes
- ip

news
- ◇ id INT
- ◇ name TEXT
- ◇ time INT
- ◇ subject TEXT
- ◇ body TEXT
- Indexes
- id
- time

mods
- 🔑 id SMALLINT
- ◇ username VARCHAR(30)
- ◇ password CHAR(64)
- ◇ salt CHAR(32)
- ◇ type SMALLINT
- ◇ boards TEXT
- Indexes
- PRIMARY
- id

Figure 1 – The MySQL database schema for Tinyboard

Question #2 – Does Tinyboard issue session ids to clients?

No, visits to posts in a board on a site running Tinyboard are not issued a session id. If you are simply a visitor and not attempting to access the site as a moderator, then there are no dynamic scripts that run. The boards that are created generate static HTML. There are also no calls from JavaScript to attempt to track anything for the site. As these pages are not PHP pages, they do not generate a session id, nor are any cookies set to that effect.

Some values are saved into the browser's local storage which includes password, name, and email, but these are not sent back to the server.

As described in Question #3, activities other than simply visiting the content will issue a session id, cookies to help track users' data, and their IP address could be recorded in the database.
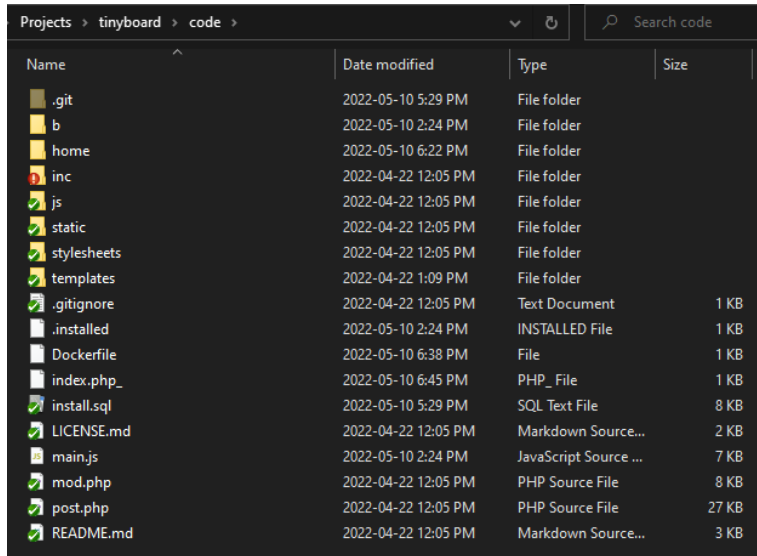

Figure 2 – Tinyboard Files – Note the "b" and "home" directories are not part of the original source code. These are the boards that are created after installation
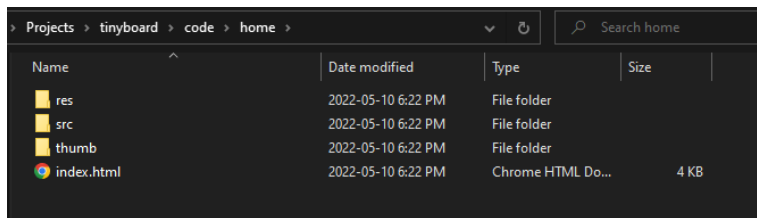

Figure 3 – Tinyboard Board Files – When a board is created or added to, it generates a folder that includes the index.html file which is what the browser is going to consume when visiting the board.

Question #3 – Does Tinyboard track user activity in any way?

While normal activity is not tracked, there are certain conditions in which an IP address is recorded to a database table. The tables and their inferred purpose are below:

1. `bans` – This table records temporary and permanent IP address range bans
2. `ip_notes` – This table is a place where moderators can keep notes on various IP addresses
3. `modlogs` – This table is for moderators to make notes. The moderator's IP address is logged.
4. `mutes` – This table is to keep track of the number of mute actions per IP address over a given time. This is helpful to detect robots and prevent spam posts.
5. `reports` – This table is used to record reports of abuse. The reporter's IP address is saved in this table.
6. `flood` – This table is used as a method to record the rate at which posts from an IP address are posted.

Additionally, there is no other storage mechanism in which this data is persisted as part of this code.

The only way for your information to be tracked by the remote server is for an activity that involves more than simply viewing posts on a Tinyboard board, as listed above.

Summary

Tinyboard does not track visits to any of the pages unless the participation goes beyond simply visiting the site – e.g. logging into the mod(.php) (moderator) functions of the website.

I hereby certify that the above is true, correct, and complete to the best of my knowledge.

Nathan Zaugg
Mindfire Technology
872 Heratige Park Blvd, Suite 200
Layton, UT 84401