

Forum:[Hack Forums](#)

Thread: [Downtime, Database, and Search Rejuvenation](#)

Omniscient - March 11, 2018, 9:24 pm

I'd like to explain why we had about 24 hours of downtime and what exactly happened.

Since the upgrade to MyBB 1.8x a few things broke in the database. One of them was the mybb_posts table index for the 'message' column which is basically the posts. Some of you recall that we were offline for 2 days for that fiasco. Partially because some of the queries literally took 12-15 hours to complete. The main issue is the size of the mybb_posts table itself which is stored as InnoDB but was indeed over 30Gb. To run a query like an "ALTER TABLE mybb_posts" is the worst resource hog. Not only does it take many hours to run but HF has to be shutdown to do it. The table is locked for the query. The ALTER TABLE in InnoDB uses a TMP table and copies all the data there before committing the change. So you can imagine on 30Gb table how long that can take.

So the message index was missing after the upgrade. This mainly effected the search. You should have notice that searching posts wasn't getting results because of resources I was forced to disable message searching and all searches were based only on thread titles. InnoDB does support FULLTEXT searching which is great but the index does have to be created. Years ago InnoDB did not support FULLTEXT and so I used a custom plugin for SPHINX SEARCH and that worked extremely well up until we switched from 1.6x to 1.4x and then it started to falter. Eventually the SPHINX SEARCH was breaking down mainly due to MyBB updates and incompatibilities. I didn't mind because I knew that InnoDB was now supporting FULLTEXT.

Some time ago we moved our database to a new server with more resources and I added the FULLTEXT while we were 1.6x. All was right with the world and truthfully HF ran very well on 1.6x for a very long time. But, we started to fall behind on features, some of which are in MyBB 1.8x and having HF on the current branch was starting to look like a requirement more than an option.

One day I just said, "FUCK IT, LET's BREAK THIS SHIT" and so I did. I knew that going to 1.8x would break many things and it most certainly did. Luckily I am capable enough to fix just about anything but it takes time and energy to system administrate for this site. I also of course have to offer support and run the sites day to day operations. So things do take time for me to get things done.

After the upgrade I did my best to fix important stuff and we're actually pretty close to having HF not only fixed but improved. One real serious issue during the upgrade was that the posts table didn't create that index and only until now do I know why. I will explain in a minute. Without the index search in posts was horrendous and I was forced to disable it because a query took 60 seconds and just a handful of people searching would explode the resources. This made search unbearable and broke things like thread searching (that search box on the bottom of showthread). I was not pleased but I knew the fix. Unfortunately the fix would require me to take the site offline.

A few weeks ago I tried to fix the index but had continued problems running the query and after 3-4 hours I realized I needed a different approach. I waited a few days and tried something else and that also didn't work as planned. We had minimal site downtime but this was getting annoying.

I created a new plan of action. Yesterday I enacted that.

I began by making backups and closing the site down. My plan was to do a table copy. I exported the structure, then created table mybb_posts2 and ran this:

```
INSERT INTO `mybb_posts2` SELECT * FROM `mybb_posts`;
```

Awesome, it was working. Then...oh....then it went bad. The partition which stores the MySQL data actually got full. Anyone that knows about unix systems is that you don't want to fill a partition. So now I'm like "OH WTF". I had taken the site offline to run this query and for 3 hours it ran. Luckily HF wasn't broken but my 2nd attempt had once again FAILED miserably. I was really unhappy about this and I wasn't going to stop this time so I went with my next option to fix the DB.

My last attempt was to do a data only table dump. I'd TRUNCATE the table, add the index, and import the dump. Sound easy doesn't it?

Knowing my partition was full I had to move the data somewhere else on the server with more space. Unfortunately it's a slower SATA drive and read/write IO is very important on things like this. But I knew what I was doing and I was confident this would work. I spent more time getting backups and preparing and by about 6pm my time yesterday I turned HF off and began the process once again to build the index by doing a full table import. At about 2pm it was still running and about 70% done (running process shows percentage while working). I went to bed figuring around 7-8am it would be done. During a data import the index is automatically built and I should have been able to just turn HF on again.

Oh it never goes exactly as planned. When I turned HF on the new posts weren't posting. Error logs showed that the pid column was not set as AUTO_INCREMENT. And for HF to function properly that does need to be there. It is not an index per se but it's close. I looked at my MySQL STRUCTURE export which I imported for the table and I saw the code to set the pid column AUTO_INCREMENT but dammit...no good. I went into the CLI (shell) for MySQL and ran the query I had.

```
ALTER TABLE `mybb_posts` MODIFY `pid` `pid` INT(10) UNSIGNED NOT NULL  
AUTO_INCREMENT
```

Oh that looked just fine to me but guess what! Wrong syntax. The MODIFY should have been CHANGE....ugh....so that's what went wrong and I suspect it's where it went wrong with the mybb_posts message column too. Remember earlier I said I would explain later? Now is that later. One simple word. An error unnoticed that caused havoc across the HF world.

Well, it was 8am and I had few choices. I was committed to getting this done and we were almost there.

So I ran this:

```
ALTER TABLE `mybb_posts` CHANGE `pid` `pid` INT(10) UNSIGNED NOT NULL  
AUTO_INCREMENT
```

And the waiting began again. That query alone took 9 hours and 26 minutes to run. Much of the day I was in XMPP with many members just updating them on the percentage and twiddling my thumbs. I did do other work like setup a VPS for the Wiki site, it's moving shortly. But it was a gruesome wait because we started to come to 24 hours offline for this and that sucks. I originally estimated 2-4 hours of downtime but I was far off.

Eventually around 6pm the query finished. And from there it was a breeze. Everything was working great! As expected the search was fixed, the database was running smooth and HF was

online once again. I did move the MySQL data folder back to the SSD as there was a noticeable speed difference from the SATA drive. I'd say 1-2 seconds was added for each page load as well as slower searches. I took backups, undid some my.cnf changes, and made sure that this time HF came online it stayed online.

Search is vastly improved now and we even have a minimum 3 characters again. I have it set for 500 results which should be fine. More adjustment might be made as we go forward but overall everything is normal again and better than ever.

I can't say it went perfect. But it did get done.

I am going to look into doing backups and recovery using different methods such as xtrabackup by Percona. That can hopefully improve situations like this. I'm a little bit worried about the MySQL data partition because it has about 15Gb space left. Enough space for couple years of posts but not any space to do anything like we just did. I can certainly manage it though and I plan to move our database again sometime this year to a server with more RAM. The database total is now 30Gb but the indexes are another 25-30Gb by themselves.

The work done in the past 24 hours was some of the most extensive work that needed to get done on HF which required downtime. We should be good after this for the minor changes HF will have and additional fixes. With Xerotic and F8's help I will be able to get a lot more done in the coming months.

Expect more out of HF in the coming days and thank you for reading and waiting patiently.

Popstar - March 11, 2018, 9:27 pm

I'm gonna be honest omni, no idea what any of this means lol. But I do appreciate your hard work and putting your knowledge to work and keeping the site running squeaky clean. This was the first time I've seen downtime on the site so I was curious what was going on.

Thanks for the update and keep doing what you do best boss

Biggy - March 11, 2018, 9:30 pm

Sounds like a ton of work and a big headache, but you're one hell of a worker, so good stuff.

Excited for the future plans of HF. Thanks for all the updates and working to get HF back up as soon as you possibly could.

Charger - March 11, 2018, 9:31 pm

Damn, you got it all figured out. Nice.

ven0m - March 11, 2018, 9:34 pm

Great work, Omni. You are one great admin.

Steve - March 11, 2018, 9:34 pm

Glad this is finally out of the way, I'm sure you are too. Great job!

Riyu - March 11, 2018, 9:35 pm

Search is extremely fast. Nice job.

M?xim - March 11, 2018, 9:39 pm

Going to read over the thread later. But glad HF is back. <3

@Biggy, LOL.

Omniscient - March 11, 2018, 9:40 pm

Quote:I'm gonna be honest omni, no idea what any of this means lol

I know some of that is technical but sys admins will know what I was talking about. Any questions you have about it just ask. :) I'll give better details and explanation if you'd like.

Quote:Glad this is finally out of the way, I'm sure you are too. Great job!

Yeah, I am super happy. This was probably the hardest thing to fix from the update. Not necessarily technically but because I knew it would require downtime and with tables this size you just never know how it will go. This could have gone really wrong with multiple attempts to start it again. It could have been much worse to be honest.

[BLANK] - March 11, 2018, 9:41 pm

Thanks for the update, can't imagine working with such a large database. I know there are some very knowledgeable SQL peeps on the forum, maybe they can help out next time

Thanks for the update, can't imagine working with such a large database. I know there are some very knowledgeable SQL peeps on the forum, maybe they can help out next time

Omniscient - March 11, 2018, 9:46 pm

btw here was my cheat sheet todo list....I like to keep these handy so I don't forget a step.

Quote: dump table

truncate posts table

delete posts table (hopefully fix the broken FTS error on startup)

import structure only (w/index)

stop mysql

move the database files to /extra/mysql/ and change configs for data dir

restart mysql

import dump

After the import dump is when the AUTO_INCREMENT problem occurred.

postmalone - March 11, 2018, 9:52 pm

(Mar 11, 2018 09:35 PM)Riyu. Wrote: [\[CITE\]](#) Search is extremely fast. Nice job.

Yeah I agree

Astraviruzz - March 11, 2018, 10:00 pm

Good stuff and good hard work Thanks.

Narrate - March 11, 2018, 10:03 pm

No problems homie.

Searching is fast as fuck.

Omniscient - March 11, 2018, 10:04 pm

(Mar 11, 2018 10:03 PM)Narrate Wrote: [\[CITE\]](#) No problems homie.

Searching is fast as fuck.

Agreed that the site is fast fast fast right now and search is great.

Kill Joy - March 11, 2018, 10:05 pm

Well there went your weekend. But hard work pays off! Enjoy a cold one.

Xerotic - March 11, 2018, 10:06 pm

Very happy to have search back, especially "Search Thread". Good job.

Truly - March 11, 2018, 10:07 pm

Thank you for the update, the search is extremely fast.

Evanescence - March 11, 2018, 10:21 pm

I'm not sys admin but that sounds real crazy stuff and alot of work.

Thank you for working so much for improvement.

PerfectStorm - March 11, 2018, 10:49 pm

Thank you very much for your hard work.

Nuworld - March 11, 2018, 10:58 pm

Great job Omni.

Site it running great and search is also working great.

I understand it was a lot of work and I'm sure your happy that's finished.

Looking forward to the VPS for the wiki.

flavoral - March 11, 2018, 11:05 pm

well xmpp chat was fun while it was down at least ?

Salt peter - March 11, 2018, 11:18 pm

I wasn't able to access Hack Forums during the whole of the downtime and come back to a blazing fast search. It was a bumpy ride but I'm glad it paid off in the end.

Noisy - March 11, 2018, 11:36 pm

Great Job, You can definitely notice the difference. Was originally wondering why the site was done until i read your twitter.

Leroy Jethro Gibbs - March 11, 2018, 11:46 pm

Just be glad you never got tired and fucked up like I have. Ended up wiping my entire server one night because I put in the wrong command to something. Gladly I had backups.

Again though, main reason I'm sticking around is because I know your improving and trying your hardest to please everyone. Keep up the good work man.

Bluffer - March 11, 2018, 11:53 pm

I'm really glad to hear everything is back to normal and you were able to fix the search.

I look forward to the upcoming changes :)

Ghost.13 - March 11, 2018, 11:58 pm

Damn. Those queries sound so simple, yet with a large database size that has millions of records, it's a pain in the ass.

Thanks for the hard work Omni! I can resume my researches again for the Wiki, now with much more ease using the search function.

Arkane21 - March 12, 2018, 12:03 am

Nice to be here through the highs and the lows.

Arkane21

Positive - March 12, 2018, 12:12 am

Was wondering what was going on. I saw the tweet updates but glad to see it in detail.
Keep up the good work.

Cameron - March 12, 2018, 12:23 am

Jesus, sounds like you had one hell of a weekend! Must have been some thirsty work... Time for some well deserved beers I think.

s??I?s? - March 12, 2018, 12:28 am

omg you really worked so hard, and such an explanatory post.
Appreciate it.

SIM-403479 - March 12, 2018, 12:33 am

HF seems to be loading a lot quicker for me.

Well played Omni.

Temp_reassign - March 12, 2018, 12:49 am

Wow. was all i could think or say after reading all the experiences.
I wonder how you felt seeing time consuming commands failed after running.
one question, how did you treat the ordinary people(family members) irl around you during all these work.
was there any transferred aggression? :)

Omniscient - March 12, 2018, 12:52 am

Quote:I wonder how you felt seeing time consuming commands failed after running.
I was rather calm actually. I'm used to sys admin work. It can be frustrating but most of the time I was just waiting and crossing my fingers that what I was doing would work...and it did. If MySQL was faster the whole thing wouldn't have been more than 15 minutes of downtime.

Quote:one question, how did you treat the ordinary people(family members) irl around you during all these work.

About the same but I had to tell my kids a couple times I was working and couldn't be interrupted. It's also something else I am used to. Which is working from home with my family constantly bothering me.

VirtualFrost - March 12, 2018, 12:55 am

Was interesting to read about this, thanks for sharing the whole experience, great details too.

Warpig x64 - March 12, 2018, 1:09 am

Omni you absolute beast, good on ya..

Fortunate - March 12, 2018, 1:19 am

Awesome detailed post, taught me a lot.

Thanks for making searching faster and easier, I use it a lot, like a lot so this is really great.

Da? ?ae - March 12, 2018, 1:29 am

Woah the search time is incredible for me now.

It's crazy to me that you were active in the XMPP, working on all of that, even though you may

have told them not to interrupt you're still with your kids and you're calm.

That's amazing honestly, really glad the sites back up and again the search is amazing now

Vitani's Mate - March 12, 2018, 4:42 am

Thanks for this Omni.

Thanks for making this forum awesome.

Thanks for keeping it clean.

Thanks for fixing all the problems.

Just... Thanks.

webdev77 - March 12, 2018, 5:13 am

Thanks for posting the explanation of all this. It is an interesting read and its always nice to know what's going on behind the scenes here from time to time.

Horus God - March 12, 2018, 5:20 am

Now HF Looks awesome, Thanks Admin!

Crystallize. - March 12, 2018, 5:28 am

Well, MySQL is pain in the ass to be honest, I'm glad you managed to solve the issues.

Renowned - March 12, 2018, 6:40 am

Was great talking with you in the XMPP whilst you were doing this.. Good to see another person who appreciates Vitas's pipes! Good job getting through all of that dude. We're all grateful.

mrnapolean1 - March 12, 2018, 6:45 am

Glad to see the site back online. And I appreciate all the hard work you put into this site. ?

Yoshi - March 12, 2018, 6:58 am

MySQL ?

This wouldn't take that long on a real database ;)

Great work, I feel you!

BitbyBit - March 12, 2018, 9:04 am

Omni you mention that the partition where post data is stored is nearly full and something you'll have to address in the near future. I'm curious what your plan is for that? I've had similar issues and everytime the partition is full I have never once been successful at repartitioning and adding more space. This causes me to switch to a new / larger server each time leading to horrendous down time and server reconfiguration.

Is this what you'll have to do or do you have a solution that I could possibly learn from as well?

My Computer - March 12, 2018, 9:07 am

Great work Omni! Thanks for your hard work.

Omniscient - March 12, 2018, 10:34 am

Quote:Omni you mention that the partition where post data is stored is nearly full and something you'll have to address in the near future. I'm curious what your plan is for that?

Well, there is a couple lingering issues unfortunately. When I had those failed attempts to create the indexes InnoDB created temporary files. When it failed they became "Orphaned" and didn't execute and they took up drive space. These files were over 15Gb in size. Deleting these from the InnoDB Data Dictionary still has to be done and I think to do it properly I have to take HF offline. But

don't fret. I am not going to do it anytime soon. Server appears to be running perfectly and just a few error warnings on startup don't scare me. After those files were removed the partition space has plenty of room for the time being.

But my plan is to move us to a new server anyways. One that's cheaper and yet has more resources. Current server is 3 years old and I can honestly find a better deal. With a new server I'll make sure the data partition is 200Gb this time. Current server only has a 250Gb SSD + a 2Tb 2nd drive. I wanted the entire OS on the SSD as well as the database. It's a tight fit but it does the job for now.

Quote: I have never once been successful at repartitioning and adding more space.

Yeah, it's a nightmare to do that. Tried it myself with FreeBSD and gpart. Unsure if it's an issue with Linux.

[https://www.\[censored\].com/docs/how-to-resize-a-disk-in-freebsd](https://www.[censored].com/docs/how-to-resize-a-disk-in-freebsd)

Quote: This causes me to switch to a new / larger server each time leading to horrendous down time and server reconfiguration.

Adding resources is usually an issue for sys admins. Moving around large production level sites from server to server takes time and you have to go offline to make it happen without breaking shit. But here is what I recommend if it's a database issue. Setup the new server but point the site to the old database server. This way you can test the new server is functioning fully without having to move the database yet. Members shouldn't even notice the difference. When you're comfortable with new server you then move the database. You can obviously use the old server as a template but it's likely you'll want to make improvements to services and configurations on the new server.

Eventually all sys admins deal with moving between hardware. I can imagine the tasks that Google has with their gazillions of systems running the planet.

This is from a few years ago but still really impressive.

BitbyBit - March 12, 2018, 10:45 am

(Mar 12, 2018 10:34 AM)Omniscient Wrote: [\[CITE\]](#) Adding resources is usually an issue for sys admins. Moving around large production level sites from server to server takes time and you have to go offline to make it happen without breaking shit. But here is what I recommend if it's a database issue. Setup the new server but point the site to the old database server. This way you can test the new server is functioning fully without having to move the database yet. Members shouldn't even notice the difference. When you're comfortable with new server you then move the database.

Always nice to get another bright mind's opinion. Best of luck in the future when you switch servers. Always a dreaded few days for me when it happens for my company.

Elitas - March 12, 2018, 10:45 am

(Mar 12, 2018 10:34 AM)Omniscient Wrote: [\[CITE\]](#)

That's really cool what they're doing. I mean, they could be a bit more modest about the whole thing though, scooters is just taking their own egos to a whole new level IMO.

I'd love to visit a data center some day, seems like a pretty awesome place, and my experience with setting up and configuring servers isn't great (only setup 1, unless you count configuring a VPS, which I wouldn't count).

Omniscient - March 12, 2018, 10:55 am

Quote: I mean, they could be a bit more modest about the whole thing though, scooters is just taking their own egos to a whole new level IMO.

Actually the scooters are practical. Human powered, low accident rate, and speedy movement. These datacenters are huge and if you had to walk hundreds of feet between server locations you'd get tired and you're also wasting time.

Prepper - March 12, 2018, 12:03 pm

(Mar 12, 2018 10:45 AM)Elitas Wrote: [\[CITE\]](#) I'd love to visit a data center some day, seems like a pretty awesome place, and my experience with setting up and configuring servers isn't great (only setup 1, unless you count configuring a VPS, which I wouldn't count).

I don't think you will get inside of a google datacenter because they are very strict on security but why not give a few datacenters near you a call or email them and see if maybe they are willing to give you a tour just expect to be searched for security reasons if they do agree.

Vitani - March 12, 2018, 1:01 pm

Great work! Now that you've fixed the database and everything is working more efficient once again, will the trust scan make a return soon?

H??????a X™ - March 12, 2018, 1:51 pm

Oh, thanks for the explanation. Nice to see HF back up and running.

Deflate - March 12, 2018, 2:23 pm

Thanks Omni for fixing the search option. Everyone was missing it :)

God of Thunder - March 12, 2018, 2:44 pm

Huge shoutout and thanks to Omni! I was able to brush up my SQL skills just by reading the thread!

Redrum - March 12, 2018, 3:30 pm

Good work, sounds like a mission and a half ???

(Mar 12, 2018 12:52 AM)Omniscient Wrote: [\[CITE\]](#) I was rather calm actually. I'm used to sys admin work. It can be frustrating but most of the time I was just waiting and crossing my fingers that what I was doing would work...and it did. If MySQL was faster the whole thing wouldn't have been more than 15 minutes of downtime.

About the same but I had to tell my kids a couple times I was working and couldn't be interrupted. It's also something else I am used to. Which is working from home with my family constantly bothering me. I got a question would PostgreSQL or even MariaDB (MySQL clone?) be faster than MySQL?

Sexual Predator - March 12, 2018, 4:43 pm

(Mar 12, 2018 03:30 PM)M D K Wrote: [\[CITE\]](#) Good work, sounds like a mission and a half ???

I got a question would PostgreSQL or even MariaDB (MySQL clone?) be faster than MySQL? PostgreSQL would be too expensive to deal with + migration would be pretty aids, i deal with big data; MariaDB would be an easy 123 switch and would be able to deal with this data, not as fast as Postgres but pretty fast for a forum. Imo

MariaDB & InnoDB = Fastest

MariaDB & MyRocks = Better able to compress 30GB DB to a usable size.

But yes, Good suggestion. Omni, just a suggestion from someone who deals with bigdata; I believe migrating to MariaDB would be easy, no changes in code would be necessary or table structure, it's very simple and built to make the switch as easy as possible; Sphinx like you said would be completely unnecessary now. Just a suggestion tho! Good job with keeping the forum together! Keep up the great work :)

Punisher - March 12, 2018, 7:16 pm

(Mar 12, 2018 12:03 PM)Prepper Wrote: [\[CITE\]](#) I don't think you will get inside of a google datacenter because they are very strict on security but why not give a few datacenters near you a call or email them and see if maybe they are willing to give you a tour just expect to be searched for security reasons if they do agree.

Be sure to carry a USB drive by with your favorite RAT installed, hide it in your shoe

You'll be a master hacker with a data-center on your net ?

Cød3ing - March 12, 2018, 7:56 pm

is ok, all matters is mother HF is online again

Blazin - March 12, 2018, 8:23 pm

I can only imagine the headache you had during the course of those two days. The important part is that you never once gave up even when things didn't look good.

Omniscient - March 12, 2018, 9:18 pm

Quote:I got a question would PostgreSQL or even MariaDB (MySQL clone?) be faster than MySQL?

I'm considering Postgre. We are on MariaDB already.

Performance is great and day to day operations are very smooth. The issue is with dealing with large recoveries and table alterations.

Example problem would be any MyBB update that makes any ALTER query to one of the large tables like posts, pms, users, or threads. The upgrade can break and cause problems.

Quote:MariaDB & InnoDB = Fastest

We moved to InnoDB years before everyone else back in 2010.

<http://www.vbum.com/2010/01/mybb-and-increasing-performance/> (lol at the HF stats then)

And we move to MariaDB about 3 years ago roughly.

Quote:MariaDB & MyRocks = Better able to compress 30GB DB to a usable size.

I will look into it. I don't consider us having a bigdata problem per se. We load fast. The server efficiency is great. So the real solution for me imho is going to be something like Percona's xtrabackup where I can do hot backups and quick recoveries. I may implement something like that when we move to our next server.

N1l0c - March 12, 2018, 11:59 pm

Your technical posts regarding HF are always great to read. I might have struggled in this situation but well done!

Prince™ - March 17, 2018, 8:48 am

I started to wonder if you blocked my country since the downtime was long.

ZuGgY - March 17, 2018, 10:43 am

It was great speaking to you on the XMPP on various topics like...WU TANG! Also watching you rage haha. Great time. Anyways, thanks for all your time and dedication as always. Site feels buttery smooth.

Cheers. ?

Diabolic - *March 17, 2018, 6:15 pm*

Sometimes you have to break everything to find a remedy. Search is incredibly responsive and the site overall is way more snappy. Job well done.