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(This is a guide. It has been compiled based on the knowledge of members of the Shareaza community).

Everything You Need To Know About MAGNET Links But Didn't Know What To Ask

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About MAGNET Links

MAGNET links are powerful tools that allow anyone to **provide a link to a specific file on a peer-to-peer network** which can then be downloaded with a compatible program, like Shareaza.

MAGNET links are a fantastic way of utilizing the power of peer-to-peer (P2P) networks to share your files with the world. For instance, a visitor to your website can click on a MAGNET link and download a file from hundreds of other people on the network. This means they AREN'T downloading it from your web server and racking up the huge bandwidth bill you would normally have to pay for hosting.

There is plenty of information available on the Shareaza forums (located at **<http://forums.shareaza.com/>**) on why peer-to-peer is such a fantastic distribution method, and as you read on it will quickly become apparent.

This is a guide for people who may not necessarily know much about MAGNETs but also for those of you who want to get down to the nitty gritty of MAGNET making. There is a surprising lack of resources on how to make MAGNETs which this guide will attempt to remedy.

Also, it has been put together for the n00bs so it may state the obvious sometimes, however it should serve as a handy reference point for troubleshooting too. Please try not to get frustrated if it covers some of the really basic things – not everyone is as smart or as knowledgeable as you!

We'll begin with the basics:

A Quick Look At The Technical Stuff

MAGNETs rely on a “hash” to first identify a particular file, and then use that information to search for it (you have to know what you're looking for before you can find it!) and different P2P applications use different hashes (more on this later).

Simply, a **“hash” is a unique identifier**, like a barcode. The hash is generated by taking the actual data contained in a file and running it through a special algorithm. Because the hash is calculated from the data, even a small difference (like 1 byte) in the file's data structure will cause a different hash to be generated.

Peer-to-peer applications use hashes to verify that the files being downloaded and uploaded have not been corrupted during transfer so the users can be sure that the file they download is the exact file that other people are sharing. If you've ever wondered why two files with the same name and same size appear in a search, this is the reason. They are actually slightly different in size, even if it's only by 1 byte. As soon as you place a file in your Shareaza Library, Shareaza will generate a hash for it.

A hash also allows P2P users to download from many people at the same time, because by checking the hash, the P2P application knows there are, say 50 people, sharing the “same” file, e.g.:

Bob is sharing a file with the hash ABCDEF123456.

Jane is sharing a file with the hash ABCDEF123456, so they are both sharing the same file.

Susan wants to download a file with the hash ABCDEF123456 with Shareaza. Shareaza works out that file ABCDEF123456 can be split up into, say 144 parts and asks Bob for parts 1 to 72 and Jane for parts 73 to 144.

If there were 144 people sharing the file, Susan could download 1 part from each of them! Visit the Shareaza website (located at <http://www.shareaza.com/>) to find out more on how multi-source downloading works.

So, if we can identify a file from the hash, the next thing to do is search for the hash – find the right hash and you find the file you’re looking for on the network. How easy is that?

What A MAGNET Is Made Of

The hash tells Shareaza exactly what to look for, but there are certain rules that determine how the hash is presented. A MAGNET link is one of the formats for presenting hashes so they can be read by P2P applications.

Just like any other link on the internet, a MAGNET has to follow a standard. A web address, for example begins with **http://**. A secure web address begins with **https://**, and there are a number of other things like a **/** to tell your browser to go to a folder in the web site’s directory structure. MAGNETs follow a similar type of syntax.

Let’s have a look at the structure of a MAGNET so you’ll know what you’re looking at when you make your own. We’ll use **BLUE** text to indicate new additions and **GREEN** text to indicate what was already there.

For a start, a MAGNET begins with

```
magnet:?
```

meaning “This is the start of a MAGNET link”. A Shareaza created MAGNET will continue:

```
magnet:?xt=
```

meaning “This is a MAGNET link and Shareaza should look for exactly what follows”, and will continue:

```
magnet:?xt=urn:
```

meaning “This is a MAGNET link and Shareaza should look for a file based on the following type of URN”.

URN stands for Uniform Resource Name, a type of format. The MAGNET will continue:

```
magnet:?xt=urn:bitprint:
```

meaning “This file is a MAGNET link and Shareaza should look for a file based on a Bitprint URN”.

A Bitprint URN is made up of two types of hashes: a SHA1 hash and a Tiger Tree hash. The idea is that if you run the file through two types of hashing algorithm, Shareaza can “compare notes” to make sure there is no error when the hash is created in your Shareaza Library. Basically two hashes are more accurate than one.

The MAGNET will continue:

```
magnet:?xt=urn:bitprint:E3CHS364XAJEMVTEAM4J7W664KKXAL2Q.PFZCLPDYKOOU2V75WFJSG3IP2AIJAE6VSYEH3XI
```

Just like a barcode, you can’t actually read a hash yourself and you don’t have to – it’s just a code to be read by a machine. The seemingly random group of letters and numbers above is a Bitprint URN. There is a full stop in the middle of it separating the SHA1 hash at the beginning from the Tiger Tree hash at the end.

What you can see above is a very basic MAGNET, including the minimum amount of information Shareaza needs to find that file. However as with a Google search, the more detail you include, the more relevant a search result will be.

Here’s how to add the extra detail.

Extra Details You Can Add To Your MAGNET

1. The File Name

Continuing on from the above example (which is a real file by the way), we’ll keep adding more information to the MAGNET. You can include the name of the file in the MAGNET for example, like this:

```
magnet:?xt=urn:bitprint:E3CHS364XAJEMVTEAM4J7W664KKXAL2Q.PFZCLPDYKOOU2V75WFJSG3IP2AIJAE6VSYEH3XI&dn=Shareaza_2.1.0.0.exe
```

As you can see, the file we’ve been looking at is the Shareaza 2.1.0.0 installer. The `&dn=` you can see after the Tiger Tree hash means “And display the name which follows...” This file doesn’t have any spaces in it, so it appears as one word, but spaces in a file name have a special syntax too. To give you a broader idea of this we’ll look at another file. This is a small .txt file called “Etomi users – please read this”.

```
magnet:?xt=urn:bitprint:VRG3NXL5L4ZZVWQZEMOSVWJMWIUMG3OL.NO3ZPM2C4Q7OAPMQ7G4YDYHVCQ66V7R7CY4DVUY&dn=Etomi%20users%20-%20please%20read%20this.txt
```

As you can see, spaces in the file name are represented by a %20 and the type of file it is (a .txt file in this case) is shown by a full stop after the last word.

2. Other Hash Types

There are a number of other types of hashes out there and different P2P programs use different ones. You can include other hash types in your MAGNET link so that a visitor to your site can download your file with the P2P application of their choice.

Shareaza supports SHA1, MD5, TTH (Tiger Tree), and eDonkey hashes (ED2K), but other programs support different ones, like Kazaa's KZHASH.

As Shareaza supports the eDonkey network, we'll look at how to insert an ED2K hash into the Shareaza 2.1.0.0 installer MAGNET we looked at before. If you don't actually have the file (the example one or your own file), don't worry – as long as you have the hashes you can make the MAGNET. We'll look at this later.

Find the file in your Shareaza Library, right-click on it, select "Properties" and you'll be able to see all the hashes you've found for that file. Copy the ED2K hash:

```
ed2k:a63d221505e99043b7e7308c67f81986
```

You may want to paste it into Notepad as you will need to add a few things. You'll need to make it look like this:

```
&xt=urn:ed2khash:ed2k:a63d221505e99043b7e7308c67f81986
```

The part added to the front looks similar to some of the things we've covered already and means "And look for exactly what follows, which is a URN based on an ED2K hash". The ED2K hash is added to the end.

Now, the original MAGNET we had looked like this:

```
magnet:?xt=urn:bitprint:E3CHS364XAJEMVTEAM4J7W664KKXAL2Q.PFZCLPDYKOOU2V75WFJSG3IP2AIJAE6VSYEH3XI&dn=Shareaza_2.1.0.0.exe
```

Now, if we insert the ED2K hash into this MAGNET it will look like this:

```
magnet:?xt=urn:bitprint:E3CHS364XAJEMVTEAM4J7W664KKXAL2Q.PFZCLPDYKOOU2V75WFJSG3IP2AIJAE6VSYEH3XI&xt=urn:ed2khash:ed2k:a63d221505e99043b7e7308c67f81986&dn=Shareaza_2.1.0.0.exe
```

The ED2K hash is simply dropped in after the TTH hash. At the end of the ED2K hash we have "&dn=" followed by the file name.

Now the MAGNET is useful not only for Shareaza users, but for people with ANY P2P application connected to the eDonkey network!

You can use this method to include other hash types and make your file available to users on many networks. Work out which network(s) you want to share your files on and what type of hashes they support. You can find out which P2P applications support MAGNET links and which networks they connect to from their websites. For example, the DirectConnect client StrongDC++ supports TTH hashes, so a MAGNET generated from Shareaza with a Bitprint URN (Bitprint includes TTH and SHA1 hashes remember) can be used by anyone with StrongDC++ to search for your file on any DC Hub they connect to.

All this is fine if the file in question is already floating around on P2P networks somewhere, but how do you get a NEW file out there for people to share? Well...

3. Include Your IP Address

Shareaza can generate a MAGNET with your IP address included in it. By making yourself a “fixed source” for your file, anyone clicking on your MAGNET link will be directed straight to your computer and can download part (or all) of the file from you. Once they have downloaded even the smallest part of your file, that person then becomes another source for it.

Remember Bob and Jane? They both had a file with the same hash – ABCDEF123456. Well Bob a musician and made an .mp3 file of a song he wrote, so Bob is actually the original source for the file ABCDEF123456. He made a MAGNET link with his IP address included in it and emailed the MAGNET link to his friend Jane. Both of them use Shareaza, so Jane clicked on the MAGNET link, was directed straight to Bob’s computer and downloaded the .mp3 file from him.

Remember Susan? She was downloading the file from both Bob and Jane at the same time and getting different parts of the file from each. Susan has only managed to get parts 1 and 2 from Bob because he has a slow internet connection, but has managed to get parts 73 to 89 from Jane.

Through a clever feature in Shareaza called a “source mesh” Terry, (who has found Bob as a source for the file ABCDEF123456) is also directed to Jane and Susan as sources for the file. Terry downloads parts 73 to 89 from Susan, parts 90 to 144 from Jane and parts 1 to 72 from Bob.

If that’s too confusing to work out, all you need to know is:

Everybody downloads the file from everybody else.

This was able to happen because Jane (and then everybody else) knew exactly WHERE to download the file from in the first place – Bob.

Including your IP address in a MAGNET is easy – Shareaza does it for you!

Find the file in your Shareaza Library, right-click on it and select “Copy URI”. Tick the little box that says “Include me as a fixed source” and click the top link. Your MAGNET link will look like this:

```
magnet:?xt=urn:bitprint:E3CHS364XAJEMVTEAM4J7W664KKXAL2Q.PFZCLPDYKOOU2V75WFJSG3IP2AIJAE6VSYEH3XI&dn=Shareaza_2.1.0.0.exe&xs=http%3A//111.11.111.1%3A6346/uri-res/N2R%3Furn%3Abitprint%3AE3CHS364XAJEMVTEAM4J7W664KKXAL2Q.PFZCLPDYKOOU2V75WFJSG3IP2AIJAE6VSYEH3XI
```

All well and good is you have a fixed IP address, but what if you (like lots of people) have a DYNAMIC IP address which is changed on a regular basis by your ISP? Well...

Get a Dynamic IP Updater

There are several companies who offer (free!) services that allow you to have an address which will ALWAYS point to YOU.

At DynDNS (<http://www.dyndns.org/>), for example, you can pick an http:// style address and download a small application which tells the DynDNS server hosting that http:// address what your current IP address is. You can then use your DynDNS address instead of your IP address in your MAGNET.

Your DynDNS address will look like this:

```
magnet:?xt=urn:bitprint:E3CHS364XAJEMVTEAM4J7W664KKXAL2Q.PFZCLPDYKOOU2V75WFJSG3IP2AIJAE6VSYEH3XI&dn=Shareaza_2.1.0.0.exe&xs=http%3A//yourname.dyndns.com%3A6346/uri-res/N2R%3Furn%3Abitprint%3AE3CHS364XAJEMVTEAM4J7W664KKXAL2Q.PFZCLPDYKOOU2V75WFJSG3IP2AIJAE6VSYEH3XI
```

Now, anyone who clicks on your MAGNET link will always be able to find you as a source to download your file from, even if your IP address changes. Cool eh?

But what if you have to turn your computer off? Well...

4. Include An HTTP Address

Shareaza is able to support HTTP connections – in fact, a lot of Shareaza is BUILT on HTTP, so if you've got a web server (or a nice friend with one) you can include the web address as a source in your file's MAGNET link.

This can be especially handy if you post your MAGNET links on your website and want a good, reliable source for people to download your files from to begin with.

If you have a "Top Ten Legal .MP3s" type of site for instance, you can include your http:// address to "start off" the download, but the users may find other sources for the file (each other) pretty quickly. Even if they get half the file from you and half the file from other sources, you've just cut the bandwidth needed to distribute your files by 50% - either you've slashed your hosting bill in half or you can serve twice as many downloaders for the same price. Whichever way you look at it, you're doing pretty well!

Also, those top ten .mp3 files will now continue circulating around the internet forever, even after you replace them with a new lot the next week. How's THAT for effective product distribution!

Using this type of example, a web address is very similar to the DynDNS address above. A typical MAGNET might look like this:

```
magnet:?xt=urn:bitprint:E3CHS364XAJEMVTEAM4J7W664KKXAL2Q.PFZCLPDYK00U2V75WFJSG3IP2AIJAE6VSYEH3XI&dn=Shareaza_2.1.0.0.exe&xs=http%3A//yourwebserver.com/Shareaza/2.1.0.0/uri-res/N2R%3Furn%3Abitprint%3AE3CHS364XAJEMVTEAM4J7W664KKXAL2Q.PFZCLPDYK00U2V75WFJSG3IP2AIJAE6VSYEH3XI
```

Now, if getting your file spread through the network relies on the "source mesh", improving the efficiency of the source mesh would make the file spread quicker, right? Well, you can do that too.

5. Add Your File(s) To The G2 Catalog

A wonderful innovation by an individual named "Anenga" to help the source mesh for your file is the G2 Catalog (located at <http://g2.anenga.com/>). Gnutella 2 is Shareaza's primary network, so releasing your file onto G2 is a great way to promote it with other Shareaza users.

The G2 Catalog is essentially a centralized "cache" for everyone in the source mesh. When you include your file's G2 Catalog Number in a MAGNET anyone who clicks on it will be directed to look to the G2 Catalog to find more sources.

Now, when someone clicks on the MAGNET with the G2 Catalog source, they will have their IP address logged as a source for the file. The next person who clicks on the MAGNET will be given the first person's IP address as a place to

download the file from. The person after will be given two IP addresses as sources for the file and so on.

So if you include a good, reliable source to begin with, everyone from then on will just keep adding to the available sources!

Adding a file to the G2 Catalog is simple:

- Copy the MAGNET (with a good fixed source included).
- Go to <http://g2.anenga.com/> and click the “Add File” button.
- Paste your MAGNET in the “Enter MAGNET” field and click the “Add” button.
- The G2 Catalog will generate a bit of code, which will look like this:

```
magnet:?xt=urn:bitprint:E3CHS364XAJEMVTEAM4J7W664KKXAL2Q.PFZCLPDYKOOU2V75WFJSG3IP2AIJAE6VSYEH3XI&dn=Shareaza_2.1.0.0.exe&xs=http%3A//g2.anenga.com/sources/000000/uri-res/N2R%3Furn%3Abitprint%3AE3CHS364XAJEMVTEAM4J7W664KKXAL2Q.PFZCLPDYKOOU2V75WFJSG3IP2AIJAE6VSYEH3XI
```

You can add this G2 Catalog address to your MAGNET in the same way you added the DynDNS address and the website address.

Now you’ve just boosted the efficiency of your file’s source mesh, making it much easier for people to find sources for it.

So, we’ve covered:

- How to generate a basic MAGNET link with Shareaza,
- How to add other hash types to it,
- How to include your IP address to make you a fixed source,
- How to add a reliable DynDNS address to replace an unreliable IP address,
- How to add an http address, such as a web server to guarantee source availability, and
- How to improve the source mesh using the G2 Catalog.

What else is there to know about using MAGNET links to promote a file? Here are a few other little tips:

- A) Adding the `<a href=` tags so your MAGNET will open from a web browser (or HTML based email).

This is pretty easy – just put `Name Of Your File
` at the end, like so:

```
magnet:? <a  
href="magnet:?xt=urn:bitprint:E3CHS364XAJEMVTEAM4J7W664KKXAL2Q.PFZCLPDY  
KOOU2V75WFJSG3IP2AIJAE6VSYEH3XI&dn=Shareaza_2.1.0.0.exe">Shareaza_2.1.0  
.0.exe</a><br>
```

The end result on a web page will look like this:

[Shareaza 2.1.0.0](#)

You can actually get Shareaza to format the MAGNET like this for you, although currently you must produce two MAGNET links to get the option. Select two files in your library, right click and select “Copy URIs”. In the bottom right corner of the box which pops up, select “Magnet HTML”. Your MAGNETs are now saved to the clipboard and you can paste them where ever you like. (Delete the second MAGNET if you only want an HTML link for one file).

B) Adding PHP tags for posting on a message board.

This depends a lot on how each message board has it's PHP scripts configured. We'll use PeerWeb's forums (located at <http://peerweb.org/forums>) as an example in how to add PHP tags as PeerWeb is a great place to release your content onto the Gnutella 2 network.

Again this is pretty easy – just add `[magnet=` in front of your MAGNET and `[/magnet]` at the end so it looks like this:

```
[magnet=magnet:?xt=urn:bitprint:E3CHS364XAJEMVTEAM4J7W664KKXAL2Q.PFZCLP  
DYKOOU2V75WFJSG3IP2AIJAE6VSYEH3XI&dn=Shareaza_2.1.0.0.exe[/magnet]
```

Just like the HTML tags, you can make the PHP link display your text instead of the whole MAGNET. At the end of the MAGNET, add a `]`, then your text and then the `[/magnet]` end tag. It should look like this:

```
[magnet=magnet:?xt=urn:bitprint:E3CHS364XAJEMVTEAM4J7W664KKXAL2Q.PFZCLP  
DYKOOU2V75WFJSG3IP2AIJAE6VSYEH3XI&dn=Shareaza_2.1.0.0.exe]Download  
Shareaza 2.1.0.0 here![/magnet]
```

It is highly suggested that you select the “Disable Smilies In This Post” option as smilies can cause your MAGNET to turn out funny looking.

Note: Each message board is different, so check the “How To Post A Message” instructions before you post.

Conclusion

We hope this guide has been of some help to you. You are free (and encouraged) to share it with the world. Once you've spent some time practicing

these techniques, you should have a better understanding of MAGNETs and the power they can give you in distributing your digital content.

Above all, have fun and remember: Sharing is Caring!

Produced by members of the Shareaza community.

Special thanks go to mig @ PeerWeb.org, Anenga @ G2 Catalog, Gordon Mohr @ the MAGNET URI project and the helpful members and moderators of the Shareaza forums.

“Everything You Need To Know About MAGNET Links But Didn’t Know What To Ask” Version 1.0. This Guide may be updated from time to time. Comments and suggestions are welcome. All updates will be posted on the Shareaza Forums (located at <http://forums.shareaza.com/>).

Recommended reading:

- <http://www.w3.org/Addressing/>
- <http://magnet-uri.sourceforge.net/>
- <http://www.peerweb.org/forums/showthread.php?t=3458>
- <http://www.peerweb.org/forums/showthread.php?t=6683>
- <http://forums.shareaza.com/showthread.php?s=&threadid=35196>

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