Planet.osm

Planet.osm is the OpenStreetMap data in one file: all the nodes, ways and relations that make up our map. A new version is released every week. It's a big file (on 2023-06-01, the plain OSM XML variant takes over 1750.1 GB when uncompressed from the 127.2 GB bzip2-compressed or 69.1 GB PBF-compressed downloaded data file).

There are also files called **Extracts** which contain OpenStreetMap Data for individual continents, countries, and metropolitan areas.

Contents

Format

The two main formats used are PBF or bzip2-compressed OSM XML. PBF (Protocol Buffer Format) is a compact binary format that is smaller to download and much faster to process and should be used whenever possible. Most common tools using OSM data support PBF.

For an overview over all osm file formats and conversion tools have a look at OSM file formats.

If you are using traditional GIS tools you may want to look at Processed data providers.

Downloading

See downloading data for tools to make downloading easier, including an option to use all mirrors at once, automatically do md5 hash validation, and other features.

BitTorrent

As of Nov/2020, official torrents have now been implemented (https://github.com/openstreetmap/operations/issues/451)!

If you have any BitTorrent client (https://en.wikipedia.org/wiki/Comparison_of_BitTorrent_clients) installed, just go to the folder you're interested in (like pbf/ (https://planet.openstreetmap.org/pbf/)) and click on the **.torrent** file!

BitTorrent RSS/Atom feed

OSM now supports (https://github.com/openstreetmap/chef/issues/373) Broadcatching (https://en.wikipedia.org/wiki/Broadcatching)!

If you have bandwidth and disk space as well as BitTorrent client which supports Broadcatching (RSS) (https://en.wikipedia.org/wiki/Comparison_of_BitTorr

ent_clients#Features_II), and would like to help with reducing load on OSM servers and improving download speeds for everyone, please join the BitTorrent swarm by using following RSS feeds (first and second are probably the most popular, but it you have resources please do share all of them):

- https://planet.openstreetmap.org/pbf/planet-pbf-rss.xml
- https://planet.openstreetmap.org/planet/planet-bz2-rss.xml
- https://planet.openstreetmap.org/pbf/full-history/history-pbf-rss.xml
- https://planet.openstreetmap.org/planet/full-history/history-bz2-rss.xml
- https://planet.openstreetmap.org/planet/changesets-bz2-rss.xml
- https://planet.openstreetmap.org/planet/discussions-bz2-rss.xml

There is no pressing need to continue seeding old files after a month, unless you really want to (the most help is in first 7-14 days).

If your client does not support RSS, but you run a GNU/Linux system, you can use scripts like https://github.com/osm-hr/planet-mirror in your cron to automate joining the BitTorrent swarm and removing old planet files.

Planet.osm mirrors

For security reasons, consider using HTTPS sources if available, rather than HTTP or FTP. Some Internet users may experience problems with IPv4-only sources when their Internet access (notably mobile accesses) offers native routing only though IPv6, and where IPv4 is only supported by their ISP using temporary NAT sessions via proxies (which may not be reliable for very large file downloads, even if HTTPS is used).

Mirrors are encouraged to support connections from IPv6, and to support secured protocols to reliably authenticate their sources (encryption is not required as the data is published, so this should not be a performance issue on servers, but this requires installing server-side certificates and renew them regularly before they expire). The support of RSYNC on these sources is also useful to allow fast incremental synchronization to other local mirrors, and it should be secured (https://rsync.samba.org/security.html) as well. Some mirrors also support peer-to-peer delivery with BitTorrent protocol as active (https://github.com/openstreetmap/chef/blob/master/cookbooks/planet/templates/default/planetdump.erb#L91) webseeds (https://en.wikipedia.org/wiki/BitTorrent#Web_seeding).

All files also come with a .md5 signature file. Use it to check your downloads (especially when using FTP: using RSYNC or Torrent will generally avoid download issues such as truncated files) ! You should first check for the existence of the .md5 file before trying to download actual data (which may sometimes be in a transient state while a mirror is being synchronized with a recent dump). Also make sure your browser or downloader client supports the transfer of large files over 2 GB, as well as your local OS and file system for storing such files.

Mirror		Available Planet data				Network protocols					
Preferred URL	Loc	Updated	Diffs	.osm.pbf	.osm.bz2	HTTP	HTTPS	FTP	RSYNC	Torrent	IPv6
planet.openstreetmap.org/ (https://planet.openstreetmap.org/) (original source, use another mirror below as much as possible)	GB	**(Source)**	yes	yes	yes	no	yes	yes	yes	yes	yes
ftp5.gwdg.de/pub/misc/openstreetmap/planet.openstreetmap.org/ (https://ftp5.gwdg.de/pub/misc/openstreetmap/planet.openstreetmap.org/)	DE	**Daily**	yes	yes	yes	yes	yes	yes	yes	yes	yes
free.nchc.org.tw/osm.planet/ (https://free.nchc.org.tw/osm.planet/) (source: gwdg.de)	TW	**Daily**	yes	yes	yes	yes	yes	yes	yes	yes	yes
download.openstreetmap.fr/ (https://download.openstreetmap.fr/)	FR	**Minutely**	yes	no	no	yes	yes	no	no	no	yes
planet.maps.mail.ru/ (https://planet.maps.mail.ru/)	RU	**Minutely**	yes	yes	yes	yes	yes	no	yes	yes	no
ftpmirror.your.org/pub/openstreetmap/ (https://ftpmirror.your.org/pub/openstreetmap/)	US	**Daily**	yes	yes	yes	yes	yes	yes	yes	yes	yes
ftp.fau.de/osm-planet/ (https://ftp.fau.de/osm-planet/)	DE	**Daily**	no	yes	no	yes	yes	yes	yes	yes	yes
mirror.init7.net/openstreetmap/ (https://mirror.init7.net/openstreetmap/)	CH	**Daily**	no	yes	yes	yes	yes	no	yes	yes	yes
ftp.snt.utwente.nl/pub/misc/openstreetmap/ (http://ftp.snt.utwente.nl/pub/misc/openstreetmap/)	NL	**Weekly**	no	yes	yes	yes	yes	yes	yes	no	yes
ftp.spline.de/pub/openstreetmap/ (https://ftp.spline.de/pub/openstreetmap/)	DE	**Weekly**	no	yes	yes	yes	yes	yes	yes	yes	no
ftp.osuosl.org/pub/openstreetmap/ (https://ftp.osuosl.org/pub/openstreetmap/)	US	**Weekly**	no	yes	yes	yes	yes	yes	yes	no	yes
download.bbbike.org/osm/planet/ (https://download.bbbike.org/osm/planet/)	DE	**Weekly**	no	yes	yes	no	yes	no	no	no	no
downloads.opencagedata.com/planet/ (https://downloads.opencagedata.com/planet/)	DE	**Weekly**	no	yes	yes	yes	yes	no	no	yes	no
ftp.nluug.nl/maps/planet.openstreetmap.org/ (https://ftp.nluug.nl/maps/planet.openstreetmap.org/)	NL	**Weekly**	no	yes	yes	yes	yes	yes	no	no	yes
planet.passportcontrol.net/pbf/ (https://planet.passportcontrol.net/pbf/)	JP	**Weekly**	no	yes	no	no	yes	no	no	no	no
archive.org/details/osmdata (https://archive.org/details/osmdata) (Internet Archive, available under various items. Instructions on searching items is available in the "About" tab (https://archive.org/details/osmdata?tab=about). Not part of official torrent swarm)	US	**Weekly**	yes	yes	yes	yes	yes	no	no	yes	no
osm.cquest.org/torrents/ (https://osm.cquest.org/torrents/) Since 2021-04-21 does not act as (hidden) webseed anymore, and publishes regular torrents	FR	**Weekly** **but in test and manual update.**	no	yes	no	yes	yes	no	no	no	no
planet.osm-hr.org (https://planet.osm-hr.org/) Last 15 days	HR	**Daily**	no	yes	yes	yes	yes	no	no	yes	yes

Country and area extracts

Worldwide extract sources

Mirror	Area	Updated	Diffs	HTTPS	Metadata included
www.overpass-api.de (https://www.overpass-api.de/)	Overpass API excerpts up to ~300MB uncompressed	**Minutely**	yes, since v0.7.50	yes	Optional
download.openstreetmap.fr/ (http://download.openstreetmap.fr/)	Minutely diffs and daily extracts in PBF: ▪ Entire continents ▪ Many countries in all continents ▪ Sub-country admin regions for several countries	**Minutely**	yes	yes	
download.geofabrik.de (https://download.geofabrik.de/)	Daily extracts in PBF stripped from personal metadata (user names, user IDs, changeset IDs): ▪ Entire continents ▪ Most countries ▪ Sub-country admin regions for Brasil, Canada, France, Germany, Italy, Japan, Poland, Russia, UK, US **Note**: Extracts are not suitable for editing.	**Daily**	yes	yes	Version and timestamp only
OSM Today.com (https://osmtoday.com/)	Over 1000 sub-regions in Europe, Asia, South and North America, Africa and Australia.	**Daily**	yes	yes	Version and timestamp only
osm-internal.download.geofabrik.de (https://osm-internal.download.geofabrik.de/)	Same as download.geofabrik.de but with full personal metadata: ▪ Weekly full history extracts for all regions mentioned above (no diffs) **Note**: Login with OSM account required. **Files are subject to data protection regulation.**	**Daily**	yes	yes	All fields
download.bbbike.org/osm/ (https://download.bbbike.org/osm/)	Different extracts offered: ▪ more than 200 cities and regions worldwide ▪ extract your own individual area **Note**: Extracts are not suitable for editing OSM, because they omit metadata such as version number. See the FAQ (https://extract.bbbike.org/extract.html).	**Weekly**	no	yes	No metadata
protomaps.com/extracts (https://protomaps.com/extracts)	Extracts up to ~100 million nodes in PBF ▪ extract rectangular area or draw polygon ▪ updated minutely	**Minutely**	no	yes	Version for all objects; Timestamp for ways, relations and tagged nodes

Regional extract sources

Mirror	Area	Updated	Diffs	HTTPS	Metadata included
osm.kewl.lu/luxembourg.osm/ (https://osm.kewl.lu/luxembourg.osm/)	Luxembourg (beta)	**Hourly**	Yes but not Osmosis/Pyosmium compatible directory structure	yes	Partially
planet.osm.ch (https://planet.osm.ch/)	Swiss extract from the Swiss OpenStreetMap association. Including all lakes crossing the Swiss boundary and a few km of the surrounding countries.	**Hourly**	yes	yes	All fields
osm.fit.vutbr.cz/extracts/czech_republic/ (https://osm.fit.vutbr.cz/extracts/czech_republic/)	Czech Republic	**Daily**	no	yes	version and timestamp only
data.osm-hr.org (https://data.osm-hr.org/)	Croatia, Slovenia, Bosnia and Herzegovina, Montenegro, Macedonia, Serbia, and Kosovo, Albania, Bulgaria, Hungary, Romania ▪ daily extracts in PBF ▪ daily Garmin maps ▪ daily Osmand maps ▪ Croatia archive ▪ Croatia diffs ▪ planet thematic extracts	**Daily**	yes	yes	all fields
osmit-estratti.wmcloud.org (https://osmit-estratti.wmcloud.org/)	Italy; daily extracts for Italian regions, provinces and municipalities; supported file formats: PBF, GeoPackage and OsmAnd OBF (Regions only).	**Daily**	no	yes	Partially
osm.kcwu.csie.org/download/tw-extract/ (https://osm.kcwu.csie.org/download/tw-extract/)	Taiwan; only o5m format	**Daily**	Yes but not Osmosis/Pyosmium compatible directory structure	yes	all fields

Global thematic extracts

- OpenStreetMapData (https://osmdata.openstreetmap.de) provides shapefiles of global coastlines, land polygons or water polygons.

Original source

The originating URL is **https://planet.openstreetmap.org/**. Please use a mirror or BitTorrent if you can.

Update frequency

A new version of planet.osm is **released weekly** (currently every Wednesday morning). We have these, going back to the start of April 2006.

The size of a planet.osm file can be seen in the header information on the planet download page (https://planet.openstreetmap.org/). Planet files are very large (tens of GBs) so please check the size before starting to download.

The weekly dump normally starts at around 01:10am UK time on Monday morning and is guaranteed to contain all updates prior to that time. The dump is constructed from a database dump using conversion software (http://github.com/zerebubuth/planet-dump-ng), and the result should ensure referential integrity. Please note that this doesn't always apply to extracts. The dump and conversion normally takes around 48 hours to complete, in total, and the result is usually ready on Wednesday morning.

Note: The timestamp of the file is recorded in it like this : <osm version="0.6" generator="OpenStreetMap planet.c" (...) timestamp="2013-01-02T01:10:14Z"> it will be useful to decide what "diffs" to use if you want them :

Additionally we offer **regular diffs**. These are produced daily (under the 'daily' subdirectory) and more recently we also offer hourly diffs and minutely diffs. These have been produced with Osmosis and can be used to reconstruct the full dataset (see examples at OSM Wiki pages Osmosis and osmupdate). Since these only contain the differences, they are much smaller files; A daily diff is generally about 40 MB compressed. For more information please see Planet.osm/diffs

Technical notes

Small region OSM DB-only copy

Q: I would like to set up a copy of OSM DB only for a small region and then keep it up to date with the replicates

You will need to apply the full diffs and afterwards cut off anything you're not interested in.

If you intend to do it for a rather small area then it is really quite easy and performs well with Osmosis. Assuming you have a current extract of your area in "current.osm" and you have the Osmosis replication set up properly (--rrii), then you simply run

```
osmosis --rri --simc --rx current.osm --ac --bb left=42 right=42 top=42 bottom=42
clipIncompleteEntities=yes --wx new.osm && mv new.osm current.osm
```

as often as you like (adapt the 42's in the bounding box).

Processing the file

See Databases and data access APIs#Database Schemas for loading a planet file into a database.

See OSM file formats#Map-data for a list of tools which are able to manipulate osm files.

See Frameworks for accessing osm files from your software.

Unpacking .bz2 files

Osmosis and osm2pgsql allow you to use the files in bz2-compressed form. If you need to unpack it from bz2 format, use 7-zip (http://www.7-zip.org/) on Windows; on Linux just type *bzip2 -d planet.osm.bz2*; or your OS may support double-click unpacking. See Wikipedia's list of compression programs.

If you are handling the compression yourself with libbzip2 (http://www.bzip.org/1.0.5/bzip2-manual-1.0.5.html#libprog), then note that the files are compressed with pbzip2 (http://compression.ca/pbzip2/) and contain multiple streams that need to be handled as described in section 3.4.8 of the bzip2 documentation.

During download, the network will be your bottleneck. Once you have the file you will need to unpack it, and then disk I/O will be your bottleneck. Or you can work with the bzip'ed file, but then the CPU will be your bottleneck. If you have sufficient space to unpack the full planet file, you can save a lot of time and disk thrashing by unpacking it on the fly *while downloading it*: try `curl -L https://planet.openstreetmap.org/planet_latest.osm.bz2 | pbzip2 -cd >planet_latest.osm`.

In most cases, using import tools supporting the PBF format will be a faster and more efficient solution. They can be processed directly without unpacking to plain OSM XML format and PBF-compressed OSM files are always smaller than bzip2-compressed OSM files and faster to download.

Additional technical notes

wget: Alternatively to *curl*, `wget -O -` may be used. Due to the size of the planet files, older distributions of wget may fail to work since they may not support file sizes larger than 2 GiB, and attempting to download files larger than that will report a negative file size and fail.

pbzip2: may be replaced by the single-threaded `bzip2 -cd` / `bzcat` as well.

Refences

Missing nodes

Note that planet download have ways that reference nodes that are not in the same file.

Due to performance reasons it isn't possible to get a fully consistent snapshot of the database. Although the dump is run in a transaction, the isolation level required for a "snapshot"-style dump dramatically increases the running time. You might find that, if you have been editing while the export has been running, that the way may be in there but the nodes are not. You can take a planet file and apply the daily diffs using Osmosis to create a consistent planet file (however you may still have some problems with old bad data in OpenStreetMap from before the introduction of the API 0.6).

country extracts

Country extract may have ways that reference nodes that are not in the same file.

This is perfectly normal depending on the settings used in the extraction process. There are two options; either the ways at the boundary have been truncated (such as in the GeoFabrik downloads), or the nodes are just left out and the ways are left as is (for example the CloudMade downloads).

Handling missing references

This really depends on what you are doing with the data. You can either drop the node references or you can go to another data source, such as the API, to

fetch the missing nodes.

Other planet files

- GPS Traces can be found in planet.gpx
- Old versions of the planet file are available at https://planet.openstreetmap.org/ and the mirrors as well.
- An experimental full history file is available, containing every revision of each object.

License

Planet files remain licensed under the same license as the master OpenStreetMap geo-database from which they are extracted - currently this is the Open Database License. Planet files from before September 12, 2012 have a Creative Commons Attribution-ShareAlike 2.0 (http://creativecommons.org/licenses/by-sa/2.0/) license.

Source code of planet.osm.org

Code powering primary website providing planet.osm is at https://github.com/openstreetmap/chef/tree/master/cookbooks/planet/files/default/html and https://github.com/openstreetmap/chef/tree/master/cookbooks/planet