

## MSTR GPS Primer v3

On MSTR rides the GPS routes will usually be made available at least a week before the event. MSTR GPS routes are typically sent by e-mail to riders registered for the particular event.

Pre-ride:

1. Housekeeping (on your GPS device)
  - a. Delete routes from previous rides or save them to your computer or memory card. Some newer GPS devices can only hold 10-20 routes in onboard memory.
  - b. Clear/empty your tracklog on your GPS. Your GPS keeps a record of every ride you've been on. When the tracklog memory fills up your GPS may not work correctly.
  - c. **NEW & IMPORTANT: You should preview routes on your PC with Garmin's Basecamp software. To avoid compatibility issues make sure your computer has Microsoft .NET Framework 4.6 or later. You can download and install 4.6 or later from the web.**
2. Map version & avoidance setup (on your computer)
  - a. Routes are created using a specific map version in Mapsource, Basecamp and DeLorme. GPS files with the .gpx extension are not version specific (.gpx stands for GPS Exchange format) although differences in map versions between the version used to create the route and the version used to display/recalculate the route may result in routing on gravel roads, non-existent roads, etc.
  - b. **NEW & IMPORTANT: Mapping software can be setup to avoid many things, including gravel roads, highways, toll roads, U-turns, etc. A software algorithm makes these decisions. Different software versions will make different decisions about what to avoid, resulting in route differences. For this reason all routes that are going to be shared with others should be made with an Activity Profile which has all avoidances DISABLED except Unpaved Roads when they are created. In Basecamp do the following to create an Activity Profile with all avoidances disabled:**
    - i. Start Basecamp. Select Edit, Options and Activity Profile. Choose the Routing tab and click on the green + sign to Add Activity Profile. Give the new profile a unique name (I use MSTR) and select the Motorcycle icon. Select Faster Time and deselect all Road Type (except Unpaved Roads), Feature Type and Area Avoidances. Use this profile when creating and importing routes in Basecamp.
  - c. Your GPS device will also have an Avoidance menu. BEFORE loading routes be sure to set all Avoidances to OFF, except Unpaved Roads.
3. Load and check (on your computer AND GPS)
  - a. Load and check the routes and tracks. Tracks don't change, regardless of the map version. Tracks can be used to check if the routes are correct by looking for differences between them.
  - b. Verify the route follows the track perfectly in Basecamp. Make corrections if required.
  - c. Load every route to your GPS BEFORE THE RIDE and check each and every route loads and calculates correctly by previewing the route. Compare the length of the route on your GPS with the printed route overview – the total miles should be close.
4. Navigation (on your GPS device)
  - a. Set Auto Recalc to OFF.
  - b. Set Avoidances to OFF (except Unpaved Roads).

## GPS firmware & file load

Resist the temptation to update software on your GPS device before a ride. Many GPS devices default to update to the latest information (maps, firmware, etc.) whenever you connect them to your computer. 95% of the time the updates work correctly. The rest of the time the update either doesn't load correctly, requiring last-minute fixes, or your device gets "bricked", making it completely useless without manufacturer support. For this reason it is best NOT to load the maps from your computer directly to the device unless you know you can stop it from updating. You should copy the GPX file to a memory card (usually an SD or micro-SD card), put the card into you GPS and then use the "load/import new Data" feature in your GPS to load the routes you want.

GPS devices are small computers and can refuse to turn ON, fail to load routes, load routes improperly or can shutdown/fail at any point during a ride. For that reason **it's important to always bring printed turn-by-turn route directions, route overview maps and state maps for where you're going**. Murphy's Law will see to it that when your GPS stops working it will cause you to miss a turn and get separated from your group in an area you've never been, just as the sun starts to go down...and you discover your cell phone battery is dead and realize you've been on reserve for the last 20 miles.

## **General GPS Information**

### GPS files types

GPS files can be provided in several different formats, the most common being GPX. From eHow.com:

*The GPX file extension stand for GPS eXchange. It is utilized by a vast number of GPS software applications in Windows, Linux and Mac operating systems and for a variety of uses, including waypoints, topography and point-to-point directions. GPX files can be transferred between operating systems, computers, mobile devices and software.*

MSTR routes and tracks are sent out with the GPX format.

A second common file format is GDB, which is a Garmin DataBase file. A GDB file is device and version-specific. It will only load on Garmin GPS devices. To guarantee compatibility the version of mapping software, the map version used to create the route and the map version on the GPS device must all be the same. For this reason a GDB file is seldom used to exchange routes among riders.

### Routes and tracks

#### Routes

- A route is a series of directions, using waypoints or via points, to navigate along a desired series of roads.
- Routes are specific to the map version they were created on – depending on the GPS device and map version there may be minor or major differences in the directions and waypoints. As more and more people use GPSs with different versions of maps the odds of a gpx file loading and calculating correctly are less likely.
- A route is recalculated when you load it onto your device to match what's provided on the file with what map version is on the device.
- A route can have a few to dozens of waypoints to define the navigation.
- Most motorcycle-specific GPS devices (Zumo, Navigator, etc) use the route information to tell you, either with text on the screen or verbally when to turn.

## Tracks

- Computer mapping software (Mapsource, Basecamp, DeLorme) can create a track that will follow exactly along a route.
- Tracks can also be a record of where you've been. Most GPS devices have a "Tracklog", which is a record of where you've ridden.
- A track does not change. If you get a file with both routes and tracks you can load the file to your computer, zoom in and verify the route follows the track perfectly. If not, you can alter the route to match the track.
- A track can have thousands of points to define the navigation. A long, complex track may not load correctly on a GPS and may have to be broken up into sections.
- Some GPS devices use only tracks. You have to watch the track to see where to navigate to.

## Flags, via points and waypoints

A route is created by defining the start location, end location and then adding shaping points to set the navigation along the desired roads. These shaping points, called via points, appear on your computer mapping software as small black dots. Via points may appear on your GPS screen as a flag. A waypoint is a special via point, which could be a gas stop, restaurant or other point of interest (POI).

A via point could be placed anywhere along a road (or even off the road) to make the route go along that road. Zumo, Navigator and other GPS devices may announce a via point as a turn with text or voice even though there is no turn. This can be annoying or, if the via point happens to be near a connecting road, confusing. There is free software available, called WinGDB3 (<http://www.sackman.info/>), that will remove unnecessary via points. WinGDB3 can open/import GPX files but the output is only GBD so you need to then convert the GBD file to GPX if you want to share the file with others. You can choose to keep the original flagged routes in the resulting output file just in case the unflagged routes won't load to your GPS.

## Resources

ZumoForums (<http://www.zumoforums.com/>) is one of the best online resources for information on installing, using and troubleshooting Zumo GPS devices. You have to register to use the Forum, and the very helpful Search feature, but it's free.

## Points of Interest (POI)

Many GPS devices come preloaded with hundreds or thousands of POIs, such as restaurants, hotels, gas stations, rest areas, parks, etc. You can also find and download POI files from websites such as POI Factory (<http://www.poi-factory.com/>). You have to register to download files, but it's free. Available files include all motorcycle dealer locations by manufacturer (BMW, Ducati, Honda), ATMs, breweries, wineries, structures (roadside attractions, windmills, etc.) and too many other files to list here.

*Ian Orr*

*1/2/17*