

MaCORS FAQs

What is MaCORS?

MaCORS is the Massachusetts Department of Transportation's Global Navigation Satellite System (GNSS) reference station network. It is comprised of 20 continually operating reference stations (CORS) that continuously collect and transmit raw GPS, GLONASS and Galileo data to a centralized server location where it is processed. Correction data is then generated and transmitted over the internet to GPS/GNSS rover users in the field for the purpose of real-time positioning.

Who can use MaCORS?

Anyone with a network enabled GPS/GNSS rover capable of receiving RTCM or CMR/CMR+ messages. All corrections are transmitted through the internet via cellular data communication using the NTRIP protocol. Certain network and single base real-time products require that the rover be capable of transmitting its positional information to the central server location via National Marine Electronics Standard (NMEA).

Is there a fee to use MaCORS?

No, MassDOT does not currently charge a fee for network access.

What type of rover equipment is needed to connect to the network?

Any brand of GPS/GNSS rover that:

- Is capable of receiving RTCM 3.2(MSM 4), RTCM 3.1, RTCM 2.3, CMR, or CMR+ RTK messages.
- Can connect to the internet.
- Is capable of sending a National Marine Electronics Association (NMEA) message containing its positional information, account username, and account password or has Network Transport of RTCM via Internet Protocol (NTRIP).

What is the established MaCORS datum?

The established datum for MaCORS is NAD 83 (2011) (Epoch 2010.00).

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How do I register?

1. From the MaCORS home page, click on the Register link.
2. Complete the user registration form. Read the privacy notice and check the box to acknowledge you accept these conditions. Click 'Submit' to complete the registration process. (Please note that the user name and password you enter here will be your website and real time login; be sure to write them down. Also, the GPUID1 and GPUID2 fields are no longer used. They pertained to older, outdated GPS rovers that did not use NTRIP. Only NTRIP enabled rovers can be used to connect to the MaCORS Network.)
3. An email will be sent to the address you provided. (Note: This link will expire 5 days after the email is sent to you).
4. Click on the link in the email. A follow-up email will automatically be sent to you to confirm that the account has been established.
5. Click 'Login' and enter your username and password. Select from the available real-time and/or static packages. Once you've made your selection(s), add them to your cart and proceed to the check-out page. (Note: There are two packages available: RINEX and RTK. Choosing RTK will allow you to use any of the existing RTK products that your GPS/GNSS rover equipment will support).
6. A window opens with the MaCORS Terms of Use Statement. Read it and check the box to acknowledge that you accept these terms. Click "Subscribe" to complete the subscription process (Note: To change your product selection, click the "Modify" button to return to the previous screen.)
7. An email will be sent to you confirming that your order has been placed and providing information on how to check its status.
8. Once approved, you will receive a confirmation email and will be ready to use MaCORS.

Do I need to register each one of my rovers?

Yes, each rover you wish to use will need to be registered separately. (Note that registration confirmation and informational emails will be sent to the address provided during registration).

What is the required IP address for a real-time network connection?

The proxy server IP address is **66.128.64.251**

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How do I get technical support for my RTN equipment?

For **Technical Support** with connecting your equipment to the MaCORS Network, we kindly request that you contact the manufacturer/vendor of your equipment.

How will I be notified of any network outages?

Although every effort is made to provide uninterrupted service of the real-time network, scheduled and unscheduled interruptions will sometimes occur. Service outages and other informational announcements will be communicated to registered users via email.

How do I access static (RINEX) data?

Registered users can download RINEX files through the SpiderWeb portion of the website. Click on the 'RINEX download guide' link for step by step instructions.

What is the real-time accuracy?

Assuming the standard GPS protocols and best practice methods are employed for maximum precision (i.e., good satellite coverage, good geometry of precisions, low multi-path environments) the MaCORS Network Solution typically achieves an RTK accuracy of 1-2 cm horizontally and 2-3 cm vertically.