

# PointPerfect



## GNSS correction service

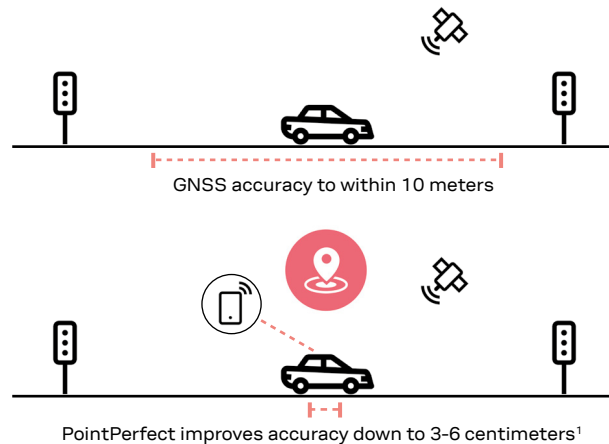
### 3-6 cm<sup>1</sup> accuracy and convergence within seconds

- Uniform coverage on a continental scale
- 99.9% uptime availability over internet and L-band satellite
- Lower bandwidth to reduce user data costs
- Easy to manage huge device fleets with ZTP and flexible price plans
- Pre-integrated with u-blox F9 and D9 high precision GNSS modules



### The challenges of stand-alone GNSS

Global navigation satellite systems (GNSS) have transformed our world: anyone can pinpoint their location anywhere on the planet quickly and easily. GNSS provides location accuracy down to several meters, which is more than satisfactory for most applications. However, certain emerging use cases, such as autonomous vehicles, precision agriculture, or robotic lawn mowers, require far higher accuracy. To achieve this, we provide GNSS correction data over mobile internet and L-band satellite signals to account for satellite clock and orbit errors and signal biases, as well as ionospheric and tropospheric influences. This, combined with the primary GNSS signal, makes it possible to improve accuracy to within centimeters.



### PointPerfect overview and key benefits

Precise, reliable, and easy to use, PointPerfect is a PPP-RTK GNSS correction data service that delivers centimeter-level accuracy in seconds on a continental scale. With 99.9% uptime availability via both internet and L-band satellite, you can rely on PointPerfect for mission-critical applications. Reduce your data cost significantly with the efficient SPARTN open data format and the scalable, simple-to-integrate MQTT messaging protocol. NTRIP delivery is also available for customers already using this protocol. The localized distribution stream of PointPerfect can significantly reduce user data costs, as it uses 30% of the bandwidth of the continental data stream. Zero Touch Provisioning makes it easy to deploy huge device fleets, eliminating the headaches of managing digital certificates. Our flexible price plans are tailored to suit your needs. PointPerfect is ready to use because it is pre-integrated with u-blox F9 and D9 high precision GNSS modules. Non-native SPARTN receivers are supported by the PointPerfect SDK.

With mass-market scalability in mind, PointPerfect is ideally suited to the needs of industrial application areas including unmanned aerial vehicles (UAV), service robots, machinery automation, micro-mobility, and other advanced navigation applications. Emerging automotive applications include lane-accurate navigation and telematics.

### Features / details

Technology	Advanced PPP-RTK (SSR)
Horizontal accuracy <sup>1</sup> (2-sigma 95%)	3-6 cm
Startup time <sup>2</sup>	< 30 s
Coverage in	Americas, Europe, Asia, and Australia. For latest coverage details see: <a href="http://www.u-blox.com/en/pointperfect-service-coverage">www.u-blox.com/en/pointperfect-service-coverage</a>
Broadcast data format	SPARTN 2.0 - open industry format, SSR based
Data rate	Continental: 2400 bps Localized Distribution: 500 - 700 bit/s
Standard correction rate	Satellite clock: 5 s Satellite orbits, bias, atmosphere: 30 s
Reference frame	ITRF2020 current epoch
GNSS signal support	GPS: L1 C/A, L2P, L2C, L5 GLONASS: L1 C/A, L2 C/A Galileo: E1, E5A/B
Communication methods	Mobile internet: MQTT, NTRIP Satellite: L-band EU and US

1: Horizontal accuracy: Typically, 3-6 cm with a compatible receiver. All accuracy results are based on:  
a) error-free GNSS observation data  
b) receiving complete and uninterrupted correction data  
c) ambiguity-fixed position results

2: The maximum time for transmitting all data needed by the receiver to start positioning.



## Lower bandwidth to reduce user data costs

PointPerfect adopts the industry-driven SPARTN data format. SPARTN enables the highly efficient transfer of GNSS correction data. It is transparent and open to any integration partner. This, combined with the lightweight, scalable, and simple-to-integrate MQTT protocol, results in a real-time, bandwidth-optimized solution that reduces user data costs and is ideally suited for mass-market applications. NTRIP delivery is also available for applications requiring this protocol.

PointPerfect's localized distribution stream transmits 70% less data than continental streams, significantly reducing user data costs. With the localized approach, a device subscribes to the localized node topic based on its location. The data transmitted through each node is optimized based on that location, filtering out unnecessary data that is not relevant to the user, which greatly reduces the required bandwidth. As with the continental stream, the location of the rover does not need to be communicated to the service to use the localized distribution stream, ensuring privacy and security.



## Intuitive platform and flexible price plans

PointPerfect is delivered via our enterprise-grade cloud platform, utilizes auto-scaling technology, and is proven to support billions of messages. The intuitive, self-serve interface gives users autonomy to manage IoT device fleets, manage billing, monitor events, and have complete API control of functionality.

In addition to a traditional subscription-based approach, we offer flexible pay-as-you-go service plans to address various customers, use cases, and applications. PointPerfect eliminates complexities and allows users to engage more efficiently and reduce time-to-market.



## High accuracy and fast convergence

PointPerfect is a PPP-RTK GNSS correction data service that delivers 3 to 6 centimeter positioning accuracy with a convergence of just seconds.



## Continental coverage. High reliability, availability

PointPerfect is delivered via mobile internet or L-band satellite signals to any number of end-devices. The broadcast provides uniform coverage on a continental scale in regions of Europe, the Americas, Asia, and Australia, including up to 12 nautical miles (roughly 22 kilometers) off coastlines. For the latest details, see our coverage map at [www.u-blox.com/en/pointperfect-service-coverage](http://www.u-blox.com/en/pointperfect-service-coverage). With 99.9% uptime availability, you can rely on PointPerfect 24/7 for your most critical applications. The service is backed by our full warranty and expert support team.



## Easy to use. Seamless integration

PointPerfect is ready to use because it is already pre-integrated with u-blox F9 and D9 high precision GNSS modules. Our industry-leading high precision multi-band GNSS receiver modules and connectivity hardware can now work seamlessly in combination with our PPP-RTK GNSS correction services to provide a one-stop-shop solution from silicon-to-cloud. Non-native SPARTN receivers are supported by the PointPerfect SDK.

Without an automated mechanism, the provisioning process involves installing the device credentials at manufacturing. This process is tedious and can slow down the production line, increasing manufacturing costs. Zero Touch Provisioning (ZTP) makes it easy to deploy huge device fleets, eliminating the headaches of managing digital certificates. ZTP enables devices to provision themselves automatically in the field, the first time they access PointPerfect.

### u-blox products supporting PointPerfect

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ZED-F9R high precision dead reckoning modules

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ZED-F9P high precision GNSS module

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ZED-F9K high precision dead reckoning with IMU sensor

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NEO-D9S correction receiver

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NEO-F9P multi-band GNSS receiver

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XPLR-HPG-1 High precision GNSS explorer kit

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XPLR-HPG-2 High precision GNSS explorer kit

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### Further information

For contact information, see [www.u-blox.com/contact-u-blox](http://www.u-blox.com/contact-u-blox).

For more details, see [www.u-blox.com/iot-location-service](http://www.u-blox.com/iot-location-service).

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