CHC CORS Solution
1. Hardware Solution

2. Software Solution
- Network Configuration
- Access to Web UI
- Antenna Configuration
- Reference Station Setting
- I/O Setting
- Connect P2E with PC via GPS to PC data serial cable
- Run WinFlash and setting by Configure Ethernet settings
- Set receiver IP, port and other parameters which can help you access to BD970 web through http protocol
- Or set network parameters via WebUI directly
- Type in receiver **IP and port** in browser
- Access to Trimble Web UI
- Login as Admin (Default User name: **admin**, Default Password: **password**)

![Receiver Status - Activity](image-url)
P2E settings

- Click **Receiver Configuration-Antenna** to enter antenna configuration interface
- Set Antenna Type, Measurement Method and Antenna Height
- Click Receiver Configuration-Reference Station to enter reference station setting page
- Type in fixed coordinates or acquire a current position
- Click OK to finish setting
- Click **I/O Configuration** to enter I/O page
- Select **protocol** in list and set detail data **format** and transmission method

### I/O Configuration

<table>
<thead>
<tr>
<th>Type</th>
<th>Port</th>
<th>Input</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCP/IP</td>
<td>5017</td>
<td>-</td>
<td>CMRx</td>
</tr>
<tr>
<td>TCP/IP</td>
<td>5018</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TCP/IP</td>
<td>28001</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TCP/IP</td>
<td>28002</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>NTRIP Client 1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>NTRIP Client 2</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>NTRIP Client 3</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>NTRIP Server</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>NTRIP Caster 1</td>
<td>2101</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>NTRIP Caster 2</td>
<td>2102</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>NTRIP Caster 3</td>
<td>2103</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Serial</td>
<td>COM1 (38.4K-8N1)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Serial</td>
<td>COM2 (38.4K-8N1)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Serial</td>
<td>COM3 (38.4K-8N1)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>USB</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Configue the I/O settings

- Server: TCP Port: 5017
- RT17/RT27
- Client
- Output only/Allow multiple connections
- Disable Nagle Algorithm
- UDP Mode
- Authenticate, set password

RT17:
- Epoch Interval
- Options: Concise, R-T Flag, Multi-System Support
- Measurements: L2 Signal, GPS Ephemeris
- Positions: Send Raw SBAS Data, Include FLL Measurements
- SBAS Ephemeris

120S
1. Hardware Solution

2. Software Solution
CPS key Feature

- Free combination of GPS, GLONASS, BeiDou and Galileo
- Compatible with reference receiver from various manufacturers.
- Distributed deployment to cover larger area and hold more users.
- Functionality modules delivers QC, virtual RINEX service, atmosphere and position monitoring solution.
- SQL server or Access database
- Physical server or virtual server
- Unlimited NTRIP accounts
▪ CHC Precision Service (CPS) is the processing and resolving software for CORS reference stations and correction data.
<table>
<thead>
<tr>
<th>Project</th>
<th>Detail</th>
</tr>
</thead>
</table>
| Reference Station compatibility                  | CHC, Trimble, Topcon, Novatel, Unicorecom, Ashtech, Comnav, Hemisphere, Septentrio ... 
Also support RTCM2.x and RTCM3.x data format   |
| Various correction data support                  | Support RTD and RTK. 
Support RTCM 2.3/2.4/3.0/3.1/3.2 and RTCM3 1021-1027 messages is also available. 
CMR/CMR+, transmit SCMRx                         |
| Multiple communication protocol                  | Support TCP, UDP, NTRIP and Telnet.                                                                                                  |
| Service solution                                 | Support single station, Virtual mode, Original Diff Data                                                                            |
| Selectable modules for different requirements    | For reference station, Quality Check module and Data Storage module is available; 
For subnet, Position Monitoring module and Virtual RINEX module is available                                                    |
Quality Check Module can help CPS administrator to find the problem in advance by real-time data quality check for each reference station.
- **Data Storage Module** record the observation file from reference station.
- **Multiple** formats supported: Binary, RINEX 2.10, RINEX 3.02, compressed RINEX and HRC.
- Support FTP pushing.
- Position Monitoring Module is designed to monitor the position deformation of the antenna. By post-processing the result of each station displacement will showed as table, graphs and stored in database.
Virtual Point Module is designed to simulate a virtual reference station and log the raw data in Binary and RINEX format.
Get started with CPS software

Step 1: Build running environment, runtime,

Step 2: Install database service

Step 3: CPS configuration
Running environment

- OS: Windows XP/7/8/8.1/10, Server2008/Server2012 64-bit recommended
- RAM: recommend 16GB for 400 concurrent connections or even lower, 32GB for 1000 connections, 64GB for 4000 connections
- CPU: recommend Quad-core or higher, 2.5 GHz or higher
- Disk: 300MB for installation; recommend 30 GB for data storage (depending on how much update rate of observation file required)
- Environment: .NET Framework3.5, .NETFramework4.0, VisualC++, Runtime
Follow SQL Wizard to complete installation of database server

Set SQL Service-SQL Network Configuration-TCP/IP properties
  - IP1&2 active and enable with TCP port in 1433
  - IPAll TCP port in 1433

Set SQL Service-SQL Native Client 11 Configuration-Client protocols-TCP properties
  - Default port in 8804

Run CPS to automatically create EXAP and HCORS database

Install database service
The first time run CPS software, it will pops the warning tip 'Database error'.

Don’t worry, it just happens to every single server at first time.

Go to Setting-Project Setting to connect to correct database path, sa and password.
CPS configuration – registration

- Registration code for functionality.
- Two registration identification method: Dongle and Machine code.
CPS update

- Any update for CPS, users can directly drag the configuration file from old version and drop it into the new version directory in order to clone the settings without losing any configuration.
- The configuration file is named as Setting.config and it will be found in the root directory of CPS 64-bit.
CPS configuration – add station

- Click Add Station button
- Type in Station Name, Code and Coordinates
- Select Receiver Type, Coding Method and Antenna Height
- Type in data transmission method
CPS configuration – build subnet

- Click **Add Subnet** button
- Type in **Subnet Name**, **Service port** and **Station used**
- Select **Service Type**, **System** and **Atmosphere Model**
- Set in **coordinate system info** or CPCaster setting for additional using
CPS configuration – start RTK service

- Click Run – MountPoint Manage
- Click Run – User Manage
Thank you!