

Dimensions
in the now





Dimensions 2025

Session X-1549

NSRS Modernization

Trimble Pivot Platform

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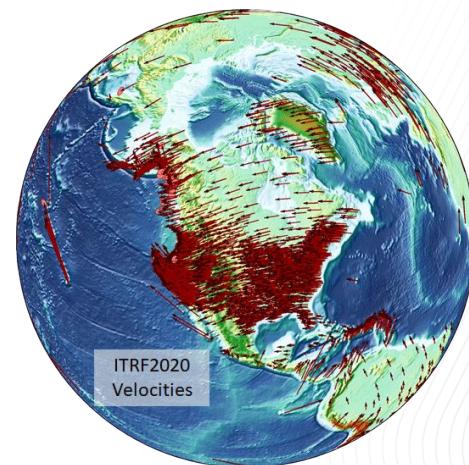
NSRS Modernization

Trimble Pivot Platform

Modernized NSRS

Modernized NSRS is replacing the North American Datum of 1983 (**NAD83**) with 4 new reference frames fixed on the following plates:

- NATRF2022 -> North American Plate
- PATRF2022 -> Pacific Plate
- CATRF2022 -> Caribbean Plate
- MATRF2022 -> Mariana Plate



*Graphics courtesy of <https://beta.ngs.noaa.gov/>
used with NGS permission.*



Modernized NSRS in PIVOT

- Recalculate your coordinates in Modernized NSRS
 - GNSS baseline processing using updated NGS stations
 - RINEX files with modernized NSRS coordinates
 - OPUS
 - Network adjustment
- Pivot's Options for providing mod. NSRS streams as well as legacy NAD83:
 - 2 Servers
 - NAD83 coordinates
 - Modernized NSRS coordinates
 - 1 Server, Modernized NSRS coordinates, different RTOS
 - Convert into NAD83
 - Apply local transformation

Modernized NSRS in PIVOT

Option 1: 2 Server

Server 1: Mod NSRS

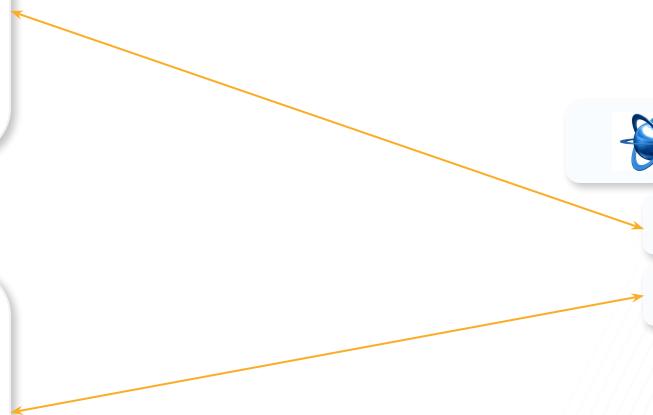
Station coordinates in mod. NSRS
RTOs sending mod. NSRS

Server 2: NAD83

Station coordinates in NAD83
RTOs sending NAD83

Ntrip Caster

MP for Mod NSRS
MP for NAD83





Modernized NSRS in PIVOT

Option 2: 1 Server, multiple RTOS, overwrite Reference frame



Server

Station coordinates in mod. NSRS

RTO provide Mod NSRS

RTO provide NAD83 using
existing transformation
functionality

General	
Elevation cutoff [°]	0
Send GPS	Yes
Send GLONASS	Yes
Send QZSS	Yes
Send Galileo	Yes
Send BeiDou	Yes
BeiDou frequencies	B1,B1C,B2,B2A,B3
Use default reference frame	No
Reference frame	NAD83(2011) (EPOCH:2010)
GNSS third signal processing	Yes



Ntrip Caster

MP for Mod NSRS

MP for NAD83

Modernized NSRS in PIVOT

Option 3: 1 Server, multiple RTOs, local transformation



Server

Station coordinates in mod. NSRS

RTO provide Mod NSRS

RTO provide NAD83 using
local transformation

Local Transformation	
Use local transformation	Yes
First input file (*.txt)	ReferenceCoordinates.txt
Second input file (*.txt)	ReferenceCoordinates2.txt



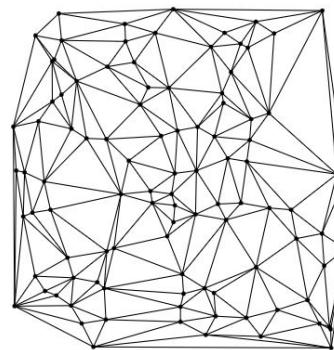
Ntrip Caster

MP for Mod NSRS
MP for NAD83

Modernized NSRS in PIVOT

Option 3: 1 Server, multiple RTOs, local transformation

- **ReferenceCoordinates.txt** located in
<Install folder>\Container\Config
- **Arbitrary points** with coordinates (X,Y,Z)
in network frame and target frame
- Must **not** be part of **network**, but should
cover the area
- Eccentricities applied to **reference** and
PBS position



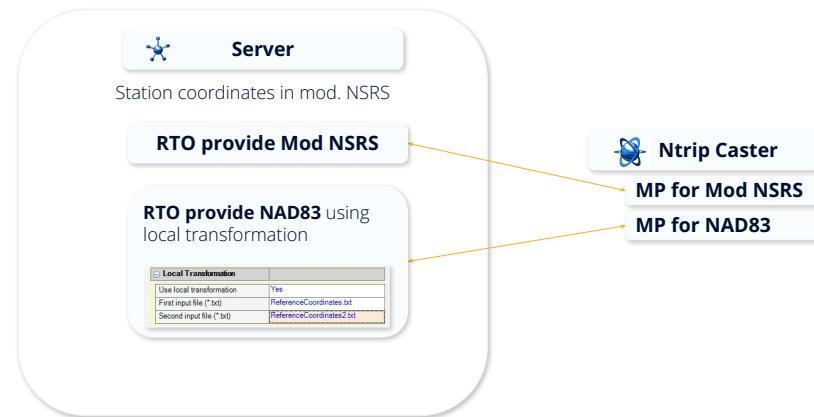
https://de.wikipedia.org/wiki/Datei:Delaunay_Triangulation_%28100_Points%29.svg

ID	Network frame				Target frame			
256	4177482.971	856761.0687	4727789.777	4177482.975	856761.0638	4727789.776		
257	4102564.066	914453.733	4781659.274	4102564.054	914453.7303	4781659.262		
258	4147099.291	844538.259	4756330.932	4147099.323	844538.2825	4756330.98		
259	4169132.337	802189.9467	4744565.684	4169132.362	802189.9644	4744565.712		
260	4067023.064	790885.7869	4833355.807	4067023.098	790885.802	4833355.847		

Modernized NSRS

Summary

- Modernized NSRS will be launched and all systems will require adaptation
- TPP 5.3 offers various options to support Modernized NSRS as well as legacy reference frames
- We are ready and will support you!





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Thank you.