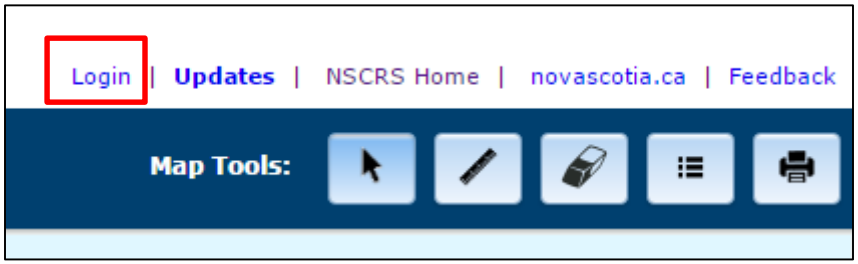
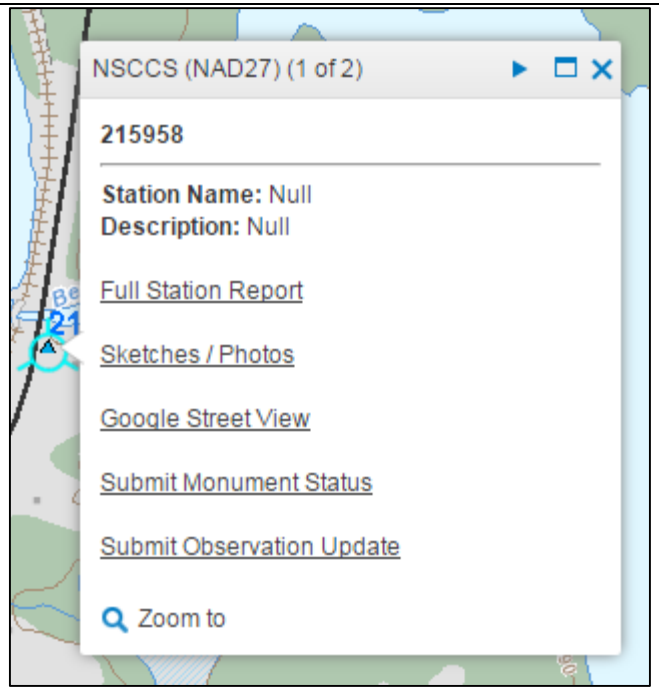
Why do we want your data?	The objective behind data submissions is to leverage ongoing field work to provide industry with an up-to-date network of NAD83 (CSRS) coordinated monuments. By submitting data, you are contributing to keeping the Nova Scotia Coordinate Referencing System (NSCRS) current and accurate. This crowd sourcing technique allows maintenance to occur that otherwise could not be performed.
How should I observe data for submission?	When observing NSCMs, the following guidelines should be followed: a) Create a separate, **NAD83(CSRS), UTM** based job to store data for NSCMs. Heights should be **ellipsoidal** (no geoid model applied). b) **Create a static observation survey style that will store 10 minutes of raw data at 1s observation rate**. This will allow coordinate values to be verified in post-processing if discrepancies arise. c) Use a bipod or tripod rather than holding an RTK range pole. Ensure bubbles are in adjustment. d) Minimize the potential for antenna height measurement error by using a **fixed height** device (RTK range pole or fixed height tripod) when possible. e) Take digital photos of the Levelled bubble, Antenna height, Antenna type, Setup over mark (when using a bipod or fixed height tripod), Photos of N, E, S, W views from NSCM, and a general photo of monument site. The total allowed size for photos is 15 mb, so photo sizes should be adjusted accordingly. f) Take note of the submission requirements shown under “Session Information”. Including the GPS Code at the monument:

GPS Code		Criteria
1	**Excellent**	Less than 10% of sky obstructed within 100 m of NSCM
2	**Very Good**	Less than 25% of sky obstructed within 100 m of NSCM
3	**Good**	Less than 50% of sky obstructed within 100 m of NSCM
4	**Poor**	More than 50% sky obstructed

How long should I observe a station?	If you are located within the zone of Network Real-time Kinematics (NTRK) capabilities or within a 25 km range of the nearest base station (see Technical Support 0002 NSACS Network), at least 10 minutes of observations should be logged with a 1 second observation rate. If the station is outside the NTRK zone and beyond 25 km from the nearest base station, a minimum of a 30 minute static observation should be performed with a 1 second observation rate.
How do I login to the NSCRS Viewer?	Credentials for the NSCRS Viewer can be obtained by submitting a request to geoinfo@novascotia.ca. In order to obtain credentials, you must: a) be a Nova Scotia Land Surveyor OR b) have a diploma in Geomatics Engineering Technology and have 2 years of GPS experience OR c) have a degree in Geomatics Engineering and have 2 years of GPS experience 
How do I submit data?	Once logged into the Nova Scotia Coordinate Referencing System (NSCRS) Viewer, a search for the station number will bring up 2 additional fields that were not available prior to logging in, “Submit Monument Status” and “Submit Observation Update”.



Monument Status - allows a user to indicate that a monument is intact, destroyed, or disturbed. Photo evidence and date are necessary for this submission to be integrated.

Monument Status Update

Station Number	
215958	
Status Date:	01/25/2016
Status:	Intact Disturbed Destroyed
Comments:	
GPSCode:	Unknown
Photo Evidence:	Choose File No file chosen Clear
Save	

	Observation Update - allows a user to submit new coordinates, photos, and various other information for a station. Using the correct settings, the uncertainty fields found at the bottom of the form (see Additional Illustrations) can be obtained from all systems (eg. Leica, Trimble, and TopCon). ACS source stands for Active Control System source and a dropdown list of options is provided for user convenience.
What format should my raw data be in?	The raw file should be converted to RINEX if possible and the file should be renamed as follows: **Station#_ApAAA_YYMMDDSS_XXX** Where: Station# is the unique station number assigned to the monument ApAAA is the antenna height and p represents the decimal point YY are the last two digits of the year of observations MM is the month of observations DD is the day of observations SS is the session number XXX are the initials of the observer For example: 225822_2p000_130601_MAD.raw All manufacturers have utilities for converting their property data to RINEX.
When will my data be integrated?	Data submissions are integrated into the system on a semi-annual basis (spring, autumn). In order to have a coordinate updated to a publishable state, the following criteria must be met: • At least two observers have submitted coordinates • Each session is 10 minutes or more • Data is logged at a 1s data rate • Greater than 0.5 hour between all sessions • At least 24 hours between any 2 sessions • Less than 20 mm horizontal and 30 mm vertical discrepancy between all sessions

As data is submitted, the station status will progress as follows:

Session	Status
1	Provisional (unverified)
2	Pre-Published (once verified)
3	Published (twice verified)

Only Published values should be referenced on a survey plan.

What does each submission field require?

Session Info	Explanation
GPS Code	See above
ACS Source	Currently there are three sources of corrections who provide their services for a monthly fee. These include Can-net, Topnet, and Smartnet
Equipment Brand	The manufacturer of the receiver used during the observation being submitted
Session Length	The length of time in minutes of the observation being submitted
Cell Provider	Eg. Bell, Rogers, Telus, Eastlink.
Cell Signal Strength	Allows the next user to have an expectation about the available survey methods around a monument.
Comments	Anything site specific which would be included in a site sketch. Eg. place name or intersection, below grade 0.1 m, under cap and collar.
Raw Data (zipped)	The raw observation file for the GNSS observation being submitted
Photos	
North, East, South, West View	North View is a photo of the monument site that was taken firstly square to the road and secondly in the N,E,S,W directions. It is

	suggested that the first photos be taken in the listed order in an effort to simplify data management and submission.
Setup over mark	This is a close up photo of the monument cap with the fixed rod setup over the mark. It allows future users to verify the monument has not been disturbed since published and verifies correct setup during occupation.
Level	This is a close up photo of the level bubble during the observation being submitted.
Antenna Type	A photo verifying the antenna type used.
Antenna Height	A close up photo verifying the height of the rod for the observation being submitted.
General Site Photo 1,2,3	Photos that show additional information about the site for future users. This might include a building nearby or a civic address or a nearby road sign.
Coordinates & Uncertainties	
Northing	This is the NRTK Northing measured or in cases where cell coverage was not possible it is the post processed Northing. Submitted in metres.
Easting	This is the NRTK Easting measured or in cases where cell coverage was not possible it is the post processed Easting. Submitted in metres.
Ellipsoidal Height	The height to be measured is ellipsoidal height. Enter its value here in metres.
Standard Deviations	The standard deviations are a calculation the proprietor's (Trimble, Leica, etc.) software calculates and provide to the user. Contact your GNSS provider for more details. Enter this value in metres.
Semi Major Axis	The semi major axis is the larger of the two radii that describe an ellipse. During observation several positions are measured and averaged. An error ellipse is a statistical evaluation of all the

			positions that were averaged. The proprietor's software calculates the semi major axis and provides it to the user. Contact your GNSS provider or manual for more details. Enter this value in metres.
		Semi Minor Axis	The semi minor axis is the smaller of the two radii that describe an ellipse. During observation several positions are measured and averaged. An error ellipse is a statistical evaluation of all the positions that were averaged. The proprietor's software calculates the semi minor axis and provides it to the user. Contact your GNSS provider or manual for more details. Enter this value in metres.
		UTM Zone	UTM Zone refers to the UTM zone that was set in the software/controller during observation.
		Orientation Angle of Error Ellipse	Refers to the orientation of the major axis of the error ellipse. The semi major, semi minor, and orientation angle of the error ellipse together provide an evaluation of the accuracy of the position. This value is calculated by the proprietor. This is entered as degrees, minutes, seconds.
Related Technical Support Documents:	- Technical Support 0002 NSACS Network - Technical Support 0007 NAD83 - Technical Support 0009 Field Operations		
Useful Links:			
Additional Illustrations:			

Observation Update

Station Number	
215958	
Date of Observation:	01/25/2016
Session Information	
GPSCode:	Unknown
ACS Source:	
Equipment Brand:	
Antenna Height:	
Session Length (mins):	10
Cell Provider:	
Cell Signal Strength:	0
Comments:	
Raw Data (zipped):	Choose File No file chosen Clear
Photos*	
***Total upload size is 15 MB. Need help resizing photos?**	
North View:	Choose File No file chosen Clear
East View:	Choose File No file chosen Clear
South View:	Choose File No file chosen Clear
West View:	Choose File No file chosen Clear
Setup over mark:	Choose File No file chosen Clear
Level:	Choose File No file chosen Clear
Antenna Type:	Choose File No file chosen Clear
Antenna Height:	Choose File No file chosen Clear
General Site Photo 1:	Choose File No file chosen Clear
General Site Photo 2:	Choose File No file chosen Clear
General Site Photo 3:	Choose File No file chosen Clear
NAD83(CSRS) 2010.0 UTM Coordinates and Uncertanties	
Coordinates Available ☑	

Northing (m)	Easting (m)	Ellipsoidal Height (m)
0	0	0
Northing Standard Deviation (m)	**Easting Standard Deviation (m)**	**Ellipsoidal Height Standard Deviation (m)**
0	0	0
Semi Major Axis A (m)	**Semi Minor Axis B (m)**	**UTMZone:**
0	0	20
Orientation Angle of Error Ellipse(DD MM SS.SSSSS)		
Degrees (DD):	0	
Minutes (MM):	0	
Seconds (SS.SSSS):	0	

Save