

Norway Land Consolidation Court Resolves Land and Property Disputes with Seamless Field Solution Provided by Esri ArcGIS



By Mike Schwartz
Esri Writer

Among the many needs of surveyors worldwide who use Esri maps, viewing map features in the field has been a major challenge. Until recently, the process lacked direct communication or real-time field updating of the map.

All that changed two years ago for one land mapping agency—the Norway Land Consolidation Court (NLCC)—when it adopted a solution that streamlined viewing and capturing field information. The organization implemented the Carlson Software’s SurvPC Data Collection Software for Land Surveyors powered by the Esri OEM ArcGIS Engine for Windows. The result? Property rights issues were resolved faster and with greater accuracy.

The NLCC has 32 independent offices and 85 field crews across the Scandinavian nation that are responsible for gathering measurement data used in resolving land parcel and borderline rights disputes.

"If you and your neighbors disagree, come to us and we'll establish the borderlines," explained Per Terje Mortensen, GIS supervisor for the NLCC .

Long History of Land Consolidation in Norway

Serious land consolidation work in Norway began when the Land Consolidation Act was passed in 1859. Since then, land consolidation courts have resolved disputes, clarified obscure boundaries, and brought deficient property structures into compliance. During this time, land consolidation has been confined to agricultural and rural areas. However, today the courts also handle cases in urban, industrial, and preserved areas. In 1979, the courts' legal authority was expanded to include jurisdiction over areas for public roads and railways, then expanded again in 1999.

The NLCC carries out all necessary technical and judicial pretrial review such as inspection of maps and titles. It also clarifies boundaries, land tenure, and legal statuses once there is a decision to proceed with a case. If a mediated settlement isn't reached during a dispute, the court will render a verdict.

Successful Initial Field Testing, Deployment

Founded in 1983, Maysville, Kentucky-based Carlson Software specializes in CAD software, field data collection, and machine control products for the land surveying, civil engineering, construction, accident/crime reconstruction, agriculture, and mining industries worldwide. Carlson is well-known in its industry for one-source technology solutions, tight collaboration with users, and dedication to customer service.

The NLCC first purchased SurvPC Esri OEM in December 2012 after participating in initial field testing of the breakthrough software. The agency has since used it extensively across Norway.

The NLCC staff have found that SurvPC Esri OEM easily allows feature and map entity creation or revision within the Esri environment. The Esri map appears in the field exactly as it was when last saved in the office. Features with editing permissions can be revised or resurveyed based on field conditions, with updating of attributes. Others without editing permission can be blocked.

"I can do everything on it, every type of form I can do inside when I'm on the desktop," So when I'm out and measuring," said field-worker Håvard Hustad. "I can analyze all the data and make sure everything is correct when I come inside. I don't have to go back there again."

Carlson Software touts creating a distinctly sharp and colorful display in the field that's unmatched by other field survey software. The bright colors of Esri maps; their ability to include image overlays; and the entire library of symbols (nodes), line types, and polygon types are all made available to the field

user. It is as if SurvPC were acting as a TV set with the channel tuned to the Esri map—it appears in all its detail and intelligence.

SurvPC "learns" the feature codes and attribute prompts automatically by simply loading the Esri map with no advance field or office prep time required. Any consultant or agency surveyor can ask for the map (.mxd file) and geodatabase, in whatever form; take it to the field; and begin work immediately.

With SurvPC, you work directly in the map, and you access all aspects of the map features and attributes automatically. Because SurvPC, which works on Windows 7 and higher, has the same full range of GPS and total station drivers as the SurvCE program, you can conduct high-precision field surveying directly in Esri maps. It is as simple as pressing S (or Enter!) to store.

"Carlson SurvPC provides our surveyors with a seamless GIS work environment with no translation issues between field data collector and ArcGIS office solutions," said Morten Strand, NLCC senior adviser, geographic information technology. "The software is very user-friendly and offers sophisticated functionality for data collection and field editing."

Mortensen agreed. "On the field computer, we have the exact same map [that] we have in the office. Same symbology, and we have access to all the feature classes."

The NLCC also selected Altus GNSS receivers after a review of alternatives, and the statistical analysis feature uses the SurvPC vector storage feature (base to rover), which Altus makes available.

"Of course, you can do high-accuracy measurements using other software," said Mortensen. "But we don't want to do post-surveys of GNSS data. We do the processing in the field, so we want the result in the field. We will measure a point, and when we go from that point, we are certain that this is correct." One feature that meets the strict criteria of the NLCC enables the statistical analysis of repeatedly observed points. It's standard practice for the 85 NLCC field crews to make multiple observations on each visit using their Altus rovers for RTK and RTN observations, as well as on return visits that may be days—or longer—apart).

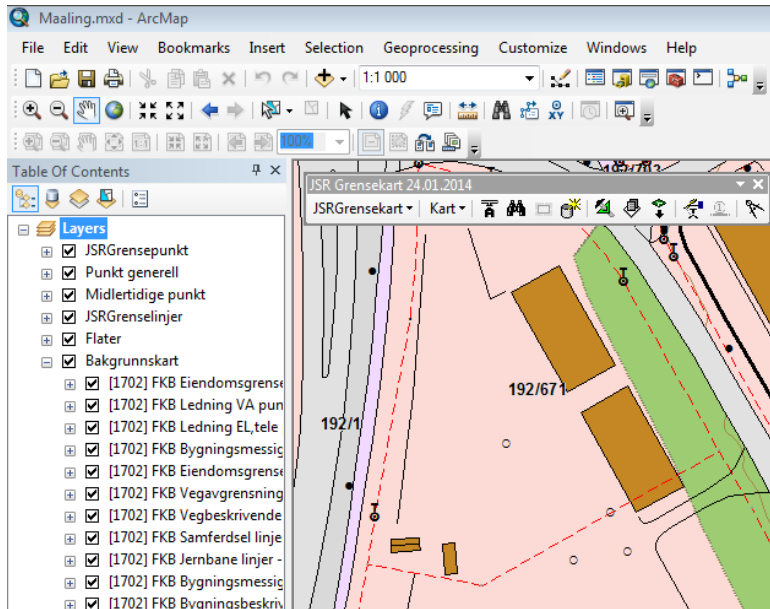
When crews store a given point, they use the same name for all repeat observations. They store GNSS vectors in the RAW files and export to SurvPC (now a standard feature that compliments the generic observation analysis feature).

Gary Rosen, Carlson's Sales Director, Canada, adds, "We're able to do things we just could never do before. It's not like a slight change but a dramatically new capability that just wasn't there before."

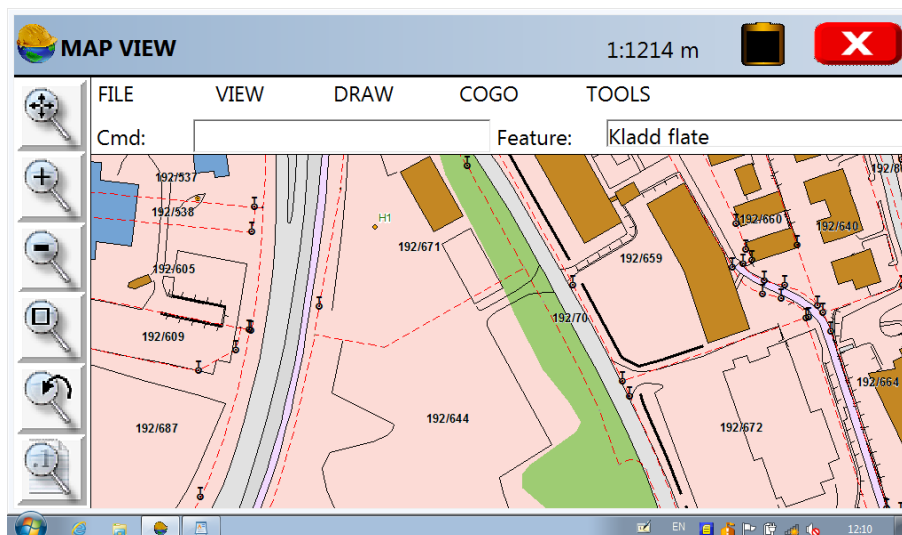
For more information on SurvPC with the Esri OEM engine, visit www.carlsonsw.com; contact Carlson Software by calling 606-564-5028 in the United States or +31 36 750 1781 elsewhere.

####

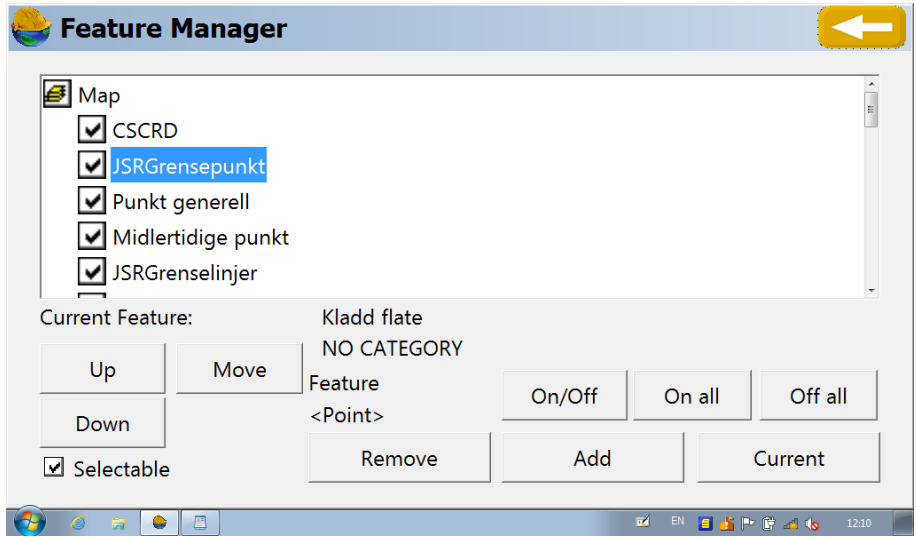
Screen Shot of ArcMap in the Office—Preparing a Job



Screen Shot of the Map as Displayed in SurvPC



Screen Shot of the Feature Manager in SurvPC



Screen Shot of a Polyline and Polygon Created in SurvPC

