FUGRO
BACK2BASE™

Back2Base™ is a set of technologies and processes that enable survey data to be reliably and economically transferred between work locations including survey vessels to the terrestrial reporting office, via an internet link, such as satellite or mobile broadband and Wi-Fi.

Getting information back from the field and onto the client’s desk in a timely manner has always been one of the most challenging aspects of survey work. With internet and communication costs reducing as rapidly as bandwidth increases, Fugro has developed a service to deliver survey data to the client in a swift and cost-effective manner.

This data transmission technique enables close liaison with shore-based client personnel and Fugro experts in any location, not only in the field. Peer reviewed decisions can be taken in near real time that may modify the survey on the basis of observed conditions on site or to investigate areas of particular interest. Experts can review data from multiple projects. Full processing and reporting can be started earlier, resulting in faster information delivery.

THE PROCESS

The key to the Back2Base operation is in the packaging – data compression on its own is simply not enough.

For example, a typical MBES survey will need to transfer the MBES, attitude and position data back to the office for processing.

Survey data processed in the field.
Processed data will typically include:

- MBES @ 20 Hz, 512 beams/ping
- Single beam echo sounding
- Attitude @ 100 Hz (pitch, roll, heave, heading)
- Position @ 1 Hz
- Raw RINEX on mobile + base for PPK processing
- Auxiliary files (SVP, tides, logs etc.)
- Side scan sonar .xtf files
- SEG-Y seismic files

**PACKAGING EXAMPLES**

The example below shows the reduction in file size typically obtained from the Back2Base procedure for MBES survey data:

<table>
<thead>
<tr>
<th>Example Dataset</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw Data (5 mins MBES calibration line)</td>
<td>680 MB</td>
</tr>
<tr>
<td>Packaging</td>
<td>48.4 MB</td>
</tr>
<tr>
<td>Compression</td>
<td>4.8 MB</td>
</tr>
</tbody>
</table>

**TRANSFER PROCESS**

- The data to be sent is organised into a directory structure.
- Using the Starfix suite Back2Base module, SBES/MBES, XTF and SEG-Y data is repackaged into only the essential data and then compressed.
- Transmission then takes place by the most efficient means – VSAT (C-band, Ku-band or Ka-band), 4G, 3G or Wi-Fi, as available.
- Uploading of data does not compromise other internal or external tasks on the vessel network, such as email traffic; Back2Base transmission is prioritised to only use bandwidth when it is available.
- In the destination location, the data is decompressed and made available for processing using industry standard products.

**SECURITY**

Back2Base uses OpenSSL communications for data transfer. All data is protected using AES-128 encryption. The Back2Base security model uses session encryption, secure authentication and on-the-fly data encryption with integrity verification for each transmitted data block. Back2Base server access is through secure username and password. The Back2Base client can operate on a HTTPS certificate URL, essentially a secured web browser.

**REAL WORLD EXAMPLES**

Back2Base has been used for various survey types, including special order nearshore surveys, AUV surveys, deepwater pipeline route geophysical/geotechnical surveys, the search for MH370 and high-resolution site survey work.

back2base@fugro.com

WWW.FUGRO.COM