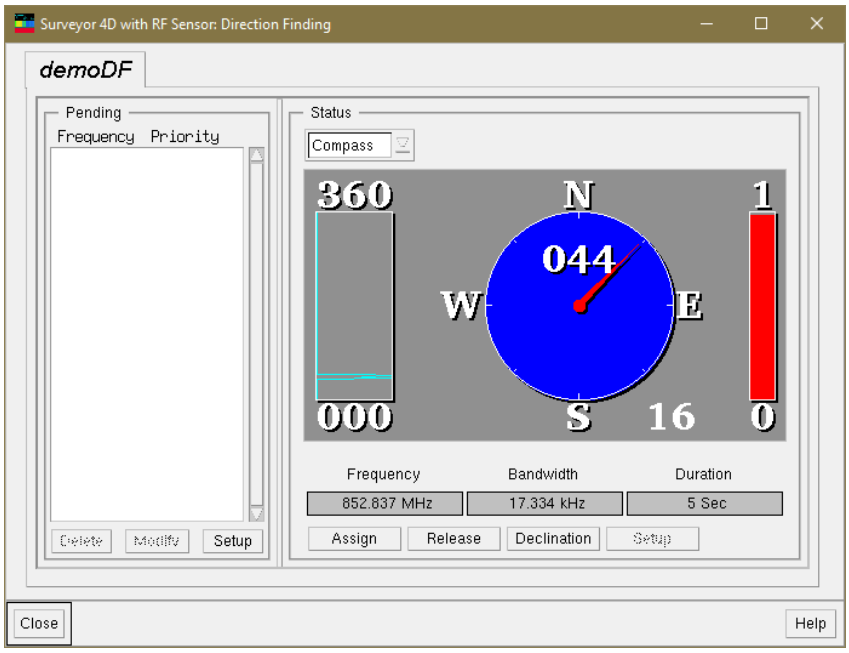
N6820EDFE Enable Direction Finding (EDF) Feature

N6820ES Surveyor 4D software

Introduction

Keysight's N6820EDFE is a licensed software feature that uses drivers to enable Surveyor 4D software to connect to, control, and receive measurement results from an external narrowband RF direction-finding (DF) system. Operation of the EDF feature requires an external, standalone direction-finding system that is controlled remotely. With EDF, Surveyor 4D software can, manually or automatically, send simple commands to the DF system as shown in the screen image below:

- Center frequency to be tuned
- Bandwidth to be used
- Duration (integration time of the measurement)



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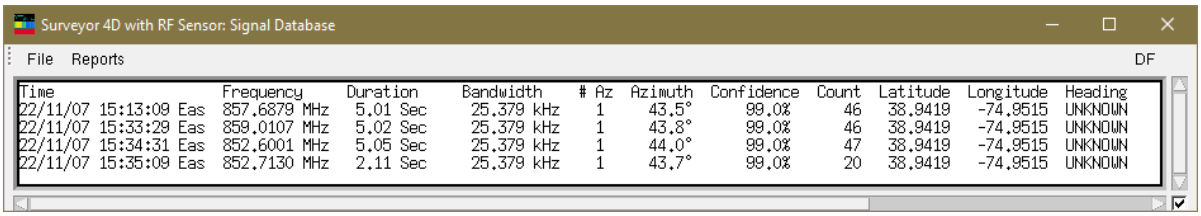
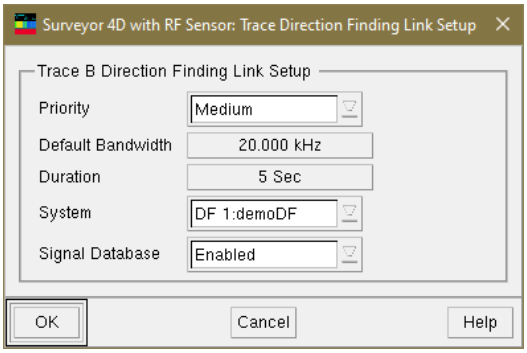
The DF measurement results are added to the signal database which enables the software to also base alarms on detected energies coming from a specific line of bearing or angular wedge. The signal database can be permanently saved, or the information can be exported to the PostgreSQL database installed with Surveyor 4D. An example set of signal database entries is shown below.



Time	Frequency	Duration	Bandwidth	# Az	Azimuth	Confidence	Count	Latitude	Longitude	Heading
22/11/07 15:13:09 Eas	857.6879 MHz	5.01 Sec	25.379 kHz	1	43.5°	99.0%	46	38.9419	-74.9515	UNKNOWN
22/11/07 15:33:29 Eas	859.0107 MHz	5.02 Sec	25.379 kHz	1	43.8°	99.0%	46	38.9419	-74.9515	UNKNOWN
22/11/07 15:34:31 Eas	852.6001 MHz	5.05 Sec	25.379 kHz	1	44.0°	99.0%	47	38.9419	-74.9515	UNKNOWN
22/11/07 15:35:09 Eas	852.7130 MHz	2.11 Sec	25.379 kHz	1	43.7°	99.0%	20	38.9419	-74.9515	UNKNOWN

N6820EDFE setup

The N6820EDFE feature includes a link set up that communicates the measurement parameters to the DF system. Setup can be either manual, using the Trace DF setup menu from the Trace toolbar, or automatic, through a DF alarm task. The user can decide whether to save the DF measurement results to the Surveyor 4D signal database or discard them. The duration setting accommodates different integration times for various DF systems or signal types that may require longer to obtain a quality DF result.



The N6820EDFE feature can also be used with the N6854A TDOA geolocation server to get the best of both measurement techniques.

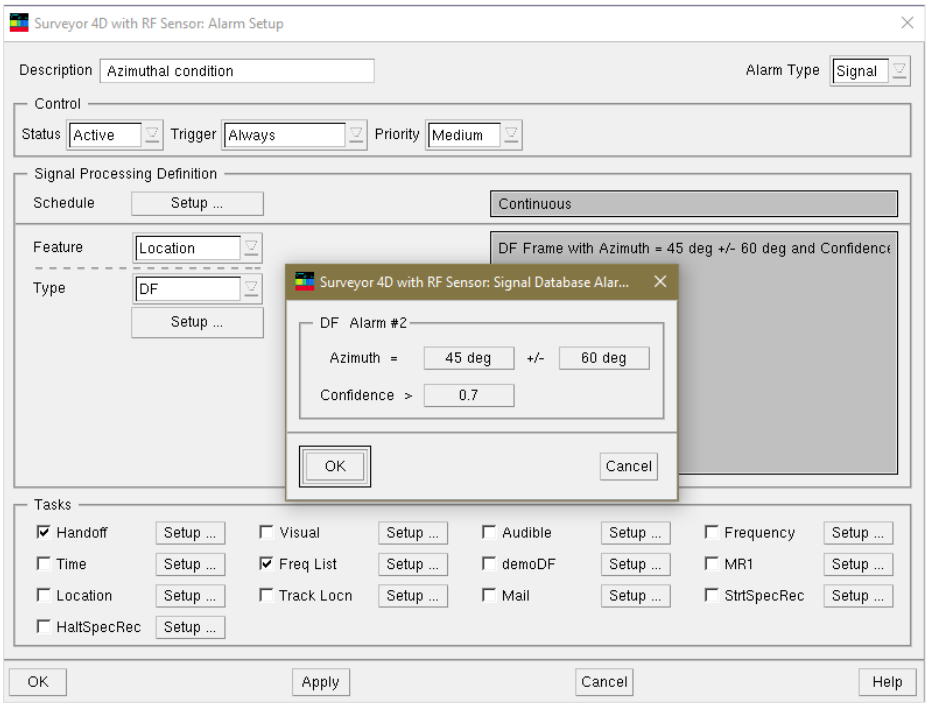
Key Features

- Easy integration with external DF systems (API is needed)
- Standard features are enabled for manual and automated operation
- Alarm based on LOB (line of bearing) to emitter
- Signal database stores all DF measurement results for report generation

DF-based alarm conditions

DF results saved to the Surveyor 4D signal database can become criteria for signal alarms that can act on an energy detected that originates from a specific azimuth or range of azimuth values.

In the example on the right, when an energy that originates from an azimuth between 45 and 60 degrees is detected, Surveyor 4D will automatically tune a handoff receiver and add the frequency to a list. The list can be used to initiate other actions as needed.



N6820EDFE Installation

The N6820EDFE feature is included with the base N6820ES download found at www.keysight.com/find/N6820ES and is enabled with a license file.

The drivers needed to enable the EDF feature are found in C:/E3238s/lib:

- featureDF.dll – This runtime library needs to be customized to connect with the external DF system.
- demoDF.dll – This “no hardware” version can be used to understand the added N6820EDFE feature capabilities for Surveyor 4D.

Keysight recommends that an application engineer assists in the driver development and setup of the Surveyor 4D software to get the most from this capable feature of Surveyor 4D. Instructions for the configuration of the EDF features can be found in the N6820ES Operator Reference manual.

Application software licensing options

Flexible licensing options allow you to balance your project's requirements. Your application software may require consistent software operation over a full program lifecycle or may require frequent updates to maintain pace with fast-moving leading-edge applications. Keysight licensing has flexible license terms and types to address your application needs. KeysightCare provides selectable software support as well.

License term	Options
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Subscription	Use subscription licenses through the term of the subscription (6 months, 1, 2, or 3 years) KeysightCare Software Support is available through the license term.
License type	**Descriptions**
Node-locked	Use node-locked licenses on one specific instrument/computer.
Transportable	Use a transportable license with one instrument/computer at a time. Users can transfer the license to another instrument using Keysight Software Manager (internet connection required).
USB Portable	Use a USB portable license on one instrument/computer at a time. Users can transfer the license to another instrument using a certified USB dongle (available for additional purchase, Keysight part number E8900-D10).
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1. Americas (North, Central, and South America, Canada); Europe (European Continent, Middle Eastern Europe, Africa, India); Asia (North and South Asia Pacific Countries, China, Taiwan, Japan)

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KeysightCare Application Software Support

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- Technical support response within 4 business hours
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- Proactive software notifications

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