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## Bistatic Analyst FAQ

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### **Q01: What is Bistatic Analyst?**

A01: Bistatic Analyst is a flexible, easy-to-use physics-based simulator that is capable of generating bistatic and monostatic radar scattering data for terrain.

### **Q02: Does the Bistatic Analyst simulator provide geo-specific inputs?**

A02: Bistatic Analyst provides the capability to simulate the return from terrain anywhere in the world. The current version utilizes DTED, VMap and USGS LULC data.

### **Q03: Does the simulator allow the user to change the environmental conditions?**

A03: Yes, the user can simulate many seasonal and environmental conditions.

### **Q04: What kind of output does Bistatic Analyst produce?**

A04: Bistatic Analyst produces multiple samples of simulated  $\sigma_0$  and complex scattering matrix data for user-defined terrain cells. The software provides the following simulated scan types: Tx and Rx grazing angle scans, Tx and Rx azimuth scans, frequency scans, out-of-plane angle scans, monostatic grazing and azimuth scans.

**Q05: Does Bistatic Analyst produce synthetic radar images?**

A05: No, the simulator estimates the characteristics of groups of pixels as might be found in typical radar images of user-defined terrain types. For example, the software can produce histograms, probability density functions, and line plots of sigma<sup>0</sup> and/or the complex scattering matrix of pixels representing almost any kind of terrain found in radar images.

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**Q06: What is the resolution of the simulator?**

A06: The simulator resolution ranges from 1 meter to 10 meters.

**Q07: How are the terrain types defined?**

A07: The user selects a geographical region by latitude and longitude and defines all the relevant parameters for the specific clutter types of interest located in that region. The Bistatic Analyst interface provides information on land-use and land-cover for the region, and the user works with editors and pre-defined terrain components to define the terrain characteristics.

**Q08: Can Bistatic Analyst be used for target detection and recognition applications?**

A08: Yes, the simulator produces radar scattering output and probability density functions that can be utilized directly in radar system simulators and targeting algorithm development software.

**Q09: What is the frequency range of the simulator?**

A09: The simulator is currently designed for operation from 1 GHz to 20 GHz. Plans are for future software to handle the frequency regime from 30 MHz to 1 GHz.

**Q10: What kind of terrain scattering models are used?**

A10: Bistatic Analyst uses Polatin Corporation proprietary terrain scattering models which are based on a combination of discrete component simulations and statistical techniques. These models have been developed over a 15 year period and have been streamlined to perform with a high degree of efficiency.

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**Q11: Are your physics-based bistatic scattering models well validated?**

A11: Polatin Corporation has invested a significant amount of time and effort validating the physics-based scattering models in Bistatic Analyst. We have assembled a compilation of validation studies for all of the included terrain types. This is supplied with the software release and will be supplied to qualified customers on request.

**Q12: What kind of terrain can be simulated?**

A12: Bistatic Analyst allows simulation of the following terrain categories with the current release software: agricultural land; scrub and wasteland; broken woodlands and savannah; coastland; bodies of water; shrublands; user-defined mixed terrain; open ground; grassland; wetlands, marshes and swamps; deciduous, conifer and mixed forests; desert, pavement and snow cover.

**Q13: How fast do these simulations run?**

A13: Relatively small simulations (resolution cells of 1 or 2 meters in diameter) can typically be run on a 2 GHz, Windows-based platform in under an hour. Large

simulations can be run fairly quickly on networks, depending on the number of nodes, using the network-distributed computing capability.

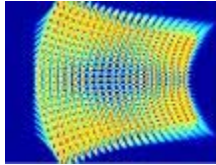
**Q14: What are the system requirements?**

A14: Bistatic Analyst is currently implemented for systems running Windows 2000 and Windows XP. Suggested processor speed is not less than 1.5 GHz; 512 MB of RAM required and 1 GB recommended.

**Q15: How do I purchase Bistatic Analyst?**

A15: In order to purchase the Bistatic Analyst simulator it requires that you have a valid DD-2345 form (Militarily Critical Technical Data Agreement). To purchase call (315) 731-9433 or e-mail [polatinc@polatin.com](mailto:polatinc@polatin.com).

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