

# RFarchitect

OPTIMIZED RADIO FREQUENCY COMMUNICATIONS

## Proven, integrated network planning and management for reliable and efficient connectivity.

The primary problems facing Radio Frequency (RF) network planners, engineers and managers are limited spectrum resources, increasing network complexity and throughput requirements, and unintentional Electromagnetic Interference (EMI).

### The Industry's Leading Experts



Wireless providers today are faced with increased demand for reliable, high-speed service for voice, data and video. As the electromagnetic environment evolves to accommodate these needs, future networks will feature increased signal density and node complexity. Dynamic awareness of these networks will require tools to give planners fast, thorough and precise analysis to help establish reliable network plans.

HII experts have over 30 years of electromagnetic environmental effects expertise. We have developed sophisticated, time-tested algorithms for Electromagnetic Spectrum Operations (EMSO) and RF network planning and engineering (NP&E), allowing us to build a comprehensive network planning and deconfliction application.

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### An Integrated Solution

RFarchitect allows spectrum network operators to optimize spectrum usage while maintaining interference-free RF network plans. RFarchitect uses equipment characteristics and high-fidelity GIS data to model and optimize network deployments, showing network planners the best options for maintaining links and data throughput.

Users can input equipment data and optional parameters, and RFarchitect calculates, models and displays network configurations and geographic locations for resource deployment. RFarchitect features integrated tools to refine plans as deployment requirements change.

RFarchitect operates in the Windows environment. Selected terrain and digitized map data are provided with the RFarchitect installation. Data for additional areas can be loaded directly from National Geospatial-Intelligence Agency (NGA) CD-ROMs (CADRG, DTED) or directly from any available web mapping server (WMS) as needed for each deployment.



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#### ABOUT US:

HII is an all-domain defense and technologies partner, recognized worldwide as America's largest shipbuilder. With a 135-year history of trusted partnerships in advancing U.S. national security, HII delivers critical capabilities ranging from the most powerful and survivable naval ships ever built, to unmanned systems, ISR and AI/ML analytics. HII leads the industry in mission-driven solutions that support and enable an all-domain force. Headquartered in Virginia, HII's skilled workforce is 44,000 strong. For more information please visit [HII.com](http://HII.com).

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# Reliable Performance

RFarchitector has been fielded by the DoD for use in high-adversity environments, repeatedly demonstrating reliability and adaptability. RFarchitector decentralizes network planning and frequency assignment capabilities through modular deployment and customizable installation. Additionally, each RFarchitector installation is able to manage multiple deployment scenarios, and can view terrain data and supporting imagery even offline. RFarchitector can distribute network plan updates between users whenever requirements change, helping guarantee resilient network connections.



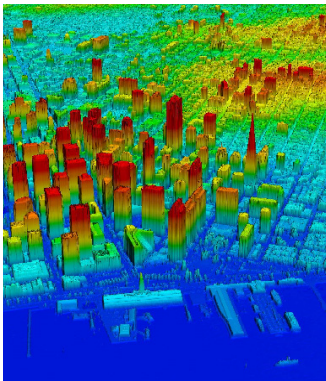
## Reduced Time

RFarchitector provides link optimization tools that search local areas for high-elevation points when planning communications assets positions. This occurs while RFarchitector maintains link reliability to ensure a fully-operational RF network even in the presence of Electronic Warfare (EW) emitters.



## Path Reliability

Our terrain-based propagation analysis tool (TIREM) allows RFarchitector to integrate RF network analysis for Line-of-Sight (LOS) paths with terrain analysis (high point retrieval, path profiling, area coverage) and analysis of worldwide geoclimatic factors, including tropospheric-scatter and knife-edge refraction.



## Interference Analysis

RF network congestion analysis facilitates a complete network RF assignment. RFarchitector includes default radio characteristics, but also accepts user modified radio characteristics, guaranteeing accurate modeling of the RF environment and potential interference sources.



## Network Laydown Planning

Our analysis tools support EMI prediction, prevention, detection and mitigation. Federal agencies and private sector partners alike trust HII to provide accurate and timely analysis to enable spectrum-sharing without EMI.

## Spotlight: Resource Optimization

The best scenario analysis depends on quickly retrieving the best data available and HII's RFarchitector accomplishes both. Our analysis for ground and air transmitters and receivers rests on a full library of sub-meter LiDAR data. RFarchitector now allows users to determine terrain data resolutions and import equipment characteristics data from Stepstone and Equipment Location-Certification Information Database (EL-CID) records, grounding RFarchitector's analysis in the best data available for each scenario.

RFarchitector integrates with TIREM, the premier propagation model in the United States. MRTopo, our topographical data server, enables TIREM to model and simulate propagation in a geographic area with speed and reliability.



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