



TECHNICAL SPECIFICATIONS

COMPUTING REQUIREMENTS

Seegrid Supervisor is delivered as a virtual machine image to be run by VMWare version 5.1 or higher. It can be installed within an existing VMWare (ESXi/VSphere) infrastructure, or on a VMWare compatible computer supplied separately. The Supervisor virtual machine can run with ESXi 5.5, which is free and can be downloaded at <http://www.vmware.com/products/vsphere-hypervisor>.

The virtual machine requires a minimum of:

RAM	8GB
Processor Core	4 processor cores of 2.4 GHz or higher
Virtual Disk	100GB thin-provisioned virtual disk (OS) 60GB+ disk (log storage)
Ethernet	1 ethernet connection of 1 Gbps or higher connected to VGV network

Computing hardware compatible with VMWare 5.1 or higher can be found at <http://vmware.com/resources/compatibility/search.php>. If you would like assistance in choosing compatible hardware or setting up virtualized infrastructure, contact a VMWare partner: <http://partnerlocator.vmware.com>. The free version of ESXi does not support clustering or automatic failover. If you require a high availability solution, contact a VMWare partner to inquire about creating a VSphere cluster. Seegrid does not provide support for procuring, designing, installing, configuring, or maintaining a VMWare infrastructure.

WIRELESS NETWORKING FOR VEHICLE COMMUNICATION WITH SUPERVISOR

Supported Wireless Standards	802.11 b/g @ 2.4GHz 802.11 n @ 2.4GHz & 5GHz	Supported Wireless Authentication Methods	EAP-PEAP/MSCHAPv2 (both PEAPv0 and PEAPv1) EAP-PEAP/MD5-Challenge (both PEAPv0 and PEAPv1) EAP-TTLS/EAP-MD5-Challenge EAP-TTLS/EAP-MSCHAPv2 EAP-TTLS/MSCHAPv2 EAP-TTLS/MSCHAP EAP-TTLS/PAP EAP-TTLS/CHAP LEAP EAP-MD5-Challenge EAP-MSCHAPv2 Key management for CCMP, TKIP, WEP104, WEP40 RSN/WPA2 (IEEE 802.11i)
Supported Wireless Security Protocols	WEP WPA-Personal (WPA-PSK) WPA-Enterprise (WPA-802.1X) WPA2-Personal (WPA2-PSK) WPA2-Enterprise (WPA2-802.1X)		

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PORTS AND PROTOCOLS

Seegrid Supervisor uses the following ports and protocols for standard operation:

TCP 22	SSH access between Seegrid vehicles and Supervisor
TCP 80	HTTP web access
TCP 443	HTTPS web page access
TCP 1339	External software API
TCP 5672	Vehicle to Supervisor communication
UDP 123	Network Time Protocol (NTP)
UDP 161	Simple Network Management Protocol (SNMP)
ICMP	

Outbound ports to the Internet are required for VPN remote support by Seegrid:

TCP 443
UDP 12201

DATA BACKUP

VMWare can be used to backup and recover instances of the virtual machine. Many common backup systems and software are compatible with VMWare. Contact your backup solution provider to determine compatibility. If you do not have an existing backup solution and will use the free version of ESXi, one backup option is <http://thinware.net/Products/ThinwarevBackup/tabid/202/Default.aspx>. Seegrid does not warrant, configure, maintain, or support third party solutions.

VMWare supports high availability solutions. Contact a VMWare partner for more details. Seegrid Supervisor may be deployed in a high availability cluster within the restrictions of the license agreement.

SOFTWARE MAINTENANCE AND UPGRADES

The Seegrid Supervisor software is proprietary to Seegrid, and upgrades for vehicle and Supervisor software are controlled and released by Seegrid.