# BlueArgus™ Standalone Server Specification & Networking Requirements

A BlueArgus Standalone Server (SAS) is a system consisting of one or more enterprise class servers, optional mass storage devices, and an interconnecting network (not provided by TrafficCast). The system runs multiple software applications to:

* collect and process data from multiple BlueTOAD sensor devices
* store the raw and processed data in a relational database
* make the data available for viewing and analysis in a website
* provide customized reports describing the data
* display live estimated traffic speed data on a map display
* support multiple live XML feeds of the data

## Hardware Requirements

Servers for a BlueArgus SAS system must be enterprise class physical servers (such as Dell PowerEdge) or virtual servers running on equivalent hardware using an enterprise class hypervisor (such as VMWare VSphere ESXi). Physical servers are preferred for performance reasons. The servers will run the Ubuntu Linux operating system.

Appropriate servers may be purchased from TrafficCast or may be provided by the customer. TrafficCast will only supply discrete servers.

* For SASs supporting less than 400 sensor devices, one server is sufficient.
* For more than 400 sensors, two or more servers should be used, to distribute the load. The customer should work with TrafficCast to define a custom system.

## Recommended Server Specifications

|  |  |  |  |
| --- | --- | --- | --- |
|  | **1-100 Sensors** | **101-250 Sensors** | **251-400 Sensors** |
| **Processor** | Intel® Xeon® E5‐2603 v4 2.1GHz | Intel® Xeon® E5‐2620 v4 2.1GHz | (Two)Intel® Xeon® E5-2640 v4 2.4 GHz |
| **Cache**  | 20MB  | 20MB  | 25MB |
| **RAM**  | 2x 32GB RDIMM, 2400MT/s, Dual Rank, x4 Data Width | 2x 32GB RDIMM, 2400MT/s, Dual Rank, x4 Data Width | 4x 32GB RDIMM, 2400MT/s, Dual Rank, x4 Data Width |
| **RAID controller**  | PERC H330 | PERC H730 | PERC H730P |
| **Drive bays**  | Up to eight 3.5” hot-plug  | Up to eight 3.5” hot-plug  | Up to eight 3.5” hot-plug |
| **Internal storage** | 2 TB Usable | 4 TB Usable | 6 TB Usable |
| **Hard drives \*\*** | 3x 1.2TB 3.5" 6Gbps SATA | 3x 2TB 3.5" 6Gbps SATA  | 4x 2TB 3.5" 6Gbps SATA |
| **Embedded NIC**  | Broadcom® 5720 Dual Port 1Gb LOM  | Broadcom® 5720 Dual Port 1Gb LOM  | Broadcom® 5720 Dual Port 1Gb LOM |

### Disk Storage

Either physical disks or solid-state storage may be used. The disk storage should be configured as RAID 5 or 6. The "Internal storage" amounts shown above are available storage after RAID overhead.

**\*\*** To get a rough estimate of the duration of data that can be stored on the internal disk, multiply the number of sensors by four to get the number of gigabytes needed for one year of data. So for 125 sensors, 1 TB of disk will give you roughly two years of data storage. That will vary depending on traffic density. We don’t recommend less than 1 TB, even for small systems. The more disk you have, the longer the duration of data you will be able to store.

Note: BlueArgus requires very high disk I/O performance, so it should not be run on a virtual server that shares a disk system with other virtual servers that have demanding I/O requirements. If two virtual servers are used for the SAS, they should not be hosted on the same hardware.

## Customer Supplied Server - Software Installation

In order for TrafficCast to remotely access the server and install the BlueArgus software the server must have Ubuntu Server 12.04 installed. The software is free to download and has a relatively

straight-forward installation process. During the installation you will be required to enter the

appropriate options for language, keyboard layout, network configuration, hostname and time zone.

Most importantly, the networking information must be configured correctly in order for remote access.

Once the OS installation is completed and connected to the network, **VPN access will be required** for TrafficCast to complete the Blue Argus installation process.

#### Resources

1. Ubuntu Server Download and Installation Information:

http://www.ubuntu.com/download/server/install-ubuntu-server

1. Complete Ubuntu Server Guide:

https://help.ubuntu.com/lts/serverguide/serverguide.pdf

The Stand Alone Server uses Percona MySQL server (version 5.6). Typically we install the server software after the Ubuntu installation. If you would like to install the database software, that is acceptable, TrafficCast will require root access to the database as well as sudo access on the OS side to administer the Percona software to install/support our BlueARGUS system.

## Network Requirements

#### VPN

To provide for remote maintenance, troubleshooting, and updates of the SAS by TrafficCast engineers, the server(s) of the SAS must be accessible via a Virtual Public Network (VPN) such as Cisco AnyConnect Secure Mobility.

If the VPN is not configured for split tunneling, the VPN host should provide access to the Internet for connected computers, so that maintenance engineers can view the maps on the website.

A PC-based remote access utility such as TeamViewer is not an acceptable substitute for a VPN.

#### Internet Connectivity

* To connect to the BlueTOAD sensor devices, the customer’s network must provide connectivity from the sensors to the SAS server(s) on TCP port 8010.
* To provide for loading of software, each server must have an outgoing connection to the Internet, supporting HTTP on TCP ports 80 (HTTP) and 443 (HTTPS).
* A connection to a Network Time Protocol (NTP) server must be accessible from the SAS server(s) to provide time synchronization with the sensors. This can be a public Internet NTP server or a customer-provided NTP server.
* In order to view the BlueArgus website maps, which are based on Google Maps, any computer used to view the website must have Internet access.
* To allow remote access to the server and database by TrafficCast engineers for troubleshooting, TCP ports 22 (SSH) and 3306 (MySQL) should be open to users of the VPN.

## Additional Network Requirement for Cellular Based BlueTOAD Units to Communicate to the Stand Alone Server

1. The Stand Alone Server (SAS) will need inbound internet access on port 8010 to allow the Cellular Based BlueTOAD to communicate with the server.
2. The Cellular Based BlueTOAD devices need to be programmed to point to the SAS via either IP address or URL (hostname) see steps below:
* SAS needs inbound internet access on port 8010
* SAS needs hostname or static IP address programmed
* from console interface at device:
	1. set btserver <server address: IP address or hostname>
	2. example.1: set btserver 93.23.41.32 ## static IP example
	3. example.2: set btserver [gobluetoad.cobbco.gov](http://gobluetoad.cobbco.gov) ## hostname example
	4. let it run.

## Additional Support

If you have any questions, please contact the BlueTOAD technical support team. They can be reached at 608-713-9299 or bluetoad-help@trafficcast.com More technical support can be found at trafficcast.zendesk.com