SiteTrax.io Gate

SiteTrax.io Gate (https://www.sitetrax.io/gate) is an AI-driven solution designed to automate and enhance asset tracking at key entry and exit points across the supply chain. This includes facilities such as warehouses, distribution centers, and transportation hubs. By using advanced camera systems and AI technology, SiteTrax.io Gate captures videos of assets as they pass through gates and automatically extracts essential data like asset ID, GPS coordinates, and timestamps.This real-time data capture eliminates manual processes, improves operational efficiency, and provides accurate records for in-gates, out-gates and inventory management. SiteTrax.io Gate is ideal for streamlining gate operations, offering seamless visibility and tracking for assets throughout the entire supply chain.

- SiteTrax.io Gate - Camera Installation Requirements and Guidelines
- Bring Your Own Camera (BYOC)

SiteTrax.io Gate - Camera Installation Requirements and Guidelines

This document outlines the key responsibilities, expectations, and requirements when deploying a SiteTrax.io Virtual Gate camera system. If you have any questions regarding any of the topics covered, feel free to reach out to SiteTrax.io support.

SiteTrax.io Responsibilities

SiteTrax.io will be responsible for the following aspects of the Virtual Gate installation:

1. **Video Delivery**

SiteTrax.io will ensure that the video feed from the camera is transmitted to our cloud servers. We will also configure any necessary webhook destinations as required. For more information on integrating with the SiteTrax REST API, please refer to the relevant knowledge base article.

2. **Motion/Object Detection, Resolution, and Field of View**

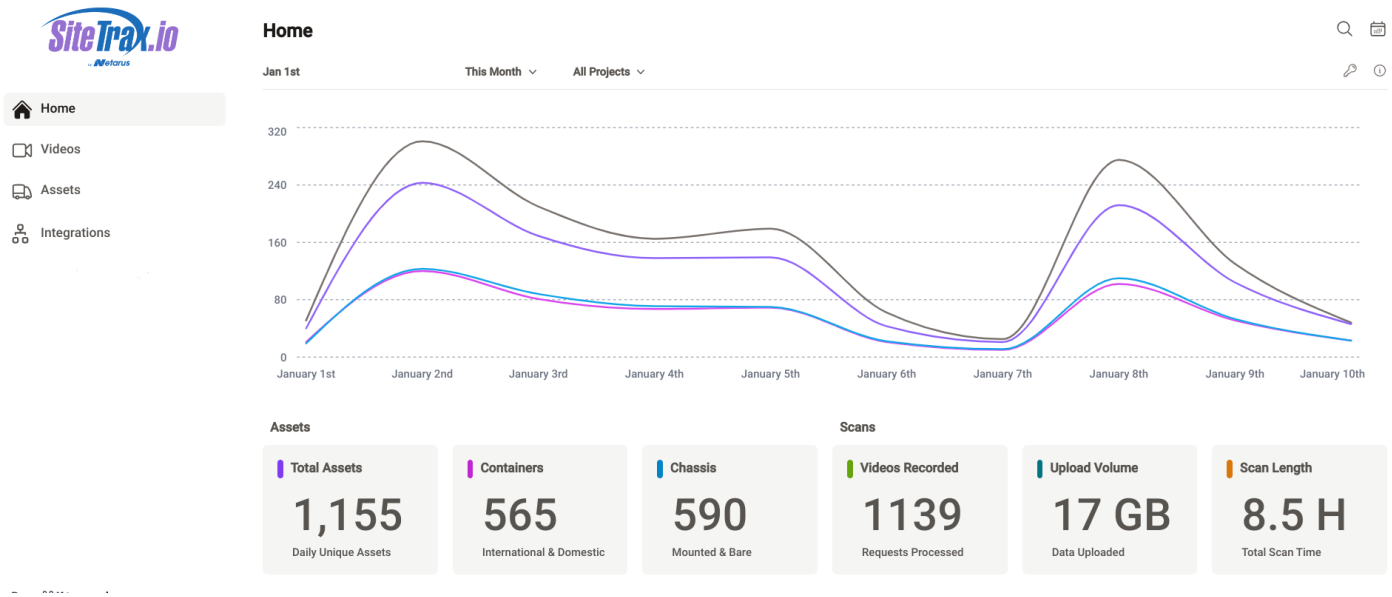
The SiteTrax.io team will configure motion detection based on the camera's orientation and field of view at each site. Since traffic patterns can vary by facility, SiteTrax.io will provide recommendations for camera orientation and layout to optimize performance.

3. **Camera Tuning (Day/Night Mode)**

Proper lighting is crucial for accurate object detection. SiteTrax.io can fine-tune cameras for lower light conditions and offer guidance on optimal lighting practices during setup.

4. **Access to SiteTrax.io "Digital Twin" Results**

The SiteTrax.io Service Portal (https://service.sitetrax.io) provides a list of all objects detected by the Virtual Gate camera, including captured images and original video recordings.



Customer Responsibilities

The customer is responsible for the following aspects when installing a SiteTrax.io Virtual Gate camera:

1. **Infrastructure**

Customers must ensure appropriate infrastructure is in place for camera installation, including power and internet connectivity. While a single camera may cover multiple directions, it is recommended to deploy dedicated cameras for each specific direction (e.g., in-gate, out-gate, or multiple lanes).

2. **Minimum One Camera per Lane**

For optimal performance, SiteTrax.io recommends installing one camera per lane. Using a single camera for both in-gate and out-gate operations or for covering multiple lanes is not recommended. Best practice is to deploy two Virtual Gate cameras per lane to capture traffic effectively.

3. **Maintenance**

Customers are responsible for ongoing maintenance, such as cleaning the camera lens and making repairs if the camera is damaged due to environmental factors or accidents.

4. **Firmware and Application Upgrades**

Occasionally, firmware or application updates may be required to ensure the camera has access to the latest features. SiteTrax.io will provide instructions on how to connect to the camera and perform upgrades. The customer is responsible for installing updates or providing remote access to SiteTrax.io for these tasks.

5. **Data Storage**

If raw video data and interpreted images need to be stored for longer than 90 days, SiteTrax.io recommends that customers work with the team to store the data on a customer-provided storage solution, such as Amazon AWS S3 buckets.

6. **Data Destination**

Once SiteTrax.io processes the "digital twin" of the detected object, the customer must maintain the final destination of this data. SiteTrax.io partners with providers that offer turn-key visualization platforms (e.g., YMS, WMS, TMS, TOS, ERP) to receive and process SiteTrax.io API data. Please refer to the SiteTrax.io Terms of Service for more information.

7. **Camera Mounting and Orientation**

After mounting the camera, adjustments may be needed to ensure optimal height, orientation, and angle. For example, to capture the back of containers and chassis, SiteTrax.io recommends mounting the camera at a height of approximately 3 ft (1 m) for chassis and containers, or 4 to 6 ft (1.3 to 2 m) for detecting only containers.

8. **Lighting**

Proper lighting is essential for detecting objects at night. SiteTrax.io recommends LED lighting with a color temperature of 7,000K (bright white) and a brightness of 5,000 lumens. Lights should be mounted approximately 20 ft from the objects being scanned for optimal results.

9. **Speed Control**

To avoid motion blur and ensure accurate capture, the vehicle speed should be controlled around the Virtual Gate. SiteTrax.io recommends using stop signs or speed bumps to slow vehicles down to 10 mph (16 kph) or less.

10. **Exception Handling**

In some cases, the system may not be able to identify certain objects, such as when container IDs are damaged or chassis IDs are missing. In such cases, SiteTrax.io will classify these objects as unknown. Customers should establish a process for manually reviewing and classifying these exceptions.

Need Additional Assistance?

These guidelines provide a foundation for the successful deployment of a SiteTrax.io Virtual Gate camera system. However, site-specific variables may affect performance. For further assistance with design, integration, or third-party services, please contact the SiteTrax.io team.

For questions or support, please visit the SiteTrax.io support page.

Revision #4
Created 14 October 2024 14:31:32 by SiteTrax.io Team
Updated 23 January 2025 15:08:56 by SiteTrax.io Team

Bring Your Own Camera (BYOC)

SiteTrax.io supports a **Bring Your Own Camera (BYOC)** model, letting you use a compatible third-party camera with the SiteTrax.io Gate platform instead of a SiteTrax.io-supplied device. This page explains what to evaluate before you deploy your own camera, the prerequisites and technical requirements for connecting it, and who is responsible for what. Read it alongside the SiteTrax.io Gate Camera Installation Requirements and Guidelines, which cover the mounting, lighting, speed control, and operational standards that apply to any Gate camera.

Before you commit to a BYOC deployment, it helps to work through the practical, operations-focused checks below with your SiteTrax.io account representative. The goal is to confirm how your camera will behave in real-world conditions and avoid surprises later.

Prerequisites

Before connecting your own camera, make sure the following are in place. Your SiteTrax.io account representative or the support team can help you with any of these:

- You have **signed up for SiteTrax.io** and have access to the SiteTrax.io Service Portal (see Accessing the Service Portal).

- You have a **project established** in the Service Portal for the site where the camera will be deployed (see Projects List).
- You have a compatible third-party camera that supports uploading to Amazon S3.
- You have an Amazon Web Services (AWS) account, or you plan to use SiteTrax.io-managed storage.

BYOC Evaluation Criteria

1. Camera Visibility and Capture

Confirm your camera can reliably see and capture the asset IDs you care about in real-world conditions:

- Viewing angle and distance
- Motion and vehicle speed
- Potential obstructions
- Differences across asset types (e.g., containers vs. chassis)

For recommended mounting heights, orientation, and speed control, see the Camera Installation Requirements and Guidelines. Note that the camera must meet the video specifications SiteTrax.io requires for accurate OCR — see SiteTrax.io API — Input (Video) for resolution, frame rate, lens, and GPS-encoding requirements.

2. Storage and Data Flow

- Many third-party cameras support **Amazon S3** as an upload destination.
- Decide whether you already have S3 buckets you prefer to use, or would rather use SiteTrax.io-managed storage.
- Align early on ownership, access, retention, and cost assumptions.

A note on data retention: When you use your own S3 buckets, you own the storage and therefore **define your own data retention policy** for raw video and interpreted images — keeping it as long or as short as your business and compliance needs require. You can manage this with S3 lifecycle rules; see Amazon's Managing the lifecycle of objects documentation. If you instead use **SiteTrax.io-managed storage** and need to keep raw video and interpreted images for longer than 90 days, SiteTrax.io recommends working with the team to store the data on a customer-provided solution such as Amazon AWS S3 — which is why customers who need longer retention typically bring their own S3 buckets.

For how video is ingested from S3, see SiteTrax.io API — Input (Video).

3. Remote Management and Access

- Confirm whether your camera offers a remote management interface the SiteTrax.io team can access for configuration, health monitoring, and troubleshooting.
- Decide whether management will stay with your team or the camera manufacturer.
- Where SiteTrax.io cannot manage the device directly, you will handle firmware/application upgrades and apply the configuration changes SiteTrax.io recommends.

4. Operating Conditions

- Available bandwidth at the site
- Performance at night and in low-light conditions
- Lighting quality — a key factor for OCR and computer vision accuracy (plan lighting per the installation guidelines)

S3 Upload and Integration Requirements

For your BYOC deployment to work with SiteTrax.io Gate, your camera must deliver video into the SiteTrax.io processing pipeline through Amazon S3. SiteTrax.io analyzes the video stored in the S3 bucket, builds the “digital twin” of each detected asset, and pushes the results to your REST API server and the SiteTrax.io Service Portal.

Setting Up the S3 Bucket and Upload Folder

Based on the documented ingestion flow, configure your storage as follows:

- **Use a dedicated S3 bucket.** You may use your own bucket or one provided by SiteTrax.io. For creating and configuring a bucket, see Amazon's Creating a bucket documentation.
- **Upload videos to the `notprocessed` folder.** Files should be uploaded to `{bucket_name}/notprocessed`. SiteTrax.io watches this folder and begins processing once an upload completes.
- **Upload using the presigned URL.** Your SiteTrax.io representative will give you a project-specific URL. A POST request (with the video file name and `"method": "put_object"`) returns a presigned URL that is active for 300 seconds; upload the video to that URL. See Amazon's Using presigned URLs documentation for the upload mechanics.
- **Meet the video specifications.** Keep each clip to about one minute, use 1920x1080 at 30 fps, a 6 mm or longer lens, and embed GPS in the subtitle stream (this can be fixed for

static cameras). Full details are in SiteTrax.io API — Input (Video).

- **Grant SiteTrax.io access.** If you bring your own bucket, you must provide the access keys/permissions so SiteTrax.io's ingestion services can read uploads. Request bucket and access-key details by submitting a support ticket or contacting your SiteTrax.io account representative.

Optional: Event Notifications

If your deployment uses event-driven notifications (for example, an Amazon SNS topic) to signal that a new object has been written to the bucket, the topic and its configuration values must be provided and confirmed by SiteTrax.io so they target the correct SiteTrax.io endpoint. For background on creating a topic, see Amazon's Creating an Amazon SNS topic documentation, then coordinate the specifics with SiteTrax.io as described below.

Obtaining the Bucket, Access, and Notification Details

To keep this infrastructure secure, the specific backend configuration values — including any notification topic details and the S3 access setup — are not published on this page. To obtain them and complete your configuration:

- Submit a **support ticket** via the SiteTrax.io support page, or contact your **SiteTrax.io account representative**, to request the S3 bucket, access keys, and any notification configuration for your deployment.
- The team will provide the project-specific upload URL and step-by-step setup instructions directly to you.
- Have your deployment information ready (site, intended S3 bucket, and camera details) so the team can scope the configuration to your environment.

If processed records do not appear after upload, check the SiteTrax.io status page; if all services are operational, submit a support ticket.

Who Is Responsible for What

This summary helps both you and the SiteTrax.io team understand where responsibilities land in a BYOC deployment.

SiteTrax.io is responsible for:

- Video ingestion from the agreed S3 destination and building the digital twin (see API — Input (Video))

- Motion / object detection tuning
- Camera tuning guidance for day and night operation
- Delivery of processed data and access to digital twin results via the SiteTrax.io Service Portal

You (the customer) are responsible for:

- Site infrastructure (power and connectivity)
- Camera maintenance (lens cleaning, orientation, power, etc)
- Firmware/application upgrades, or providing remote access for them
- Ownership of any customer-provided S3 storage, including defining your own data retention policy
- The final destination of processed data in your downstream systems (e.g., YMS, WMS, TMS — see Project Integrations)

Need Additional Assistance?

These criteria provide a foundation for evaluating and deploying your own camera with SiteTrax.io Gate. Site-specific variables may affect performance and integration. For help with sign-up, establishing a project, camera selection, S3 setup and access, or integration planning, submit a support ticket via the SiteTrax.io support page or reach out to your SiteTrax.io account representative.