

PRODUCT SHEET



INTRADA SYNERGY SERVER FOR TOLLING

Vendor agnostic video tolling software
with unparalleled performance



INTRODUCTION

Intrada® Synergy Server (ISS) is a high-performance image processing solution for video-based toll passages with the lowest operational cost for automated video passages in the market. Intrada® Synergy Server is camera and back office supplier agnostic providing flexibility to work with any existing or new toll system.

The Intrada® Synergy Server automation engine video analytics is project tuned to optimize read accuracy or error rate delivering unparalleled performance in over 160 countries worldwide. Intrada® Synergy Server deployments process millions of passages per day at unparalleled performance. Intrada® Synergy Server saves millions of dollars per year over the traditional image review systems currently deployed by many toll agencies.

A NEW VIDEO TOLLING PARADIGM

Q-Free is raising the bar with Intrada® Synergy Server by offering a new paradigm in video tolling systems to deliver unprecedented levels of performance. Intrada® Synergy Server provides an accurate, reliable, and predictable system that helps to avoid billing errors, leakage, and manual review loads, all of which are essential for smooth and cost efficient tolling operations. Q-Free introduces new concepts to define the performance of a system for an operator and integrator more accurately and continuously pushes the bar.

Video tolling requirements are typically based on a single value confidence or accuracy level. Using these technical concepts to define overall system performance

is inherently risky for a tolling operator and back office integrator. Most importantly: they fail to capture the predictability and reliability of the system. Intrada® Synergy Server combines several automation techniques combined with business logic, manual review, and self-learning feedback loops and advances beyond the traditional video tolling concept to achieve this predictability and reliability.

The primary performance measures for Intrada® Synergy Server are *automation rate and error rate* (or alternatively *read accuracy*). Automation rate is a measure of all passages that are human readable and automatable, and not excluded due to business logic (e.g. validating emergency vehicle exemptions).

Error rate specifies the percentage of correctly read automated passages and defines the (un)certainty of the automated results. Together they define the service level or performance of the video tolling system and allow reliable calculation of operating income and expenses.

Reducing uncertainty in the automated and manual results of a video processing system is pivotal for cost reduction and the only honest way to measure its value. This holistic across-the-tolling enterprise approach has been proven to yield significantly greater performance than just in-lane OCR techniques. Intrada® Synergy Server has yielded operational cost savings of several million dollars per year compared to their existing image review system.

LOWEST OPERATIONAL COST

Q-Free Intrada® Synergy Server excels in delivering video tolling solutions with the lowest operational cost in the market. It combines superior predictable system performance with a novel manual review process that greatly increases operator efficiency. After

a short tuning period to optimize for local conditions and customer requirements, Intrada® Synergy Server can reach $\geq 99\%$ automation rate with $\leq 0.05\%$ error rate / $\geq 99.95\%$ read accuracy.

Reliable automation rates and

error rates have proven to help reduce uncertainty in manual review resource planning and significantly reduce billing errors and leakage. Based on traffic volume history it makes make fine grained resource planning and operational budgeting possible.

ACTIONABLE REPORTING

Real-time reporting is an integral part of the Intrada® Synergy Server solution. It provides all the necessary information for operators, integrators, toll agency personnel, and Q-Free to monitor the health and service level of all facets of the operation. This makes it a valuable tool in identifying

issues in the tolling infrastructure and whether contractual obligations are being met for proper video toll collection operation. In addition, it provides real-time Synergy Servers into traffic flow and toll usage.

The technical status of the system is closely watched to identify potential

bottlenecks or opportunities for further performance improvements. Intrada® Synergy Server provides the means for system integrators and Q-Free to both closely monitor and tune their respective parts of the video toll system for maximum stability and throughput without hindering live toll system operation.

SCALABLE PERFORMANCE

Q-Free Intrada® ALPR (Automatic License Plate Recognition) is a core technology for Intrada® Synergy Server and used worldwide in traffic cameras, parking systems, low-emission zones, congestion charging schemes, among many others. It has leading accuracy, worldwide support and proprietary character recognition filters and processing for use in many adverse conditions.

Another core technology is Intrada® VSR (Vehicle Signature

Recognition). Intrada® VSR creates a unique vehicle signature or fingerprint that allows storing and re-recognizing vehicles that were previously manually reviewed. A second application is grouping passages (patented) without necessarily recognizing the license plate. Grouping also allows different images and manual input to be used for final recognition of a vehicle.

Intrada® Synergy Server can be scaled to any tolling project

size. Traffic volume increases, intermittent backlogs, as well as toll road extension can be comfortably accommodated. Q-Free Intrada® Synergy Server can be readily updated when new technology improvements are developed. It allows operators to extend the useful life of the system and further increase their operational excellence. Intrada® Synergy Server always produces the highest read accuracy rates, or lowest error rates, and leading automation rates.

Automation Performance

- Intrada ALPR
- Intrada VSR
- Grouping
- Multiple OCR engines
- Trusted plates and signatures
- Selective sampling

Robustness and Scalability

- Vertical and horizontal (dynamic) scalability
- Persistence
- Crash-tolerant
- Automated backups

Identification Options

- List-based identification and queuing
- First-N-seen assurance
- Use roadside ALPR results and metadata
- Pass-through and enriching of received metadata
- People / driver masking
- User configurable identification options

Extended Video Analytics

- Car model and make recognition (MMR)
- Vehicle color recognition
- Vehicle class identification

Reporting

- Audit trail per passage
- Operations performance
- System performance
- Image quality monitoring

Information Security

- Single Sign-On (SSO) compatible
- SSL encryption
- Authentication and password enforcement
- LDAP support
- One-way password encryption
- Configurable retention policy
- Vulnerability and patch management program
- SaaS escrow agreement

BENEFITS

- Lowest operational cost.
- Reliable and predictable automation of video based tolling solutions enables operational cost reductions and tolling revenue maximization.
- Guaranteed low error rates minimize erroneous billing and enhances the customer experience.
- Reduced solution complexity through seamless and transparent integration with any camera, back office, and vehicle registration system.
- Proven technology used around the world in large scale tolling and charging applications by industry-leading operators and integrators.

FEATURES

- Automation rates up 99% with a read accuracy of up to 99.95% / 0.05% error rate.
- Supports over 160 states and countries worldwide including new plate styles and all plate types issued in North America.
- Customizable business rules and business logic to integrate with existing business systems, processes and 3rd party interfaces.
- Video tolling performance and system reports provided out of the box.
- Supports any lane image capture system and all major back office platforms.
- Transparent integration in any road user charging system.

REFERENCES

- Florida Turnpike Enterprises, United States
- Texas Department of Transportation, United States
- Tunnil, Faroe Islands
- Far Eastern Electronic Toll Collection, Taiwan
- Don Muang Tollway, Thailand
- Trondheim Parkering, Norway

TECHNICAL SPECIFICATIONS

Interface	SOAP (XML)
Image format (direct)	Base-64 encoded JPG or TIF
Image resource URL	FTP, HTTP(S), SMB
Data storage	Volatile (normal operation) Configurable retention policy (manual review)
Deployment	Cloud Virtual / Native On-Premise



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