

IntelliSense User Guide

Complete Usage Manual for Your Trading Intelligence Platform

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Getting Started

What You Need to Know

IntelliSense can operate in multiple ways to fit your trading workflow:

1. Background Data Collection Mode

- Runs alongside your normal TESTRADE usage
- Zero impact on your trading performance
- Automatically collects correlation data for later analysis
- No GUI needed - works silently in background

2. Dedicated Analysis Mode

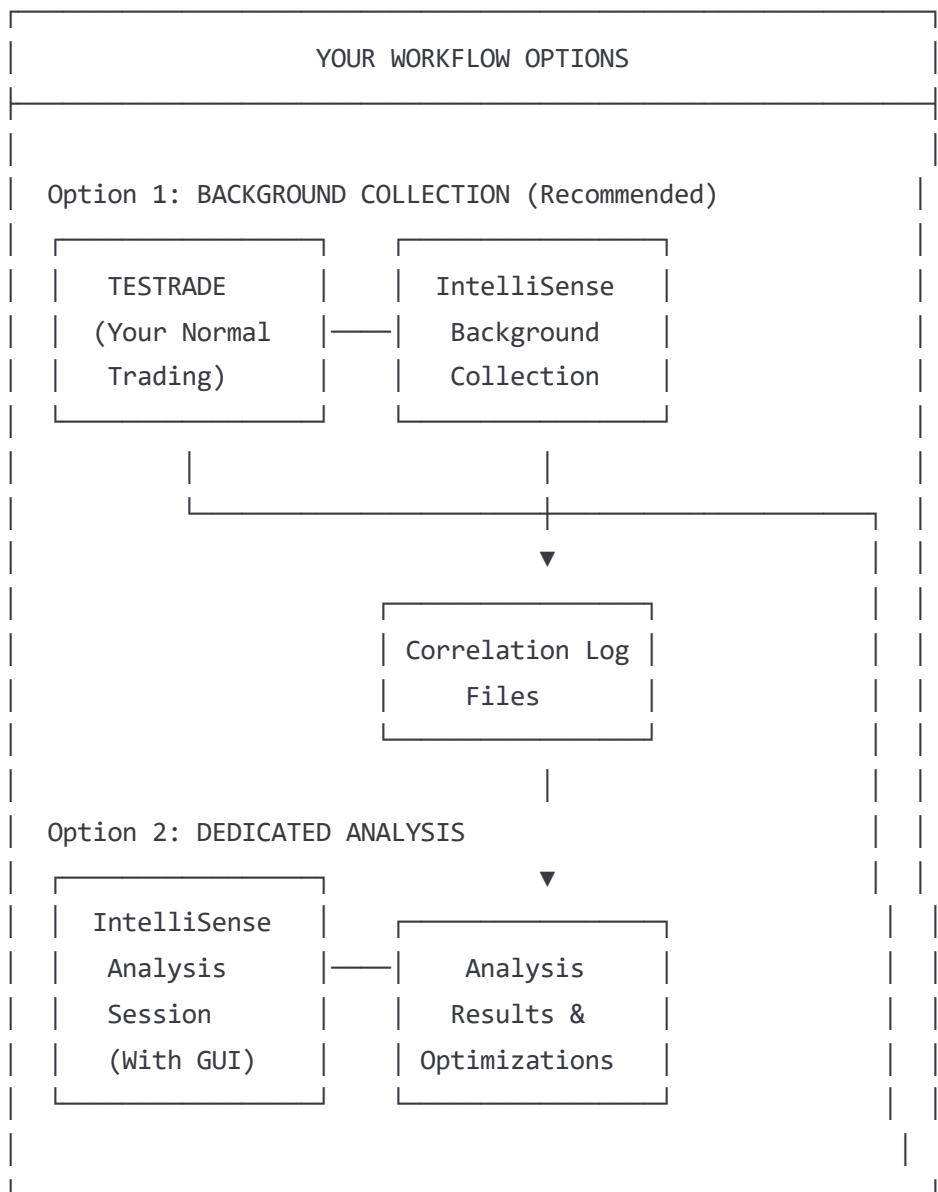
- Separate instance for replay and analysis
- Full GUI interface for interactive exploration

- Uses previously collected correlation data
- Can run on same machine or different machine

3. Controlled Injection Mode

- Dedicated session for safe experimentation
- Advanced GUI for experiment design and monitoring
- Isolated from your live trading
- Requires careful setup and oversight

System Architecture Overview



User Interface Options

1. GUI Interface (Recommended for Analysis)

IntelliSense Dashboard

```
python

# GUI Application Entry Point
python -m intellisense.gui.main_dashboard
```

Features:

- **Session Management:** Create, load, and manage analysis sessions
- **Real-Time Monitoring:** Live performance metrics during data collection
- **Interactive Analysis:** Visual exploration of optimization opportunities
- **Experiment Designer:** GUI for setting up controlled injection experiments
- **Results Visualization:** Charts, graphs, and performance comparisons

GUI Components

Main Dashboard


IntelliSense Trading Intelligence Platform


COLLECT DATA


ANALYZE SESSION

EXPERIMENT SAFELY

Active Sessions:

 Background Collection: ACTIVE (2h 34m)

 Analysis Session: session_20241205_morning

 Last Experiment: controlled_injection_test_1

Quick Actions:

[Start Collection]

[New Analysis]

[View Results]

Data Collection Panel

Data Collection Status		
OCR	PRICE	BROKER
<div><div></div>ACTIVE</div>	<div><div></div>ACTIVE</div>	<div><div></div>ACTIVE</div>
1,247 evts	8,392 evts	83 evts
Session: background_collection_20241205		
Duration: 2h 34m 17s		
Data Quality: Excellent (99.7% correlated events)		
<div>[Pause Collection] [Stop & Analyze] [Settings]</div>		

Analysis Results Panel

Analysis Results - Session: morning_optimization	
Performance Improvements Found:	
<div>OCR OPTIMIZATION</div>	
Current Avg Latency: 15.3ms	
Optimized Latency: 12.1ms (3.2ms improvement)	
Confidence: 94% Impact: \$1,247/day	
Recommendation: Increase OCR threads from 2 to 4	
<div>[Apply Optimization] [Test Safely] [More Details]</div>	
<div>BROKER OPTIMIZATION</div>	
Current Avg Response: 8.7ms	
Potential Improvement: 1.4ms (order timeout adjustment)	
Confidence: 76% Impact: \$423/day	
Recommendation: Adjust order timeout from 50ms to 35ms	
<div>[Apply Optimization] [Test Safely] [More Details]</div>	

2. Command Line Interface (For Automation)

CLI Commands

```
bash
```

```
# Start background data collection
```

```
intellisense collect start --session-name "morning_session"
```

```
# Run analysis on collected data
```

```
intellisense analyze --session-path "./sessions/morning_session" --output-format gui
```

```
# Apply optimization safely
```

```
intellisense optimize apply --recommendation-id "ocr_threads_001" --validation-mode safe
```

```
# Run controlled experiment
```

```
intellisense experiment run --config "./experiments/signal_timing_test.yaml"
```

3. Web Interface (Future Enhancement)

- **Browser-based dashboard** for remote monitoring
 - **REST API** for integration with other tools
 - **Webhook notifications** for optimization alerts
 - **Mobile-responsive** design for monitoring on-the-go
-

Data Collection Methods

Method 1: Background Collection (Recommended)

How It Works

```
python
```

```
# IntelliSense runs as background service alongside TESTRADE
```

```
class BackgroundCollectionService:
```

```
    def start_background_collection(self):
```

```
        # Activates enhanced components in your existing TESTRADE instance
```

```
        self.activate_data_capture_mode()
```

```
        # Starts collecting correlation data silently
```

```
        self.start_correlation_logging()
```

```
        # Zero impact on your trading performance
```

```
        # Data saved to: C:/TESTRADE/intellisense_sessions/
```

Setup Process

1. One-Time Configuration

```
bash

# Configure IntelliSense for background collection
intellisense config setup --mode background

# Test the configuration
intellisense config test --verify-integration
```

2. Start Collection

```
bash

# Start collecting data (runs until you stop it)
intellisense collect start --session-name "daily_collection"
```

3. Your Normal Trading

- Trade normally with TESTRADE
- Zero performance impact
- Data automatically collected in background
- Small log files created with timing data

4. Stop Collection

```
bash

# Stop when you want to analyze
intellisense collect stop --analyze-now
```

What Gets Collected

yaml

Data Collected Automatically:

OCR Events:

- Frame processing timestamps
- OCR result data
- Processing latency measurements
- Confidence scores

Price Events:

- Market data reception timestamps
- Price tick processing latency
- Data source information
- Quote/trade classifications

Broker Events:

- Order acknowledgment timestamps
- Fill confirmation timing
- Response processing latency
- Order status changes

File Locations:

Session Directory: "C:/TESTRADE/intellisense_sessions/{session_name}/"

OCR Data: "ocr_correlation.jsonl"

Price Data: "price_correlation.jsonl"

Broker Data: "broker_correlation.jsonl"

Session Config: "session_config.json"

Method 2: Dedicated Collection Session

When to Use

- Testing specific scenarios
- Collecting data for particular market conditions
- Running controlled experiments
- Isolating specific trading strategies

Setup Process

```
python
```

```
# Create dedicated collection session
```

```
intellisense session create --name "volatility_test" --mode dedicated
```

```
# Configure specific collection parameters
```

```
intellisense session config --symbols "AAPL,MSFT,GOOGL" --duration "2h"
```

```
# Start dedicated collection
```

```
intellisense session start --with-gui
```

Method 3: Controlled Injection Collection

Advanced Data Collection with Safe Trading

```
python
```

```
# ADVANCED: Controlled injection for optimization testing
```

```
intellisense experiment create --name "signal_timing_optimization"
```

```
# Configure safe test trades
```

```
intellisense experiment config \
```

```
  --symbols "AAPL" \
```

```
  --max-position 10 \
```

```
  --test-account "paper_trading" \
```

```
  --isolation-mode "full"
```

```
# Execute controlled experiment
```

```
intellisense experiment run --with-monitoring-gui
```

Safety Features

- **Position Isolation:** Test trades don't affect your real positions
- **Separate Account:** Uses paper trading or separate broker account
- **Automatic Limits:** Maximum position sizes and exposure limits
- **Emergency Stop:** Immediate halt and cleanup if needed

Running IntelliSense Sessions

Session Types Explained

1. Background Collection Session

Purpose: Collect data while trading normally **Duration:** Hours to days **Impact:** Zero performance impact
Output: Correlation logs for later analysis

```
bash

# Start background collection
intellisense collect start --session-name "week_1_data"

# Check status anytime
intellisense collect status

# Stop when ready to analyze
intellisense collect stop
```

2. Analysis Session

Purpose: Analyze collected data and find optimizations **Duration:** Minutes to hours **Impact:** No impact on live trading **Output:** Optimization recommendations and performance insights

```
bash

# Run analysis on collected data
intellisense analyze start \
  --session-path "./sessions/week_1_data" \
  --gui \
  --engines "ocr,price,broker"

# View results in GUI or generate report
intellisense analyze report --format html
```

3. Optimization Testing Session

Purpose: Safely test optimization recommendations **Duration:** Minutes to hours **Impact:** No impact on live trading (uses simulation) **Output:** Validated optimizations ready for deployment

```
bash

# Test optimization safely before applying
intellisense optimize test \
  --recommendation-id "ocr_threads_001" \
  --simulation-mode \
  --confidence-threshold 90
```

4. Controlled Injection Session

Purpose: Generate controlled data for optimization research **Duration:** Minutes to hours **Impact:** Controlled test trades (isolated from live trading) **Output:** High-precision optimization data

```
bash

# Advanced: Controlled injection experiment
intellisense experiment run \
  --config "./experiments/latency_optimization.yaml" \
  --safety-mode strict \
  --gui
```

Session Management

Creating Sessions

```
python

# Python API for session management
from intellisense import SessionManager

session_manager = SessionManager()

# Create different types of sessions
background_session = session_manager.create_background_session(
    name="daily_collection",
    duration_hours=8,
    symbols=["AAPL", "MSFT", "GOOGL"]
)

analysis_session = session_manager.create_analysis_session(
    name="optimization_analysis",
    data_source="./sessions/daily_collection",
    engines=["ocr", "price", "broker"]
)
```

Session Configuration Files

yaml

Example: background_collection_config.yaml

session_config:

name: "daily_background_collection"

type: "background_collection"

duration: "8h"

data_collection:

ocr_events: true

price_events: true

broker_events: true

correlation_logging: true

performance:

max_latency_overhead_us: 100

queue_size: 10000

flush_interval_ms: 1000

output:

base_path: "C:/TESTRADE/intellisense_sessions"

compression: true

encryption: false

yaml

Example: analysis_session_config.yaml

```
analysis_config:
  name: "morning_optimization_analysis"
  type: "analysis"

input:
  session_path: "./sessions/daily_background_collection"

engines:
  ocr_intelligence:
    enabled: true
    validation_threshold: 0.95
    performance_analysis: true

  broker_intelligence:
    enabled: true
    latency_analysis: true
    order_validation: true

  price_intelligence:
    enabled: true
    feed_analysis: true
    timing_analysis: true

output:
  results_format: ["json", "html", "gui"]
  recommendations_file: "optimization_recommendations.json"
  detailed_analysis: true
```

Parallel Operations Guide

Can I Run IntelliSense While Trading?

✅ **YES - Background Collection Mode (Recommended)**

This is the designed workflow:

Your Normal Day:

9:30 AM: Start background collection	
intellisense collect start --session "today"	
9:30 AM - 4:00 PM: Trade normally with TESTRADE	
- Zero performance impact	
- Data collected automatically	
- No GUI needed	
4:00 PM: Stop collection and analyze	
intellisense collect stop --analyze-now	
4:15 PM: Review optimization recommendations	
intellisense gui analyze --session "today"	
Evening: Apply safe optimizations for tomorrow	
intellisense optimize apply --safe-only	

Multiple Instance Options

Option 1: Same Machine, Background Service

bash

Terminal 1: Your normal TESTRADE

./testtrade.exe

Terminal 2: Start IntelliSense background collection

intellisense collect start --session "live_data" --background

Terminal 3: (Later) Analyze in separate session

intellisense analyze --session "./sessions/live_data" --gui

Option 2: Separate Machines

```
bash
```

```
# Trading Machine: Run TESTRADE + Background Collection
```

```
intellisense collect start --session "trading_data" --sync-to "analysis_machine"
```

```
# Analysis Machine: Receive data and analyze
```

```
intellisense analyze --remote-session "trading_machine:/sessions/trading_data" --gui
```

Option 3: Time-Separated Workflow

```
bash
```

```
# During Trading Hours: Only collect data
```

```
intellisense collect start --session "market_hours" --quiet
```

```
# After Market Close: Analyze collected data
```

```
intellisense collect stop
```

```
intellisense analyze start --session "./sessions/market_hours" --full-analysis
```

Resource Usage

Background Collection Impact

```
yaml
```

CPU Usage: < 2% additional overhead

Memory Usage: < 500MB additional RAM

Disk I/O: < 10MB/hour of correlation logs

Network: 0 additional network usage

Latency Impact:

OCR Processing: < 0.1ms additional latency

Price Processing: < 0.05ms additional latency

Broker Processing: < 0.1ms additional latency

Analysis Session Resources

yaml

CPU Usage: 20-50% during analysis (separate process)

Memory Usage: 2-8GB during analysis (depends on data size)

Disk I/O: Heavy read of correlation logs during analysis

Network: 0 (unless using remote data)

Note: Analysis runs in completely separate process from trading

Daily Workflow Examples

Typical Day 1: Background Collection + Evening Analysis

Morning Setup (2 minutes)

```
bash

# 9:25 AM - Before market open
cd C:/TESTRADE
intellisense collect start --session "$(date +%Y%m%d)_trading" --background

# Verify collection is running
intellisense status

# Output:  Background collection active (0 events collected)
```

Normal Trading (All Day)

- Use TESTRADE exactly as normal
- No difference in performance or behavior
- IntelliSense silently collects timing data
- Small correlation log files created automatically

Optional: Check Status During Day

```
bash

# Quick status check (optional)
intellisense status

# Output:  Background collection active (1,247 OCR, 8,392 Price, 83 Broker events)
```

End of Day Analysis (30 minutes)

```
bash
```

```
# 4:00 PM - Market close
```

```
intellisense collect stop --session "$(date +%Y%m%d)_trading"
```

```
# Start analysis with GUI
```

```
intellisense analyze start --session "./sessions/$(date +%Y%m%d)_trading" --gui
```

```
# Analysis GUI opens showing:
```

```
# - Performance bottlenecks found
```

```
# - Optimization recommendations
```

```
# - Confidence levels
```

```
# - Estimated profit impact
```

Apply Optimizations (15 minutes)

```
bash
```

```
# Apply safe optimizations for tomorrow
```

```
intellisense optimize apply --safe-only --schedule "next_trading_day"
```

```
# Test risky optimizations in simulation
```

```
intellisense optimize test --medium-risk --simulation-mode
```

Typical Day 2: Dedicated Analysis Session

Use Case: Deep Analysis of Specific Trading Session

```
bash
```

```
# Load yesterday's data for detailed analysis
```

```
intellisense session load --path "./sessions/20241204_trading"
```

```
# Start comprehensive analysis with GUI
```

```
intellisense analyze comprehensive --gui --engines all
```

```
# GUI provides:
```

```
# - Detailed latency breakdowns
```

```
# - Frame-by-frame OCR analysis
```

```
# - Trade-by-trade broker response analysis
```

```
# - Market condition correlations
```

```
# - Parameter sensitivity analysis
```


Weekly Optimization Routine

Sunday Evening: Weekly Review

```
bash

# Analyze entire week's trading data
intellisense analyze weekly \
  --sessions "./sessions/2024W49_*" \
  --comparison-mode \
  --generate-report

# Output: weekly_optimization_report.html
# - Week-over-week performance trends
# - Cumulative optimization opportunities
# - Market condition adaptations needed
# - Strategic recommendations
```

Advanced: Controlled Injection Day

Use Case: Testing New Strategy Parameters

```
bash

# Setup controlled injection experiment
intellisense experiment create \
  --name "signal_timeout_optimization" \
  --config "./experiments/signal_timeout_test.yaml"




# Run safe controlled injection with GUI monitoring
intellisense experiment run \
  --name "signal_timeout_optimization" \
  --gui \
  --safety-mode strict

# GUI shows:
# - Real-time experiment progress
# - Safety monitoring dashboards
# - Preliminary results
# - Emergency stop controls
```

GUI Interface Guide

Main Dashboard Components

1. Session Manager

Session Manager		
Recent Sessions:		
<div><div> 20241205_trading</div><div>[COLLECTING] [ANALYZE]</div></div> <div><div> 20241204_analysis</div><div>[COMPLETED] [VIEW RESULTS]</div></div> <div><div> signal_timing_exp</div><div>[COMPLETED] [VIEW RESULTS]</div></div>		
Quick Actions:		
<div>[New Collection Session] [New Analysis] [New Experiment]</div>		
Templates:		
<div>[Daily Collection] [Weekly Analysis] [Parameter Test]</div>		


2. Real-Time Monitoring

Live Performance Monitor

OCR PERFORMANCE

Current Latency: 15.3ms

Target: < 12ms

Status:  OPTIMIZATION OPPORTUNITY


Last 100 frames:

 87%


BROKER PERFORMANCE


Response Time: 8.7ms

Target: < 10ms

Status:  GOOD

Recent Orders:


 AAPL BUY 100 (7.2ms)

 MSFT SELL 50 (9.1ms)

PRICE FEED PERFORMANCE





Feed Latency: 2.1ms

Events/sec: 847

Status:  EXCELLENT

Last Update: 09:34:22.147

3. Analysis Results Viewer

Analysis Results - Session: 20241205_morning	
 OPTIMIZATION OPPORTUNITIES FOUND: 3	
HIGH IMPACT	
	OCR Thread Optimization
Current: 15.3ms avg → Optimized: 12.1ms (-3.2ms)	
Confidence: 94% Daily Impact: \$1,247	
[Apply Now] [Test First] [More Details]	
MEDIUM IMPACT	
	Signal Timeout Adjustment
Current: 50ms → Optimized: 35ms (-15ms)	
Confidence: 76% Daily Impact: \$423	
[Apply Now] [Test First] [More Details]	
EXPERIMENTAL	
	Advanced OCR Configuration
Potential improvement: 2.1ms	
Confidence: 52% Requires Testing	
[Design Experiment] [More Details]	

4. Experiment Designer

Controlled Injection Experiment Designer	
Experiment Name: signal_timeout_optimization_v2	
SAFETY CONFIGURATION	
Isolation Mode:	<input checked="" type="checkbox"/> Full Position Isolation
Max Position Size:	[100] shares per symbol
Max Total Exposure:	[\$10,000]
Auto-Stop Trigger:	<input checked="" type="checkbox"/> 5-minute timeout
Emergency Contact:	[trader@company.com]
EXPERIMENT PARAMETERS	
Parameter:	Signal Timeout
Current Value:	[50]ms
Test Values:	[30, 35, 40, 45]ms
Test Symbols:	[AAPL] [MSFT] [GOOGL]
Test Duration:	[30] minutes per configuration
Sample Size:	[100] trades per test
[Preview Experiment] [Run Safety Check] [Start Experiment]	

GUI Navigation

Main Menu Structure

File

- └─ New Session
 - | └─ Background Collection
 - | └─ Analysis Session
 - | └─ Controlled Experiment
- └─ Open Session
- └─ Recent Sessions
- └─ Export Results

Tools

- └─ Configuration Manager
- └─ Performance Monitor
- └─ Optimization Recommendations
- └─ Safety Checks

View

- └─ Dashboard
- └─ Real-Time Monitoring
- └─ Analysis Results
- └─ Experiment Designer
- └─ System Status

Help

- └─ User Guide
- └─ Tutorial Videos
- └─ Troubleshooting
- └─ Contact Support

Keyboard Shortcuts

yaml

Global Shortcuts:

- Ctrl+N: New Session
- Ctrl+O: Open Session
- Ctrl+S: Save Results
- Ctrl+R: Refresh Data
- F5: Refresh Real-Time Data
- Escape: Emergency Stop (during experiments)

Analysis Mode:

- Space: Play/Pause Replay
- ←/→: Previous/Next Event
- Ctrl+F: Find Specific Event
- Ctrl+Z: Zoom to Selection

Monitoring Mode:

- F1: Toggle OCR Monitor
- F2: Toggle Price Monitor
- F3: Toggle Broker Monitor
- F12: Full Screen Mode

Command Line Interface

Basic Commands

Data Collection

bash

Start background collection

```
intellisense collect start [options]
  --session-name TEXT      Session name
  --duration TEXT          Duration (e.g., "8h", "all_day")
  --symbols TEXT           Comma-separated symbols
  --background             Run as background service
  --quiet                  Minimal output
  --config FILE            Custom configuration file
```

Stop collection

```
intellisense collect stop [options]
  --session-name TEXT      Session to stop
  --analyze-now            Start analysis immediately
  --save-config            Save session config for reuse
```

Check collection status

```
intellisense collect status [options]
  --session-name TEXT      Specific session status
  --all                    All active sessions
  --detailed               Detailed statistics
```

Analysis Commands

bash

Run analysis

```
intellisense analyze start [options]
  --session-path PATH      Path to collected data
  --engines TEXT           Engines to run (ocr,price,broker,all)
  --gui                    Open GUI interface
  --background             Run analysis in background
  --output-format TEXT     Output format (json,html,csv)
```

Generate reports

```
intellisense analyze report [options]
  --session-path PATH      Analysis session path
  --format TEXT            Report format (html,pdf,json)
  --template TEXT          Report template
  --output-file PATH       Output file path
```

Optimization Commands

bash

Apply optimizations

intellisense optimize apply [options]

--recommendation-id TEXT Specific recommendation ID

--safe-only Apply