

# Sports Bar TV Controller - System Documentation

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## Server Information

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### Primary Server

- **URL:** `http://24.123.87.42:3000/`
- **IP Address:** `24.123.87.42`
- **SSH Port:** `224`
- **RDP Port:** `3389`
- **Application Port:** `3000` (Next.js application)

### Access Methods

1. **Web Application:** `http://24.123.87.42:3000/`
2. **SSH:** `ssh -p 224 user@24.123.87.42`
3. **RDP:** Connect to `24.123.87.42:3389` using Remote Desktop

## Atlas Audio Processor Configuration

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### Processor Details

- **Model:** AZMP8 (Atmosphere Signal Processor with 1200W Amplifier)
- **Type:** 8-Zone Signal Processor with Integrated Amplification
- **Manufacturer:** AtlasIED
- **IP Address:** `192.168.5.101`
- **Control Port:** `23` (Telnet/TCP)
- **Web Interface:** Port `80` (HTTP)

### Specifications

- **Zones:** 8 independently controlled zones
- **Inputs:** 10 analog audio inputs
  - 6 Mic/Line (Euroblock)
  - 4 RCA (mono-summed)
- **Outputs:** 8 amplified outputs + 2 line outputs
- **Total System Power:** 1230W
- **Accessory Ports:** 4 (RJ45) for smart accessories
- **Network Control:** Dedicated Ethernet port

### 3rd Party Control Protocol

- **Protocol:** JSON-RPC 2.0 over TCP
- **Connection:** Telnet on port `23`
- **Message Format:** `{"jsonrpc": "2.0", "method": "...", "params": {...}}\r\n`
- **Authentication:** 3rd Party Control must be enabled in Atlas web interface

## Control Methods

The Atlas processor supports the following methods:

- **set**: Set a parameter value
- **bmp** (bump): Increment/decrement a parameter
- **sub**: Subscribe to parameter updates
- **unsub**: Unsubscribe from updates
- **get**: Get current parameter value

## Parameter Format

Parameters use 0-based indexing:

- Zone 1 = ZoneGain\_0 , ZoneMute\_0 , ZoneSource\_0
- Zone 2 = ZoneGain\_1 , ZoneMute\_1 , ZoneSource\_1
- etc.

## Example Commands

```
// Set Zone 1 volume to 50%
{"jsonrpc": "2.0", "method": "set", "params": {"param": "ZoneGain_0", "pct": 50}}

// Mute Zone 2
{"jsonrpc": "2.0", "method": "set", "params": {"param": "ZoneMute_1", "val": 1}}

// Set Zone 3 source to Source 1 (index 0)
{"jsonrpc": "2.0", "method": "set", "params": {"param": "ZoneSource_2", "val": 0}}

// Subscribe to Zone 1 gain updates
{"jsonrpc": "2.0", "method": "sub", "params": {"param": "ZoneGain_0", "fmt": "val"}}
```

## Application Architecture

### Frontend

- **Framework**: Next.js 14 with App Router
- **UI Library**: React with TypeScript
- **Styling**: Tailwind CSS + Custom Components
- **State Management**: React Hooks

### Backend

- **Runtime**: Node.js
- **API**: Next.js API Routes
- **Database**: PostgreSQL with Prisma ORM
- **Real-time**: TCP sockets for Atlas communication

## Atlas Integration Components

### 1. TCP Client Library ( src/lib/atlasClient.ts )

- Implements JSON-RPC 2.0 protocol
- Manages persistent TCP connections
- Handles command queuing and responses
- Automatic reconnection logic

## 2. Control API ( `src/app/api/audio-processor/control/route.ts` )

- REST API for zone control
- Maps UI actions to Atlas TCP commands
- Handles authentication and validation
- Returns formatted responses

## 3. Frontend Components

- **AtlasProgrammingInterface**: Configuration and setup UI
- **AudioZoneControl**: Zone volume and source control
- **AtlasAIMonitor**: Real-time monitoring and AI analysis

# Setup and Configuration

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## 1. Atlas Processor Initial Setup

1. Connect to Atlas web interface at `http://192.168.5.101`
2. Navigate to Settings > Third Party Control
3. Enable "Third Party Control"
4. Note: Default credentials are typically admin/admin (verify with physical unit)

## 2. Application Configuration

1. Add processor in Audio Control Center
2. Enter processor details:
  - Name: (e.g., "Main Audio Processor")
  - Model: AZMP8
  - IP Address: 192.168.5.101
  - Port: 80 (for web interface)
  - TCP Port: 23 (for control commands)
3. Test connection using "Test Connection" button

## 3. Zone Configuration

1. Define zone names and assignments
2. Configure input sources
3. Set default volumes and mute states
4. Save configuration to database

# Troubleshooting

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## Atlas Connection Issues

### Problem: Cannot connect to Atlas processor

#### Solutions:

1. Verify network connectivity: `ping 192.168.5.101`
2. Check if 3rd Party Control is enabled in Atlas web interface
3. Verify firewall settings allow port 23 (telnet)
4. Check TCP port is not already in use
5. Review Atlas logs for connection attempts

**Problem: Commands not executing****Solutions:**

1. Verify message format includes `\r\n` terminator
2. Check parameter names match Atlas configuration
3. Ensure zone/source indices are 0-based
4. Review Atlas response messages for errors
5. Check if processor is in a locked state

**Problem: Subscriptions not receiving updates****Solutions:**

1. Verify subscription was successful (check response)
2. Ensure connection remains open
3. Check for UDP port 3804 if using meter subscriptions
4. Review buffer handling in TCP client

**Application Issues****Problem: Processor shows “offline” status****Solutions:**

1. Click “Test Connection” button
2. Verify processor IP address and ports
3. Check network connectivity between server and processor
4. Review application logs for connection errors

**Problem: Configuration not saving****Solutions:**

1. Check database connection
2. Verify Prisma schema is up to date
3. Run database migrations if needed
4. Check application logs for errors

**Database Schema**

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**AudioProcessor Table**

- `id` : UUID (primary key)
- `name` : String
- `model` : String (e.g., “AZMP8”)
- `ipAddress` : String
- `port` : Integer (web interface port)
- `tcpPort` : Integer (TCP control port, default 23)
- `zones` : Integer (number of zones)
- `status` : Enum (online, offline, error)
- `username` : String (optional, encrypted)
- `password` : String (optional, encrypted)
- `lastSeen` : DateTime
- `createdAt` : DateTime
- `updatedAt` : DateTime

## AudioZone Table

- `id` : UUID (primary key)
- `processorId` : UUID (foreign key)
- `zoneNumber` : Integer (1-based)
- `name` : String
- `volume` : Integer (0-100)
- `muted` : Boolean
- `currentSource` : String
- `createdAt` : DateTime
- `updatedAt` : DateTime

## Security Considerations

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1. **Credentials Storage:** Atlas credentials are encrypted in database
2. **Network Security:** Ensure firewall rules restrict access to ports 23, 80, 3000
3. **Authentication:** Implement authentication for web application access
4. **Audit Logging:** Log all control commands for accountability

## Maintenance

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### Regular Tasks

1. **Daily:** Monitor processor status and connectivity
2. **Weekly:** Review application logs for errors
3. **Monthly:** Backup database and configuration
4. **Quarterly:** Review and update firmware if available

### Log Locations

- **Application Logs:** Check server console output
- **Atlas Logs:** Available in Atlas web interface
- **Database Logs:** PostgreSQL logs (if enabled)

## Reference Documentation

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### Atlas Documents

1. **ATS007275-Atmosphere-Data-Sheet\_RevE.pdf:** Full specifications
2. **ATS006190F-AZM4-AZM8-Data-Sheet.pdf:** Model-specific details
3. **ATS006993-B-AZM4-AZM8-3rd-Party-Control.pdf:** TCP control protocol

### AtlasIED Resources

- **Website:** <https://www.atlasied.com>
- **Support:** [support@atlasied.com](mailto:support@atlasied.com)
- **Phone:** (800) 876-3333

## Version History

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### **v1.0.0 (2024-10-18)**

- Initial system documentation
  - Atlas AZMP8 integration completed
  - TCP control protocol implemented
  - Fixed rendering errors in AtlasProgrammingInterface
  - Updated TCP port from 3804 to 23 (correct telnet port)
  - Added defensive null checks for array rendering
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Maintained By: System Administrator

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