Sports Bar TV Controller - System Documentation

Server Information

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

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
- **TCP Port**: 5321 (for control commands and subscription updates)
- **UDP Port**: 3131 (for metering information subscription updates)
- **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

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: 5321 (for control commands - JSON-RPC 2.0)
   - UDP Port: 3131 (for metering data - optional)
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

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 5321 (TCP for control) and port 3131 (UDP for metering)
4. Check TCP port 5321 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 3131 if using meter subscriptions (metering data)
4. Review buffer handling in TCP client
5. Note: Non-metering subscription updates are received via TCP port 5321

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

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

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

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

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
- **Phone**: (800) 876-3333

Version History

v1.1.0 (2024-10-19)

- **CRITICAL FIX**: Updated TCP port from 23 (telnet) to 5321 (correct Atmosphere DSP control port)
- Updated UDP port reference to 3131 for metering data
- This fixes the issue where the Atlas processor was not showing real inputs/outputs
- All Atlas TCP client libraries updated to use correct port 5321
- Updated API routes and hardware query services
- Documentation updated with correct port information

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 (incorrect - see v1.1.0)
- Added defensive null checks for array rendering

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