Atlas Processor Connection Fix - Summary

Problem Identified

Your Atlas AZMP8 processor (named “Graystone”) is showing as **offline** due to several issues:

1. Invalid IP Address Format

- **Current IP**: `192.168.5.0/F90`
- **Issue**: The `/F90` suffix is not valid in an IP address format
- **Should be**: `192.168.5.0` (without any suffix)

2. Inadequate Connection Testing

- Only tested HTTP on port 80
- Short 5-second timeout
- No automatic status updates
- No IP validation or cleaning

3. Missing User Feedback

- No way to manually test connections
- No troubleshooting guidance
- No indication of what went wrong

Solutions Implemented

✅ IP Address Validation & Cleaning

- Automatically detects and removes invalid suffixes like `/F90`
- Validates IP address format (xxx.xxx.xxx.xxx)
- Checks each octet is between 0-255
- Updates database with cleaned IP address

✅ Multi-Protocol Connection Testing

- Tests both **HTTP (port 80)** and **HTTPS (port 443)**
- Atlas processors use port 443 for cloud communications
- Tries both protocols automatically
- Returns detailed results for each attempt

✅ Improved Timeout & Reliability

- Increased timeout from 5 seconds to 10 seconds
- Better error handling for network issues
- Distinguishes between timeout, connection refused, and other errors

✅ Test Connection Button

- Added ⚡ icon button on each processor card
- Click to manually test connection
- Shows real-time feedback

- Automatically updates processor status
- Cleans IP address if needed

✅ Detailed Troubleshooting

- Provides step-by-step troubleshooting on failure
- Shows which protocols were tested
- Suggests specific actions to resolve issues
- Logs detailed information to console

How to Fix Your Processor

Option 1: Use the Test Connection Button (Recommended)

1. Navigate to **Audio Control Center → Atlas System → Configuration**
2. Find the “Graystone” processor card
3. Click the ⚡ **Test Connection** button
4. The system will:
   - Clean the IP address from `192.168.5.0/F90` to `192.168.5.0`
   - Test both HTTP and HTTPS connections
   - Update the status to “online” if successful
   - Save the cleaned IP address

Option 2: Delete and Re-add

1. Click the 🗑️ **Delete** button on the Graystone processor
2. Click **+ Add Processor**
3. Enter:
   - **Name**: Graystone
   - **Model**: AZMP8
   - **IP Address**: `192.168.5.0` (without /F90)
   - **Port**: `80`
4. Click **Add Processor**
5. Click ⚡ **Test Connection** to verify

Troubleshooting Steps

If the connection still fails after cleaning the IP address:

1. Verify Network Connectivity

```
ping 192.168.5.0
```

- If this fails, the processor is not reachable on the network
- Check physical network connection
- Verify the processor is powered on

2. Check Web Interface Access

Open a browser and try:
- `http://192.168.5.0`
- `https://192.168.5.0`

If you can access the web interface, the processor is online.

3. Verify IP Address

- Check the processor's front panel display
- Confirm the IP address matches `192.168.5.0`
- If different, update the configuration

4. Check Network Configuration

- Ensure your computer and the processor are on the same network
- If on different subnets, verify routing is configured
- Check firewall settings (allow ports 80 and 443)

5. Check Processor Configuration

The AZMP8 should have:
- **14 inputs** (10 physical + 4 matrix audio buses)
- **16 outputs** (8 amplified + 8 line-level)
- **Web interface** on port 80 or 443
- **Network control** enabled

Files Changed

1. `/src/app/api/audio-processor/test-connection/route.ts`

Changes:
- Added `cleanIpAddress()` function to validate and clean IP addresses
- Added `testProcessorConnection()` to test multiple protocols
- Increased timeout from 5s to 10s
- Added detailed error messages and troubleshooting steps
- Automatically updates database with cleaned IP addresses

Key Features:

```
// Cleans IP address: "192.168.5.0/F90" → "192.168.5.0"
function cleanIpAddress(ipAddress: string): string

// Tests both HTTP and HTTPS
async function testProcessorConnection(ipAddress: string, port: number, timeout: num-
ber)
```

2. `/src/components/AtlasProgrammingInterface.tsx`

Changes:
- Added `testConnection()` function
- Added Test Connection button (⚡ icon) to processor cards
- Shows connection status in real-time
- Displays IP cleaning messages
- Refreshes processor list after testing

UI Updates:
- New button next to Delete button
- Blue lightning bolt icon

- Tooltip: “Test Connection”
- Shows success/error messages

3. `/ATLAS_CONNECTION_TROUBLESHOOTING.md` (New)

Comprehensive troubleshooting guide covering:
- Invalid IP address formats
- Processor offline issues
- Connection timeouts
- Wrong port configuration
- Different subnet issues
- Network configuration best practices
- Advanced diagnostics
- API endpoint testing
- Quick reference checklist

Technical Details

Connection Test Flow

```
1. User clicks Test Connection button
   ↓
2. API receives request with processor ID, IP, and port
   ↓
3. Clean and validate IP address
   ↓
4. Test HTTP on specified port (default 80)
   ↓
5. If fails, test HTTPS on port 443
   ↓
6. Update database with results and cleaned IP
   ↓
7. Return detailed results to UI
   ↓
8. UI shows success/error message
   ↓
9. Processor status badge updates
```

IP Address Cleaning Logic

```
Input: "192.168.5.0/F90"
  ↓
Split by "/" → ["192.168.5.0", "F90"]
  ↓
Take first part → "192.168.5.0"
  ↓
Validate format → ✓ Valid
  ↓
Check octets (0-255) → ✓ Valid
  ↓
Output: "192.168.5.0"
```

Protocol Testing

```
Test 1: http://192.168.5.0:80
  - Timeout: 10 seconds
  - Success codes: 200-499
  - If successful: Return immediately

Test 2: https://192.168.5.0:443
  - Timeout: 10 seconds
  - Success codes: 200-499
  - Ignore SSL certificate errors
  - If successful: Return immediately

If both fail: Return all results with troubleshooting
```

Expected Results

Before Fix

- ❌ Processor shows as “offline”
- ❌ IP address: `192.168.5.0/F90`
- ❌ No way to test connection
- ❌ No troubleshooting guidance

After Fix

- ✅ Processor shows as “online” (if reachable)
- ✅ IP address: `192.168.5.0` (cleaned)
- ✅ Test Connection button available
- ✅ Detailed error messages if connection fails
- ✅ Step-by-step troubleshooting guide

Next Steps

1. **Test the Fix**:
   - Click the Test Connection button on your Graystone processor
   - Verify the IP address is cleaned
   - Check if status updates to “online”

2. **If Still Offline**:
   - Follow the troubleshooting steps in the guide
   - Check network connectivity with `ping 192.168.5.0`
   - Verify the processor’s actual IP address on its front panel
   - Try accessing the web interface in a browser

3. **Report Results**:
   - Note whether the IP was cleaned successfully
   - Check if the connection test succeeded
   - Review any error messages in the browser console (F12)

Additional Resources

- **Troubleshooting Guide**: `ATLAS_CONNECTION_TROUBLESHOOTING.md`

- **Atlas Documentation**: https://www.atlasied.com/atmosphere-manual
- **Product Datasheet**: https://www.atlasied.com/ATS007275-Atmosphere-Data-Sheet_RevD.pdf

Git Branch

All changes are committed to branch: `fix/atlas-connection-improvements`

Commit: `68c9771` - “Fix Atlas processor connection issues”

To push to GitHub (requires authentication):

```
git push origin fix/atlas-connection-improvements
```

Then create a Pull Request on GitHub to merge into `main`.

Summary: The Atlas processor connection system has been significantly improved with IP validation, multi-protocol testing, better error handling, and comprehensive troubleshooting guidance. The invalid IP address format (`192.168.5.0/F90`) will be automatically cleaned, and the Test Connection button provides an easy way to verify connectivity.