



Assembly Production System -Reference Guide

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1. Quick Start Reference

1.1 System Access Points

Interface	URL	Purpose	User Type
Supervisor Dashboard	/supervisor-dashboard.html /	Production control and monitoring	Production Supervisors
Admin Dashboard	/niphya-admin/	Product and workflow configuration	System Administrators

Django Admin Panel	<code>/admin/</code>	Advanced system configuration	Technical Administrators
Display Stations	<code>/station/{1,2,3}/slider/</code>	Production displays	Assembly Workers

1.2 Essential First Steps

1. **Create Product** → Admin Dashboard → "Create New Product"
 2. **Define Stages** → Admin Dashboard → Step 1: Assembly Stages
 3. **Add Processes** → Admin Dashboard → Step 2: Assembly Processes
 4. **Create BOMs** → Admin Dashboard → Step 3: BOM Templates
 5. **Upload Media** → Admin Dashboard → Step 4: Product Media
 6. **Start Production** → Supervisor Dashboard → Quick Setup
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2. Supervisor Dashboard Operations

2.1 Dashboard Overview

URL: `/supervisor/`

The Supervisor Dashboard provides real-time production control with three main sections:

2.1.1 Quick Setup Section

Purpose: Rapidly configure all displays for production

Steps to Use:

1. **Select Product:** Choose from dropdown menu
2. **Set Quantity:** Enter production quantity (default: 50)
3. **Click "Apply to All Displays":** System automatically:
 - Selects first assembly stage
 - Chooses first process in stage
 - Configures appropriate BOMs
 - Synchronizes all three displays

Auto-Configuration Results:

- Display 1: Shows BOM data for selected quantity
- Display 2: Shows process instructions with navigation
- Display 3: Shows instructional videos

2.1.2 Display Status Overview

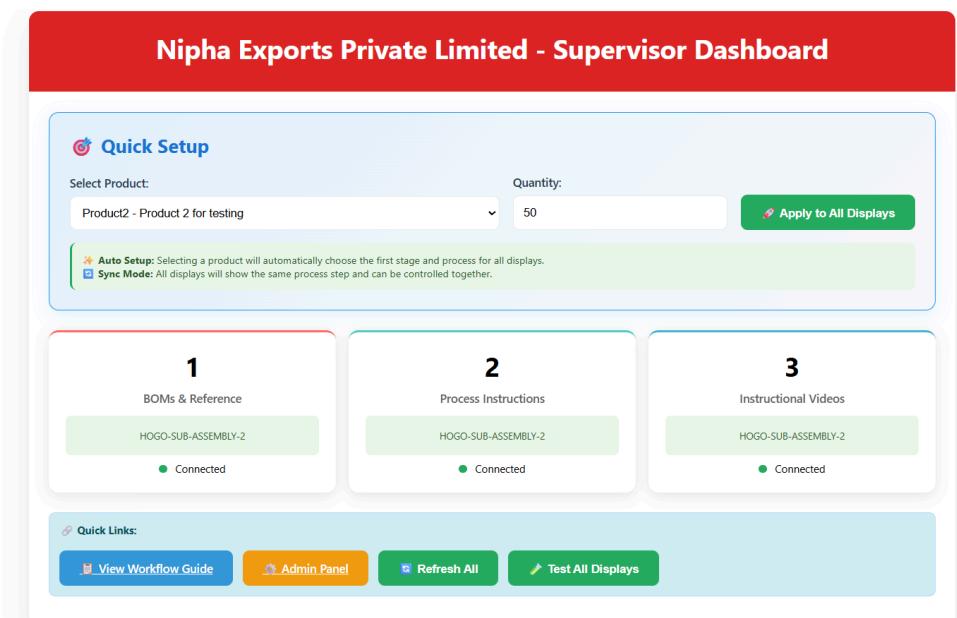
Purpose: Monitor real-time status of all three displays

Status Indicators:

- **Green Dot:** Display connected and operational
- **Red Dot:** Display offline or error
- **Yellow Dot:** Display loading or reconnecting

Information Shown:

- Current process name
- Loop mode status (if active)
- Clicker control status
- BOM data availability



2.1.3 Process Navigation Controls

Purpose: Manual control of production workflow

Available Actions:

- **Previous Process:** Move backward in workflow
- **Next Process:** Move forward in workflow

2.2 Common Supervisor Tasks

2.2.1 Starting a New Production Run

1. Open Supervisor Dashboard
2. Select product from dropdown
3. Enter production quantity

4. Click "Apply to All Displays"
5. Verify all displays show "Connected"
6. Check BOM data is available
7. Begin production

2.2.2 Changing Production Quantity

1. Enter new quantity in quantity field
2. System automatically recalculates BOM quantities
3. Single unit BOMs multiply by quantity
4. Stage-specific BOMs remain at base quantity

2.2.3 Handling Loop Mode

Manual Override:

- Any navigation action stops auto loop
- Shows manual control message
- Loop does not automatically restart

2.2.4 Troubleshooting Display Issues

Connection Problems:

1. Check "Display Status Overview" section
2. Look for red indicators
3. Click "Refresh All Displays" button
4. If persists, check network connectivity

Content Issues:

1. Verify product is selected
 2. Check BOM data availability
 3. Use "Test All Displays" to open station views
 4. Contact technical support if needed
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3. Admin Dashboard (Frontend Interface)

3.1 Dashboard Overview

URL: </niph-a-admin/>

The Admin Dashboard provides a 4-step workflow configuration system with intuitive visual interface.

3.2 Product Selection and Management

3.2.1 Creating New Products

Location: Top section with search icon

Steps:

1. Click "Create New Product" (green button)
2. Enter Product Code (auto-converts to uppercase)
3. Enter descriptive Product Name
4. Click "Create Product"
5. Product automatically appears in dropdown

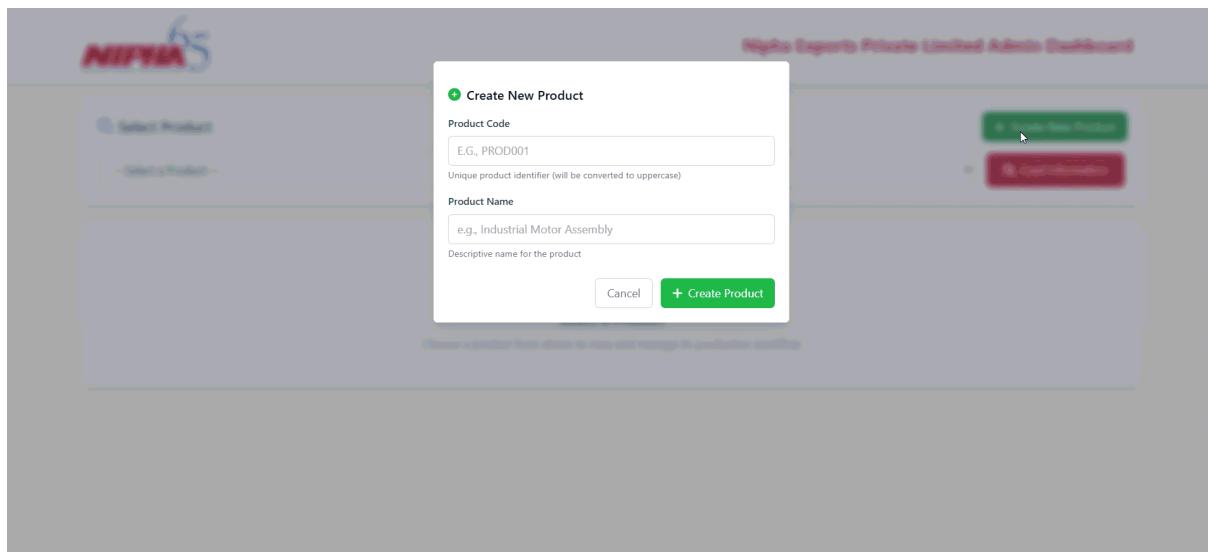
Requirements:

- Product Code: Unique, alphanumeric, converted to uppercase
- Product Name: Descriptive, user-friendly name

3.2.2 Loading Product Information

Steps:

1. Select product from dropdown
2. Click "Load Information" or product auto-loads
3. Dashboard shows 4-step workflow interface
4. Statistics display: Stages, Processes, Templates, Media files



3.3 Step 1: Assembly Stages Configuration

3.3.1 Creating Assembly Stages

Access: Step 1 tab → "Add Stage" button

Form Fields:

- **Stage Name:** Internal reference (e.g., "SUB_ASSEMBLY_1")
- **Display Name:** User-friendly name (e.g., "Sub Assembly 1")
- **Order:** Sequence number in workflow

Visual Elements:

- Red header with white order badge
- Process count indicator
- Edit/Delete icons in top-right

3.3.2 Managing Existing Stages

Edit Stage:

1. Click edit icon on stage card
2. Modify fields in modal
3. Click "Save Stage"

Delete Stage:

1. Click delete icon
2. Confirm deletion (removes all processes in stage)
3. Stage and processes permanently deleted

Stage Cards Show:

- Order number in blue badge
- Stage name and display name
- Process count
- Order sequence

The screenshot shows the Product Workflow interface for the BRG-40K product. At the top, there is a search bar labeled "Select Product" with the text "BRG-40K - BRG Assembly 40K" and a "Create New Product" button. Below the search bar, the product details are displayed: "Product Workflow: BRG-40K - BRG Assembly 40K", "4 Stages", "13 Processes", "4 Templates", and "29 Media Files". A navigation bar indicates the flow: Assembly Stages → Assembly Processes → BOM Templates → Product Media.

The main area displays the "Assembly Stages" with four cards:

- 0 BOM Display**: Stage Name: BOM_DISPLAY, Processes: 1 processes, Order: 0.
- 1 BRG Assembly 40K - Sub Assembly 1**: Stage Name: SUB_ASSEMBLY_1, Processes: 3 processes, Order: 1.
- 2 BRG Assembly 40K - Sub Assembly 2**: Stage Name: SUB_ASSEMBLY_2, Processes: 1 processes, Order: 2.
- 3 BRG Assembly 40K - Final Assembly**: Stage Name: FINAL_ASSEMBLY, Processes: 8 processes, Order: 3.

Each stage card includes edit and delete icons. A "Load Information" button is located at the bottom right of the stage cards.

3.4 Step 2: Assembly Processes Configuration

3.4.1 Creating Assembly Processes

Access: Step 2 tab → "Add Process" button

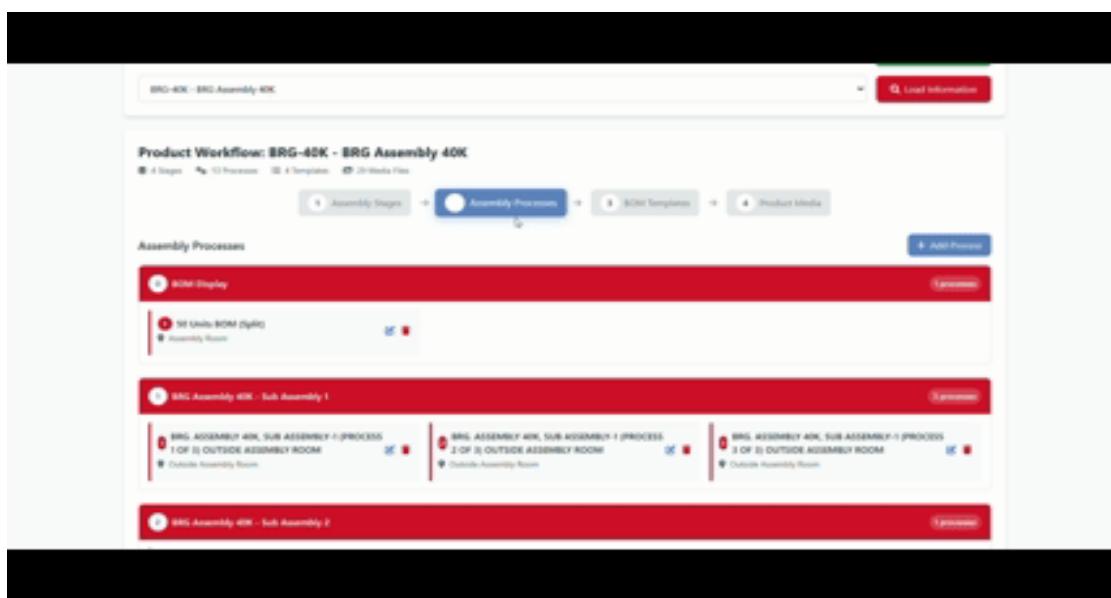
Form Fields:

- **Assembly Stage:** Dropdown of available stages
- **Process Name:** Internal reference
- **Display Name:** User-friendly name
- **Location:** Assembly Room or Outside Assembly Room
- **Order:** Sequence within stage

3.4.2 Process Organization

Visual Layout:

- Processes grouped by assembly stage
- Red header shows stage information
- Process cards show order numbers in red badges
- Location markers with icons



3.5 Step 3: BOM Templates Configuration

3.5.1 Creating BOM Templates

Access: Step 3 tab → "Add Template" button

Template Configuration:

- **Template Name:** Descriptive identifier
- **BOM Type:** Single Unit, Batch 50, or Stage-specific
- **Assembly Stage:** Optional stage association
- **Duration:** Display time in seconds
- **Description:** Additional information
- **Display Screens:** Assignment to screens 1, 2, 3
- **Duration Active:** Auto-advance toggle

3.5.2 Managing BOM Items

Access: Click "Manage Items" icon on template card

Two-Panel Interface:

- **Left Panel:** Add new items form
- **Right Panel:** Current items list with photos

Adding Items:

1. Select BOM Item from dropdown
2. Enter Serial Number (S.NO)
3. Set Base Quantity (multiplied by production quantity)
4. Add notes if needed
5. Click "Add Item"

Item Display Features:

- Item photos (16x16 preview, click for full size)
- Serial number and item code
- Description and part number
- Quantity and unit of measure
- Special notes
- Edit/Delete controls

3.5.3 Bulk Upload from Excel

Access: Step 3 tab → "Bulk Upload" button

Excel Format Requirements:

- **Columns:** S.NO, Code, Item Description, Part No., QTY, UOM, Item Photo
- **Photo Handling:** Embedded images automatically extracted
- **Data Validation:** Automatic format checking

Upload Process:

1. Select BOM Template from dropdown
2. Choose Excel file (.xlsx, .xls)

3. Set default Unit of Measure
4. Set default Supplier (optional)
5. Choose overwrite existing option
6. Click "Upload & Process"
7. Review success/error report

Product Workflow: BRG-40K - BRG Assembly 40K

4 Stages 13 Processes 4 Templates 29 Media Files

1 Assembly Stages → 2 Assembly Processes → 3 BOM Templates → 4 Product Media

BOM Templates

- 50 Units BOM**
 - Type: 50 Units
 - Items: 34
 - Stage: BOM Display
 - Database BOM for 50 Units BOM
- Final Assembly BOM**
 - Type: Final Assembly
 - Items: 11
 - Stage: BRG Assembly 40K - Final Assembly
 - Database BOM for Final Assembly BOM
- Sub Assembly 1 BOM**
 - Type: Sub Assembly 1
 - Items: 17
 - Stage: BRG Assembly 40K - Sub Assembly 1
 - Database BOM for Sub Assembly 1 BOM
- Sub Assembly 2 BOM**
 - Type: Sub Assembly 2
 - Items: 1
 - Stage: BRG Assembly 40K - Sub Assembly 2
 - Database BOM for Sub Assembly 2 BOM

Bulk Upload **Add Template**

3.6 Step 4: Product Media Management

3.6.1 Adding Individual Media Files

Access: Step 4 tab → "Add Media" button

Two-Panel Interface:

- **Left Panel:** Form fields and configuration
- **Right Panel:** File preview

Configuration Options:

- **Media Type:** Process Document, Video, Instruction Manual
- **Duration:** Playback time in seconds
- **Assembly Process:** Optional process association
- **Media File:** Upload file with validation
- **Display Screens:** Assignment to screens 1, 2, 3

File Preview Features:

- **PDF:** Shows PDF icon with view button
- **Video:** Embedded video player with controls
- **Image:** Thumbnail with click-to-enlarge
- **File size and format information**

3.6.2 ZIP Bulk Upload

Access: Step 4 tab → "ZIP Upload" button

Automatic Processing:

- **PDFs:** Classified as Process Documents
- **Videos:** (.mp4, .mov, .avi, etc.) Classified as Videos
- **Images:** Reference materials

Configuration:

1. Select ZIP file
2. Set default duration for all files
3. Choose process assignment (optional)
4. Set display screen assignments
5. Click "Upload & Extract"

3.6.3 Media Organization

Visual Layout:

- **Media by Type:** Organized sections (PDF, Video, Image)
- **File Count Badges:** Show quantity per type
- **Enhanced Cards:** Preview icons, screen indicators, duration badges
- **Process Association:** Shows linked stage and process
- **Action Buttons:** View file, edit, delete

The screenshot shows the 'Product Workflow: BRG-40K - BRG Assembly 40K' interface. At the top, there are navigation tabs: '4 Stages', '13 Processes', '4 Templates', '29 Media Files', '1 Assembly Stages', '2 Assembly Processes', '3 BOM Templates', and 'Product Media'. Below these tabs, there are two main sections: 'Product Media' and 'Product Document'.

Product Media: This section contains three items under the 'Bill of Material' category, each with a preview icon, a duration badge (e.g., 3s), and a 'View File' button. The items are:

- Database Media (Bill of Material) - No file attached (ID: 3)
- bom_files/sub_assembly_2.pdf (Bill of Material) - bom_files/final_assembly.pdf (Bill of Material) (ID: 10)
- bom_files/final_assembly.pdf (Bill of Material) - bom_files/final_assembly.pdf (Bill of Material) (ID: 13)

Product Document: This section contains four items under the 'Process Document' category, each with a preview icon, a duration badge (e.g., 5s), and a 'View File' button. The items are:

- product_media/sub_assembly_1_proce ss_1_doc_rOHXPv.pdf (Process Document)
- product_media/sub_assembly_1_proce ss_2_doc.pdf (Process Document)
- product_media/sub_assembly_1_proce ss_3_doc.pdf (Process Document)
- product_media/sub_assembly_2_proce ss_doc.pdf (Process Document)

At the bottom right, there are buttons for 'ZIP Upload' and '+ Add Media'. The total number of files is indicated as 'Total: 3 files' for Product Media and 'Total: 14 files' for Product Document.

4. Django Admin Panel Operations

4.1 Admin Panel Overview

URL: /admin/

The Django Admin Panel provides advanced configuration and bulk operations for technical administrators.

4.2 Product Management

Access: Admin Panel → Products

4.2.1 Product Configuration

Available Actions:

- Create new products with codes and names
- View associated media and BOM counts
- Track assembly session history
- Monitor product relationships

Bulk Operations:

- Mass product creation
- Export product data
- Product duplication with workflows

4.3 BOM Items Master Management

Access: Admin Panel → BOM Items

4.3.1 Individual Item Management

Features:

- Complete item details (code, description, part number)
- Photo upload with preview
- Cost and weight tracking
- Supplier information
- Unit of measure standardization

4.3.2 Excel Bulk Upload

Access: BOM Items list → "Upload BOM Items from Excel" button

Advanced Features:

- **Image Extraction:** Automatically extracts embedded Excel images

- **Data Validation:** Comprehensive format checking
- **Duplicate Handling:** Configurable overwrite options
- **Progress Reporting:** Detailed success/failure feedback

Processing Steps:

1. Upload Excel file with required columns
2. System locates header row automatically
3. Extracts and processes embedded images
4. Creates optimized image files (PNG/JPG)
5. Validates data integrity
6. Reports results with error details

4.4 BOM Template Advanced Management

Access: Admin Panel → BOM Templates

4.4.1 Template Configuration

Advanced Options:

- **Pagination Settings:** Split display configuration
- **Duration Controls:** Auto-advance timing
- **Display Assignment:** Screen-specific targeting
- **Stage Association:** Workflow integration

4.4.2 BOM Preview System

Access: Template detail → "Preview BOM" button

Preview Features:

- **Quantity Simulation:** Test different production quantities
- **Pagination Testing:** Verify split-display behavior
- **Calculation Validation:** Confirm quantity scaling
- **Visual Layout:** Exact display representation

4.5 Station Configuration Management

Access: Admin Panel → Stations

4.5.1 Display Station Setup

Configuration Options:

- **Display Assignment:** Link to physical displays (1, 2, 3)
- **Product Association:** Multi-product support
- **Current State:** Active process tracking
- **Control Settings:** Clicker and auto-advance options

4.5.2 Real-time Monitoring

Status Information:

- Current product and quantity
- Active stage and process
- BOM data availability
- Connection status

4.6 Assembly Session Tracking

Access: Admin Panel → Assembly Sessions

4.6.1 Session Management

Tracking Features:

- **Production History:** Complete session records
- **Time Tracking:** Start/end times and duration
- **Quantity Records:** Production run sizes
- **Progress Tracking:** Current stage and process
- **Display Assignments:** Station allocations

4.6.2 Reporting and Analytics

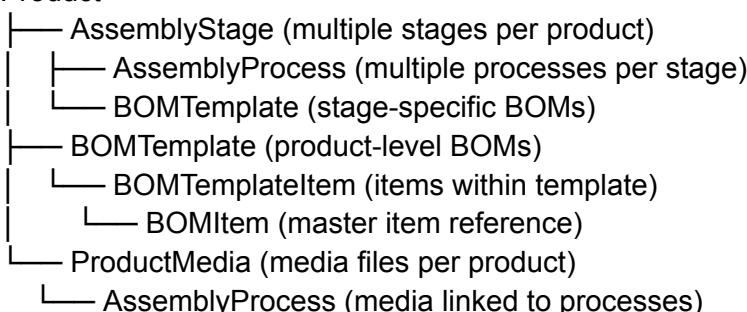
Available Data:

- Session completion rates
- Average processing times
- Stage transition patterns
- Error frequency analysis

5. System Architecture Reference

5.1 Database Model Relationships

Product



Station (display configuration)

- └── Products (many-to-many relationship)
- └── Current State (active product/stage/process)
- └── AssemblySession (tracking active sessions)

5.2 BOM Quantity Calculation Logic

Single Unit BOMs:

- Base quantity × Production quantity = Display quantity
- Example: 2 screws × 50 units = 100 screws

Stage-Specific BOMs:

- Always show base quantity (not multiplied)
- Used for process-specific materials
- Example: 1 assembly fixture = 1 fixture

Unit Type Handling:

- Count items (NO.): Show as integers
- Weight/Volume (KGS, GM, LTR): Show with decimals
- Automatic unit formatting

5.3 Display Pagination System

Split Display Logic:

- 8 items per display maximum
- 24 items per page (8×3 displays)
- Auto-pagination for large BOMs
- Manual navigation with arrow keys

Pagination Modes:

- **Split Mode:** Distribute across 3 displays
- **Single Mode:** Show on one display with pagination

6. Troubleshooting Quick Reference

6.1 Common Issues and Solutions

6.1.1 Display Connection Issues

Problem: Display shows "Offline" or "Connection Lost"

Solutions:

1. Check network connectivity

2. Refresh browser (Ctrl+F5)
3. Restart display system
4. Check firewall settings
5. Verify server status

6.1.2 BOM Data Problems

Problem: BOM not displaying or incorrect quantities

Solutions:

1. Verify BOM template exists for product
2. Check template display assignments
3. Refresh BOM data manually
4. Verify base quantities in template
5. Check production quantity setting

6.1.3 Media Upload Issues

Problem: Files not uploading or displaying

Solutions:

1. Check file format compatibility
2. Verify file size limits
3. Check display assignments
4. Test individual file upload
5. Clear browser cache

6.2 Error Codes and Messages

Error Code	Message	Solution
CONN_001	Display connection timeout	Check network, refresh page
BOM_002	No BOM data available	Create BOM template for product
MEDIA_003	File format not supported	Use supported formats (PDF, MP4, etc.)
UPLOAD_005	File size exceeds limit	Compress file or contact admin

7. Quick Command Reference

Supervisor Dashboard Actions

- **Start Production:** Select product → Set quantity → Apply to All Displays

- **Navigate Process:** Use Previous/Next buttons or arrow keys
- **Refresh All:** Click "Refresh All Displays" button

Admin Dashboard Actions

- **Create Product:** Green "Create New Product" button
- **Add Stage:** Step 1 → "Add Stage" button
- **Add Process:** Step 2 → "Add Process" button
- **Create BOM:** Step 3 → "Add Template" button
- **Upload Media:** Step 4 → "Add Media" or "ZIP Upload"

Django Admin Panel

- **Access:** `/admin/` URL
- **Bulk Upload:** BOM Items → "Upload BOM Items from Excel"
- **Preview BOM:** Template detail → "Preview BOM" button
- **Station Config:** Stations → Configure display assignments

Display Station Controls

- **Navigation:** Arrow keys (\leftarrow/\rightarrow) for process, (\uparrow/\downarrow) for BOM pages
-