EPSON

111-56-URM-008

TrueOrder™ KDS

Functional Specification

About this Guide

This guide discusses various functional aspects of the TrueOrder KDS. It presents Single Station and Multi-Station configurations, currently supported KDS devices, UI aspects, operation instructions, peripheral device options etc. It should be read as a summary of features supported by TrueOrder KDS.

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1. The TrueOrder KDS Solution

The new generation Kitchen Display System (KDS), TrueOrder, has evolved from running on an Epson TM Intelligent OmniLink printer to being integrated directly into third-party devices such as All-In-One Touchscreens and Multimedia Boxes. (See Section 1.1).

KDS allows for better kitchen workflows. Existing KDS solutions are very complex with functionality that many restaurants do not currently use. TrueOrder KDS provides an easy to setup, easy-to-use system.

Epson's TrueOrder KDS solution is ideal for customers who want Epson's reliability without the complexities of the competition. And for customers who want to avoid changing their existing POS application or infrastructure.

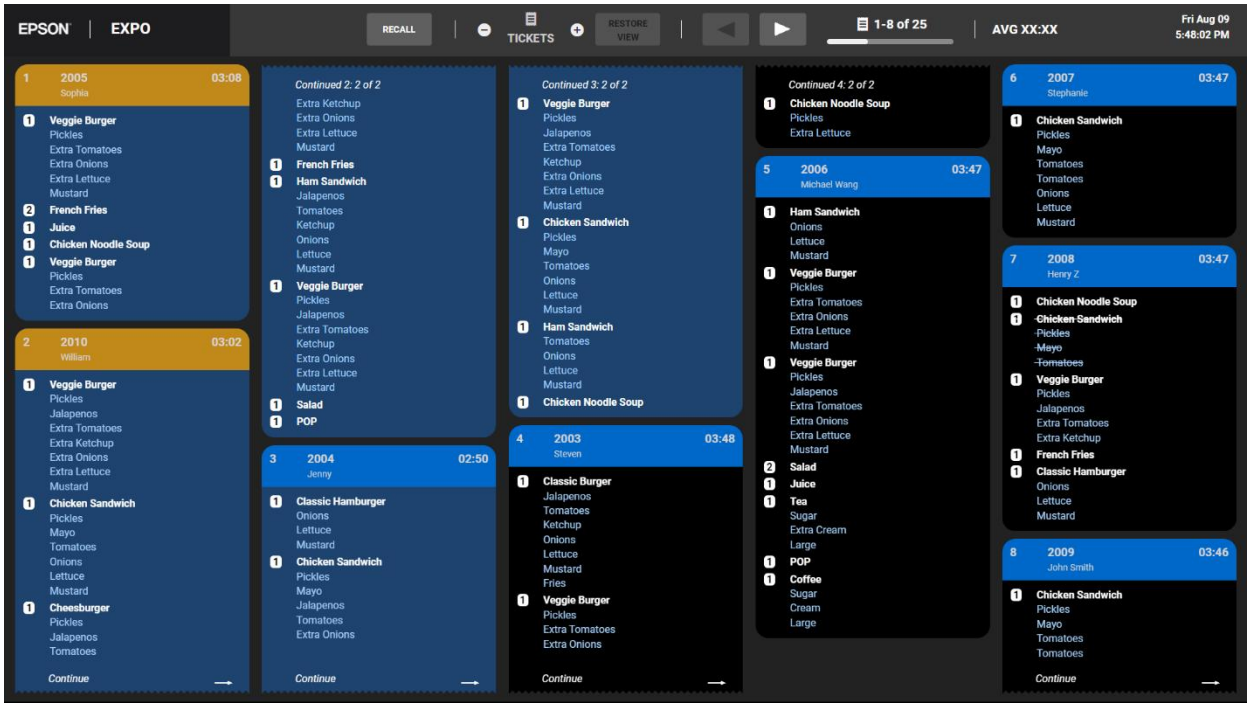


Figure 1. TrueOrder KDS Sample Display

1.1. Supported Hardware Platforms

TrueOrder KDS software is currently available and supported on All-in-One Touchscreen computers and small controllers.

1.1.1. All-In-One Touchscreen Computers

- **Microtouch IC All-In-One 21.5” Touchscreen**

Part #: IC-215P-AA2-A016

- **Microtouch Mach All-In-One Touchscreens**

15.6” Part #’s:

M1-156IC-AA2-A040
M1-156IC-AA3-A041 (PoE)

21.5” Part #’s:

M1-215IC-AA2-A037
M1-215IC-AA3-A038 (PoE)

- **ELO All-In_One 21.5” Touchscreen**

Part #: E166526

1.1.2. KDS Controllers

- **Microtouch Media Player**

Part #: MP-000-AA2-A017

- **Microtouch Mach Media Player**

Part #: M1-MP-AA2-A039

- **Logic Controls KDS Computer**

Part #: LS8900-Epson

- **ELO Backpack**

Part #: E166712

*** When ordering any of these SKUs the TrueOrder KDS software comes preloaded and licensed.

1.2. System Architecture

- Any combination of the devices listed in Section 1.1 Supported Hardware Platforms running KDS software replaces the existing printer in the kitchen.
- 2 architectures supported: Single Station (Screen) and Multi-Station.
- Expanding from a single station to a multi-station architecture requires adding additional devices and reconfiguring the system using the Configuration tool.
- Self-hosted web-based Configuration Utility on every KDS device – accessible using your favourite browser on PC or mobile device. Only required for initial setup or subsequent configuration changes.

1.2.1. Single Station Setup

A Single Station setup can be as simple as an All-In-One KDS Touchscreen connected to the Point of Sale (henceforth POS) terminal over Ethernet.

Optional items:

- A bumpbar could be employed for situations where it is not possible for kitchen staff to operate the touchscreen with ease, for instance with greasy or wet hands.
- An Epson POS Printer to print completed orders or individual items, including thermal receipts (TM-T88VI) or sticky labels (TM-L100).

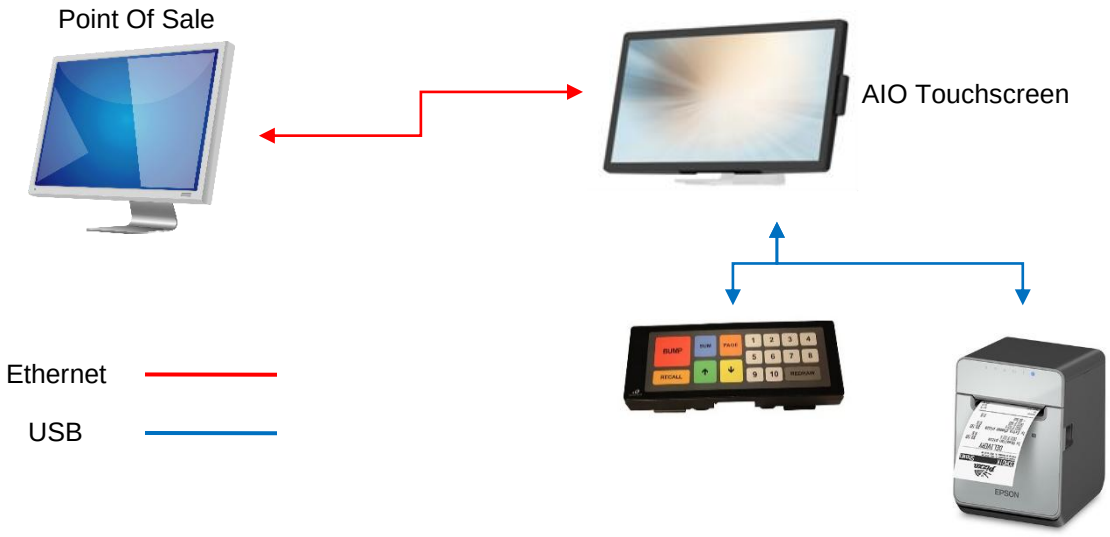


Figure 1.2.1.1: Single Station setup

1.2.2. Multi-Station Setup (KDS Menu Routing)

A Multi-Station Setup with KDS routing involves the POS sending data to KDS Master device. This KDS Master device is thereby known as the POS Connected Device, and it is responsible for routing orders and individual items to appropriate KDS Displays. Consider the example in Figure 1.2.2.1, where an All-In-One KDS Touchscreen receives all orders from the POS, and forwards other kitchen displays their respective items as per Menu configuration. Any combination of All-In-One KDS units and KDS Controller w/ bump-bar and HDMI display is possible in a Multi-Station Setup.

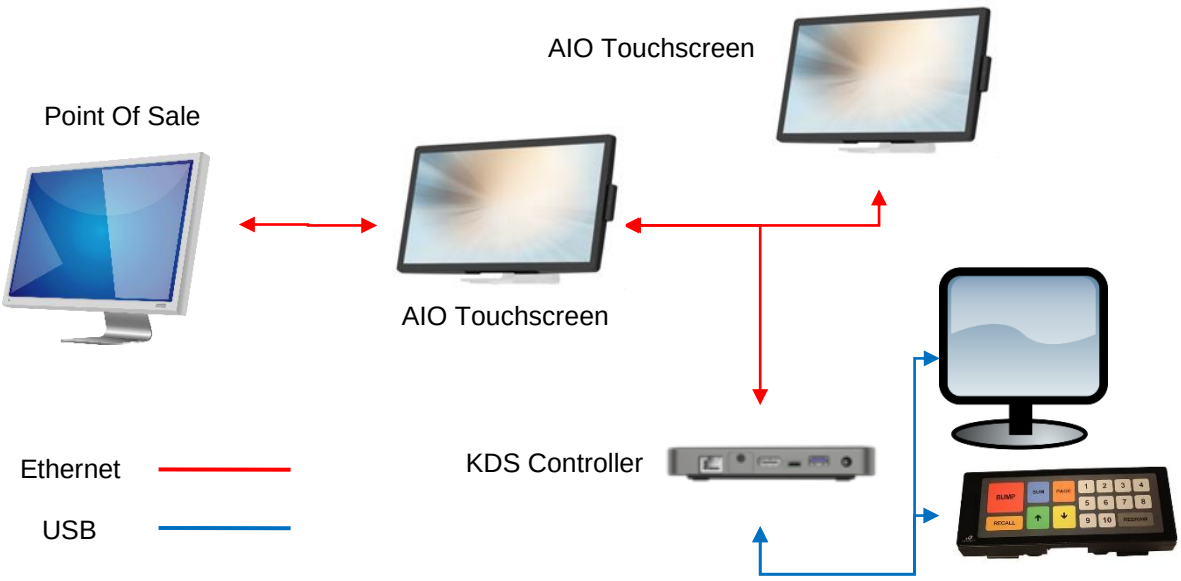


Figure 1.2.2.1: Multi-Station Setup w/ KDS Menu Routing

1.2.3. Multi-Station Setup (POS Menu Routing)

A Multi-Station Setup with POS Menu Routing has only one key difference with KDS Menu Routing: the POS connects directly to each KDS device and handles the menu routing itself. As an example, consider a quick service restaurant with a sandwich station, a fries' station, and a drinks station. It would be the responsibility of the POS to send individual items to their respective stations or displays i.e. a chicken sandwich would be sent to the sandwich station, and an iced tea would be sent to the drinks station. By default, the KDS shall treat a union of all individual items as a single order so long as the same order ID was sent with each to the respective stations; this behaviour is customizable.

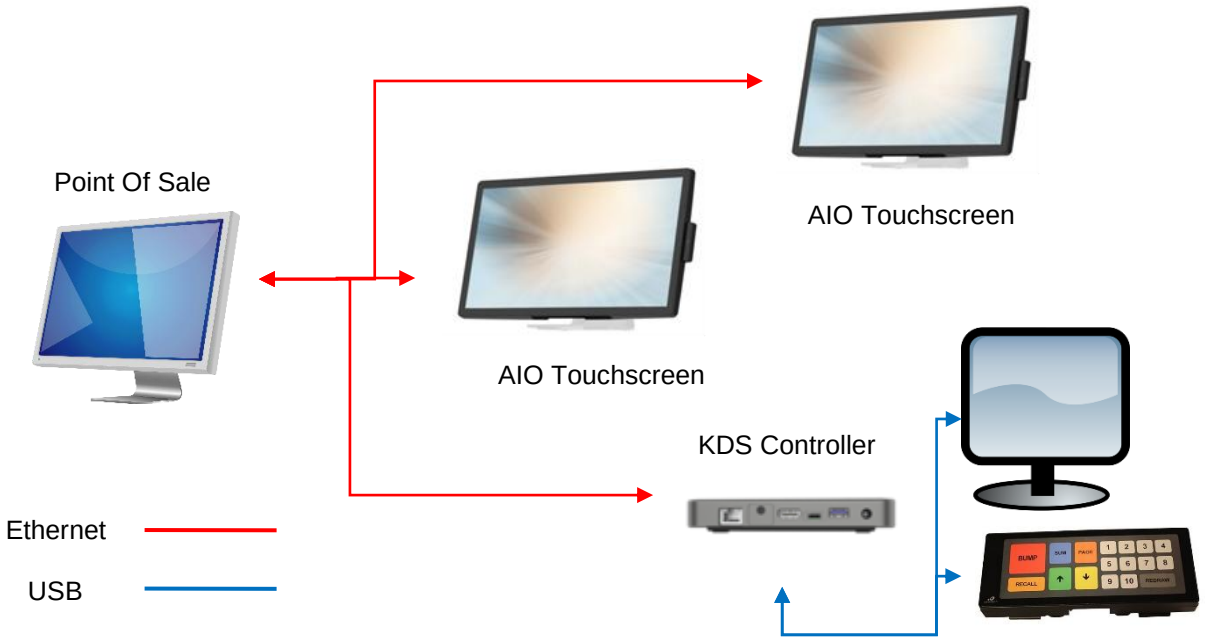


Figure 1.2.3.1: Multi-Station Setup w/ POS Menu Routing

1.2.4. Supported Connectivity to POS

- Ethernet
  - Port 9100 (printer port)
  - ePOS Print

1.3. Screen Support (for screen-less KDS Controllers)

- Monitors that support 1920x1080p over HDMI.
- Where necessary, an HDMI to VGA converter can be used if using 1920x1080p VGA monitors.
- Touchscreen support typically requires USB connection.

1.4. Bump-bar Support

- **Logic Controls - KB1700U-DK-BK**
  Logic Controls KB1700 USB bump bar, Legend Sheet D

- **Logic Controls KB9000A-USB**
  Logic Controls KB9000 USB bump bar, Legend Sheet A

- Other legend sheets for the above bump-bars could be supported by reprogramming the keys using Logic Controls software.

1.5. Sound Support

- USB Audio devices are supported.
- These devices also have an audio jack/analog out: MicroTouch MP-000-AA2-A016.
- KDS Device can be configured to play a sound on order entry into the station.

1.5.1. USB Speakers

- USB Speakers can plug directly into the KDS device.

1.5.2. USB Audio Adapter

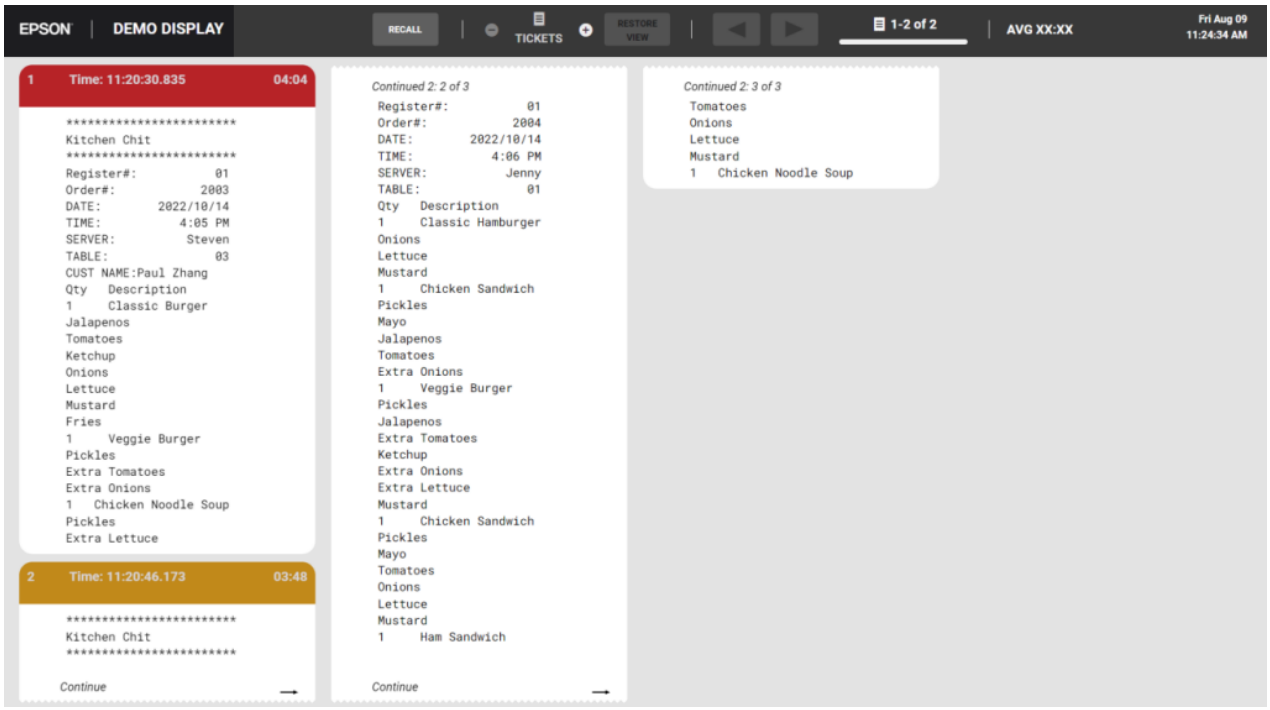
- USB->3.5mm adapters can be used to drive other speaker systems.

2. KDS Parsers and API

TrueOrder KDS can accept data from a POS using three methods:

2.1. Default Out-of-the-Box Operation

This is the default, single station mode of operation. The KDS accepts ASCII text-based data from the POS and displays it as-is on screen. This is a very basic mode of operation where the KDS allows full order bumps only, and consequently only full tile print-on-bump labels are supported. A special “Default Parser” is used here, which can also be selected from the web-based Configuration Utility for either multi-station setup or to restore this default mode of operation.



2.1.1. Using default mode in multi-station setup

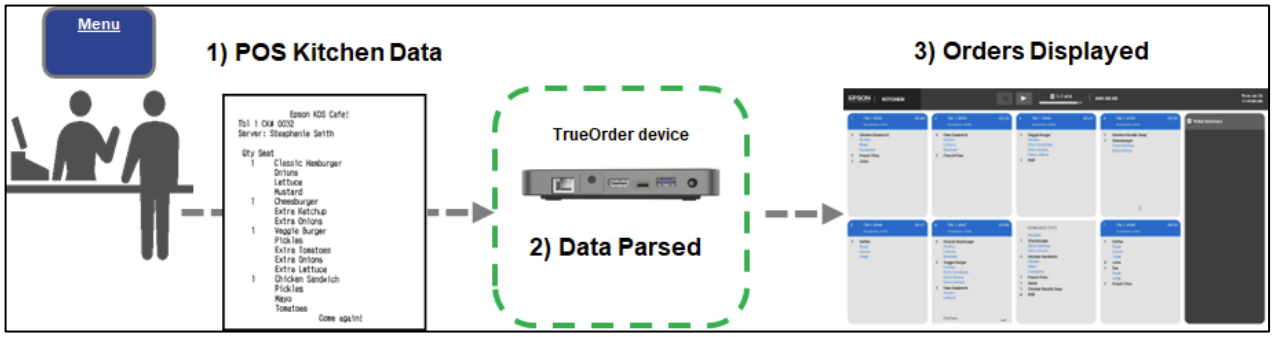
The Default Parser can be selected when configuring a multi-station KDS. In this mode, each kitchen station shall act as an independent single station. Orders sent to all kitchen stations will also show on the Expeditor and Customer Facing displays, using order received time as order number in the tile headers.

In contrast, using a POS Parser module or the KDS API method allows for improved synchronization among KDS stations, including individual item bumping, optimized

screen space usage, printing labels for each item/order bump, limiting what parts of the order show up on screen, differentiating between item and modifier font colors etc. The following sections describe the POS Parser and KDS API methods.

2.2. Using a POS Parser Module

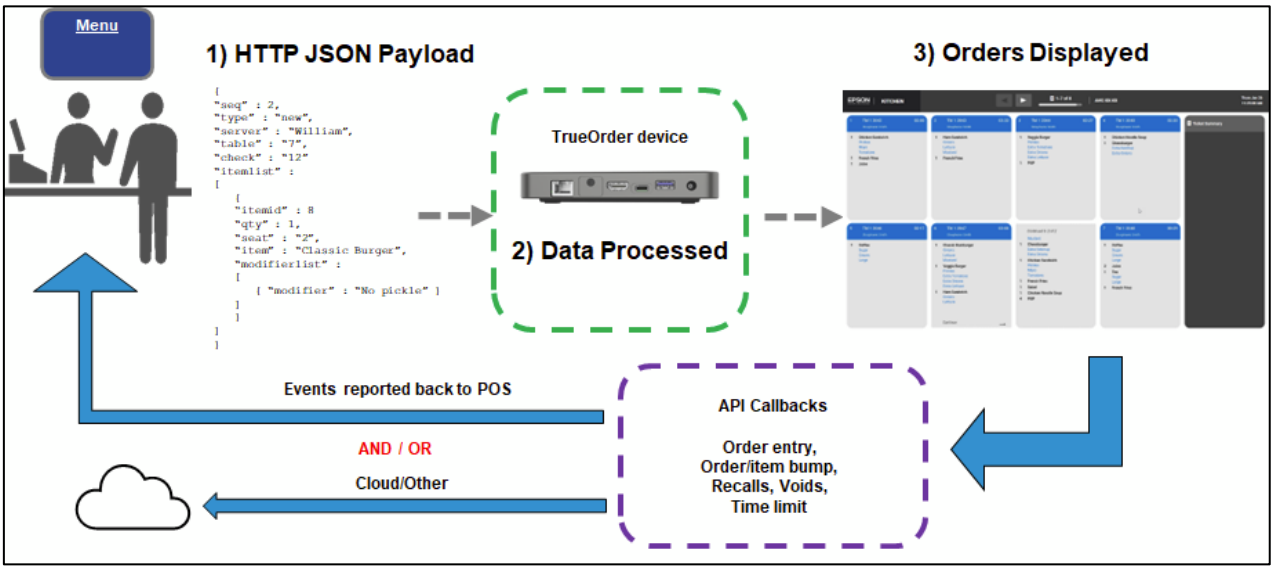
TrueOrder KDS accepts receipt/chit data as if it was sent to a regular printer. The data needs to be ASCII text-based so that it can be parsed and put on screen for display. The parser understands the specific POS chit/receipt data format: It takes key data identifiers such as: order number, server, table number, items/modifiers; formatting them to display on KDS screens with no modifications to the POS System – drop in ready!



As each POS system sends their print jobs in different formats, the TrueOrder KDS needs to know which format/POS it is working with. Epson develops a module called a *KDS Parser* for each POS system requiring support. Please consult the **TrueOrder KDS Parsers User Manual** for more information on supported POS systems, and how to get support for unsupported systems.

2.3. Using the KDS API (Application Programming Interface)

Using this http(s) interface the POS can send orders to, and receive status from, the KDS devices.



Please consult the **TrueOrder KDS API User Manual** for more information. Development work is required on the host side to implement the API protocol.

3. KDS Display

TrueOrder KDS outputs a high-resolution, colour, graphic display that can be customized to meet the specific needs of the station:

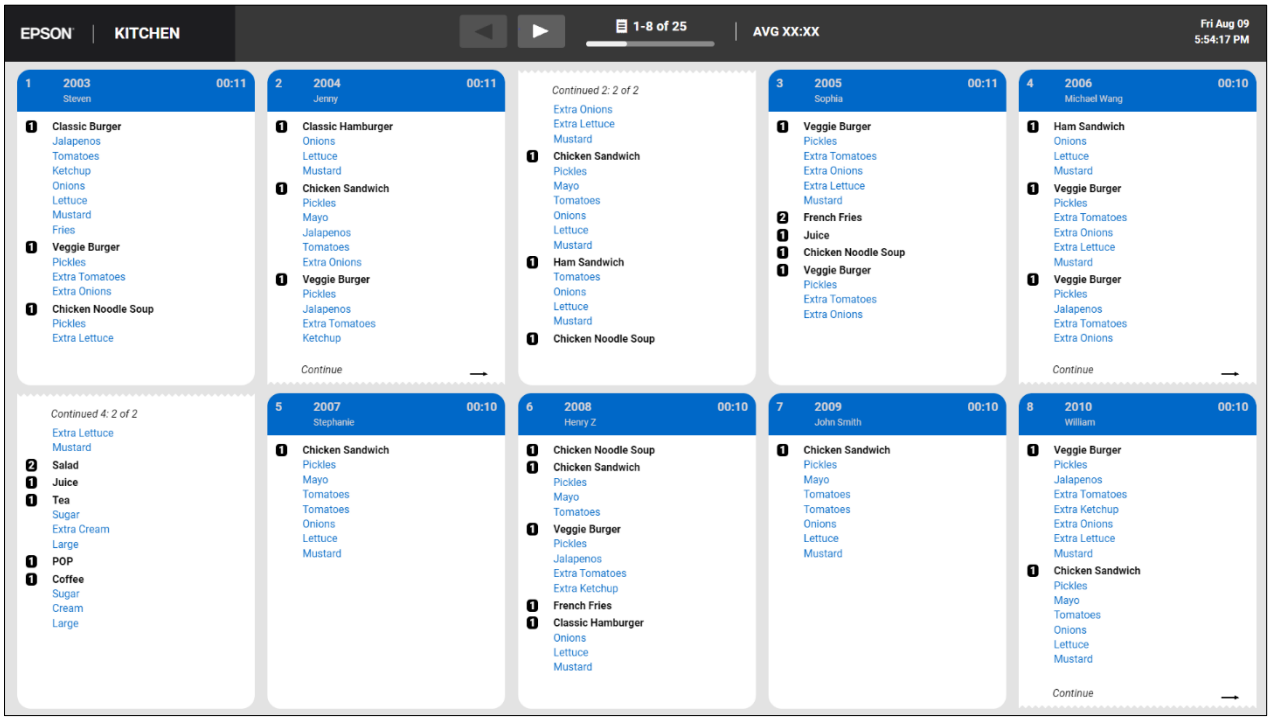


Figure 3.1: Fixed Grid KDS display (blue tile headers for new orders)

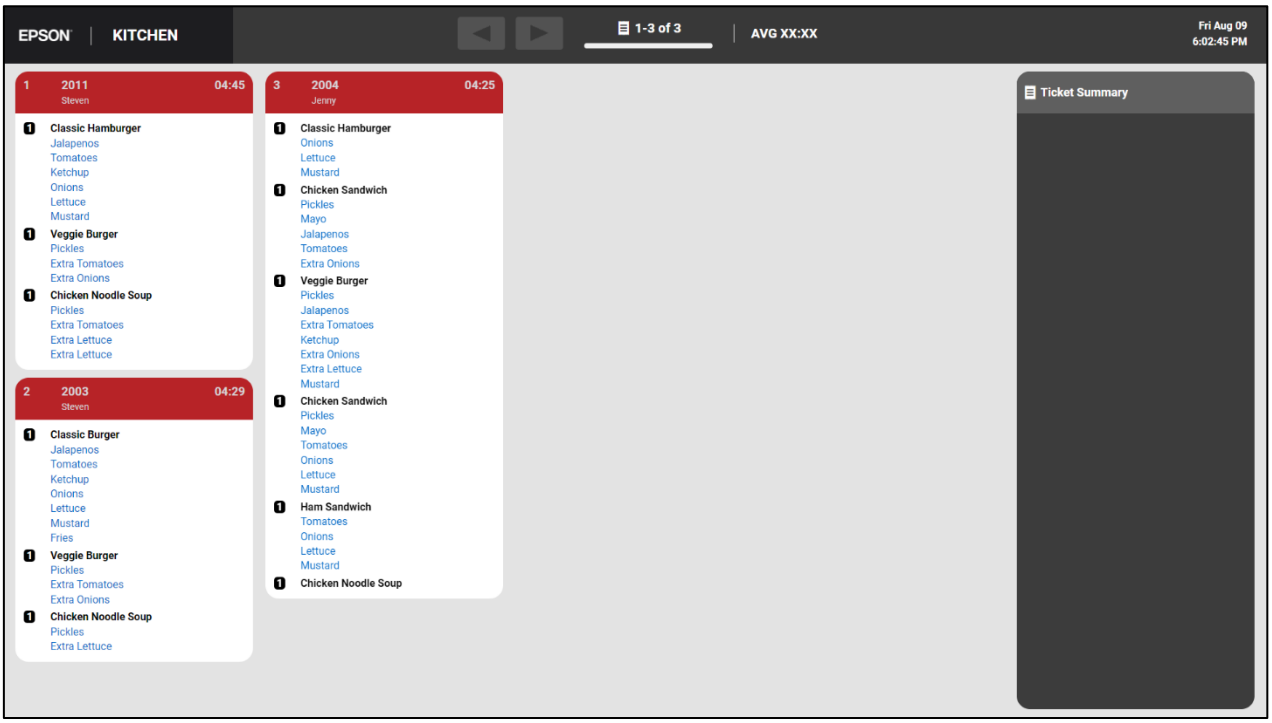
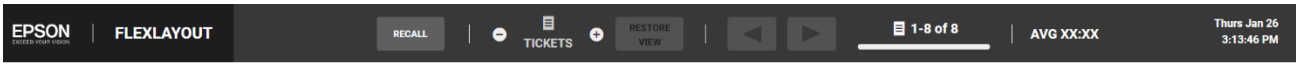


Figure 3.2: Flex Grid KDS display (red tile headers for Rush orders)

3.1. Display Header

The grey header at the top of the KDS display includes many functional aspects of the screen. These aspects vary between a KDS station with a touchscreen and a station with a bump-bar only, as does the design of the display header.

3.1.1. Touchscreen Mode



When using a touchscreen, the following controls are shown on screen:

- RECALL To recall recently bumped orders.
- TICKETS "–" Reduce the number of tickets shown on screen by removing one column from the order table. This may also increase the font size and spacing for improved readability in some situations.
- TICKETS "+" Increase the number of tickets shown on screen by adding one column to the order table.
- RESTORE VIEW Restores the order table to the original number of columns configured for that display.
-  Left/Right Page Scroll buttons to move between entire pages of orders on the display.
- EPSON LOGO Pressing the Epson Logo in the top left corner opens up the device splash screen with details including device name, MAC address, IP address and firmware version. Note that this logo can also be changed to your own companies logo or something else.
- AVG XX:XX Moving average of the bump time for all orders in the last 60 minutes.
- System Time

3.1.2. Bump-bar Only Mode

When the station does NOT have a touchscreen, fewer controls are shown in the display header. The RECALL button is replaced by the RECALL button on the bump-bar itself. The TICKETS "–" and "+" are not available in bump-bar only mode. The product splash screen can be brought up using the bump bar sequence: press "Summary" key 3 times within 4 seconds.

3.2. Supported Tile Layouts

There are two supported display modes: fixed grid and flex grid.

<u>Fixed Grid</u>	
Minimum number of rows	1
Maximum number of rows	3
Maximum number of Summary Tile rows	3
Minimum number of columns	4
Maximum number of columns	8 (minus 1 if Summary Tile is enabled)
<u>Flex Grid</u>	
Minimum number of rows	N/A
Maximum number of rows	N/A
Maximum number of Summary Tile rows	N/A; Covers 1 whole column
Minimum number of columns	4
Maximum number of columns	8 (minus 1 if Summary Tile is enabled)

3.3. Order Tiles

The tiles for a particular order show the server, table and check numbers, and a running timer for how long the order has been up for, along with all items for the order:

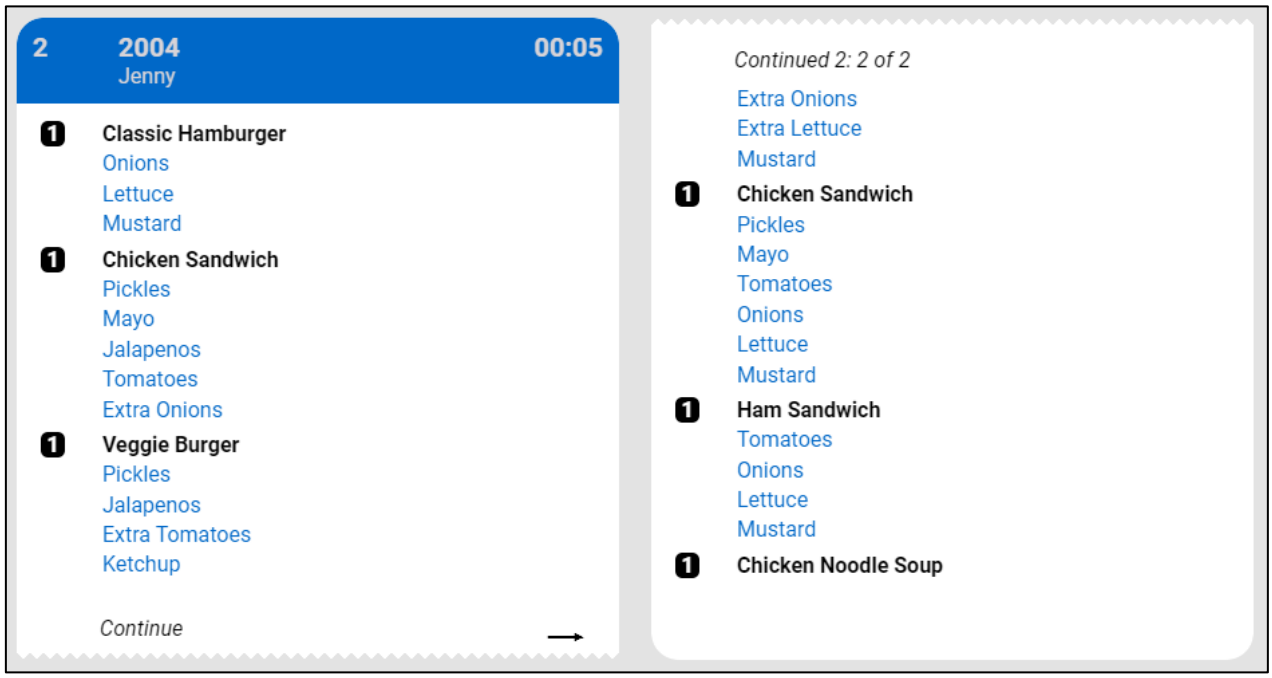


Figure 3.3.1: Order spanning 2 tiles (Fixed Grid Mode)

3.3.1. Tile Header Colour

The tile header contains the tile number, server name, a running timer, the table # and the check/order #. New orders appear with the “normal” tile header colour, which is configurable. The tile header can change colour based on 2 configurable time periods: the “priority” time and the “rush” time. The priority and rush tile header colours are also configurable.

3.3.2. Quantity

The left column typically shows the quantity for the item.

3.3.3. Order Contents

Items, modifiers, and any special instructions or alerts can be displayed in their desired colour, which is configurable. If item descriptions extend beyond the viewable space, we will wrap the items to the next line provided there is sufficient spacing between words to cut-off the line. The best effort is made to always display modifiers and special instructions or alerts in full. In addition, if there is an actual keyword “alert” in the descriptor text, it will be displayed in a highlighted manner to increase visibility.

3.3.4. Order Appends

In the KDS configuration there is an option to “Consider Orders Unique”. If unselected, any additions to an order are recognized by matching the order number to an order already on screen. Additions to an order are highlighted so they are easily recognized by the kitchen staff. The following order was sent as 2 separate orders. First the Classic Hamburger was sent. A Cheeseburger was then added to the order.

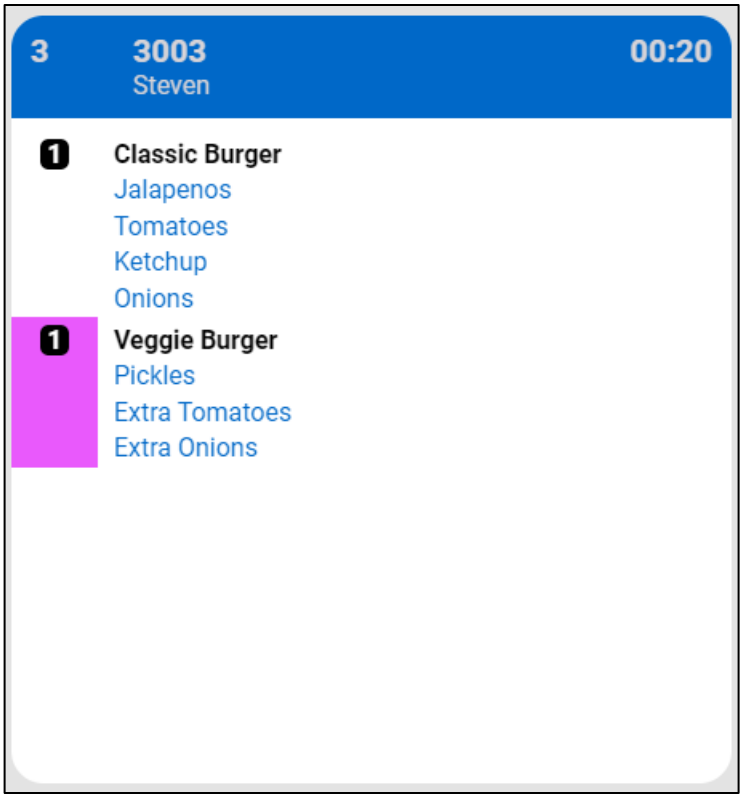


Figure 3.3.4.1: Order Append

If “Consider Orders Unique” is selected, then the appended information will appear in a completely new ticket on the display and the KDS will add a -1 to the order number. In the example above the order number would become 2065-1.

3.3.5. Displaying Other Information

Any information that is contained on the ticket can be put on the display. This includes course information, customer information, etc. In some cases, the parser may need to be customized to display this information per requirements.

3.3.6. Entire Order Voids

Some POS vendors allow entire order voids; that is supported by a customer parser for specific POS solutions. In this case, orders that are subsequently voided will result in having all their items/modifiers crossed out and coloured in a configurable VOID colour. The background colour of the seat/quantity field is also changed, and a V replaces the seat/quantity value. The order is not removed from the display as this may interfere with kitchen staff interaction with the KDS.

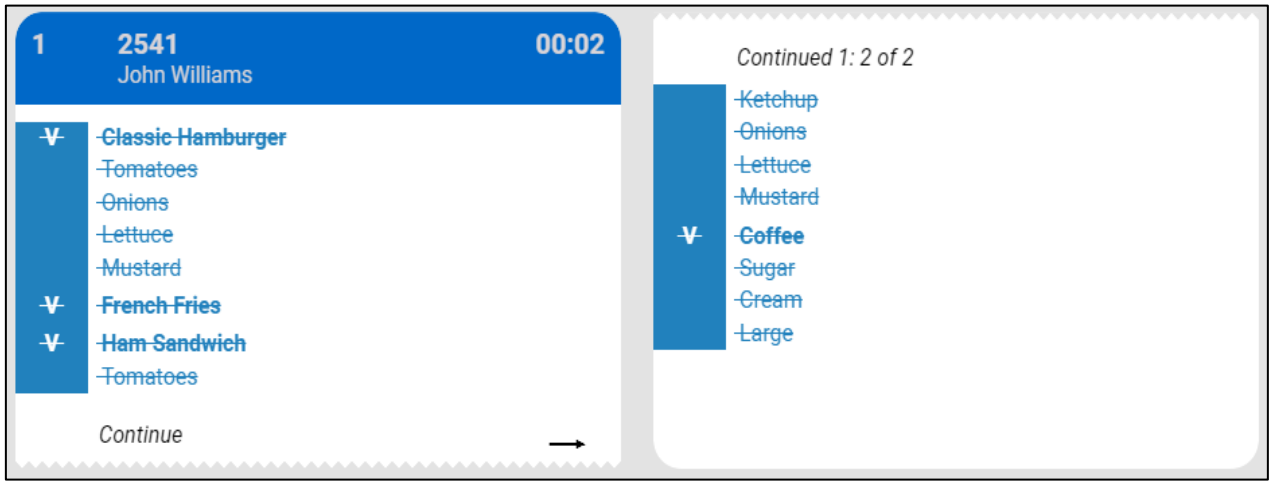


Figure 3.3.6.1: Entire Order VOID

3.3.7. Individual Item Voids

If any individual items are voided, only those items are crossed out and coloured in the configurable VOID colour.

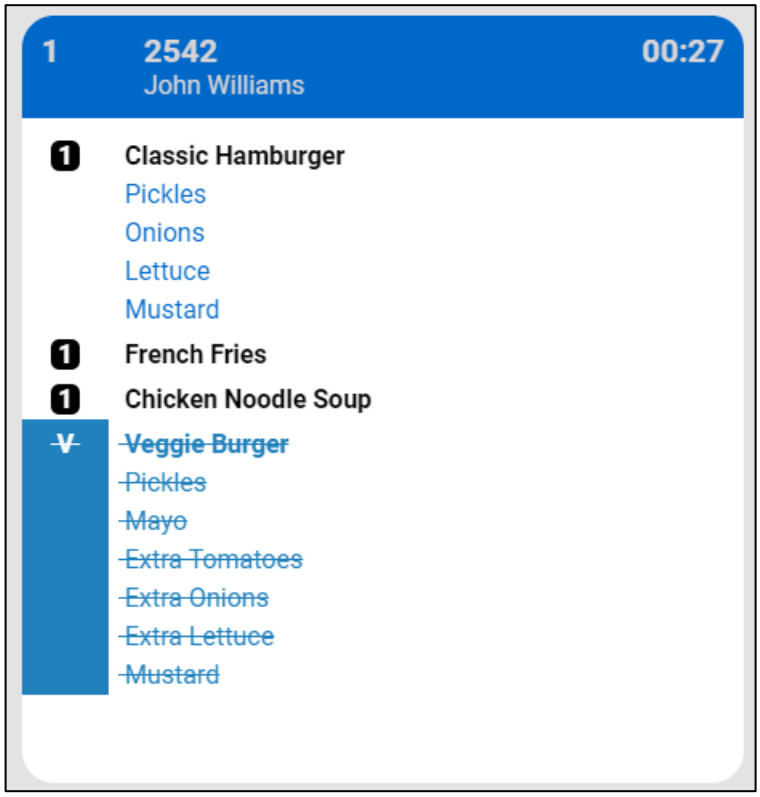


Figure 3.3.7.1: Individual Item VOID

3.4. Summary Tile

The KDS can be configured to have 1, 2, or 3 of the rightmost tiles used as a Summary Tile. The Summary Tile tallies the items and/or modifiers on the screen. The image below shows 4 orders, and the Summary Tile shows a union of all the items currently on the display.

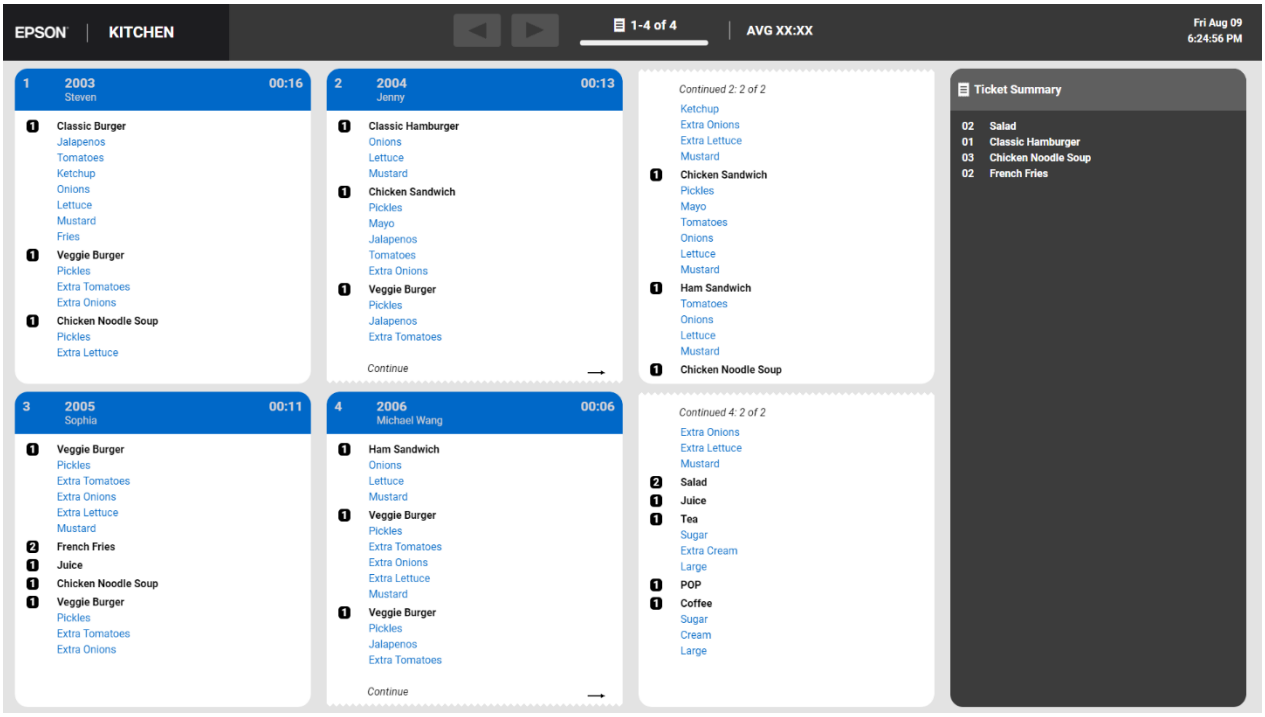


Figure 3.4.1: Summary Tile spanning 2 tiles

3.4.1. Summary Tile Contents

The summary items that are displayed are configurable from within the KDS Configuration Utility.

Both items and modifiers can be tallied.

3.5. Language Support

3.5.1. KDS UI, Configurator, Web Server

English and French are supported.

3.5.2. Display Font

The display currently uses Google's Roboto font, which supports all Latin, Greek, and Cyrillic characters from the Unicode 7.0 specification. A full list of supported characters and languages is long, and probably easier to get from Google's font description.

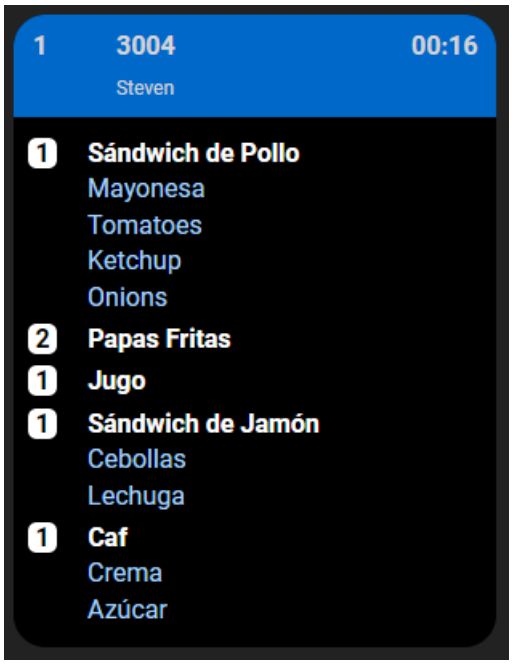


Figure 3.5.1: Sample Order in Spanish (shown with dark tile background)

3.5.3. Parser Input

When data arrives by a parser (including the default out-of-the-box parser), it is treated as the Latin-1 (ISO 8859-1) character set. Characters in the Unicode range U+00A0 to U+00FF can be sent directly to the KDS as single bytes without any special configuration. This allows support for the following languages:

> Afrikaans, Albanian, Basque, Breton, Corsican, English, Faroese, Galician, Icelandic, Irish, Indonesian, Italian, Kurdish, Leonese, Luxembourgish, Malay, Manx, Norwegian, Occitan, Portuguese, Rhaeto-Romanic, Scottish Gaelic, Scots, Southern Sami, Spanish, Swahili, Swedish, Tagalog, Walloon

Improvements to input language support are also planned for future versions, but currently the device will act like a printer that is fixed to using the Latin-1 subset of the Windows-1252 code page.

3.5.4. API Input

When data arrives by the KDS API, any UTF-8 character can be used, subject to the limitations of the font as described above. As a result, the API has better guaranteed language support.

3.5.5. Printing

While the system has the capability to print if a printer is attached (such as the “print on bump” feature) that is also limited to ISO-8859-1, and the printer attached should be configured to use the Windows 1252 code page, which is a superset of that.

4. Bump Bar Support

Please consult the User Manual for the KB1700 and KB9000 bump bars for details on bump bar operation. This section highlights the capabilities.

4.1. Bumping an Entire Order

Entire orders can be bumped by selecting the tile number on the bump bar. (On a touchscreen simply pressing the order tile header or swiping “up” in the order tile body will bump the order.)

4.2. Bumping Individual Items (Scroll Mode)

Individual items can be bumped by entering Scroll mode, selecting the order number, scrolling down to the item of interest, and then pressing the Bump button.

4.3. Viewing Off Screen Orders

New orders that are off screen can be viewed by scrolling off screen.

4.4. Recalling Orders

Orders that have been bumped can be viewed on a special recall screen and can be brought back (recalled) to the main screen.

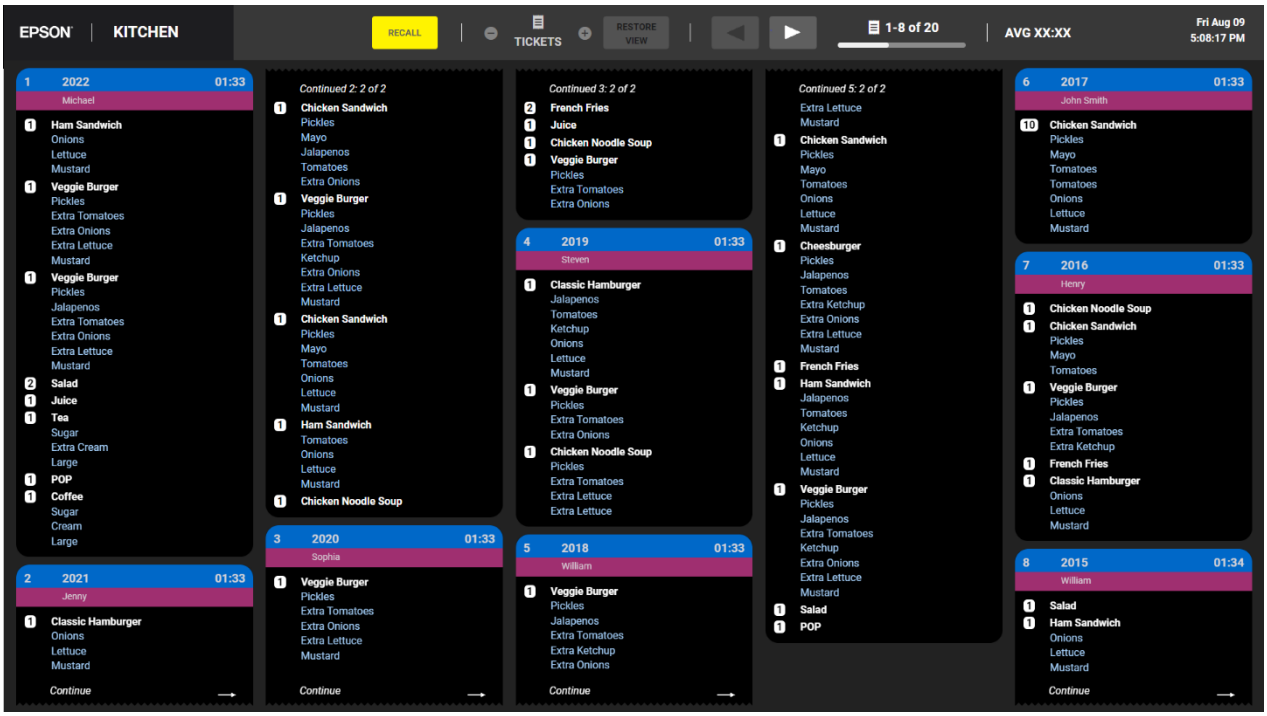


Figure 4.4.1: Order History/Recall Screen

Entire orders are visible in the recall screen. When an order from this screen is recalled back to the active order window, it is identified by the same two-tone order header as shown above, and placed in the beginning of the queue i.e., in the first tile. The keyword “(RECALL)” is also added to the second row of the header when shown in the active order window.

4.5. Expanded Order View (Order Pop-up Window)

An order can be selected to be viewed in its own pop-up window. This is convenient if orders span multiple windows and it's desirable to see the entire order in its own window. Or if an order in the last tile extends off screen.

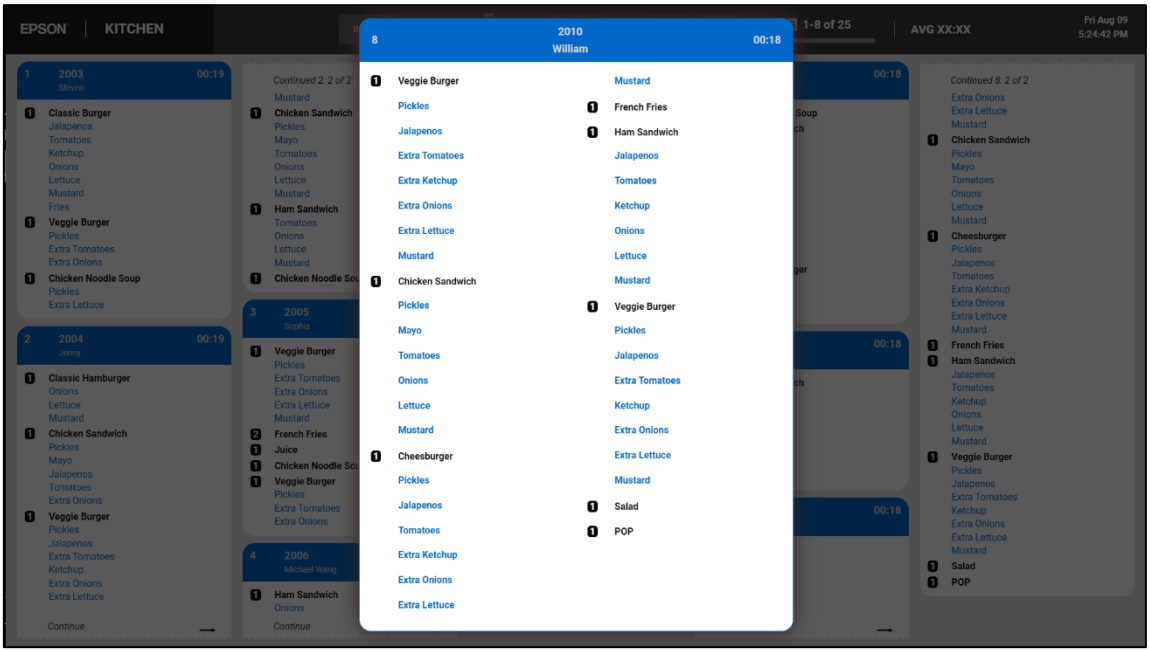


Figure 4.5.1: Expanded Order Window

5. Expeditor Stations

One or more screens can be designated as Expeditor (Expo) stations. These stations will not allow an order to be bumped until each item has been bumped off their respective kitchen stations.

Once an item has been bumped on a station other than the expo, a strikethrough will appear on the menu item at the expo station. When all items have been bumped on the expo order the order tile will become highlighted and move to the start of the queue i.e., the first tile. This indicates it can now be bumped off and is ready for delivery to the customer.

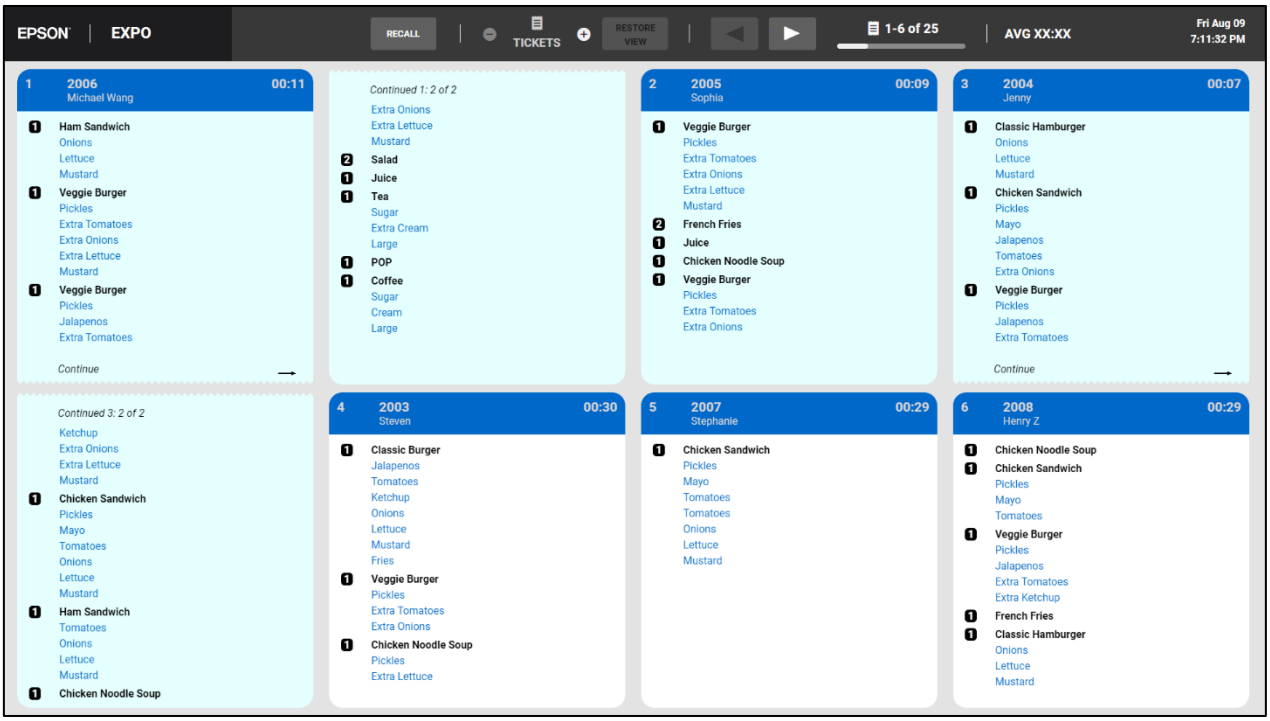


Figure 5.1: Sample Expeditor Station w/ 3 orders prepared and ready to be bumped

6. Customer Facing Stations

In a multi-station KDS configuration one or more screens can be designated as ‘Customer Facing Display’ stations. This display shows two lists: “PREPARING” and “READY”. These list header names are customizable. When orders enter the KDS the order # will show up in the PREPARING list, and when the order is completely bumped from the KDS prep. stations it will move to the READY list. From there, it can be manually bumped off. Otherwise, a timer can be configured to automatically remove orders after a period.

If the KDS has an Expeditor station, the order must also be bumped off the Expeditor station for it to move from PREPARING to READY.

The font size and line spacing are customizable.

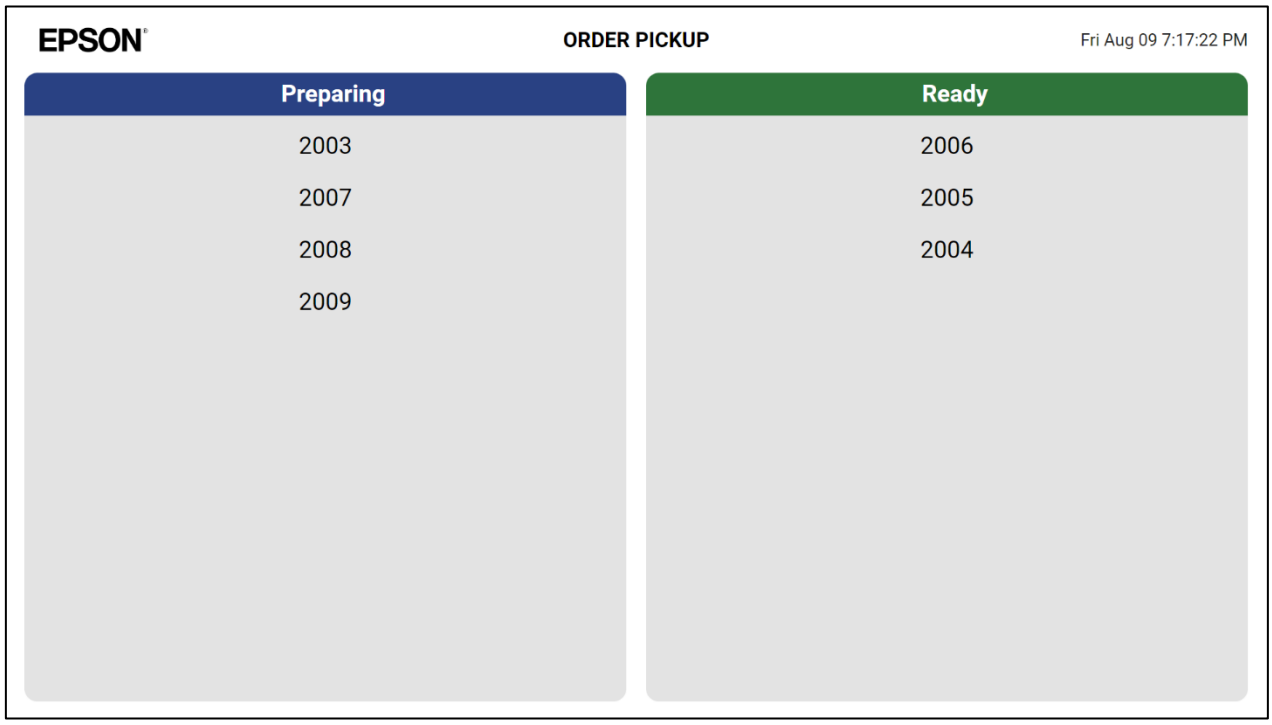


Figure 6.1: Customer Facing Display

6.1. Multiple Columns

One or two columns can be configured for the PREPARING and READY lists.

6.2. Optional Timer

An optional timer can be configured to show the elapsed time each order spends in the PREPARING state.

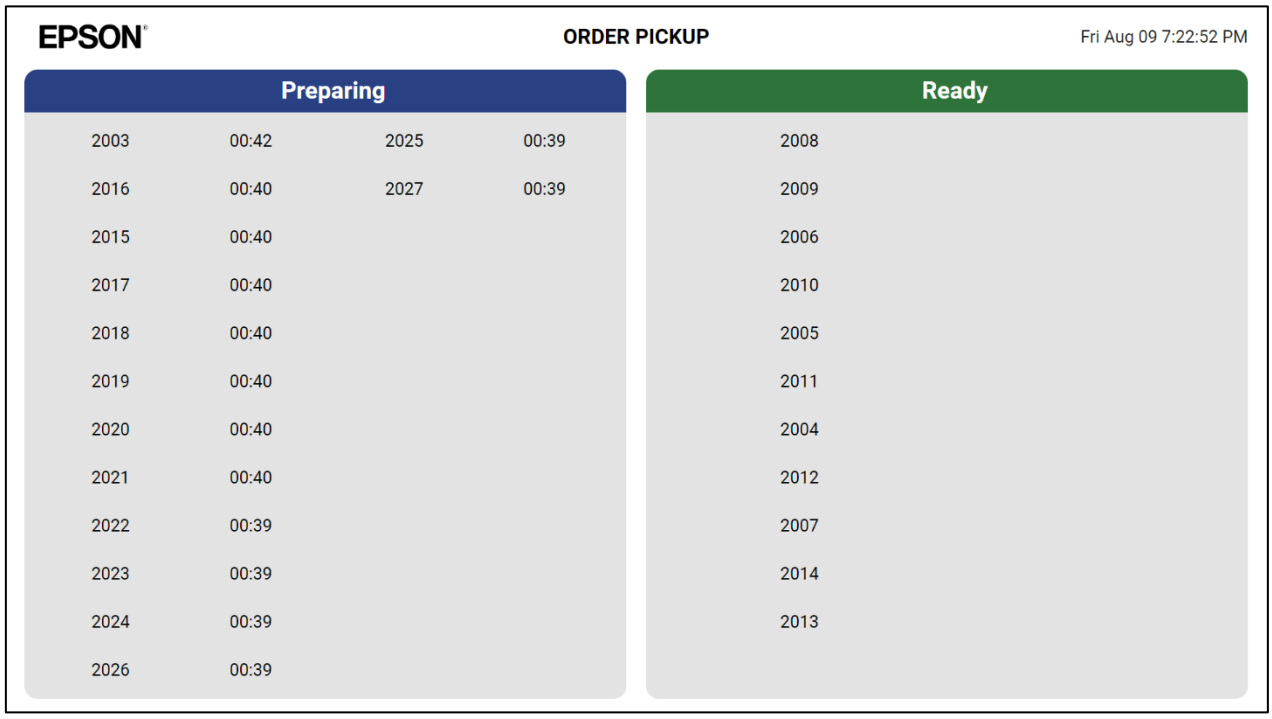


Figure 6.2.1: Customer Facing Display w/ 2 columns and optional order timer

7. KDS Printing

Epson receipt printers can be attached via USB to any KDS device (see **Figure 1.3.1.1**). The “print on bump” feature causes a KDS device to print any order as it gets bumped from the station. This can also be useful when bumping from an Expeditor station; labels printed using an attached TM-L100 label printer can be attached to the order bag, or individual items, for easy identification.

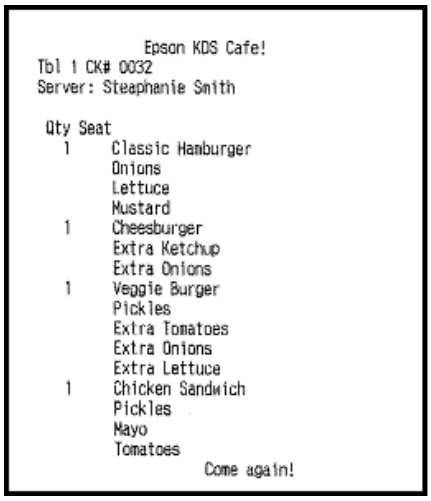


Figure 7.1: Sample order label

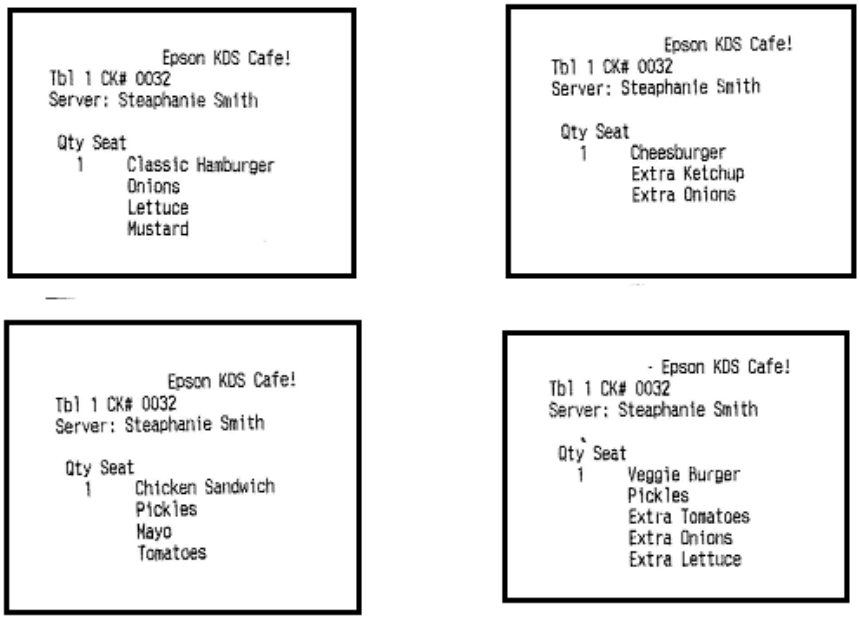


Figure 7.2: Sample item labels

7.1. Local Printer Status

If a station is configured to print on bump, and the attached printer goes offline due to reasons such as being out of paper, having a paper jam or having its cover open, the KDS display will flash a notification in the display header until the printer is online again.

7.2. Supported Printers

- TM-U220 (dot matrix)
- TM-T88V (receipt)
- TM-L90 (label)
- TM-T88VI (receipt)
- TM-L100 (label)

8. TrueOrder KDS Configuration Software

Every KDS device comes equipped with a web-based Configuration Utility accessible using a browser such as Google Chrome, Mozilla Firefox, or Microsoft Edge. It can be accessed on computers or mobile devices, although larger screens are recommended for a better view. The Configuration Utility removes the need to install any additional software to configure a KDS system. Among the main features, it allows adding/removing devices from the KDS system, configuring the look and feel of each display, configuring menu items if required, installing POS-specific parser(s), and enabling printing features on individual stations as required.

8.1. POS Parser

The KDS requires a parser module to understand the format and fields of incoming data from each unique POS. Some default parsers are bundled in with the configuration utility, however new custom parsers may be requested from Epson and shall be provided in .ipk package format, to be added into the configuration utility and used with the KDS.

8.2. Devices

KDS devices are all discoverable from the configuration utility. Once discovered, any combination of devices can be added to the KDS system and configured according to its intended role or place in the restaurant.

8.3. Displays

Displays or Layouts define the overall user interface of a KDS station and are linked to one or more devices (more than 1 device using the same display or layout results in those devices being mirrors of each other). The following key user interface properties can be configured here:

- Display title or name
- Tile arrangement (flex vs. fixed grid, tile layout (see Section 3.2 Supported Tile Layouts)
- Whether the display is for an expeditor screen, a kitchen screen or a customer facing display
- Summary Tile configuration
- Summary Tile items to display (summary item filter)
- Menu items to display (menu item filter)
- Priority and Rush times
- Sound on new order entry

8.4. Tiles

Tiles are configured and attributed to a display. Some of the key elements that can be configured include:

- Display QTY or display SEAT
- Font size
- Line spacing
- Order header colours for Normal, Priority and Rush states
- Background/Foreground colours
- Item colour
- Modifier colour
- Recall order header colour
- VOID colour
- Alert colour (for allergies, special instructions)
- Appended item colour
- Expeditor background colour for ready-to-bump, complete orders

8.5. Menus and Recipes

If KDS Menu Routing or Summary Tile Items' List is desired, the menu needs to be entered into the KDS configuration. The items need to be entered exactly as they would be printed out as that is what the KDS is parsing.

When menu items are entered, there is a field where the recipe or any cooking instructions can be entered for the item, along with item descriptions. Furthermore, items can be grouped together under various custom categories e.g., Chicken Sandwich and Ham Sandwich can both be grouped under "Sandwiches", whereas pop and tea can be grouped under "Drinks".

9. Power Interruption

The current KDS state is always saved, which preserves the display(s) in the event of a power outage.

10. Feedback from KDS System

It is possible to collect information from the KDS system by using callbacks that are registered using the KDS API. Callbacks exist for:

- New order entry.
- Order priority times being reached.
- Orders being bumped.
- Orders being recalled.
- Individual items being bumped/unbumped.

If callbacks are not desired, the KDS system can be periodically queried for order status instead.

Please consult the separate documentation on the KDS API for details on how to get notifications for various KDS events.

11. Network for KDS Multi-Screen

The multi-screen KDS relies on a fully functional network so that the devices can communicate with each other.

Please consult the TrueOrder KDS Network Requirements User Manual for more information.

11.1. Display losing connection to Master

If the main KDS printer is powered off or disconnected from the network the KDS will show a message on each display indicating such and prevent them from being used until the master printer is back online:

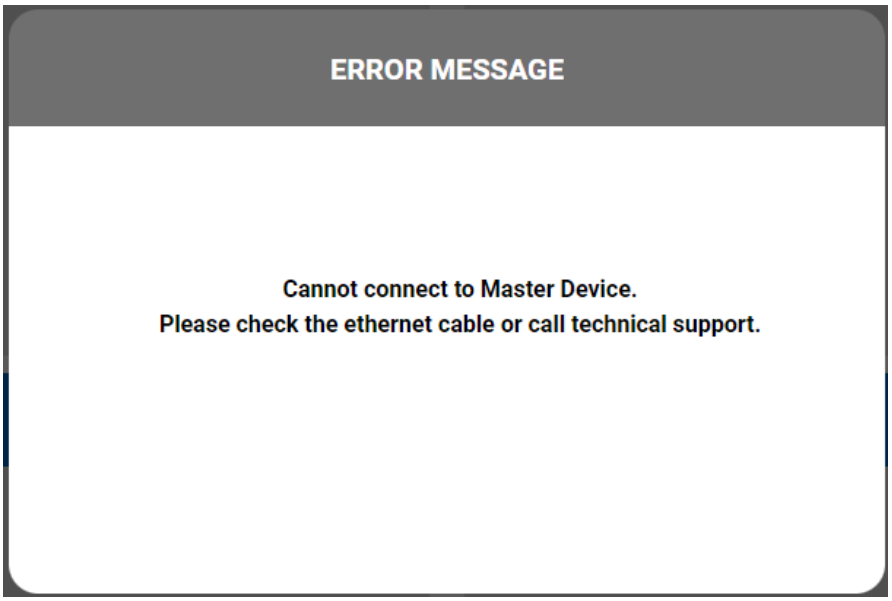


Figure 11.1.1: Display Losing Connection to Master Device (message window)

When the connection to the Master device is re-established, a “Display Updated!” status message is displayed on screen and must be dismissed by hitting any button on the bump bar or pressing the “Close” button on the touchscreen.

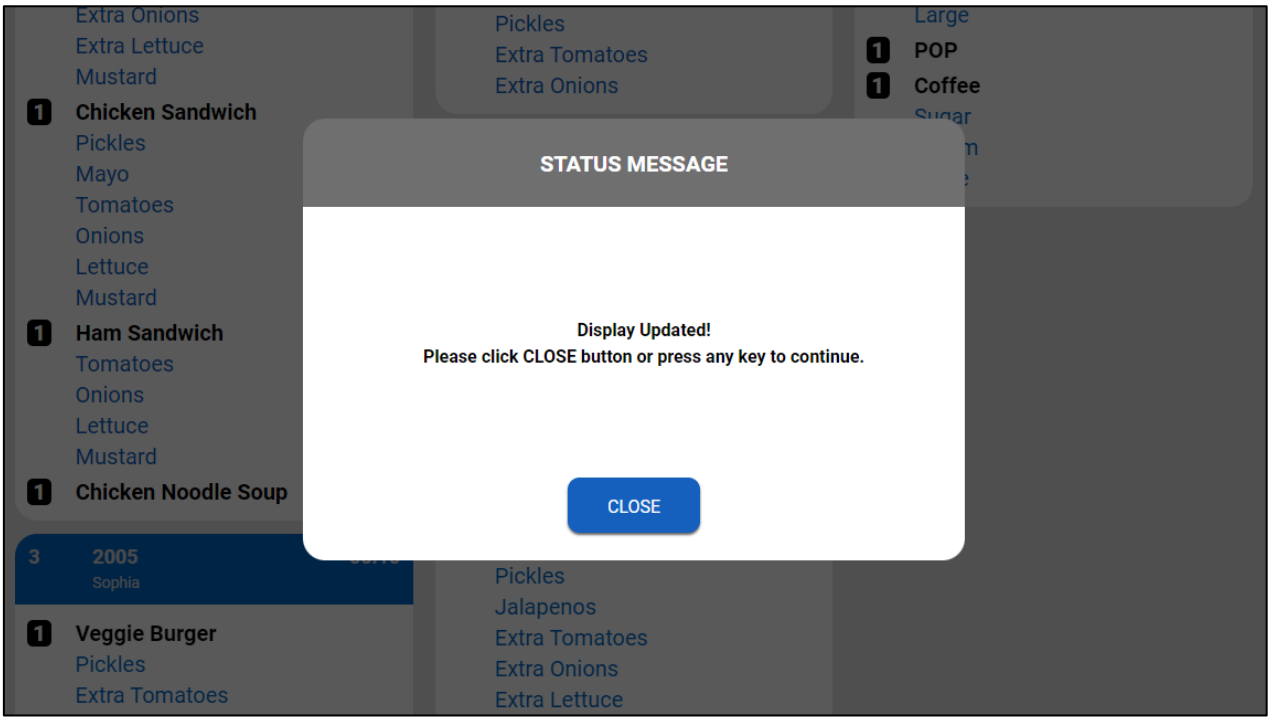


Figure 11.1.2: Display Regaining Connection to Master Device

12. Branding and Logos

TrueOrder KDS comes preloaded with the Epson logo on the top left corner. For customers wishing to use their own logo, the default logo can be replaced by a text field or a custom logo image using the web-based Configurator. This is available for each type of display: kitchen, expeditor and customer facing display.

13. Remote Management

For larger-scale chain operations, the TrueOrder KDS also supports some forms of remote management. While the KDS API callbacks can be used to implement some remote tracking and business statistics, there are also functions for automating large-scale rollouts across an organization with multiple sites.

Enabling this requires setting up a remote server on a site reachable by all the sites that will be making use of this.

Please consult the **TrueOrder Remote Management User Manual** for more information,

13.1. Change Rollout

The primary use for this is to allow customers to have centralized control over certain changes. Rather than having to go around to every site individually to perform certain updates, the updates can be placed on a central server. All these updates are only performed during the initial bootup of the KDS, so the KDS will never reboot at unexpected times for this remote management.

Currently three forms of large-scale rollout are supported:

- Firmware updates, to update the full firmware of the KDS when necessary
- Parser updates, to handle changes to the way chit data is parsed
- Logo updates, to handle branding

Others may be added in the future.

13.2. Device Monitoring

The remote management functionality also allows for each device to send some basic operational statistics to the central server, which can be used to track when devices restart and which of them have been successfully updated.

14. Analytics and the Data Reporting Application

Epson provides a sample KDS Data Reporting web application that allows for insights into restaurant performance. Metrics such as bump times and item sales can be tracked for each station at every site and can be analyzed and compared in graphical representations.

Data from the TrueOrder KDS is transmitted to a server on an hourly basis where the Epson Data Reporting application resides and compiles the data into graph form for easy analysis.

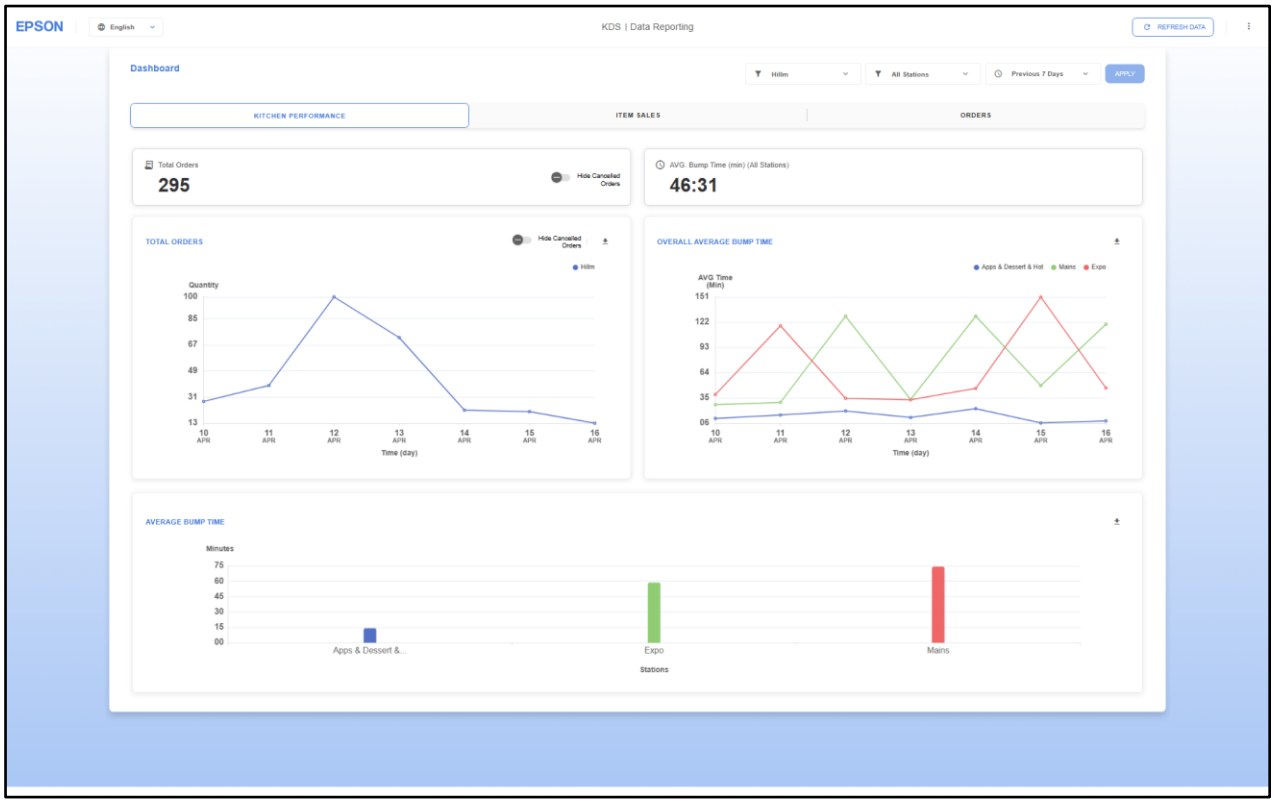


Figure 14.1: Analytics Dashboard

The web application is intended to be hosted on a remote server hosted by the customer or service provider. Please contact your Epson representative to obtain a copy.