
Configure XL

Audience: This guide is for the person responsible for driving improvement with XL.

Purpose: Spend an hour or two to configure key settings (network, date and time, reasons, digital inputs, time schedule, parts) and print barcodes for your application.

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Important User Information

XL products are not designed or intended for control applications, and MUST NOT be used for control applications under any circumstances. There are fundamental differences in the design methodology of a control product such as a Programmable Logic Controller (PLC) and a non-control product such as an XL device. Outputs (e.g., relays) are provided for annunciation only, and MUST NOT be used for control purposes.

This product is designed and intended for use solely in indoor industrial applications, and MUST be installed by a qualified electrician.

This product is designed and intended for use solely in a secure, private network environment.

It is the responsibility of all persons applying this product to a given installation and/or application to carefully review the installation and/or application to evaluate and ensure the suitability of this product for the intended application.

This documentation, including any examples, diagrams, and drawings, is intended to provide information for illustrative purposes only. Because of the differences and varying requirements of different installations and applications, Vorne Industries, Inc. cannot assume responsibility or liability for actual use, including use based on any examples, diagrams, and drawings.

In no event will Vorne Industries, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this product. Please carefully review the Vorne Product Warranty Statement at www.vorne.com/warranty.htm and the Vorne Sales Terms and Conditions at www.vorne.com/terms.htm. Vorne Industries, Inc. makes no warranties express or implied except as expressly stipulated in our Product Warranty Statement.

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SHOCK HAZARD: This product has more than one source of power. Relay outputs may be at mains potential from a secondary power source. Always disconnect power from all power sources before installing or servicing the XL device, and before opening the user access plate. Do not reapply power until the access plate has been reinstalled and securely closed. Failure to follow these precautions could result in personal injury or death due to electric shock.



ATTENTION: This product must be operated at or below Pollution Degree 2 (an environment where only non-conductive pollution occurs except for occasional and temporary conductivity caused by condensation) and Over Voltage Category II (circuits directly connected to local-level distribution).

Contact Information

Corporate Office

Address: Vorne Industries, Inc.
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Sales and Support (USA and Canada)

We are available Monday through Friday from 8:00 AM to 6:00 PM CST (UTC-06:00).

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Sales and Support (International)

Vorne has an extensive network of international partners. More information can be found at www.vorne.com/about-us/xl-partners.htm.

Connect XL to Your Network

This guide assumes you are configuring XL in an office environment (i.e., before installing it in a production environment). We recommend this approach as it ensures that key settings have been configured before you start with “live” data collection. We encourage you to reach out to our support team if you have any questions.

Step 1 – Obtain IP Address from IT

It is important that you can consistently access your XL device on the network. This will require a short conversation with your IT representative to ask how they would like to assign an IP address to XL.



Assigning an IP Address to XL

When a network-enabled device is added to an Ethernet network it needs a unique IP address.

If your network is configured to automatically assign an IP address it is described as being “DHCP enabled”. XL will automatically obtain a DHCP assigned address if it is available.

If your network is not DHCP enabled, XL will not be able to automatically obtain an IP address from the network. If this happens XL will show a “No IP Address” message along with its Ethernet MAC address. You can use the MAC address to assign a static IP address to the device so that you can access XL and continue configuration.

However your network is configured, you will want to ask your IT representative for either a **reserved DHCP address** or a **static IP address** so that you can consistently access XL across your network.

1. Contact your IT representative and ask if they want to reserve a **DHCP address** or assign a **static IP address** for XL.
2. If your IT representative wants to reserve a DHCP address:
 - a. Tell them the XL Ethernet MAC address – it is printed on a white sticker on the back panel of the unit and on a white sticker on the side of the shipping box.
 - b. Your IT representative will make the necessary changes to the network and tell you the IP Address that you can use to access XL.
3. If your IT representative wants to assign a static IP address, ask them to provide you with the following information:
 - a. IP Address
 - b. Subnet Mask
 - c. Default Gateway (recommended; required for SNTTP)
 - d. Preferred DNS Server (recommended; required for SNTTP)
 - e. Alternate DNS Server (optional)
4. Please do not go on to the next step until you have the above IP address information.

Step 2 – Remove Access Plate



SHOCK HAZARD: This product has more than one source of power. Relay outputs may be at mains potential from a secondary power source. Always disconnect power from all power sources before installing or servicing the XL device, and before opening the user access plate. Do not reapply power until the access plate has been reinstalled and securely closed. Failure to follow these precautions could result in personal injury or death due to electric shock.



CAUTION: Keep mains-connected wiring (including relay output wiring) separate from signal and I/O wiring. Use the left knockout(s) for mains-connected wiring (including relay output wiring) and the right knockout(s) for signal and I/O wiring.



CAUTION: Take care to pass all wiring through the back panel knockouts using cable glands that meet local electrical code. Make sure that any unused knockouts are plugged using hardware that meets local electrical code.

1. Verify that all sources of power have been completely disconnected from the XL device.
2. Remove and save the screws holding the access plate (eight or ten screws depending on the model).
3. Gently pull the access plate away from the XL device. The access plate will remain connected to the XL device via its grounding strap.

Step 3 – Connect Ethernet Cable

The XL device includes a 10/100 Ethernet port, which is used to connect XL to your local network. This port supports Auto-MDIX (automatic crossover) so either a straight-through or crossover cable can be used.

1. Gently plug one end of the Ethernet cable into the RJ45 jack on the XL logic board, latch side up (away from the board).
2. Plug the other end of the Ethernet cable into your local network drop.

Step 4 – Verify Barcode Scanner is Installed

As part of following the **Meet XL** guide, a barcode scanner was connected to the XL device. If the barcode scanner is no longer connected, refer to **Meet XL > Connect XL for Interactive Tour of Scoreboard** and follow the instructions in **Step 2 – Connect Barcode Scanner**.

Step 5 – Reinstall Access Plate

Fasten the access plate to the back panel using the screws that were removed in **Step 2 – Remove Access Plate**.

Step 6 – Apply Power

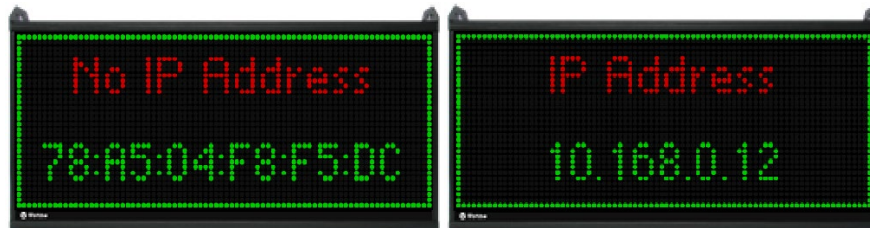


SHOCK HAZARD: This product must be grounded. Never defeat the ground conductor or operate the product in the absence of a suitably installed ground conductor.



ATTENTION: This product is suitable for connection to a TN-S power distribution system (AC Hot and AC Neutral lines with a separate protective grounding conductor).

1. Grab a pen and paper. When the device powers up it will display network address information that you will write down.
2. Apply mains power to the XL device.
3. The scoreboard will go through a series of power-up steps. After displaying the software version, the scoreboard will either display a MAC address (left image) or an IP address (right image). **Write this address down.** If you miss this information, disconnect and reapply mains power to the XL device.



4. If a MAC address is displayed (left image) go to the next step: **Step 7 – Set Static IP Address.**
5. If an IP address is displayed (right image) skip to: **Step 8 – Access XL with a Browser.**

Step 7 – Set Static IP Address (no DHCP)

In this step, you will use the Vorne website to generate a 2D barcode with the static IP address and other network information from **Step 1 – Obtain IP Address from IT.**

1. Open your web browser and navigate to www.vorne.com/set-ip
2. Set Obtain information automatically to **No.**
3. Enter the following information as provided by IT:
 - a. IP Address and Subnet Mask (required)
 - b. Default Gateway, Preferred DNS Server, and Alternate DNS Server (optional)
4. Click the **Generate Barcode** button.
5. Print the page (from your browser).
6. Scan the **IP Address** barcode to save the network settings to your XL device.
7. Scan the **Network Settings** barcode to confirm the new network settings on the scoreboard. Each scan shows a new screen of information.
8. You are now ready to access the XL device with your web browser.

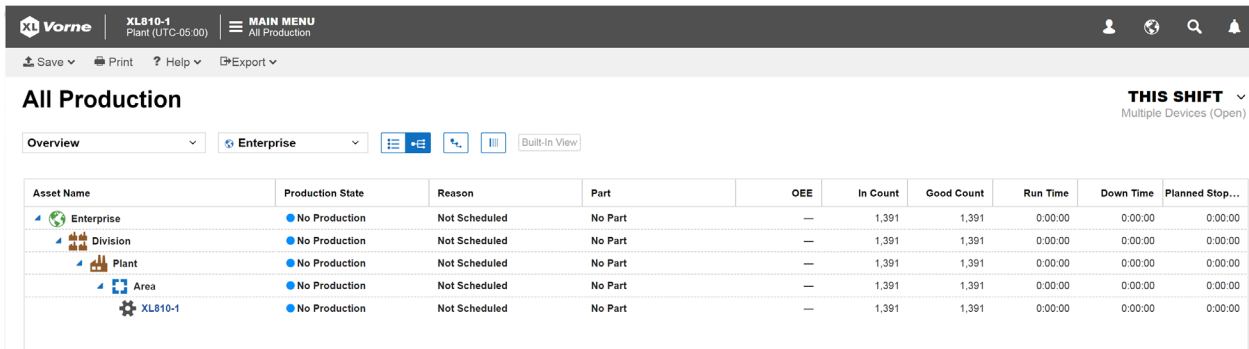
Step 8 – Access XL with a Browser

In this step you will confirm that you can access the XL device with your web browser.

1. Open your web browser and type in the IP address (either the IP address copied from the scoreboard in Step 6 or the static IP address assigned in Step 7).



2. You should see the All Production web page.

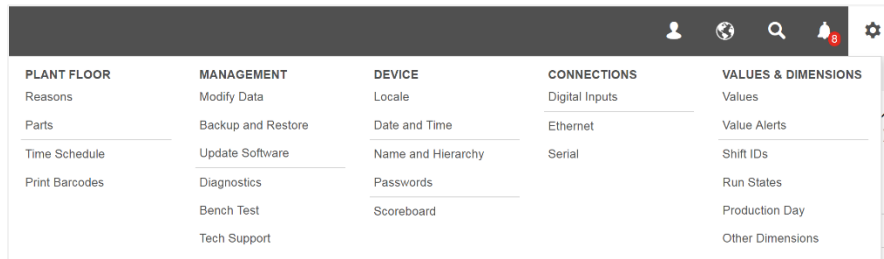
A screenshot of the 'All Production' web page. The page has a dark header with the 'Vorne' logo, 'XL810-1 Plant (UTC-05:00)', and a 'MAIN MENU' button. Below the header is a navigation bar with 'Overview', 'Enterprise', and 'Built-In View' options. The main content area is a table with columns: Asset Name, Production State, Reason, Part, OEE, In Count, Good Count, Run Time, Down Time, and Planned Step... The table contains four rows of data, all showing 'No Production' and 'Not Scheduled' reasons. The 'Asset Name' column shows a hierarchy: Enterprise, Division, Plant, Area, and XL810-1. The 'OEE' column shows a dash, and the 'In Count' and 'Good Count' columns show the value 1,391. The 'Run Time', 'Down Time', and 'Planned Step...' columns show 0.00:00. The top right of the page indicates 'THIS SHIFT' and 'Multiple Devices (Open)'.



Configure (One-Time Settings)

In this section we will configure the settings necessary to get XL running for the first time on your process. Please note that there are additional configuration options that can fine-tune your deployment, and our support team will be delighted to go over these with you.

Step 1 – Open Settings Menu

Access to the settings menu is restricted to the Administrator role.



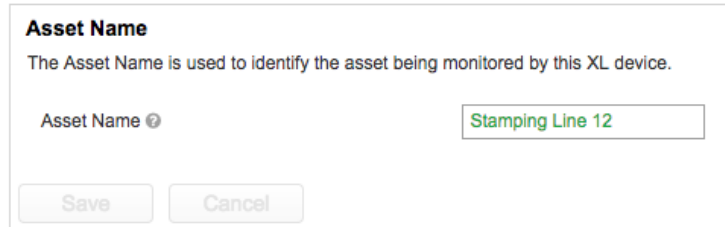
1. Click the  **Log In** icon on the right side of the navigation bar.
2. For Role select **Administrator**.
3. Enter the Administrator password. The default Administrator password is **aragorn**.
4. Click the  **Settings** icon to open the settings menu.
5. Note that default passwords can be changed at any time by navigating to **Settings | Device | Passwords**.

Step 2 – Name and Hierarchy

Set the Asset Name of the XL device to describe the machine or process that it is monitoring, and configure the Hierarchy if you have more than one XL device.

Asset Name

The Asset Name is displayed in the navigation bar of the web page interface and should describe the machine or process being monitored (e.g., Stamping Line 12).

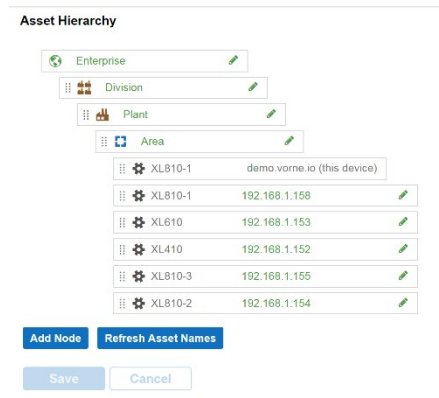


The screenshot shows a form titled "Asset Name". Below the title is a descriptive sentence: "The Asset Name is used to identify the asset being monitored by this XL device." There is a text input field labeled "Asset Name" with a help icon, containing the text "Stamping Line 12". At the bottom of the form are two buttons: "Save" and "Cancel".

1. Navigate to **Settings | Device | Name and Hierarchy**.
2. In the **Asset Name** form, type in the name you would like to use to identify the manufacturing process monitored by this XL device.
3. Click the **Save** button.


Hierarchy

The Hierarchy is only set if you have multiple XL devices, in which case it enables you to view real-time and historical rolled-up reporting for every XL device accessible on your network.



The screenshot shows the "Asset Hierarchy" configuration interface. It features a tree structure with levels: Enterprise, Division, Plant, and Area. Below the Area level, there is a list of XL devices with their IP addresses and a "demo.vorne.io (this device)" label. At the bottom, there are buttons for "Add Node", "Refresh Asset Names", "Save", and "Cancel".

Node	IP Address	Label
Enterprise		
Division		
Plant		
Area		
XL810-1	192.168.1.158	demo.vorne.io (this device)
XL610	192.168.1.153	
XL410	192.168.1.152	
XL810-3	192.168.1.155	
XL810-2	192.168.1.154	

1. Navigate to **Settings | Device | Name and Hierarchy**.
2. To add a node click **Add Node**.
 - a. If the node is a Manufacturing Process enter the IP address of the XL device.
 - b. If the node is a Division, Plant, or Area enter a descriptive name.
3. To modify the name of an Enterprise, Division, Plant, or Area, click on the green text.
4. To move a node within the hierarchy, use the drag handle to move it to the desired new location.
5. To delete a node click on the  icon that appears when hovering over the node.
6. Click the **Save** button.

Step 3 – Locale

XL supports country-specific languages and data formats. The Locale page sets the default for all users, which can be overridden by individual users at their browser.

The current release includes nine machine-translated languages (English, Spanish, German, French, Italian, Dutch, Polish, Chinese, and Japanese) as a preview feature and data formatting for 28 locales. Professional translations will be rolled out with future releases.

Locale


Languages in the preview version of XL are generated by machine translation and will be replaced by professional translations. Prepare to be amused!

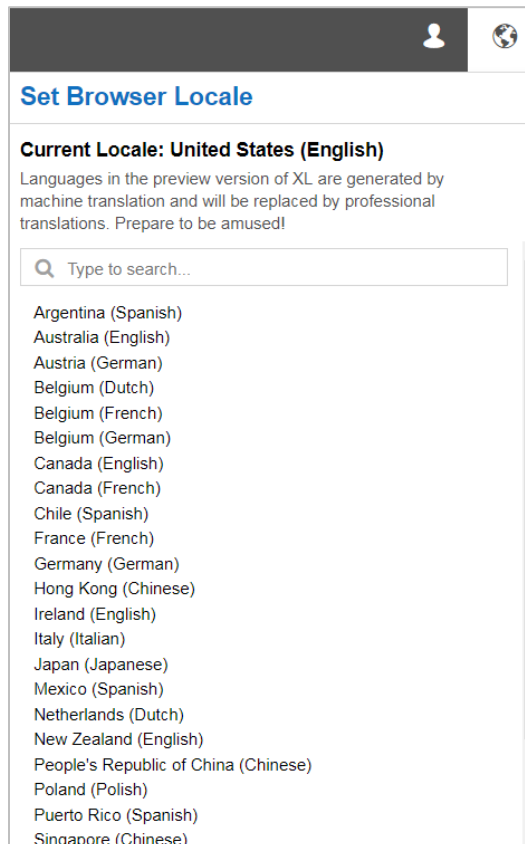
Default Locale

The default locale for this device. The default locale can be overridden in the user's browser via the globe icon on the navigation bar.

United States (English) ▾

1. Navigate to **Settings | Device | Locale**.
2. Select your country (and preferred language if applicable) from the dropdown menu.
3. Click the **Save** button.

Each user can select a personal locale for their browser by clicking on the  **Globe** icon on the right side of the navigation bar.

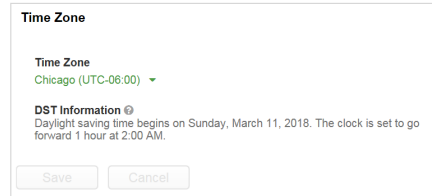


Step 4 – Date and Time

Set time-related settings so that XL is configured for the correct time zone and so XL synchronizes its internal clock to your time server.

Time Zone

Time Zone determines the Daylight Saving Time rules to apply and the time offset to UTC.

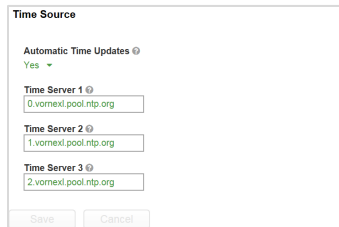


The screenshot shows a dialog box titled "Time Zone". It contains a "Time Zone" dropdown menu with "Chicago (UTC-06:00)" selected. Below it is a "DST Information" section with a help icon and text: "Daylight saving time begins on Sunday, March 11, 2018. The clock is set to go forward 1 hour at 2:00 AM." At the bottom are "Save" and "Cancel" buttons.

1. Navigate to **Settings | Device | Date and Time**.
2. Select your time zone from the dropdown menu.
3. Click the **Save** button.

Time Source

We highly recommend using an SNTP server to keep XL time synchronized to a central time authority. By default Automatic Time Updates is set to **Yes**, which means SNTP is enabled and Internet access is required to reach an external time server. You can modify the time source to be an internal time server.

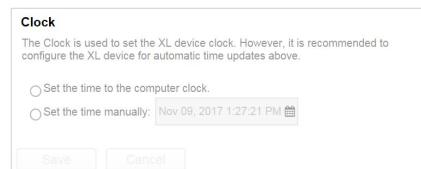


The screenshot shows a dialog box titled "Time Source". It has an "Automatic Time Updates" dropdown set to "Yes". Below are three "Time Server" fields, each with a help icon and a text input box containing "0.vornext.pool.ntp.org", "1.vornext.pool.ntp.org", and "2.vornext.pool.ntp.org" respectively. At the bottom are "Save" and "Cancel" buttons.

1. Navigate to **Settings | Device | Date and Time**.
2. Obtain the internal SNTP server IP address from your IT department and enter it as Time Server 1.
3. Click the **Save** button.

Clock

If Automatic Time Updates is set to **No** you have the option to manually set the XL clock, either to match your computer clock or to a specific date and time. This is a one-time update, which is why we recommend using an SNTP server as described above. To manually set the time to your computer clock:



The screenshot shows a dialog box titled "Clock". It contains a message: "The Clock is used to set the XL device clock. However, it is recommended to configure the XL device for automatic time updates above." Below are two radio button options: "Set the time to the computer clock." (which is selected) and "Set the time manually: Nov 09, 2017 1:27:21 PM" with a calendar icon. At the bottom are "Save" and "Cancel" buttons.

1. Navigate to **Settings | Device | Date and Time**.
2. In the **Clock** form select **Set the time to the computer clock**.
3. Click the **Save** button.

Step 5 – Reasons

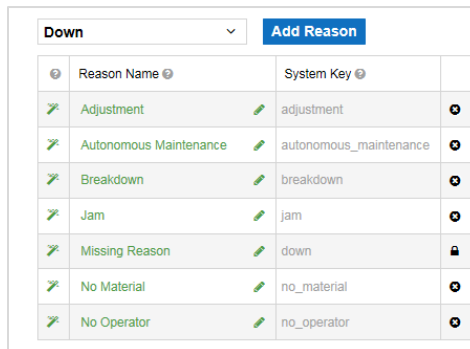
XL categorizes every moment of time as an event in order to provide you with a consistent way to view information, perform analytics, and generate reports.

When XL categorizes time it starts with the Process State Reason and works up from there. In other words, XL automatically assigns a **Production State** (a standardized and uniform way for XL to describe what is happening at the manufacturing process) and a **Performance Impact** value (how the event time affects performance metrics like Efficiency, OEE and TEEP) based on the **Production State Reason**.

Refer to **Meet XL | Key XL Concepts** to learn more about events.

Down Reasons

For most applications, the most important reasons to configure are the reasons that operators scan to provide information about why the manufacturing process is down. While XL allows you to create an unlimited number of down reasons, initially we recommend creating no more than 25. Having a limited number of reasons makes it much more likely that operators will scan the correct reason.



Reason Name	System Key	
Adjustment	adjustment	🔒
Autonomous Maintenance	autonomous_maintenance	🔒
Breakdown	breakdown	🔒
Jam	jam	🔒
Missing Reason	down	🔒
No Material	no_material	🔒
No Operator	no_operator	🔒

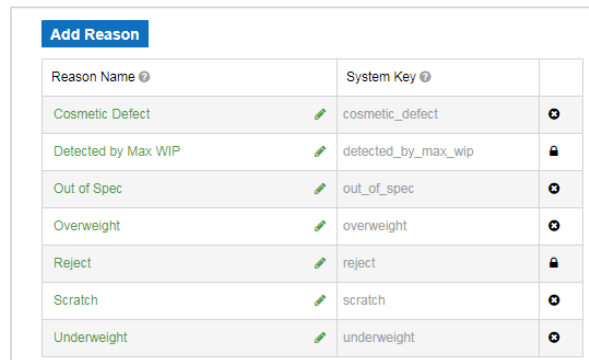
1. Navigate to **Settings | Plant Floor | Reasons**.
2. Select **Down** from the dropdown menu.
3. Click **Add Reason**.
4. Enter the name of the new down reason.
5. Click the **Save** button.

Step 6 – Reject Reasons

XL provides quality analytics, including tracking reasons for rejected parts. Every time XL receives a reject input it also logs an associated reason. There are two ways to input a reject:

- Digital Input (automated detection)
- Barcode Scan (manual detection)

In both cases, there is always an associated reject reason. By default this reason is Reject, but it is easy to configure reasons for your application.

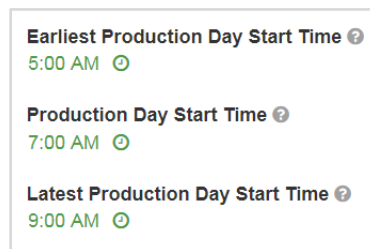


Reason Name	System Key	
Cosmetic Defect	cosmetic_defect	🔒
Detected by Max WIP	detected_by_max_wip	🔒
Out of Spec	out_of_spec	🔒
Overweight	overweight	🔒
Reject	reject	🔒
Scratch	scratch	🔒
Underweight	underweight	🔒

1. Navigate to **Settings | Plant Floor | Reasons** and click the **Reject Reasons** tab.
2. Click **Add Reason**.
3. Enter the name of the new reject reason.
4. Click the **Save** button.

Step 7 – Production Day

A production day is a day that is aligned to your shift schedule. If your first shift usually starts at 7:00 AM then your production day usually starts at 7:00 AM. Organizing information by production day makes it much easier to look at information in time units like days and weeks as it prevents shifts from being split across multiple days.



Earliest Production Day Start Time 5:00 AM

Production Day Start Time 7:00 AM

Latest Production Day Start Time 9:00 AM

1. Navigate to **Settings | Metrics & Dimensions | Production Day**.
2. Set **Earliest Production Day Start Time** to the earliest time that your first shift is likely to start.
3. Set the **Production Day Start Time** to the usual time that your first shift of the day starts.
4. Set **Latest Production Day Start Time** to the latest time that your first shift of the day is likely to start.
5. Click the **Save** button.

Step 8 – Digital Inputs

In this step, the digital count inputs are configured.

Configure Digital Inputs

Refer to the **Install XL** guide section called **Connect XL to Your Process** for information and recommendations on connecting count inputs.

The simplest recommended approach is to monitor **In Count** at the entry of the process constraint (also designate this as the **Cycle Input** in order to detect slow cycles, small stops, and down time), and monitor either **Reject Count** or **Good Count** at the end of the manufacturing process.


A best practice variant is to monitor **In Count** at the beginning of the manufacturing process, **Cycle Input** at the process constraint, and either **Reject Count** or **Good Count** at the end of the manufacturing process.

Input ?	Counter ?	Cycle Input ?	Input Prescaler ?	Count Multiplier (Default) ?	Debounce ?	Inhibit (sec.) ?	Reject Reason ?
1	In Count ▾	Yes ▾	1 🛠	1 🛠	Low Speed ▾	0.0 🛠	N/A
2	Reject Count ▾	No ▾	1 🛠	1 🛠	Low Speed ▾	0.0 🛠	Reject ▾
3	Pack Out Count ▾	No ▾	1 🛠	1 🛠	Low Speed ▾	0.0 🛠	N/A
4	No Count Assigned ▾	No ▾	1 🛠	1 🛠	Low Speed ▾	0.0 🛠	N/A
5	No Count Assigned ▾	No ▾	1 🛠	1 🛠	Low Speed ▾	0.0 🛠	N/A
6	No Count Assigned ▾	No ▾	1 🛠	1 🛠	Low Speed ▾	0.0 🛠	N/A
7	No Count Assigned ▾	No ▾	1 🛠	1 🛠	Low Speed ▾	0.0 🛠	N/A
8	No Count Assigned ▾	No ▾	1 🛠	1 🛠	Low Speed ▾	0.0 🛠	N/A

Input Type ?
Sinking ▾



1. Navigate to **Settings | Connections | Digital Inputs**.
2. Select the Input Type as either **Sinking** (used for sensors with NPN outputs) or **Sourcing** (used for sensors with PNP outputs, and devices with 5V DC to 24V DC outputs). This setting affects all of the digital inputs.
3. Hover over the ? icon in each column to learn more about settings available for each input.
 - a. Select the Counter type for each input that you will use. If the Counter is **Reject Count** you can also select an appropriate Reject Reason.
 - b. Set Cycle Input to **Yes** for one input (the best place for detecting slow cycles, small stops, and down).
 - c. The Input Prescaler is usually **1**. The exception is any count input where one input signal does not represent one manufacturing cycle. This most commonly occurs with encoders.
 - d. The Count Multiplier is usually **1**. The exception is when one manufacturing cycle produces multiple parts. This is a default value. Actual values are set with each part (described later).
 - e. Debounce is usually **Low Speed**. The exception is if the input signal is faster than 50 Hz.
 - f. Inhibit is usually **0.0** seconds. The exception is if you want to ignore subsequent inputs for a period of time after receiving a valid input (e.g., a conveyer with swinging parts).
4. Click the **Save** button.

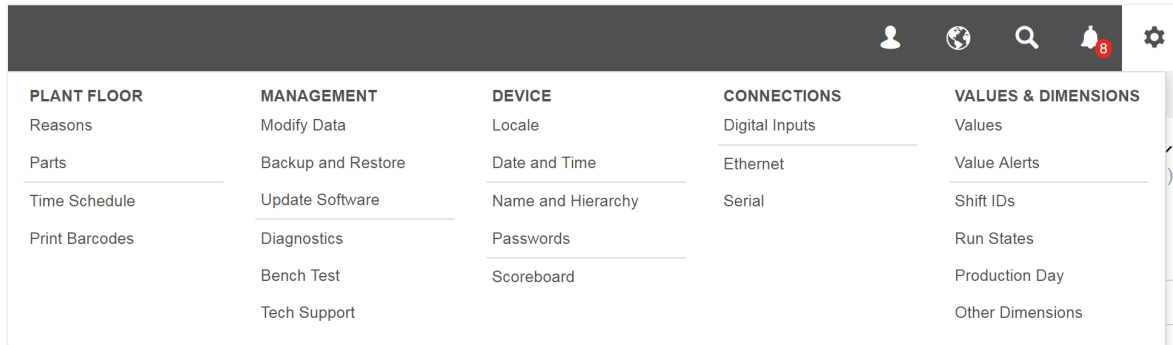
Administer (Ongoing Settings)

In this section, we will configure initial values for items that are likely to need ongoing adjustments and updates by supervisors: Time Schedules, Parts, and Barcodes. These types of settings are collected together at  **Settings** | **Plant Floor**.

Step 1 – Open Settings Menu

Access to the Administer settings is restricted to the Administrator role.

1. Click the  **Log In** link on the right side of the navigation bar.
2. For Role select **Administrator**.
3. Enter the password. The default Administrator password is **aragorn**.
4. Click the  **Settings** icon to open the settings menu.



Step 2 – Plan Schedule

The time schedule enables XL to automatically identify Not Scheduled time (time where production is not expected). Typically, this includes all time outside of shifts, and time for breaks within shifts.

The easiest way to setup a schedule is to configure one day (e.g., Monday), copy that to other days, and then make any further changes as needed.

Navigate to Plan Schedule

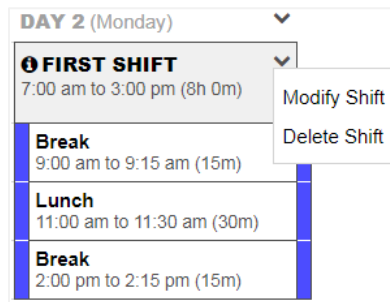
First let's navigate to the time schedule.

Default Schedule ▼ is a 1 week schedule.

1. Navigate to **Settings | Plant Floor | Time Schedule**.
2. You will be in the **Schedules** tab with **Default Schedule** selected. This is where you define your regularly repeating weekly schedule. One-time modifications are configured in the **Calendar** tab.

Delete Unused Shifts

If you normally operate with three shifts, skip this step. Otherwise, delete shifts that don't apply.

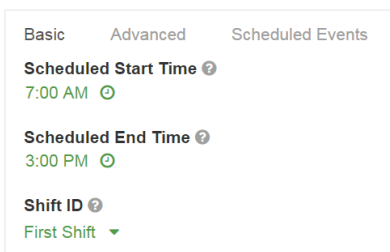


1. Locate **DAY 2 (Monday)**.
2. If you normally operate with two shifts, click the ▼ dropdown next to **THIRD SHIFT** and select **Delete Shift**.
3. If you normally operate with one shift, click the ▼ dropdown next to **SECOND SHIFT** and **THIRD SHIFT** and in each case select **Delete Shift**.
4. Click the **Save** button.

Modify Shift Times

Repeat the following for each shift on Monday to adjust the start and end times to match your schedule.

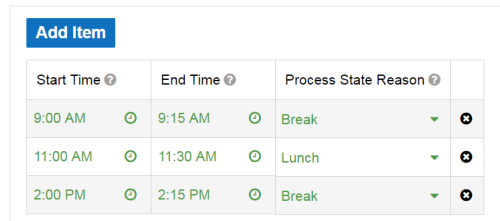
1. Click the ▼ dropdown next to the shift name as above, but this time select **Modify Shift**.
2. Modify the **Scheduled Start Time** and **Scheduled End Time** to match your schedule.



3. Click the **Save** button.

Modify Scheduled Events

Repeat the following for each shift on Monday to adjust the breaks to match your schedule.

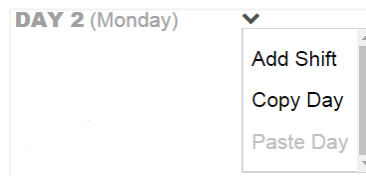


Start Time	End Time	Process State Reason	
9:00 AM	9:15 AM	Break	✕
11:00 AM	11:30 AM	Lunch	✕
2:00 PM	2:15 PM	Break	✕

1. Click the ▼ dropdown next to the shift name and select **Modify Shift**.
2. Click on the **Scheduled Events** tab. There should be one event for each break (including meal periods).
 - a. If you need additional events click **Add Item** to add an event to the shift.
 - b. If there are too many events click the ✕ icon to delete an event from the shift.
3. Modify **Start Time**, **End Time**, and **Process State Reason** of each event to match your schedule.
4. Click the **Save** button.

Copy to Other Days

You should now have one day in the time schedule that matches your actual work schedule. The next step is to copy that day to your other work days.



1. Click the ▼ dropdown next to **DAY 2 (Monday)** and select **Copy Day**.
2. Click the ▼ dropdown next to each remaining work day and select **Paste Day**.
3. Click the **Save** button.

Modify Other Days as Needed

Follow the instructions in the **Modify Shift Times** and **Modify Scheduled Events** sections above for each work day as needed to match your actual work schedule.

Additional Features

Now let's explore the other two tabs of the **Plan Schedules** page.

The **Calendar** tab shows the schedule as it appears for each week. You can configure one-time modifications in this tab.

1. Click the ▼ dropdown next to a day to **Make Day Not Scheduled** or to **Add Shift**.
2. Click the ▼ dropdown next to a shift to **Modify Shift** or **Delete Shift**.

The **Exceptions** tab makes it easy to see modifications to the schedule and also to undo any modifications.

Step 3 – Plan Parts

The Plan Parts page is where settings related to parts run in this manufacturing process are configured.

Cycle Thresholds

XL automatically detects slow cycles and small stops, which are two of the Six Big Losses, and which impact OEE Performance. It does this based on Cycle Thresholds that are based on the Ideal Cycle Time of each part. The default values are a good starting point for most applications.

Slow Cycle ⓘ	105%	of Ideal Cycle Time
Small Stop ⓘ	125%	of Ideal Cycle Time

Parts

Each part manufactured in this process should be entered in the **Parts** table. You can manually enter parts (below), upload them from a Microsoft Excel file (next page), or use the XL API for loading part information in real-time (typically from ERP systems).

[Add Part](#) [Export](#) [Import](#)

Part ID ⓘ	Ideal Cycle Time ⓘ	Takt Time ⓘ	Down ⓘ	Count Multipliers ⓘ	Start with Changeover ⓘ	Cycle Info
A Part	0h 0m 1.000s	0h 0m 1.200s	0h 0m 30s	1, 1, 1, 1, 1, 1, 1, 1, 1	No	
Part A	0h 0m 1.000s	0h 0m 1.200s	0h 0m 6s	1, 1, 1, 1, 1, 1, 1, 1, 1	Yes (Part Change; 0h 1m 0s; By Target Time)	

1. Navigate to **Settings | Plant Floor | Parts**.
2. Click on the **Add Part** button.
3. Enter the **Part ID**.
4. Enter the **Ideal Cycle Time**. This is a critical setting for accurate OEE calculations. It represents the maximum theoretical speed at which this part can be made.
5. Enter the **Takt Time**. This represents the expected pace of production (taking into account all losses). It drives the Target Counter including Target Count and Efficiency metrics. It's usually easiest to enter manufacturing time and expected pieces and let XL calculate Takt Time.
6. The **Count Multipliers** are usually **1**. The exception is when one manufacturing cycle produces multiple parts.
7. If this part starts with a changeover use **Start with Changeover** to select a changeover reason, an optional target time, and how the changeover ends (when target time is reached, when XL detects the process as definitely running, or by the operator scanning a Start Production barcode).

<input checked="" type="checkbox"/> Always start this part with a changeover	
This reason is called	Part Change ▼
Set a target time of	0h 1m 0s
End event	By Target Time ▼

8. Enter the **Down** threshold. If there are no cycle inputs for this length of time XL will consider the process to be down.
9. Click the **Save** button.

Another way to add or edit parts in the parts table is to export it (which makes it easier to see the required format), make your edits, and then import it.

1. Navigate to **Settings | Plant Floor | Parts**.
2. Click on the **Export** button. The part data downloads as a Microsoft Excel file.
3. Add new parts or edit existing parts in the exported file.
4. When you are finished, save the edited file.
5. Under the **Parts Table**, click on the **Import** button and select the edited Microsoft Excel file.
6. After import, any data errors will be indicated in the parts table with a red underline. Correct any errors in order to save.
7. Click the **Save** button.

Step 4 – Export a Backup File

Now that XL has been configured, we recommend backing up your configuration.

← Back Up Device

Create a backup file from your XL device. You can backup everything (production data and configuration) or just configuration.

Back Up Everything

Back Up Configuration

1. Navigate to **Settings | Management | Backup and Restore**.
2. Click on the **Back Up Configuration** button in the **Back Up Device** form.

Step 5 – Print Barcodes

Overview

XL can print seven different types of barcodes, however, most applications use only two or three types.

Down – Assigns the down reason to the most recent down event (including the current down event). Used in almost all applications.

Part – Starts the next part run. Used in most applications. As an alternative, some companies have existing Part ID barcodes that can be used (the Part ID of the barcode and Plan Parts must exactly match; navigate to **Settings | Connections | Serial** to enable). ERP integration is also available.

Reject – Increments reject count for the scanned reason. Used in many applications for manual reject detection. As an alternative, one or more digital inputs can be used to automate reject counting.

Production – Starts production (disables other process states so XL automatically detects Run and Down). Used in some applications to exit breaks, changeovers, or other planned production events.

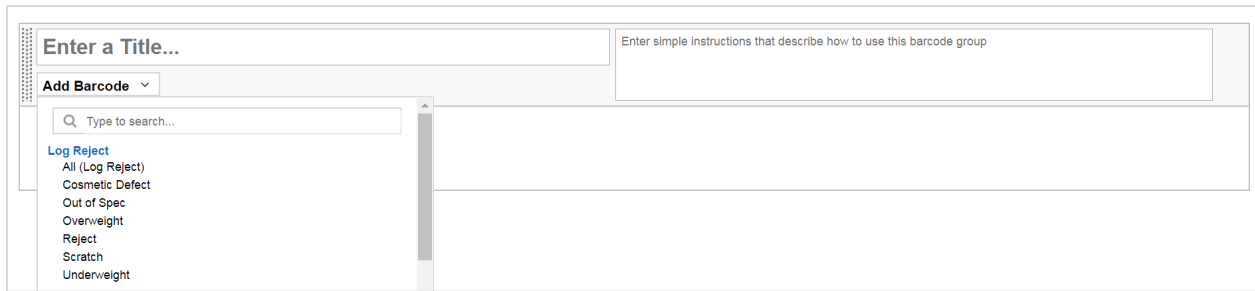
Shift – Starts and ends shifts. Used in some applications. Most companies use the time schedule to automate their shift schedules.


Event – Enables a process state with the scanned reason. Used in some applications to start planned stops (e.g., changeovers). Most companies configure parts to automatically start with a changeover.

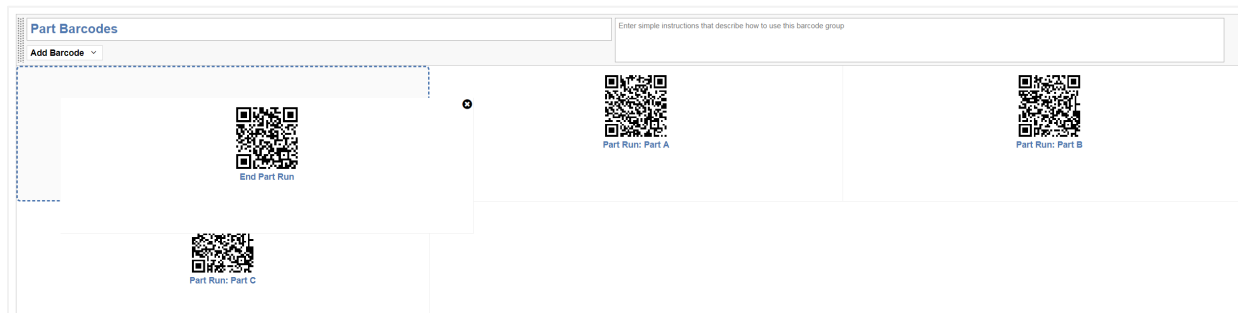
System – Provides additional features such as placing network settings on the scoreboard. Used as needed.

Organize and Print Barcode Sheets

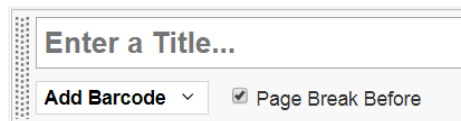
We recommend grouping the barcodes you use by the types described above.



1. Navigate to **Settings | Plant Floor | Print Barcodes**.
2. Enter a title for the group of barcodes such as **Down Reasons**.
3. Add simple instructions that will be helpful to your operators (e.g., "First fix the problem and then scan the best matching down reason. You can scan a down reason even after the process is running.")
4. Click the **Add Barcode** dropdown and select **All** or select individual barcodes for the group.
5. Delete unneeded barcodes by clicking the  icon that shows when hovering over the barcode.
6. Arrange barcodes in the group by dragging them with your mouse.



7. Create additional barcode groups as needed.
8. To force a barcode group to a new sheet, check the **Page Break Before** check box.



9. To open a preview page, click the **Print** button in the command bar (just below the navigation bar).
10. To print the barcode sheets, click the **Print** button in the upper right corner.

Frequently Asked Questions (FAQ)

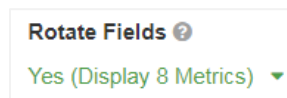
Some common questions are answered in this FAQ. For assistance implementing any of these items, please contact Vorne technical support (call +1.630.875.3600 or email support@vorne.com).

Can I change scoreboard messages?

Yes. You can change the metrics that are shown while running.

Field	Interval	Label
Target Count	Shift	Target
Good Count	Shift	Actual
Efficiency	Shift	Efficiency
Down Time	Shift	Down

1. Log in as **Administrator**.
2. Navigate to **Settings | Device | Scoreboard**.
3. The **Field** column is where you select the metric you want to display.
4. The **Interval** column is where you select the time interval for which to show the metric (Shift, Part, or Hour).
5. The **Label** column is where you control the text to be shown on the scoreboard. XL automatically generates label text, however, in some instances the automatically generated label may need to be shortened.
6. To display an additional screen of metrics, change **Rotate Fields** to **Yes** to display additional metrics.



7. Click the **Save** button.

Can I see my manufacturing information outside the factory?

Possibly. This depends on your network configuration and the services provided by your IT department. XL devices are intended to reside on your internal network, behind your firewall. Your IT department may be able to provide you with external access, typically through a VPN.

How many people can access the system?

XL has no specific limit to the number of simultaneous users that can access the web page interface. It can easily support dozens of simultaneous users. However, only one person can be logged in as an Administrator at any given point of time.

Can I create changeover reasons?

Yes. You can create as many changeover reasons as you wish for your application.

Changeover		Add Reason				
Reason Name	Process State	End Event	Default Target	System Key		
Material Change	Changeover	By Definitely Running	None	material_change		
Part Change	Changeover	By Definitely Running	None	part_change		
Setup	Changeover	By Definitely Running	None	changeover		

1. Navigate to **Settings | Plant Floor | Reasons**.
2. Select **Changeover** from the dropdown menu.
3. Click Add Reason.
4. Enter the **Reason Name** of the new changeover reason.
5. Select how the changeover ends from the **End Event** dropdown list.
6. Optionally, set a **Default Target** time for the changeover.
7. Click the **Save** button.

Can I change the color thresholds for scoreboard metrics?

Yes, for normalized (i.e., percentage-based) metrics. XL uses a feature called Metric Alerts to control when metrics change color on the scoreboard and the web page interface. Metric Alerts are configured at **Settings | Values & Dimensions | Value Alerts**.

Metric	Directionality	Critical	Warning	Caution	Good	Notification Threshold	Notify for Each
Availability	Higher Better	Below 50.0%	50.0% to 79.9%	80.0% to 89.9%	90.0% and above	Critical	Shift
Availability Loss	Lower Better	Above 50.0%	50.0% to 20.1%	20.0% to 10.1%	10.0% and below	No Notification	Hour
Cycle Loss	Lower Better	Above 50.0%	50.0% to 15.1%	15.0% to 5.1%	5.0% and below	No Notification	Hour
Down Loss	Lower Better	Above 50.0%	50.0% to 20.1%	20.0% to 10.1%	10.0% and below	No Notification	Hour
Efficiency	Higher Better	Below 75.0%	75.0% to 89.9%	90.0% to 99.9%	100.0% and above	Critical	Shift
OEE	Higher Better	Below 40.0%	40.0% to 64.9%	65.0% to 84.9%	85.0% and above	Critical	Shift

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