



Supply Chain X-ray

User manual and technical reference

How it is used, which D365 data it reads, and how every figure and check is calculated

Product	Supply Chain X-ray, browser extension for Microsoft Edge and Google Chrome
Works with	Microsoft Dynamics 365 Finance & Operations (read-only, OData)
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All screenshots in this manual were taken from the extension running on anonymised sample data: the fictional company **demo** and Microsoft's sample company **usmi**. They show the extension's own screens; the browser frame and the D365 page are not shown.

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1. Introduction

1.1 What Supply Chain X-ray is

Supply Chain X-ray is a browser extension for Microsoft Edge and Google Chrome that works on top of **Microsoft Dynamics 365 Finance & Operations (D365 F&O)**. It shows, in one side panel next to the D365 page you are working in, the complete life cycle of a **sales, purchase, production, batch, transfer or return order**, and it traces a **batch or serial number** through all of them.

Where a user normally opens six to ten forms to answer "where is my order?", the X-ray answers it on one screen: which stage each order line has reached (ordered, confirmed, reserved, released, picked, shipped, invoiced, paid...), which documents exist, and, above all, **why the order is stuck**, in plain language and with the evidence behind each statement.

The extension is read-only. It never changes data in D365. It reads data through D365's own OData service, with the logged-in user's own session and security roles, and no D365 data leaves the browser. The only other connection it makes is the licence check (section 2.7), which never contains D365 data.

Supply Chain X-ray is a paid product of PW Scan IT BV, trading as Scan It Labs. It needs a licence or a free 5-day trial (section 2.7). Plans and prices are on pwscanit.com/supply-chain-xray/.

1.2 Who this manual is for

Reader	Use these chapters
Order processors, customer service, buyers, planners, production supervisors, warehouse supervisors, accounts receivable/payable clerks	Chapters 3 and 4 (how to use the panel), then the chapter of the order type you work with (6 to 12), and the Workspace chapters (14 to 25).
Team leads, controllers and finance	Chapters 14 (Exceptions), 18 (Customers and Vendors), 19 (Month end), 22 (Credit & holds) and the calculation sections of each chapter. Appendix A lists every check and its exact rule.
Key users and D365 consultants	Chapters 5 (how data is retrieved), 12 (Item X-ray), 21 (Master data), 26 (settings) and Appendices A and B (all checks and all D365 entities used).
IT and security reviewers	Chapter 2 (install, rollout and the licence check), section 5.1 (guarantees) and Appendix B (entities read).

1.3 What this manual explains

This manual is written to answer three questions for every feature:

- **How is it used?** Where to click, what you see, what each element means.
- **Where does the data come from?** For each screen, the D365 OData entities that are read, how they are filtered and how they are joined.
- **How is it calculated?** Every figure, stage, status and check is derived by a rule. The rules are described exactly: formulas, thresholds, tolerances, and the way edge cases (cancelled lines, non-WMS warehouses, missing data) are treated.

A note on terminology

D365 field and entity names are shown in **this font**, for example **SalesOrderHeadersV2** or **StatusIssue**. Product behaviour that comes from the extension itself (for example "Why stuck?") is shown in normal text. Quantity and amount figures in screenshots come from anonymised or fictional data, never from a real customer.

1.4 Feature overview

Area	What it gives you	Chapter
Sales X-ray	Header, holds and credit, ten-stage timeline per line, loads, work, shipments, packing slips, invoices with payment status, customer card with ageing, charges, margin per line, 26 checks.	6
Purchase X-ray	Approval, vendor confirmation, seven stages from ordered to paid, product receipts, posted and pending invoices, vendor card, charges, price check against the last price paid and the trade agreement, 14 checks.	7
Production and batch X-ray	Status timeline, materials, operations, outputs including co- and by-products, estimated versus realised cost, journals, BOM as designed, 23 checks.	8
Transfer X-ray	Route from shipping through transit to receiving, warehouse work and loads, 12 checks.	9
Return X-ray	RMA, return lines with disposition, arrival journals, packing slips, credit notes, replacement order, 8 checks.	10
Batch / serial trace	Where a batch or serial came from and where it went, through production, with the customer list for a recall as a CSV file.	11
Item X-ray	Per item: stock, demand and supply as a running balance per warehouse, "When can I deliver?", planned orders of one master plan, planning settings, price and cost, usage history, structure, quality and warehouse setup, 19 checks. Find an item by number, barcode, external item number or name.	12
Charges	Header and line charges on orders and on their posted invoices, with estimates for charges D365 has not calculated yet.	13
Workspace	A full-page tool with 13 pages in six areas: Exceptions; Planning (Availability, Planned orders, Master data); Production (Orders to start, Resource load, Yield & scrap); Warehouse (Stock, Warehouse work); Sales & purchase (Customers, Credit & holds, Vendors); Finance (Month end).	14 to 25
Licence	Free 5-day trial, licence key or sign-in with email, subscription management, what the licence check sends.	2.7
Settings	Thresholds per check, switching checks on or off, report periods, batch disposition codes, light/dark mode.	26

1.5 Version covered

This manual describes **Supply Chain X-ray 1.0.0**, the first release, published for Microsoft Edge Add-ons and the Chrome Web Store. Earlier names of the product were "Order 360" and "Order X-ray"; internal folder and identifier names (for example **order360**, **po360**) still carry the old name.

History note. The previous edition of this manual described the test build 0.13.1. Since then:

- The **Item X-ray** replaced the Item view (chapter 12).
- The Workspace grew to 13 pages in six areas, with the new pages Planned orders, Master data, Credit & holds, Resource load, Warehouse work and Yield & scrap (chapters 14 and 20 to 25).

- The checks were verified against the D365 10.0.49 source in test build 0.14.0. Several rules now follow D365 more closely, for example purchase approval only with change management, vendor holds whose release date has passed, work before the wave, and expired batches judged against the line's own date (chapters 6 to 8 and Appendix A).
- New checks: **Margin below the minimum** (sales) and **Price off the last price or agreement** (purchase).
- The extension became a paid product with a licence check (section 2.7).

2. Installation and first start

2.1 Requirements

- Microsoft Edge or Google Chrome, version 116 or later (the side panel feature is required).
- Access to a D365 Finance & Operations environment in one of these domains:
`*.operations.dynamics.com`, `*.operations.eu.dynamics.com` or `*.cloudax.dynamics.com`.
- Your normal D365 security roles. The extension can only read what you may read; if you lack access to an entity, the affected section says so and the other sections still work.
- A licence or a running trial (section 2.7). Starting the trial needs only your email address.
- Access from the browser to <https://licence.pwscanit.com> for the licence check. The extension keeps working offline for up to 14 days (section 2.7).

2.2 Install from the store

Supply Chain X-ray is published in Microsoft Edge Add-ons and in the Chrome Web Store. Install it from the store listing, or from a download we provide.

1. Open the Supply Chain X-ray store listing in Edge or Chrome, or the link we sent you.
2. Click **Get** (Edge) or **Add to Chrome** (Chrome) and confirm.
3. Optional: pin the extension. Click the puzzle-piece icon in the toolbar and choose the pin next to **Supply Chain X-ray**.
4. Open D365 and click the Supply Chain X-ray icon, or press **Alt+Shift+O**. The panel asks for a licence or a free trial (section 2.7).

D365 tabs that were already open are picked up without a reload: when the extension is installed or updated, it adds its page script to every open D365 tab.

Managed or IT installs: load the zip

For a managed installation, or when your IT team distributes the extension itself, we can provide a file named `supply-chain-xray-<version>.zip`.

1. **Unzip it to a folder that stays**, for example `C:\Tools\SupplyChainXray`. Do not unzip into Downloads or a temporary folder: the browser runs the extension from this folder and your settings are tied to it.
2. Open `edge://extensions` (Chrome: `chrome://extensions`).
3. Turn on **Developer mode** (Edge: bottom left; Chrome: top right).
4. Click **Load unpacked** and select the folder from step 1, the one that contains `manifest.json`.
5. Optional: pin the extension. Click the puzzle-piece icon in the toolbar and choose the pin next to **Supply Chain X-ray**.
6. Open D365. Tabs that were open before the installation are picked up without F5. If the panel says it can't reach the D365 page, reload that tab once (F5).

Developer-mode notice

Edge and Chrome may show a notice about extensions in developer mode when the browser starts. That is expected for an extension installed this way. IT can install the extension without developer mode (section 2.5).

2.3 Update to a new version

A store install updates itself: the browser fetches new versions from the store, and open D365 tabs are picked up without a reload. **Check for updates** on the Options page (section 26.6) opens the product page. For a zip install:

1. Unzip the new zip **into the same folder**, replacing the files.
2. Open `edge://extensions` and click **Reload** on the Supply Chain X-ray card.
3. Reload your D365 tabs (F5). If you forget, the panel shows "The D365 tab still runs an older Supply Chain X-ray".

Keep the same folder

Your settings belong to the extension that was installed from that folder. A different folder counts as a different extension with default settings.

2.4 Opening the panel and the keyboard shortcuts

Action	How
Open the side panel	Click the Supply Chain X-ray toolbar icon, or press Alt+Shift+O. The panel is available on D365 tabs only; on other sites the icon does nothing.
Look up any order, item or batch number shown anywhere in D365	Click (or select) the number in D365 and press Alt+Shift+L. The panel opens, finds out which kind of order it is and loads it. It also works on a number in a text field.
Change the shortcuts	Open <code>edge://extensions/shortcuts</code> (Chrome: <code>chrome://extensions/shortcuts</code>).

2.5 Company-wide rollout (for IT)

Edge can install the extension for everyone without developer mode, through Group Policy or Intune. Two routes exist. We provide a step-by-step guide on request (support@pwscanit.com). Every user still needs a licence seat (section 2.7).

- **Self-hosted:** pack a `.crx` once with a private key, host it with an `update.xml` on an internal HTTPS server and set the policies `ExtensionInstallForcelist` and `ExtensionSettings`. On Windows, Edge force-installs extensions from outside the Edge Add-ons store only on devices joined to Active Directory or Microsoft Entra ID. Every later version must be packed with the **same private key**, otherwise it is a different extension.
- **Edge Add-ons store:** force-install the published store listing with `ExtensionInstallForcelist`, using just its extension ID; updates come from the store. For Chrome, the Chrome Web Store with Chrome's policies of the same names.

2.6 What the extension is allowed to do (security summary)

Aspect	Detail
Permissions	<code>scripting</code> (puts the extension's own page script into D365 tabs that were already open when it was installed or updated; D365 hosts only), <code>sidePanel</code> (its panel), <code>storage</code> (your settings and your licence data; never order data) and <code>alarms</code> (the daily licence check).
Sites	D365 Finance & Operations only: <code>https://*.operations.dynamics.com/*</code> , <code>https://*.operations.eu.dynamics.com/*</code> , <code>https://*.cloudax.dynamics.com/*</code> . In addition, the licence server <code>https://licence.pwscanit.com</code> , for the licence check only.

Aspect	Detail
Data access	Read-only. It sends OData GET requests to the D365 page's own <code>/data/</code> endpoint with your existing session, so your security roles apply. The code refuses any other HTTP method and any URL outside that endpoint.
Data leaving the browser	No D365 data. There are no analytics and no remote code. The only connection outside D365 is the licence check (section 2.7): email, licence key or code, product, version, a random install id and the D365 host name. Order data is kept in memory for at most 60 seconds per tab and never stored.
Page access	Reads the open D365 page to find the order number shown. It never changes the page.

2.7 Licence and trial

Supply Chain X-ray is a paid product. Without a licence or a trial, the side panel and the Workspace show only the activation screen ("Supply Chain X-ray needs a licence or a free trial."). No D365 data is read until a licence is active. The Options page and its Licence section work without a licence. Plans and prices are on pwsanit.com/supply-chain-xray/ (the **Pricing** link).

Start a free trial

The trial runs 5 days and needs no payment details. You start it in the extension with your email address.

1. Open D365 in a tab and open the side panel. The licence is checked against the D365 environment of that tab: without one the panel says "Open a D365 page first: the licence is checked against its environment."
2. Click **Start free trial**.
3. Enter your address in **Work email (5-day trial, no credit card)** and click **Start trial**. By starting the trial you accept the terms of use (linked under the button).
4. The X-ray opens. A line at the top shows "Trial: N days left." with a **Buy** link.

A trial can be used once per email address and once per D365 environment. Otherwise you see "A trial was already used for this email address or this D365 environment."

Activate a licence key

After you buy a licence, you receive a licence key by email, in the form `SIL-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX`. Click **Enter licence key**, paste the key into **Licence key** and click **Activate** (in the panel) or **Continue** (on the Options page). Upper or lower case, spaces and dashes do not matter, and the `SIL` prefix is optional. A mistyped key is caught before anything is sent: "That key or code is not valid." The key is saved in this browser, so **Activate again** can use it later, for example after an expired trial or a deactivation.

Sign in with email

If you don't have the key at hand, use the Licence section of the Options page:

1. Click **Sign in with email**, enter the **Email address the licence was bought with** and click **Continue**. The page says "If this email has a licence, a sign-in code is on its way."
2. Enter the 6-digit code from the email (valid for 15 minutes) and click **Continue**. The page says "Licence activated."

The Licence section of the Options page

The first section of the Options page, **Licence: Supply Chain X-ray**, shows the state of the licence in this browser and holds every licence action.

Element	Meaning
Status	Active, Trial, Active (offline grace) or Not active (with the reason).
Plan	Individual, team or agency, with the number of seats for team and agency plans.
Licensed to	The email address of the licence.
Environment	For a team licence: the D365 environment it is bound to.
Trial ends / Checked until	The end of the trial, or the date until which the last check is valid.
Last check	When the licence server was last reached, or "never".
Licence key	The saved key, with Copy and Forget (asks first).
D365 environment	The host name the licence is checked for, filled from an open D365 tab, for example contoso.operations.dynamics.com.
Activate again	Shown when a key is saved but no licence is active.
Start free trial / Enter licence key / Sign in with email	The three ways to activate (above).
Refresh now	Checks the licence with the server at once ("Checked.").
Buy	During a trial: opens the pricing page to buy a licence.
Manage subscription	With a paid licence: opens your subscription in the Stripe customer portal, in a new tab.
Deactivate this browser	Frees this browser's seat (asks first; below).

Deactivate this browser

Use **Deactivate this browser** before you move to another computer or browser profile. After you confirm, the page says "This browser is deactivated; its seat is free." The saved key stays in the browser, so **Activate again** brings the licence back. **Forget** next to the key removes it as well.

Offline use and the daily check

The licence is checked when you activate it, then about once a day and when the browser starts. The answer is a signed token that the extension verifies in the browser, so a network problem never stops you at once. Without contact with the licence server the extension keeps working for up to 14 days, with the notice "Licence not checked recently (offline?). Keeps working for N more days." After that the activation screen returns until the next successful check. A trial never runs past its end date.

What the licence check sends

The licence check is the only network traffic outside D365. It goes to <https://licence.pwscanit.com>, without cookies, and contains only:

- your email address (for a trial or a sign-in code);
- the licence key or the emailed code;
- the product (Supply Chain X-ray) and the extension version;
- a random install id, created in your browser;
- optionally a one-way hash of your D365 user id (version 1.0.0 does not send it);
- the D365 host name, for example contoso.operations.dynamics.com;
- the licence token, when it is refreshed or a browser is deactivated.

It never contains D365 data: no orders, items, customers, vendors, quantities or amounts.

Licence messages

Message	Meaning and what to do
All seats on this licence are in use. Deactivate another browser, or ask whoever bought the licence for more seats.	Each seat covers a limited number of browsers. Deactivate one you no longer use (Options › Licence) or add seats.
Your team licence is for another D365 environment.	A team licence is bound to one D365 environment. Open D365 in the environment the licence is for.
Your trial has ended. / Your licence has expired.	Buy a licence (Buy or Pricing), or renew it in Manage subscription .
Your licence is no longer valid.	The licence was revoked. Contact support.
The licence server cannot be reached. Check your connection and try again.	Activation needs the network. Check that the browser can reach https://licence.pwscanit.com (proxy or firewall).
Too many attempts. Try again in a minute.	Wait a minute, then try again.

Support

Questions about the licence, invoices or the extension: support@pwscanit.com. We answer within one business day.

3. Using the side panel

The side panel is the heart of the extension. This chapter explains how to open an order, how the panel follows D365, and the controls at the top of the panel. Chapter 4 explains how to read what is shown.

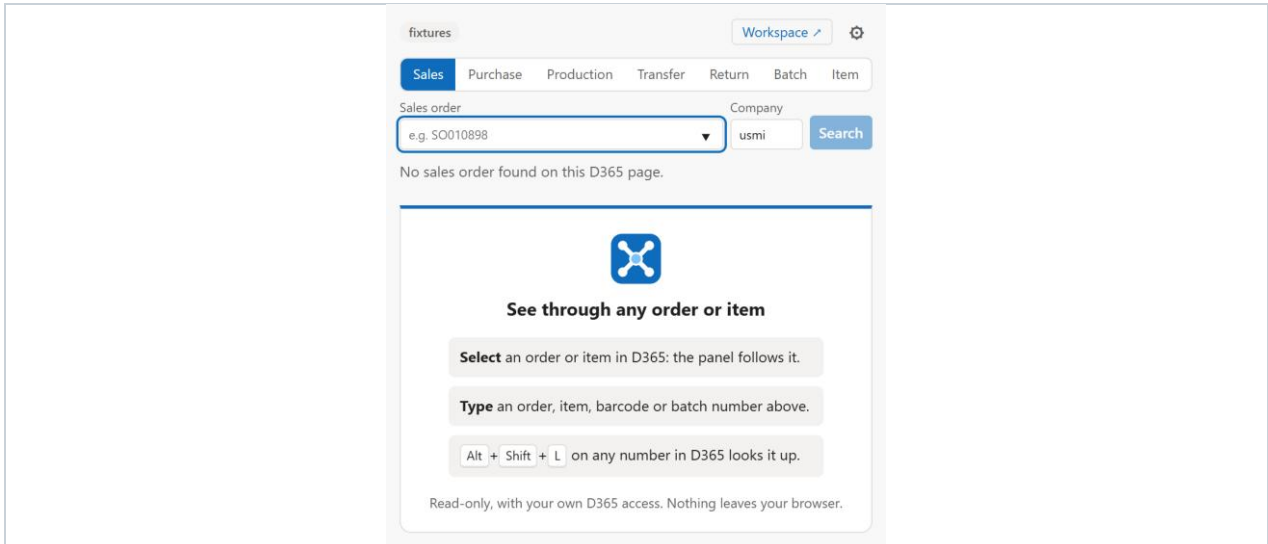


Figure 1. The side panel on first start: order-type selector, search box, company, the Workspace button and the welcome card.

3.1 The top bar

Element	Meaning
fixtures pill	Only visible in the development build: the data comes from anonymised sample files instead of D365. All screenshots in this manual were taken that way.
Workspace ↗	Opens the Workspace, a full browser page with 13 pages in six areas (chapters 14 to 25), for the current D365 tab and company.
⚙ (Settings)	Opens the quick settings menu (section 3.7).
Trial or offline notice	During a trial: "Trial: N days left." with a Buy link. When the licence could not be checked for a while: "Licence not checked recently (offline?). Keeps working for N more days." (section 2.7).

3.2 Choosing the order type

The selector shows seven types: **Sales**, **Purchase**, **Production**, **Transfer**, **Return**, **Batch** and **Item**. The selected type decides which kind of number the search box expects, and which X-ray is built.

Type	Search box expects	Notes
Sales	Sales order number, for example SO010898	Also used for the intercompany sales order of the other company.
Purchase	Purchase order number, for example PO017106	
Production	Production order or batch order number	Production orders (standard) and batch orders (process industry) are one type: the extension finds out which it is.
Transfer	Transfer order number, for example INTRN000002199	
Return	Return order number or RMA number	The D365 list shows the RMA number, the details form the return order number: either works.

Type	Search box expects	Notes
Batch	Batch number, with an optional Item field	Without an item, the item is found from the batch. A serial number needs the item.
Item	Item number, barcode, customer or vendor item number, or (part of) the name, with an optional Warehouse field	Opens the Item X-ray (chapter 12). An empty warehouse means every warehouse of the item. Placeholder: "item, barcode or name".

3.3 Company

The **Company** field holds the D365 legal entity (data area id, up to four characters). It is filled from the URL of the D365 tab (`cmp=...`) and follows you when you switch company in D365. Queries always ask D365 for exactly that company: the extension sends `cross-company=true` together with a `dataAreaId` filter, because without it D365 would answer for the user's default company instead of the one selected in the screen.

3.4 Follow D365: the panel opens the order you are looking at

With **Follow D365** on (the default), the panel loads the order that is open or selected in the D365 tab and switches when you open or select another one. This works on:

- **All sales orders**, in list and in details view, and in both the Lines and the Header view;
- **All purchase orders**, **All production orders**, **Transfer orders** and **Return orders** in the same way.
- Released products (list and details) and the On-hand list: the panel switches to Item and opens the item on screen. The warehouse chosen in the panel is kept.

How it works: a small script in the D365 page (the content script) looks at the form that is on screen, finds the order or item number in its title, a field or the selected grid row, and reports a change within about 0.3 seconds. It only observes the page; it never clicks or changes anything. The panel only does this while it is open.

The order bar below the top bar shows the order that is loaded ("Sales order SO010898 usmi") with a short caption (customer and ship date, or route and ship date). The text "following D365" appears on the right while following is active. With **Follow D365** off, the panel keeps the order you loaded and offers a link "open SO..." when D365 shows another one.

3.5 Searching by number

Type a number and press Enter or click **Search**. Suggestions are offered in the development build only. The first query after D365 has been idle can take 20 to 30 seconds (see section 5.8); the panel says "Still loading" when that happens and warms up the entities as soon as it opens to hide most of it.

A number that is not of the selected type

You do not have to select the right type. When the number is not found as the selected type, the panel asks, in one parallel round, whether it is:

- an order of **another type** (sales, purchase, production, transfer, return);
- a **quality order**: it then opens the order the quality order was made for (or the batch trace when it has none);
- a **batch number**: it then opens the batch trace, with the item found from the batch.

When exactly one hit is found, it opens with a note such as "SO-1 isn't a purchase order in usmf: opened Sales order SO-1". When several are found (for example a batch number that is also an order number, or a batch that exists for several items) the panel lists them as links: "It was found as: ...". When nothing is found you get

one clear message: "...wasn't found in usmf: not as a purchase order, nor as another order type, quality order or batch".

Alt+Shift+L

Select or click a number anywhere in D365 (a grid cell, a text field, a form title) and press **Alt+Shift+L**. The panel opens (if closed), takes the selected text, or the content of the focused field, and runs the same lookup. If what you selected is not an order number the panel says so.

Recent

Under the search box the panel lists the last five orders, items or batches you opened in this browser session ("Recent: SO-D6 · PO-D2 ..."), without the one on screen. A click opens one again. The list keeps only the type, company and number, and is cleared when the browser closes.

3.6 Cross-links and the Back trail

Many orders refer to each other: a sales line to the production order that makes it, a component to its sub-production order, a purchase line to the sales line it is for, a return to the sales order it came from. These appear as links (for example "SO3016229 →") in the header, in the line rows and in the **Trace** card. Clicking a link loads the other order in the same panel and shows a ← **Back to ...** link above the order, with the trail of orders you came from. Links also work **across companies** for intercompany chains: the panel switches the company for you.

3.7 The quick settings menu (⚙)

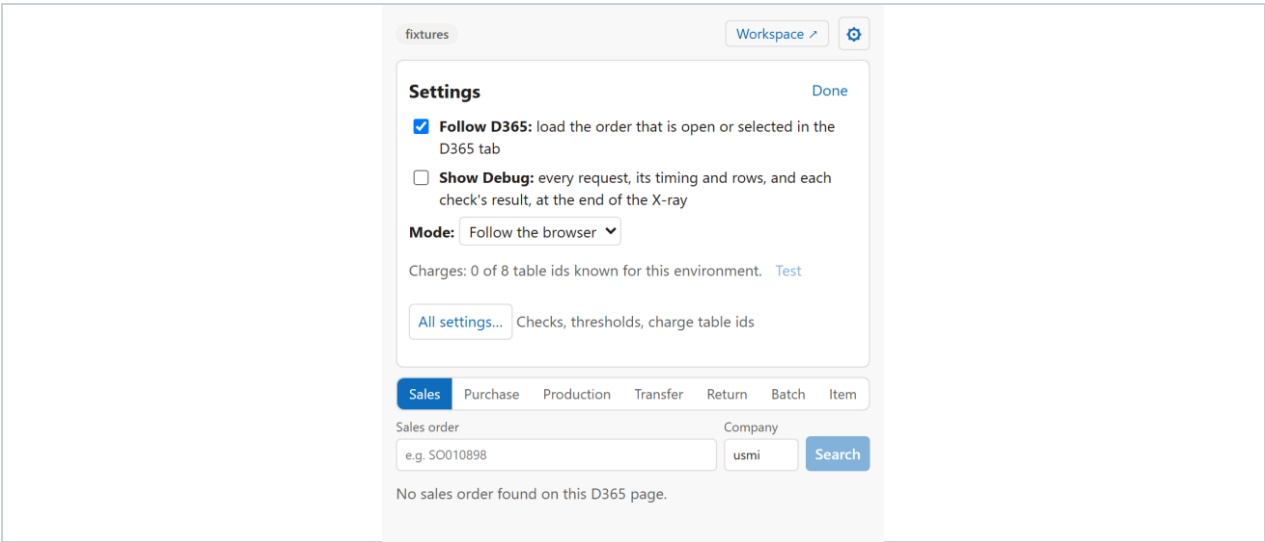


Figure 2. The ⚙ menu: Follow D365, Show Debug, Mode and a link to all settings.

Setting	Effect
Follow D365	Load the order that is open or selected in the D365 tab automatically (section 3.4).
Show Debug	Adds a Debug section at the end of every X-ray: every request with its timing and row count, every check with its result, and what D365 has no entity for (section 4.9). Off by default.
Mode	Follow the browser, Light or Dark. Applies to the panel, the Options page and the Workspace.
Charges: table ids	Visible when a D365 host is known: tests the charge table ids of this environment (section 13.4).
All settings...	Opens the Options page with all checks, thresholds and report settings (chapter 26).

3.8 Copy summary and copying ids

- **Copy summary** (button in the header card of sales and purchase orders, enabled when everything has loaded) puts a plain-text snapshot on the clipboard: order, customer, status, stage, flags, dates, progress, the issues with their evidence and next step, charges and invoices. Ready for an e-mail or chat message.
- Order, load, work, shipment, packing slip and invoice numbers are **copied on click**; a ✓ shows briefly.

3.9 Messages you may see

Message	Meaning and what to do
Session expired: refresh D365	D365 answered with a login redirect or an HTML page. Refresh the D365 tab and sign in again. The panel never retries in a loop.
The D365 tab still runs an older Supply Chain X-ray	You updated the extension but did not reload the D365 tab. Press F5 in that tab.
No access to <entity>	Your security roles do not cover that entity (HTTP 403). The section that needs it says so; other sections still work. Checks that need it show as "couldn't run".
<entity> not found in this environment	The environment does not expose that entity (HTTP 404), for example an ISV or feature that is not installed.
Still loading. The first query after D365 has been idle can take 20–30 seconds	D365 wakes entities on first use. Wait; the next order is fast.
Truncated	An answer was cut at the paging limit (section 5.5). The section tells you which data may be incomplete.
Can't reach the D365 page. Open a D365 tab, or reload it if it was open before the extension was installed.	The panel could not talk to the D365 tab. Open a D365 tab; if it still fails, reload the tab (F5).
Supply Chain X-ray needs a licence or a free trial.	No licence or trial is active in this browser. Start a trial or activate your key (section 2.7).

4. Reading an X-ray

All order types share the same building blocks. Learn them once here; the chapters that follow only describe what is specific to each order type.

4.1 Layout of an X-ray

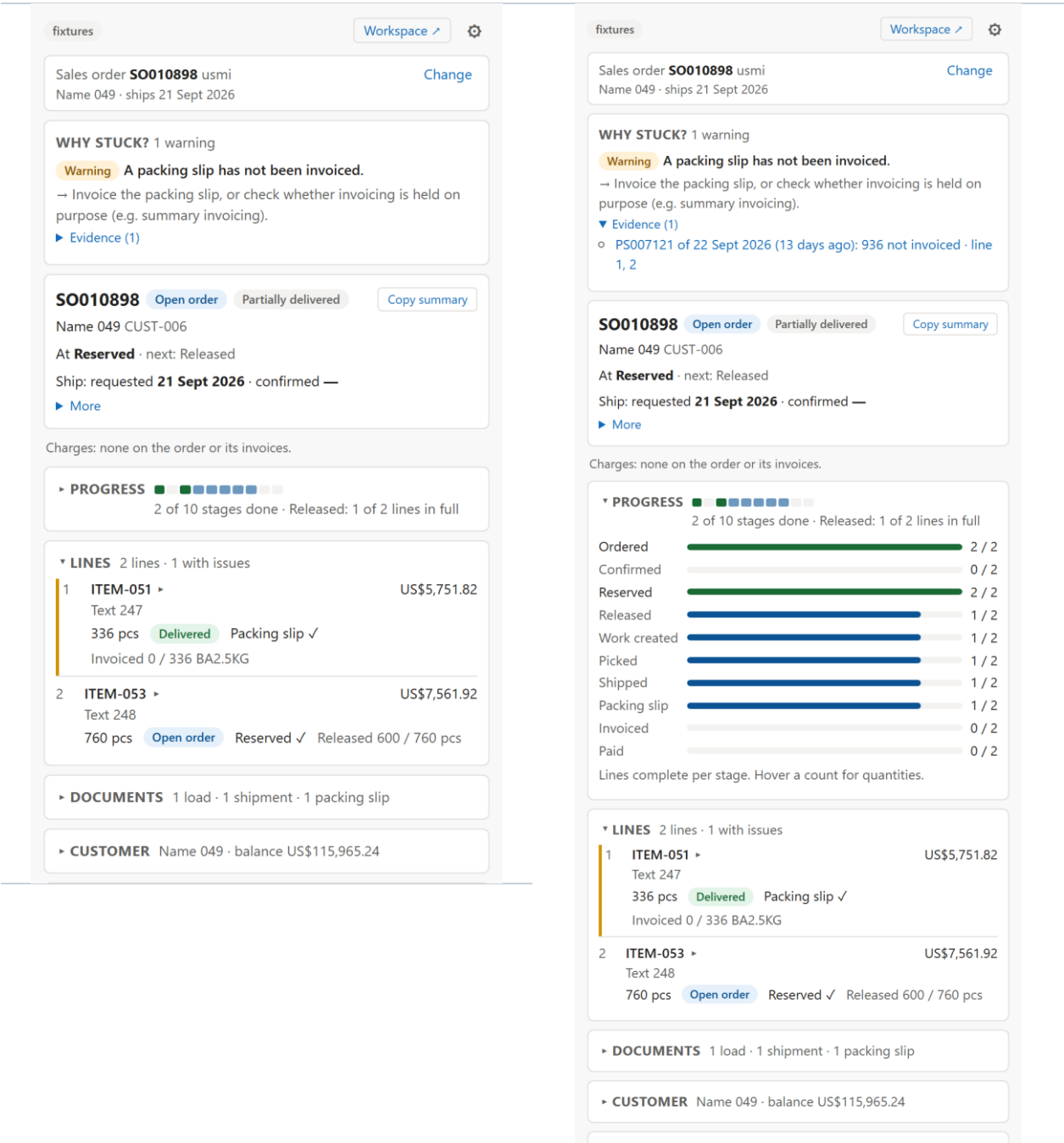


Figure 3. A sales X-ray. Left: the order bar, "Why stuck?" and the header card. Right: the progress card opened, with one bar per stage.

From top to bottom the panel shows:

Card	What it shows
Order bar	Order type, order number, company, a one-line caption and Change (which reopens the search form). The previous order is dimmed while you type a new search.
Why stuck?	The checks that fired, most severe first (section 4.2). When nothing is wrong: "✓ No problems found."
Header card	Order number with status pills, counterparty, "At <stage> · next: <stage>", flags (on hold, credit hold, processing stopped), key dates, Copy summary and a More fold with secondary facts.
Charges	Header and line charges on the order and on its invoices (sales and purchase orders, chapter 13).
Progress	The stage ladder of the order (section 4.3).
Lines / Materials	One row per order line, each expandable into a drilldown (section 4.6).
Documents	Loads, shipments, packing slips and invoices with their payment status (sales); receipts and invoices (purchase).
Customer / Vendor	The counterparty card with credit or hold status, ageing and a delivery-performance line.
Trace	Linked orders and the batches of the order (section 4.8).
Quality orders	The order's quality orders and those on batches it holds.
Debug	Only when Show Debug is on (section 4.9).

Folded by default

The panel keeps everything but the issues and the lines folded to a one-line summary, and remembers which cards you opened. Hover a summary or a count for the quantities behind it.

4.2 "Why stuck?": checks, severities, evidence

The heart of the extension is a list of **checks** (also called rules). Each check is a small, exact rule applied to the data that was read for the order, for example "the confirmed ship date has passed and the line is not fully shipped". When a rule fires it produces an **issue**.

Severity	Colour	Meaning
Blocker	Red	Something stops the order from moving: a hold, a stopped order, a failed quality order, a component that cannot be covered from stock. Nothing moves until it is resolved.
Warning	Amber	Something is late, missing or inconsistent and needs a human decision: not reserved although stock is there, work open for too long, a packing slip not invoiced.
Note (info)	Grey	Information that may matter but needs no action now: a shortage that is covered in time by incoming supply, an invoice overdue, charges not invoiced.

Every issue has the same three parts:

- **Message:** one sentence saying what is wrong, with the numbers ("Line 1 is short: 150 pcs more than WH-A has available, and incoming supply comes too late.").
- **→ Next step:** what a person should do about it ("Ask the supplier or production to bring the supply forward, or move the confirmed ship date and tell the customer.").
- **Evidence:** the underlying facts, one line per line, load, work order or invoice involved. Where the evidence names an order line, clicking it scrolls to that line and marks it.

The title shows the counts: "Why stuck? 1 blocker · 2 warnings". Lines named in an issue get a coloured bar on their left side, and the lines card can filter on "with issues".

The life of a check

Each check goes through the following states every time the panel redraws (which happens after every step that finishes loading, so the answer builds up progressively):

State	Why	Shown as
off	You switched the check off in the settings (section 26.3).	"N checks couldn't run" (Debug lists it as off).
disabled	A field the check reads does not exist in this D365 environment's metadata, or the field is switched off by a configuration key.	"couldn't run"; Debug names the missing field.
pending	The data it needs is still loading.	"Checking..." or "Still checking N more..."
inconclusive	A step it needs failed (for example no access to an entity), or the data needed to judge is missing.	"couldn't run", hover for the reason.
ok	Evaluated; the rule does not fire.	Nothing.
issue	Evaluated; the rule fires.	An issue card.

A quiet check is not always a clean order

A check that **could not run** is never reported as "no problem". If the data a check needs could not be read, the panel says so ("2 checks couldn't run"). In the same way, a stage whose data could not be loaded shows "?" instead of 0. Missing data never silently becomes zero.

4.3 Stages and the progress ladder

Each order type has a ladder of **stages**. A stage is "done" for an order line when the quantity that has reached it equals the line's total quantity.

Order type	Stages (in order)
Sales	Ordered · Confirmed · Reserved · Released · Work created · Picked · Shipped · Packing slip · Invoiced · Paid (10 stages)
Purchase	Ordered · Approved · Confirmed · Arrived · Received · Invoiced · Paid (7 stages)
Production	Materials reserved · Materials picked · Materials consumed · Operations completed · Reported as finished · Put away · Co-/by-products reported · Ended (cost settled), plus the status timeline Created → Estimated → Scheduled → Released → Started → Reported as finished → Ended
Transfer	Reserved · Released · Picked · Shipped · Received · Put away (6 stages)
Return	Arrived · Received · Credited (3 stages)

How a stage is evaluated

Per order line and stage

```
total  = quantity the line is meant to move (inventory units)
done   = quantity that has reached the stage (see the chapter of each order type)
done   = min( max(done, 0), total )           // never below 0, never above the total
complete = applicable AND known AND done >= total - 0.000001

applicable = false for cancelled lines, lines with total = 0,
              and for warehouse-management-only stages on warehouses without it
known      = false when the data for the stage could not be loaded (shown as "?")
```

Three rules turn the line results into the order result:

- **The order is as far as its slowest line.** "At Reserved" means that every active line has reached at least Reserved and at least one has not yet reached Released. The reached stage of a line is the furthest stage that is complete.
- **Next stage:** the first applicable stage after the reached one that is not complete. Optional stages are skipped: on sales orders the **Confirmed** stage (many companies never send order confirmations); on purchase orders **Confirmed** and **Arrived**.
- **Cancelled lines** are shown but do not count in the progress; they are excluded from every stage count.

The progress card shows one bar per stage with "lines complete / applicable lines". A green bar means every applicable line is complete, a blue bar means some lines are, grey means none. A "?" replaces the count when data for the stage is unknown. The one-line summary reads, for example, "2 of 10 stages done · Released: 1 of 2 lines in full".

4.4 Lots, inventory transactions and statuses

Almost all order types lean on the same D365 concept, and understanding it explains most of the numbers in this manual.

- Every order line (a sales line, a purchase line, a production component or output, a transfer leg) has a **lot id**, the field `InventTransId` (also shown as `InventoryLotId` on line entities).
- The stock effect of a line is kept in **inventory transactions** (`InventTrans`). They are linked to their line through an **origin** record (`InventTransOrigin`): the origin carries the order number, the reference category (Sales, Purch, Production...) and the lot id; the transactions point at the origin.
- Each transaction has a **quantity**, a **date**, an **inventory dimension** (site, warehouse, location, batch, serial, license plate, inventory status) and a **status**: `StatusIssue` for issues and `StatusReceipt` for receipts.

The X-ray therefore never trusts a single "status" field of the order. It adds up the quantity per transaction status to know how much of the line is in which phase:

Side	Status	Meaning
Issue	<code>OnOrder</code>	Ordered, not reserved: open demand.
Issue	<code>ReservOrdered</code>	Reserved against stock that is still on its way (an ordered receipt), not physical.
Issue	<code>ReservPhysical</code>	Physically reserved: the stock is in the warehouse and held for this line.
Issue	<code>Picked</code>	Picked: moved out of its storage location, not yet shipped.
Issue	<code>Deducted</code>	Delivered (packing slip posted), not yet invoiced.
Issue	<code>Sold</code>	Invoiced.
Receipt	<code>Ordered</code>	On order from a vendor or production: expected.
Receipt	<code>Arrived</code>	Item arrival registered, not yet received.
Receipt	<code>Registered</code>	Registered (received in the inventory, awaiting posting).
Receipt	<code>Received</code>	Received by a product receipt, not yet invoiced.
Receipt	<code>Purchased</code>	Received and invoiced.

Quantities are added as absolute values: `abs(Qty)` per transaction. For sales lines the line total is the sum over all issue statuses; only when no inventory transactions exist yet (or the step has not loaded) does it fall back to the **ordered quantity** of the line, and the drilldown then notes: "Quantities use the order quantity: inventory transactions aren't loaded."

4.5 Quantities and units

All stage quantities, inventory positions, warehouse work and on-hand figures are in the item's **inventory unit**, so that a line sold in boxes but stocked in pieces still adds up. The unit symbol is read once per X-ray from the released product (`ReleasedProductsV2.InventoryUnitSymbol`, one request per 20 items) and shown after every quantity ("336 pcs", "1,513 kg"). Quantities that belong to the order line itself (ordered, delivered, invoiced) keep the line's own unit (sales unit or purchase unit). If the unit is unknown, the number is shown without a unit rather than with a guess.

4.6 Lines and the line drilldown

Each line row shows: line number, item (with product variant: configuration, colour, size, style), amount, description, ordered quantity with unit, the line status pill, the **furthest stage reached** ("Packing slip ✓") and the **next stage with its quantities** ("Released 600 / 760 pcs"). A badge shows the charges on the line, and a link opens the production or purchase order that supplies the line.

Click a line to open its drilldown. For a sales line it contains:

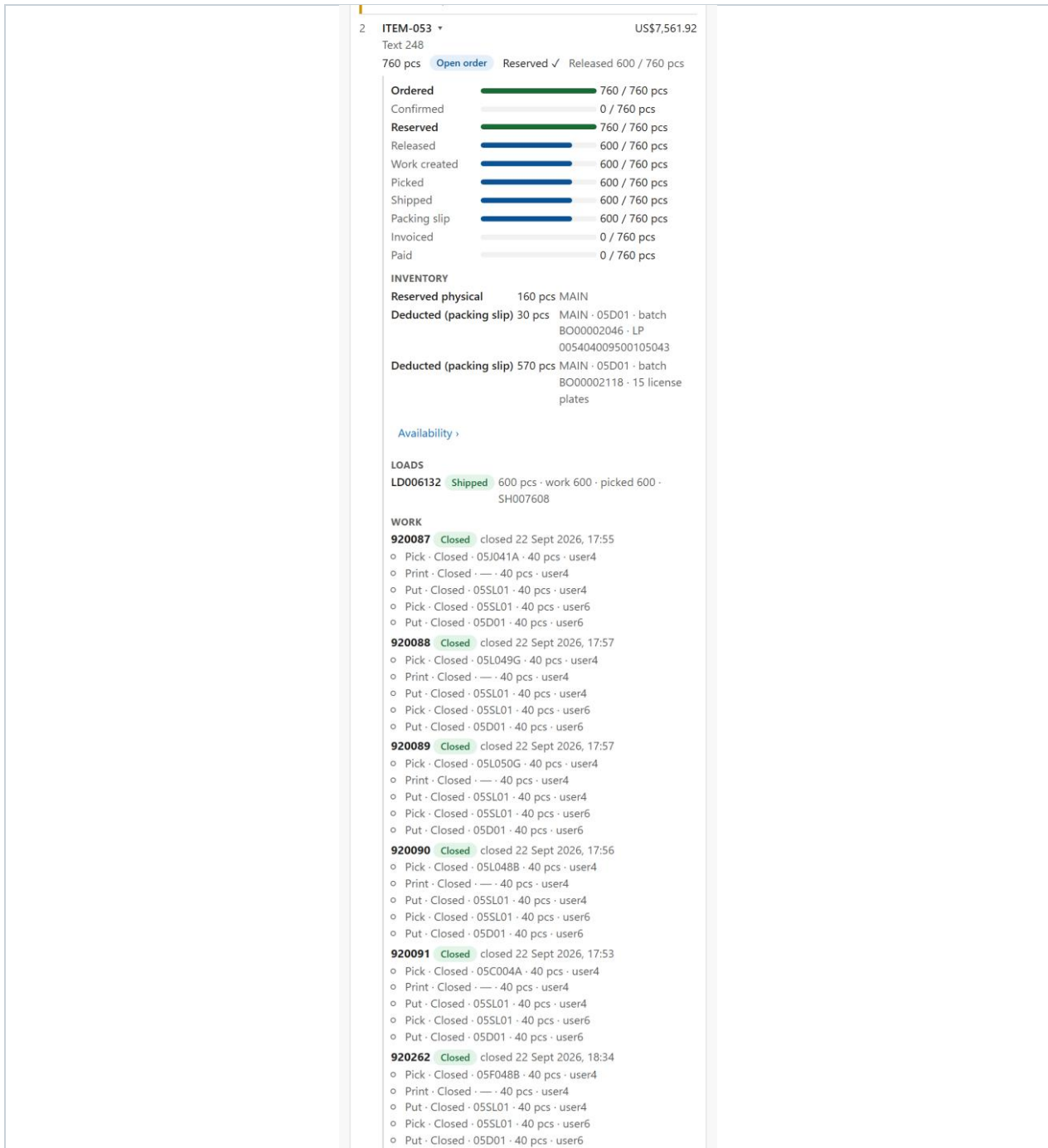


Figure 4. The drilldown of a sales line: one bar per stage, inventory positions, loads and warehouse work.

- **Stage bars** with "done / total" quantities for every applicable stage.
- **Inventory:** the inventory transactions grouped by status, warehouse, location and batch, with license plates collected ("15 license plates"). Below it the stock note: "On hand in MAIN: 120 pcs usable (140 physical, 20 reserved) · 12 in blocking status Blocked".
- **Loads, Work, Packing slips, Charges and Invoices** of the line (sales), as far as they exist.
- A link **Availability** opens the item's availability over time (chapter 12).

4.7 The counterparty card

▼ DOCUMENTS

1 load · 1 shipment · 1 packing slip

LOADS

LD006132

Shipped

Shipped 22 Sept 2026, 18:58

SHIPMENTS

SH007608

Shipped

BOL Text 281

PACKING SLIPS

PS007121

22 Sept 2026

▼ CUSTOMER

Name 049 · balance US\$115,965.24

Name 049

CUST-006 · DOM

Credit limit

US\$219,000.00

Credit status

—

Payment terms

N60

Phone

555-01004

E-mail

—

DELIVERY · LAST 90 DAYS

No sales lines promised in this period. [All customers ↗](#)

Balance US\$115,965.24

8 open invoices · as of 28 Sept 2026

Not due yet

US\$88,134.97

Today

US\$0.00

-30

US\$0.00

-60

US\$0.00

-90

US\$0.00

-III

US\$27,830.26

Last payment US\$542.27 on 15 May 2026

► TRACE

3 batches · returns: load when opened

Figure 5. The Documents card (loads, shipments, packing slips) and the Customer card with credit data, delivery performance and ageing.

The customer card (sales) and vendor card (purchase) show the account data and a **delivery performance line** (customers: on time in full over the last 90 days; vendors: 180 days) loaded when the card is opened, plus a link to the corresponding Workspace page. Section 18.1 explains how those figures are calculated. The customer card also shows the **ageing snapshot** (see section 6.5).

4.8 The Trace and Quality cards

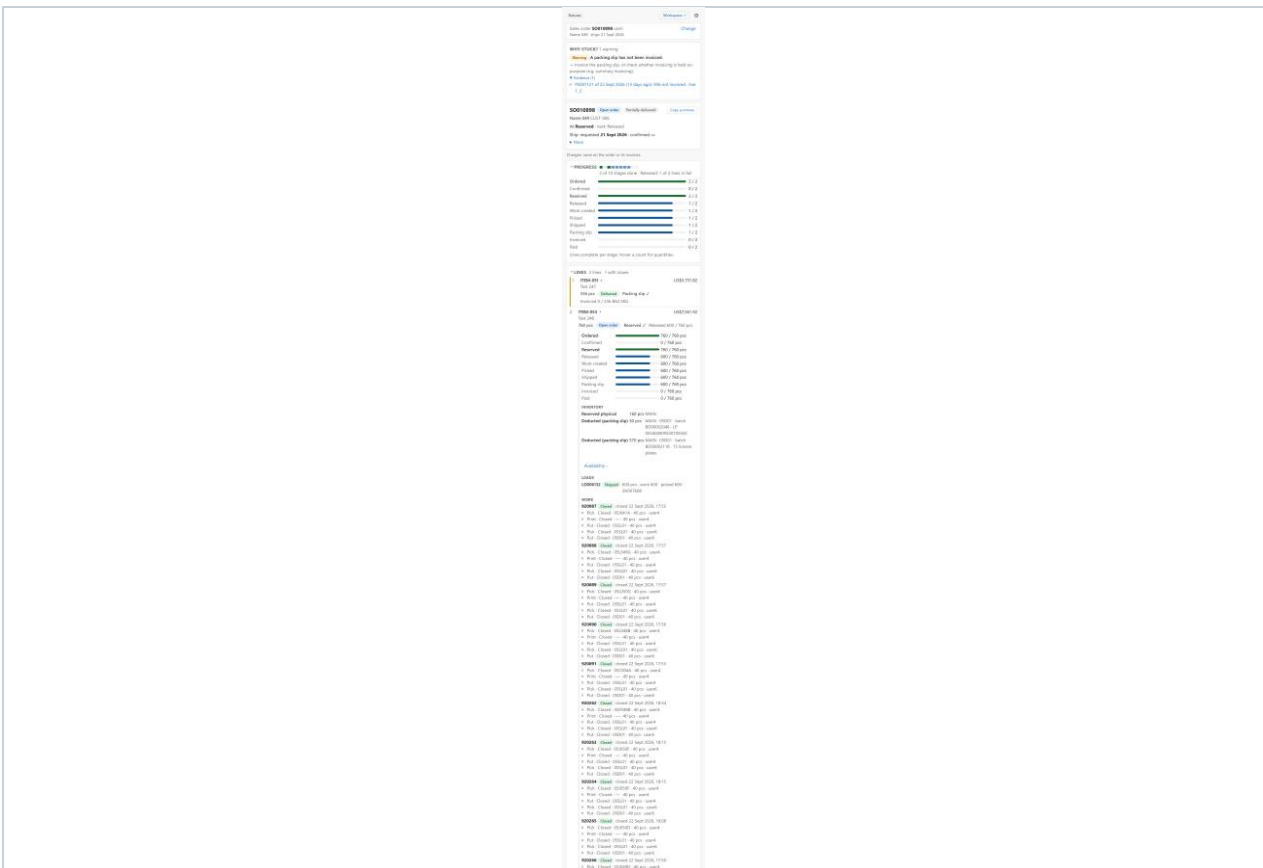


Figure 6. The Trace card: linked orders in both directions, return orders against the order, and the batches of the order.

Trace lists, in two groups, the orders this order is linked to:

- **Downstream: what this order is for** (a sales line it supplies, the customer order of an intercompany chain, the demand of a production order);
- **Upstream: what supplies it** (the production, purchase or transfer order behind a line, a sub-production order of a component, the replacement or return order).

Each link states its relation ("for", "supplied by", "component from", "returned from", "returned on", "replaced by", "intercompany"), the order, its status as a pill and the line. The status of the linked orders is looked up only when you open the card (one request per order type and company). A link opens the order in the panel, also in another company. For sales orders the card also looks up **return orders against the order** when opened.

The **Batches** table shows every batch the order holds: batch number (click to trace it), item, **expiry date** (with "(expired)" in red when past) and disposition code plus quality orders. A batch with a failed quality order or past its expiry is highlighted; an open quality order is amber.

Quality orders lists the quality orders found for the order itself and for the batches it holds ("on a batch of this order"), with status Open, Pass or Fail. It opens by itself when one has failed. When the entity does not exist in the environment, the card says "Quality orders aren't available in this environment" instead of "none".

4.9 The Debug view

▼ Debug: 38 requests · 4560 ms summed			
Step	Result	Rows	ms
Header	done	1	120
/data/SalesOrderHeadersV2?cross-company=true&filter=dataAreaId eq 'usmi' and SalesOrderNumber eq 'S0804749'&\$select=SalesOrderNumber,SalesOrderStatus,SalesOrderProcessingStatus,OrderingCustomerAccountNumber,InvoiceCustomerAccountNumber,SalesOrderName,RequestedShippingDate,ConfirmedShippingDate,RequestedReceiptDate,ConfirmedReceiptDate,DeliveryModeCode,IsSalesProcessingStopped,DefaultShippingWarehouseId,DefaultShippingSiteId,CurrencyCode,CustomerOrderReference,CustomerRequisitionNumber,OrderCreationDateTime&\$stop=1 - HTTP 200 · 1 rows · 1 page · 120 ms			
Lines	done	1	120
/data/SalesOrderLinesV3?cross-company=true&filter=dataAreaId eq 'usmi' and SalesOrderNumber eq 'S0804749'&\$select=SalesOrderNumber,LineNumber,InventoryLotId,ItemNumber,ProductConfigurationId,ProductColorId,ProductSizeId,ProductStyleId,LineDescription,OrderedSalesQuantity,SalesUnitSymbol,SalesOrderLineStatus,ShippingWarehouseId,ShippingSiteId,RequestedShippingDate,ConfirmedShippingDate,LineAmount,CurrencyCode&\$orderby=LineNumber&\$stop=1000 - HTTP 200 · 1 rows · 1 page · 120 ms			
Credit status	done	1	120
/data/SalesTableBIEntities?cross-company=true&filter=dataAreaId eq 'usmi' and SalesId eq 'S0804749'&\$select=SalesId,SourceKey,CredManInCreditControl,CredManRejected,CredManReleasedFromCreditControl,CredManExcludeSalesOrder,MCROrderStopped,InterCompanyOrder,InterCompanyCompanyId,InterCompanyPurchaseId,InterCompanyOriginalSalesId&\$stop=1 - HTTP 200 · 1 rows · 1 page · 120 ms			
Holds	done	0	120
/data/MCRHoldCodeTransBIEntities?cross-company=true&filter=dataAreaId eq 'usmi' and InventRefId eq 'S0804749'&\$select=InventRefId,MCRHoldCode,MCRHoldCode,MCRCheckedOutTo,MCRHoldUser,MCRHoldDate&\$stop=1000 - HTTP 200 · 0 rows · 1 page · 120 ms			
Confirmations	done	2	120
/data/SalesOrderConfirmationHeaders?cross-company=true&filter=dataAreaId eq 'usmi' and SalesOrderNumber eq 'S0804749'&\$select=SalesOrderNumber,ConfirmationNumber,ConfirmationDate&\$orderby=ConfirmationDate desc&\$stop=50 - HTTP 200 · 2 rows · 1 page · 120 ms			
Inventory transaction origins	done	1	120
/data/InventTransOriginBIEntities?cross-company=true&filter=dataAreaId eq 'usmi' and (ReferenceId eq 'S0804749' and ReferenceCategory eq Microsoft.Dynamics.DataEntities.InventTransType.Sales)&\$select=SourceKey,InventTransId,ReferenceId,ItemId&\$stop=1000 - HTTP 200 · 0 rows · 1 page · 120 ms			
Load lines	done	1	120
/data/MSLoadLineBIEntities?cross-company=true&filter=dataAreaId eq 'usmi' and (OrderNum eq 'S0804749' and InventTransType eq Microsoft.Dynamics.DataEntities.InventTransType.Sales)&\$select=LoadId,ShipmentId,OrderNum,InventTransId,ItemId,Qty,InventQty,UOM,WorkCreatedQty,PickedQty&\$stop=1000 - HTTP 200 · 0 rows · 1 page · 120 ms			
Packing slips	done	1	120
/data/CustPackingSlipJourBIEntities?cross-company=true&filter=dataAreaId eq 'usmi' and SalesId eq 'S0804749'&\$select=PackingSlipId,SalesId,DeliveryDate,Qty&\$orderby=DeliveryDate&\$stop=500 - HTTP 200 · 1 rows · 1 page · 120 ms			
Packing slip lines	done	1	120
/data/CustPackingSlipTransBIEntities?cross-company=true&filter=dataAreaId eq 'usmi' and SalesId eq 'S0804749'&\$select=PackingSlipId,SalesId,InventTransId,ItemId,Qty,InventoryQty,DeliveryDate,LineNum&\$stop=5000 - HTTP 200 · 1 rows · 1 page · 120 ms			
Invoices	done	1	120
/data/SalesInvoiceHeadersV2?cross-company=true&filter=dataAreaId eq 'usmi' and SalesOrderNumber eq 'S0804749'&\$select=InvoiceNumber,InvoiceDate,SalesOrderNumber,Invoice			

Figure 7. The Debug section: what was read, how long it took, and what each check concluded.

Switch on **Show Debug** in the ⚙ menu or on the Options page. At the end of the X-ray a Debug section appears, designed for troubleshooting and for explaining the numbers to a key user:

- **Steps:** every query step with its status, duration, number of rows and requests, and the request URL (path and query only, never the host), including whether the answer came from the 60-second cache or was truncated.
- **Checks:** every check with its state (ok, issue, pending, inconclusive, off, disabled) and the reason when it could not run.
- **Not visible here:** what D365 offers no OData entity for, so a quiet check is not read as "all fine": quality associations, quarantine orders and manual inventory blocking records (per order type). For returns also the missing link to the original sales line when a return was created without "Find sales order".
- A footer with the timing: "Header + lines 126 ms · everything 509 ms · 28 requests".

4.10 Dates, times and durations

- D365 dates arrive as `YYYY-MM-DDT12:00:00Z`; the extension reduces them to a plain calendar day so no time zone can shift them. **1900-01-01 means "no date"** in D365 and is treated as empty.
- Date-times (work created, load shipped) are UTC and are shown in your local time.
- Production schedule times (scheduled start and end, operations) are read in the time zone of the production site, as D365 shows them.
- "Today" is the **local calendar day of your computer**. "Overdue" always compares a due day with that day.
- Durations are shown readably: hours up to two days ("5 h"), then days ("7 days").

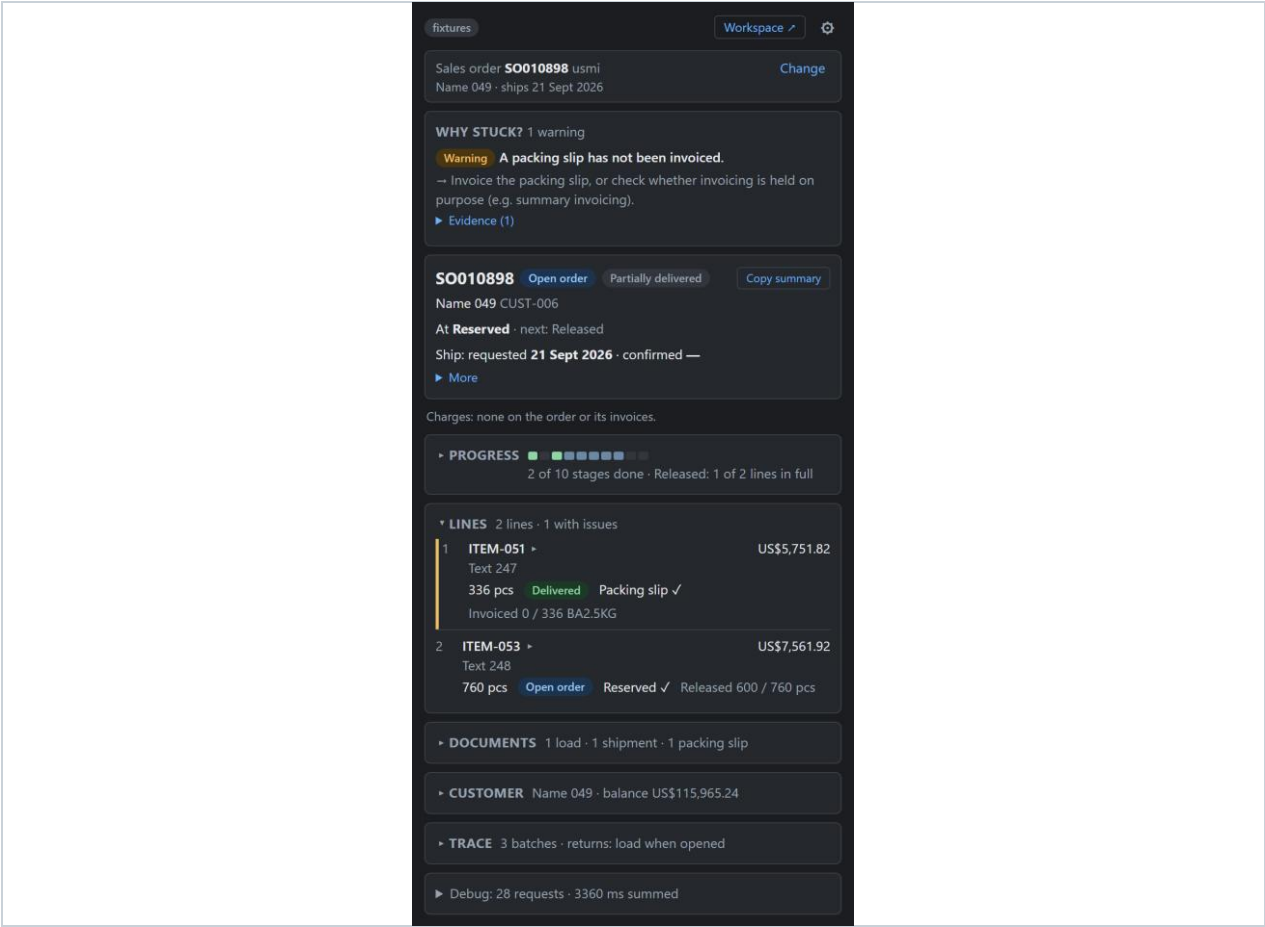


Figure 8. Mode: Follow the browser, Light or Dark. The same sales order in dark mode.

5. How data is retrieved

This chapter explains the technique behind all screens. The chapters per order type then list, entity by entity, what each X-ray reads.

5.1 Guarantees

Guarantee	How it is enforced
Read-only	One function performs all network access. It throws on any HTTP method except GET and on any URL outside the page's own <code>/data/</code> endpoint. There is no code path that writes to D365.
No data leaves the browser	Queries run in the content script on the D365 page's origin, with the user's own session cookie. There is no server, no analytics and no remote code. Results stay in memory with a 60-second cache per tab.
Only metadata-confirmed fields	Every field in every query is typed against a field map generated from the environment's <code>\$metadata</code> , checked again at runtime before a request is built, and a unit test checks every query against the extracted metadata. The extension never invents field names.
Minimal permissions	Only <code>sidePanel</code> , <code>storage</code> and the D365 hosts.
No real customer data in the code base	Test data are anonymised captures or a fictional company.

5.2 Architecture

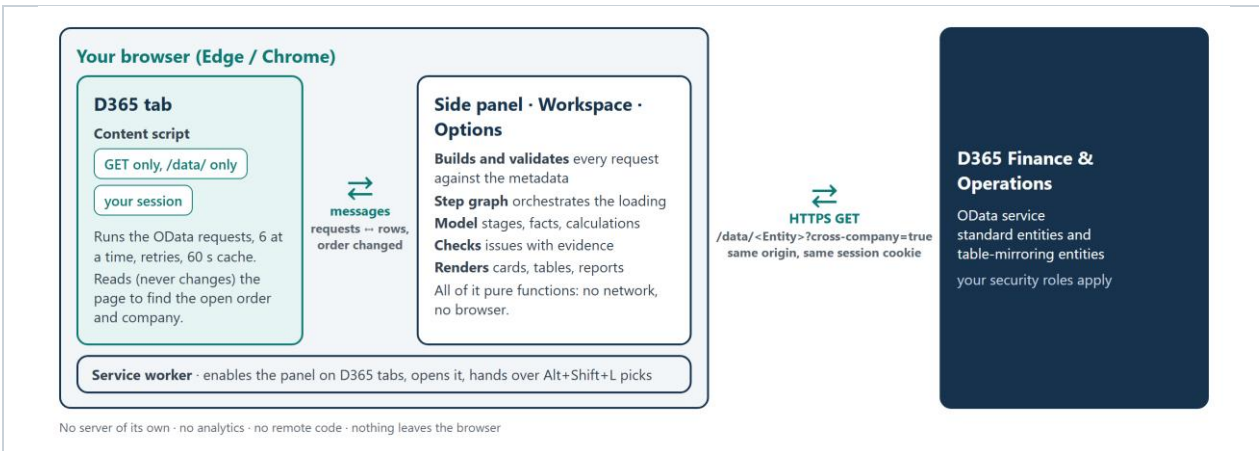


Figure 9. Where the code runs. The panel builds validated request paths; the content script performs them with the user's session; all shaping and checking is done by pure functions in the panel.

Part	Role
Side panel (Preact user interface)	Builds and validates every request against the metadata, orchestrates the step graph, turns raw rows into the order model, runs the checks and renders. All shaping, stage derivation and diagnostics are pure functions: no network, no browser, testable in isolation.
Content script (in the D365 page)	Answers the panel's messages, runs the OData GET requests on the page's own origin, reads (never changes) the page to find the open order, and tells the panel when the order or company changes. Only the extension's own pages may talk to it.
Service worker	Enables the side panel only on D365 tabs, opens it from the toolbar button, and hands the number picked with Alt+Shift+L to the panel.
Workspace and Options pages	Full browser tabs of the extension. The Workspace reaches D365 through a D365 tab's content script exactly like the panel does.

5.3 How a query is built

A query is a small specification: entity set, company, fields to select, filter, order, row limit. The builder turns it into a request path such as:

Example (shortened)

```
/data/SalesOrderLinesV3?cross-company=true
&$filter=dataAreaId eq 'usmf' and SalesOrderNumber eq 'S0010898'
&$select=SalesOrderNumber,LineNumber,InventoryLotId,ItemNumber,...
&$orderby=LineNumber&$top=1000
```

- **Company:** always `cross-company=true` plus a `dataAreaId eq '<company>'` filter, lower-cased. A few system entities that have no company field (for example `SystemTableIdTableEntities`, and `WHSInventStatusCDREntities` which filters on `SysDataAreaId`) are handled explicitly.
- **Enumerations** are filtered with their symbol names, for example `ReferenceCategory eq 'Sales'`, never numbers.
- **Text values** are escaped (a single quote is doubled) so a value such as `O'Neil` cannot break the filter.
- **Lists of values:** D365's OData does not reliably support the `in` operator. A list becomes an **OR group of at most 20 terms**; a longer list is split over several requests of 20 that run side by side and are joined afterwards.
- **Row limit:** every query has an explicit `$top` (at most 5,000). Large tables (`InventTrans`, warehouse work lines) are always filtered on key fields; the extension never runs an unbounded query or `$count`.
- **Dates** in filters are sent as `YYYY-MM-DDT00:00:00Z`; "no date" is recognised as 1900-01-01.

5.4 Standard entities and "Bi" entities

D365 exposes its data through two families of OData entities, and the X-ray uses both:

- **Standard data entities** (names such as `SalesOrderHeadersV2`, `PurchaseOrderLinesV2`, `CustomersV3`): the supported business API. They have good names and enumerations, but they do not carry every field.
- **Table-mirroring entities** (names ending in `BiEntities` or `CDREntities`, such as `InventTransBiEntities`, `WHSWorkLineBiEntities`, `CustInvoiceJourBiEntities`): near one-to-one mirrors of the underlying D365 tables. They give access to the tables that tie an order together (inventory transactions, warehouse work, loads, customer transactions, settlements), which makes the end-to-end trace possible. Their `SourceKey` field is the record id (`RecId`) of the underlying row and is used as join key.

The rule followed: use the standard entity when it carries the needed fields, and a table-mirroring entity when it does not. Some table-mirroring entities may be refused (HTTP 403) for certain security roles; every such step is optional and degrades gracefully (section 5.9).

5.5 The step graph: progressive loading

Loading an order is not one big query but a **graph of steps**. Each step has a label, a list of steps it depends on, and builds one or more queries once its dependencies have finished. For a sales order, for example: `origins` → `inventTrans` → `inventDims` → `onHand`; `loadLines` → `loads`, `shipments`, `workLines` → `workHeaders`; `invoices` → `custTrans` → `settlements` → `settlementOffsets`.

- **Independent steps run at the same time.** A step starts the moment the steps it needs are done.
- **Progressive rendering.** Every finished step triggers a redraw, at most ten times a second, so the panel fills while loading. The footer note "x of y stages done" and the checks update as data arrives.

- **Header and lines first.** They are requested first so something useful is on screen within about one second; the time to header and lines is the extension's main performance indicator.
- **Steps nothing waits for run at low priority,** so the chain of steps that unlocks the next ones gets the request slots first (this made X-rays about a third faster).
- **A step that has nothing to do is skipped with a reason** ("no loads", "needs origins, which failed"). Skipped steps count as done with no rows, so dependent steps skip themselves too. A failing step never stops the others.
- **Only the needed steps run for a limited purpose.** The Workspace scans run only the steps the chosen checks need (section 14.4).

5.6 Paging, row limits and truncation

- D365 answers large results in pages with an `@odata.nextLink`. The client follows it up to **5 pages** per request; if more remain, the answer is marked **truncated** and the screen says so ("Truncated: the order has more lines than were loaded").
- D365 does not say when a **\$top** cut an answer short. A request that returns exactly as many rows as asked for may have been cut; the reports treat that as "full", and then ask again in smaller pieces (by date window, or by halving a list of values) until no piece is full. A piece that is still full at a single day or a single value is reported as **cut off** and the page warns that totals may be low.
- Checks that depend on completeness (availability over time, impact chains) only conclude when the data was **loaded in full**: all steps done, none truncated, no request that came back with as many rows as its limit.

5.7 Concurrency, throttling and retries

- At most **six requests at once** per tab (browsers allow six connections per host; D365 answers over HTTP/2).
- On **HTTP 429 or 503** (priority-based throttling) the request is retried up to **three times**, waiting for the **Retry-After** given by D365 (seconds, capped at 30), else 1 s, 2 s, 4 s.
- The retry is limited and never loops: an expired session, a forbidden entity or a missing entity is not retried.

5.8 Caching and cold starts

- **Cache:** each answer is kept for **60 seconds** in memory, per tab, keyed by the request path, and dropped when expired. Nothing is written to disk. Reopening the same order within a minute is instant; "Check again" in the Workspace asks again.
- **Cold start:** the first call on an entity after D365 has been idle can take 20 to 30 seconds; every call after that takes 0.2 to 0.4 seconds. The panel sends tiny queries to the header and line entities of the likely order type as soon as it opens, while you are still typing.

5.9 Errors and degraded operation

Situation	How it is detected	Behaviour
Session expired	Redirect to the login page, HTTP 401, or an HTML answer instead of JSON.	"Session expired: refresh D365". Never retried.
No access	HTTP 403.	"No access to <entity>". The step fails; dependent steps skip; checks that need it are inconclusive.

Situation	How it is detected	Behaviour
Entity missing	HTTP 404.	"<entity> not found in this environment". The panel feature-detects: for example quality orders become "not available" and an alternative status entity is used instead of InventoryStatuses .
Other HTTP error	Any other non-success status.	The error message of D365 (including the inner error text) is shown in the Debug view.
Network error	Fetch failure.	"Network error: ...".

5.10 Many orders at once: combining queries

The exception list and the production board check dozens of orders. Each order runs the same step graph, so their queries are identical except for one value (the order number, or a key). A batching layer waits a few milliseconds, then sends queries that differ in one or more equals/in values **as one query asking for all those values** and hands each caller exactly its own rows back, filtered, ordered and cut to its own limit as D365 would have. When combining cannot be exact (a differing range filter, or a combined answer that was cut short) the queries are sent separately. Orders are checked in waves of 40.

Measured effect: on the fixtures, about a quarter of the queries; live, 1,219 requests instead of 6,029 for 146 production orders. The Workspace shows the result of this as "Orders checked together: 80 queries to D365 instead of 217".

5.11 Which D365 data does each feature read?

The chapters per order type contain a **Data retrieved** table with, per step, the entity, how it is filtered and what it is used for. Appendix B lists all 93 entities in one alphabetical index. The following diagram shows the typical flow from entities to what you see.

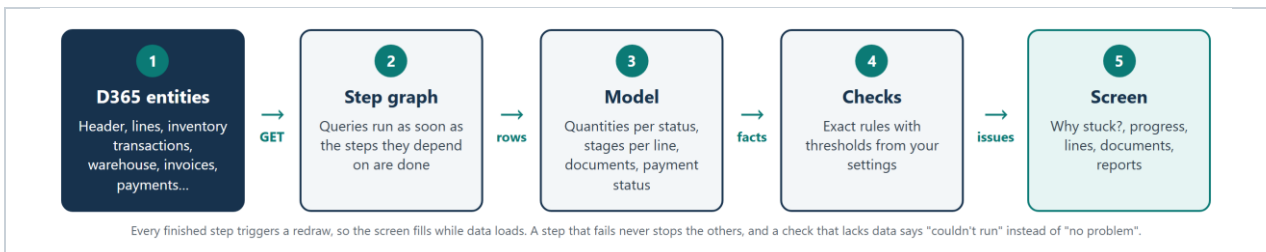


Figure 10. From D365 entities to the screen: queries produce raw rows; the model turns them into stages and facts; the checks produce issues.

6. The Sales X-ray

The Sales X-ray follows a sales order from the moment it is entered to the moment the customer has paid: **Order → Confirmation → Reservation → Release to warehouse → Work → Pick → Load/Shipment → Packing slip → Invoice → Payment**. It also explains why the order is stuck.

6.1 Opening a sales order

- Open or select a sales order in **All sales orders** (list or details, Lines or Header view). With Follow D365 on, the panel loads it.
- Or select **Sales**, type the number and press Enter. Or click a number anywhere in D365 and press Alt+Shift+L.

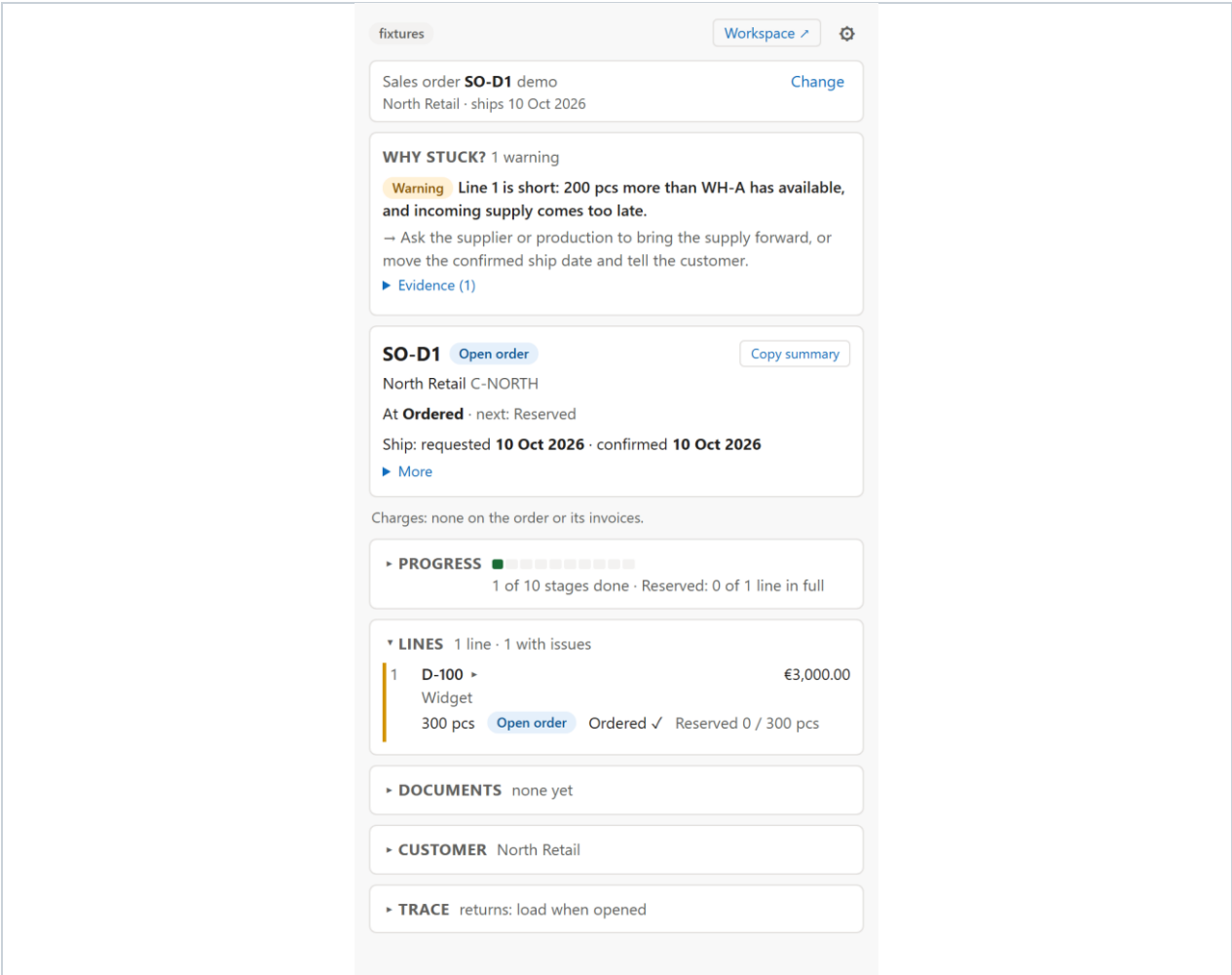


Figure 11. A sales order that waits for stock (fictional company): the "Why stuck?" card names the shortage and tells what to do.

6.2 What the header card shows

Element	Source and meaning
Status pill	<code>SalesOrderStatus</code> : None (shown as "Open order"), Backorder, Delivered, Invoiced, Canceled. A second pill with the processing status (<code>SalesOrderProcessingStatus</code>) is shown only when it says something else than the status.
Customer	Order name (<code>SalesOrderName</code>) and ordering customer account (<code>OrderingCustomerAccountNumber</code>).

Element	Source and meaning
At ... · next: ...	Stage reached by the slowest line and the stage it waits for (section 4.3).
Flags	Red pills: Processing stopped (<code>IsSalesProcessingStopped</code> or <code>MCROrderStopped</code>), On credit hold, Credit rejected, and one On hold: <code><code></code> per uncleared hold with description, user and date.
Ship dates	Requested and confirmed ship date of the header (<code>RequestedShippingDate</code> , <code>ConfirmedShippingDate</code>).
More	Confirmation number and date, delivery mode, customer reference (<code>CustomersOrderReference</code> , else <code>CustomerRequisitionNumber</code>), created date-time.

6.3 Data retrieved

The table lists every step of the Sales X-ray in the order of the dependency graph. "Key" is the field the query filters on; every query also filters on the company (`dataAreaId`).

Header, lines and order-level facts

Step	Entity	Filter / key	Used for
header	<code>SalesOrderHeadersV2</code>	SalesOrderNumber	Status, processing status, customer, dates, delivery mode, stopped flag, default warehouse and site, currency, references, creation time.
lines	<code>SalesOrderLinesV3</code>	SalesOrderNumber, order by LineNumber, top 1000	Lot id (<code>InventoryLotId</code>), item and product variant, ordered quantity and unit, line status, shipping warehouse and site, dates, amount, currency.
credit	<code>SalesTableBiEntities</code>	SalesId	Credit management flags (<code>CredManInCreditControl</code> , <code>CredManRejected</code> , <code>CredManReleasedFromCreditControl</code> , <code>CredManExcludeSalesOrder</code>), <code>MCROrderStopped</code> , the order's <code>SourceKey</code> (RecId, parent of header charges) and the intercompany references.
holds	<code>MCRHoldCodeTransBiEntities</code>	InventRefId = order	Order holds: code, cleared flag, user, date, "checked out to".
holdCodes	<code>SalesOrderHoldCodes</code>	SalesOrderHoldCode in (codes found)	Description of each hold code and whether it removes inventory reservations (<code>IsHoldCodeRemovingInventoryReservations</code>).
confirmations	<code>SalesOrderConfirmationHeaders</code>	SalesOrderNumber, newest first	Whether the order was confirmed (feeds the Confirmed stage) and the latest confirmation id and date.
tracking	<code>PackingSlipTrackingInformation</code>	SalesOrderNumber	Tracking numbers and URLs per packing slip.
customer	<code>CustomersV3</code>	CustomerAccount (from header)	Name, group, credit limit, mandatory flag, on-hold status (<code>OnHoldStatus</code>), currency, payment terms, phone, e-mail, credit status.
aging	<code>CustAgedBalances</code>	CustAccount, newest snapshot first, top 10	Ageing buckets, total due, open invoices, last payment.
warehouses	<code>Warehouses</code>	WarehouseId in (lines' warehouses)	Name and whether the warehouse uses advanced warehouse management (<code>AreAdvancedWarehouseManagementProcessesEnabled</code>).
itemUnits	<code>ReleasedProductsV2</code>	ItemNumber in (items)	Inventory unit of each item.

Step	Entity	Filter / key	Used for
quality	QualityOrderHeaders	SalesOrderNumber	Quality orders made for the order.

Inventory

Step	Entity	Filter / key	Used for
origins	InventTransOriginBiEntities	Referenceld = order and ReferenceCategory = Sales	One origin per line: ties each lot id to the origin record (SourceKey).
inventTrans	InventTransBiEntities	InventTransOrigin in (origin keys)	The transactions: quantity, StatusIssue, StatusReceipt, physical and financial date, packing slip id, invoice id, inventory dimension.
inventDims	InventDimBiEntities	inventDimId in (dimension ids)	Site, warehouse, WMS location, batch, serial, license plate, inventory status of every transaction.
onHand	WarehousesOnHandV2	One request per item + warehouse of the lines still waiting for stock	Available, physical, reserved and ordered quantity per product variant. Only loaded for lines that are not fully reserved.
statusOnHand	InventoryOnHandForAI	Item + warehouse, AvailPhysical ≠ 0	Stock split by inventory status, to leave blocked stock out of "usable".
statusDefs, statusDefsFallback	InventoryStatuses (fallback WHSInventoryStatusCDREntities)	StatusId in (statuses found)	Name of each status and whether it blocks inventory (WillStatusBlockInventory). The fallback is used only where the first entity does not exist.
dispoBatches, expiredBatches	ItemBatches	Items of the waiting lines; disposition code in the settings list, or expiry date before today (and after 1900-01-02)	Batches that cannot be reserved: blocked disposition code or expired (section 6.4).
dispoDims, dispoTrans	InventDimBiEntities, InventTransBiEntities	Dimensions of those batches in those warehouses; their transactions	Stock per blocked batch, computed like D365's on-hand sum (section 6.4).
futureTrans, futureDims, futureOrigins	InventTransBiEntities, InventDimBiEntities, InventTransOriginBiEntities	Item in (items of waiting lines), StatusReceipt in (Ordered, Arrived) or StatusIssue in (OnOrder, ReservOrdered)	The open receipts and issues by expected date, for availability over time (chapter 12).

Warehouse, shipping and documents

Step	Entity	Filter / key	Used for
loadLines	WHSLoadLineBiEntities	OrderNum = order and InventTransType = Sales	Load id, shipment id, quantity (and in inventory unit), work created quantity, picked quantity per lot. The type filter is needed because the order number field is shared by all order types.
loads	WHSLoadTableBiEntities	LoadId in (load ids)	Load status, scheduled and confirmed ship time, carrier, warehouse.
shipments	WHSShipmentTableBiEntities	ShipmentId in (ids)	Shipment status, carrier, bill of lading, PRO number, ship confirmation time.
workLines	WHSWorkLineBiEntities	LoadId in (loads) and OrderNum = order	Work lines: type, status, location, quantities, user, created, in-process and closed time. Filtering on the order number alone scanned the table (12.7 s live for 0 rows), so the load ids narrow it.

Step	Entity	Filter / key	Used for
workHeaders	WHSWorkTableBiEntities	WorkId in (work ids)	Header status, blocked flag (Frozen), locked user, wave id, created, in-process and closed time.
packingSlips	CustPackingSlipJourBiEntities	SalesId, by delivery date	Packing slips: id, delivery date, quantity.
packingSlipLines	CustPackingSlipTransBiEntities	SalesId	Packing slip quantity per lot (inventQty).
invoices	SalesInvoiceHeadersV2	SalesOrderNumber	Invoice number, date, invoicing customer, total, currency, ledger voucher.
invoiceLines	CustInvoiceTransBiEntities	SalesId	Invoiced quantity and amount per lot. The standard invoice-line entity has no order-line reference, hence this one.
custTrans	CustTransBiEntities	Pairs (AccountNum, Invoice), 10 pairs per request	The customer transactions of the invoices: amount, settled amount, due date, closed date, voucher, transaction type.
settlements	CustSettlementBiEntities	TransRecId in (invoice transactions)	Which payments or credit notes settled the invoice.
openTrans	CustTransOpenBiEntities	RefRecId in (invoice transactions)	The still open amount and due date.
settlementOffsets	CustTransBiEntities	SourceKey in (offset record ids)	Whether a settling transaction is a payment or a credit note.

Charges and links

Step	Entity	Filter / key	Used for
lineRecIds	SalesLineBiEntities	SalesId	Line RecIds (parents of line charges) and the line's reference to its supply (InventRefType , InventRefId , InventRefTransId).
invoiceJournals	CustInvoiceJourBiEntities	InvoiceId in (invoice numbers)	Invoice header RecIds (parents of invoice charges).
tableIds	SystemTableIdTableEntities	Name in (the eight charge tables)	Table ids that identify the parent of a charge (section 13.2). Skipped when known for this environment.
orderCharges, invoiceCharges, chargeCodes	MarkupTransBiEntities, MarkupTableBiEntities	TransTableId and TransRecId in (parents), not deleted	Charges and the description of each charge code.
supplyDue	ProdTableBiEntities, PurchLineBiEntities, TransferOrderHeaders	The supply orders the lines point to	Due dates of the supplying orders (check "Linked order at risk").
batches, batchQuality	ItemBatches, QualityOrderHeaders	The order's batch numbers (and items)	Expiry and disposition of the held batches; quality orders on them.

6.4 How it is calculated

Line total and quantity per status

Line total (inventory unit)

```
statusQty[s] = sum over the line's inventory transactions of abs(Qty), grouped by
StatusIssue
total          = sum of statusQty for OnOrder, ReservOrdered, ReservPhysical, Picked,
Deducted, Sold
if total = 0 and the line is not cancelled: total = abs(ordered sales quantity)  //
fallback
if the line is cancelled:                  total = 0
```

Stage quantities

Every stage takes the **larger** of the quantity derived from the inventory transaction statuses and the quantity reported by the warehouse documents, so that both warehouse-managed and non-managed warehouses give a right answer.

Stage	Quantity done	Applies when
Ordered	total	Always.
Confirmed	total if at least one order confirmation exists, else 0; unknown if confirmations could not be read.	Always (optional stage).
Reserved	ReservPhysical + Picked + Deducted + Sold	Always.
Released	Sum of the inventory quantity of the load lines that are released: a shipment id exists, or the load status is not Open (and not empty).	Warehouse uses warehouse management (unknown counts as yes).
Work created	Sum of WorkCreatedQty of the line's load lines.	Warehouse management.
Picked	max(Picked + Deducted + Sold, sum of PickedQty of the load lines)	Always.
Shipped	max(Deducted + Sold, inventory quantity of load lines whose load status is Shipped)	Always.
Packing slip	max(packing slip quantity of the line, Deducted + Sold)	Always.
Invoiced	max(Sold, invoiced quantity from the invoice lines)	Always.
Paid	sum over the line's invoice lines of quantity × the invoice's paid ratio (section 6.5); unknown if an invoice's payment is not known	Always.

Non-WMS warehouses

A warehouse without advanced warehouse management has no loads, shipments or work. The stages **Released** and **Work created** are then not applicable, no warehouse checks fire, and the drilldown says "Warehouse X doesn't use warehouse management: no loads or work." The flag comes from **Warehouses**; when it is unknown the line is treated as managed.

A worked example

Line 2 of order SO010898 (screenshot in section 4.6) has 760 pieces. Its transactions are 160 in **ReservPhysical** and 600 in **Deducted**; its load line says 600 released, 600 work created, 600 picked and the load is Shipped; one packing slip of 600 exists; nothing is invoiced.

Stage	Calculation	Result
Ordered	total	760 / 760
Reserved	160 + 0 + 600 + 0	760 / 760 ✓

Stage	Calculation	Result
Released	load line released = 600	600 / 760
Work created	WorkCreatedQty = 600	600 / 760
Picked	max(0 + 600 + 0, 600)	600 / 760
Shipped	max(600 + 0, 600 shipped load)	600 / 760
Packing slip	max(600, 600)	600 / 760
Invoiced	max(0, 0)	0 / 760

The line has reached **Reserved** (the furthest *complete* stage) and waits for **Released** with 600 of 760 pieces, which is exactly what the row shows: "Reserved ✓ · Released 600 / 760 pcs".

Unreserved quantity, usable stock and shortage

Stock rules used by the stock checks

```

unreserved = statusQty[OnOrder] + statusQty[ReservOrdered]           // not physically
reserved
available  = WarehousesOnHandV2.AvailableOnHandQuantity             // for the item in the
line's warehouse
usable     = available
            - available stock in blocking inventory statuses
            - available stock in batches with an unavailable disposition code
            - available stock in expired batches (setting: on by default)
no on-hand row for the item => available = 0

```

- **On hand is only loaded for lines that still need stock** (some quantity in OnOrder or ReservOrdered), one request per item and warehouse: ORing ten pairs into one request took 5.2 s live where a single pair took 0.2 s.
- D365 itself leaves stock in a blocking status out of "available" (it reserves it), so **usable** normally equals **available**; the status split exists to **explain** why stock that physically exists cannot be used.
- D365 still counts batches with a blocking **disposition code** and **expired batches** as available on hand and refuses them only when reserving. The extension therefore computes the stock per such batch itself, summing transactions the way D365's on-hand does: physical = receipts **Purchased**, **Received**, **Registered** plus issues **Sold**, **Deducted**, **Picked** (negative); available = physical minus **ReservPhysical** issues. No entity exposes the disposition codes' setup, so you list the blocking codes in the settings (section 26.4).
- **Expired batches** (section 26.1) count as unusable only for items with a shelf life whose item model group has the shelf life check on, by expiry date or best before date as the model group picks, as D365 does. A batch is judged against the line's own date, the one D365 checks: for a sales line the first one set of the confirmed receipt date, requested receipt date, confirmed ship date and requested ship date, plus the **Minimum remaining shelf life for sales** when it is set. A line without a date is judged against today. The evidence says "in batches that expire before the line's date" when a batch is still good today but not on that date.
- **Catch weight items**: **WarehousesOnHandV2** has no rows for them. When an item gets no on-hand row at all, the extension asks **WarehouseOnHandIncludingCatchWeightItems** once (at most 100 items per request), so a catch weight item does not show a false shortage. This was tested on sample data only.
- **Availability over time** (chapter 12) refines "short" into "short and not covered in time": a line that is short today but covered by an open purchase, production or transfer receipt before its ship date does not get a shortage warning, only a note.

6.5 Documents, invoices and payment status

The Documents card lists loads (with status and ship time), shipments (carrier, bill of lading), packing slips (with tracking links) and invoices. The payment status of each invoice is computed from the customer transactions:

Invoice payment status

```

own transaction = the CustTrans row with TransType = Sales, same invoice number, same
account,
                and, when the invoice has a ledger voucher, the same voucher
amount          = abs(AmountCur of that transaction) (else abs(TotalInvoiceAmount))
settled         = abs(SettleAmountCur)
credited        = sum of settlements whose settling transaction is another Sales-type
transaction
                with the opposite sign (a credit note), in absolute value
paid            = max(0, settled - credited)           // payments are often general
journals
open amount     = sum of CustTransOpen.AmountCur (else max(0, amount - settled))
fully settled    = Closed date present OR settled >= amount - 0.005

status = paid      if fully settled and paid > 0.005
        credited   if fully settled and paid <= 0.005
        partly paid if not fully settled and settled > 0.005
        open       otherwise
overdue = not fully settled AND due date < today
paid ratio = min(1, paid / amount)           // the line's paid quantity = invoiced quantity x
ratio

```

If the customer transactions of an invoice cannot be read, the status is shown as unknown and the **Paid** stage becomes "?" instead of 0.

6.6 Customer card and ageing

The card shows credit limit (with "(mandatory)"), credit status, payment terms, phone and e-mail, and a red pill when the account is blocked (**OnHoldStatus**: All, Invoice, Payment, ...). The ageing block is the **latest ageing snapshot** of **CustAgedBalances** (a snapshot filled by a D365 batch job, one row per ageing definition): total balance, number of open invoices, date of the snapshot, one line per period bucket with its label, and the last payment. If no snapshot exists the card says "No aging snapshot for this customer."

6.7 The 26 checks of a sales order

Defaults of the thresholds are in brackets and can be changed in the settings (chapter 26). "Active lines" means lines that are not cancelled.

Check	Sev.	Fires when (exact rule)
Order on hold HOLD_ACTIVE	Blocker	At least one order hold exists that is not cleared (MCRRCleared = No). Lists code, description, user, date and "checked out to".
Processing stopped ORDER_STOPPED	Blocker	The header says processing is stopped (IsSalesProcessingStopped) or the credit record says MCROrderStopped .
Credit management hold CREDIT_HOLD	Blocker	In credit control and not released, or rejected. When the order is on a credit hold, the evidence adds the reason per credit hold record (CredManTableBiEntities): for example "credit limit exceeded · checked at confirmation · approval pending", the active records first.
Customer on hold CUSTOMER_ON_HOLD	Blocker	The customer's on-hold status is All or Invoice, and the order has not yet reached the Invoiced stage.

Check	Sev.	Fires when (exact rule)
Work blocked WORK_FROZEN	Blocker	A work order of the order has Frozen = Yes and a status Open, InProcess or PendingReview.
Not reserved, stock available NOT_RESERVED_STOCK_AVAILABLE	Warning	A line has unreserved quantity > 0 and usable stock ≥ that quantity. The next step mentions an active hold that removes reservations. It also names the line's Reservation setting: a Manual line is never reserved by D365 itself ("reserve, or release the order to the warehouse with reservation"); an Automatic line is reserved only when it is entered or changed, so stock that arrived later is not reserved by itself.
Shortage SHORTAGE	Warning	Unreserved > 0, usable stock < unreserved, and incoming supply does not cover the line by its date (or is unknown).
Short now, covered in time SHORTAGE_COVERED_BY_SUPPLY	Note	Short today, but the running balance of the item is back at zero or above on or before the line's date (all other open demand included).
Stock blocked by inventory status STOCK_BLOCKED_BY_STATUS	Warning	Shortage as above, and the warehouse holds stock in a blocking inventory status.
Stock in blocked or expired batches STOCK_BLOCKED_BY_DISPOSITION	Warning	Shortage as above, and the warehouse holds stock in batches with a blocking disposition code, or in batches that expire before the line's date (section 6.4).
Hold removed reservations RESERVATIONS_REMOVED_BY_HOLD	Note	An active hold uses a code that removes inventory reservations, and active lines are unreserved.
Late vs. confirmed date LATE_VS_CONFIRMED	Warning	Per active line: date = line confirmed date, else header confirmed date (and, if the setting "use requested date" is on, else requested). If date + grace days (0) is before today and the Shipped stage is known and not complete.
Reserved, not released RESERVED_NOT_RELEASED	Note	Warehouse-managed line, Reserved complete, Released known and 0, and the ship date (line confirmed, requested, header confirmed, header requested) is within the next 2 days (or past).
Work not created WORK_NOT_CREATED	Warning	A released load line has work created for less than its inventory quantity, and its shipment has been waved (or its status is unknown). Usually a location directive found no pick location; when D365 flagged that reservation failed while creating the work, the evidence names that work. While the shipment is still Open (the wave has not been processed), it is only a note: work is created when the wave runs.
Work stale WORK_STALE	Warning	Work in status Open, InProcess or PendingReview for longer than 8 hours (age from created, or from in-process start for InProcess work). Work without a timestamp is not judged.
Picked, not shipped PICKED_NOT_SHIPPED	Warning	Picked quantity > shipped quantity, and the latest close time of the line's closed work is more than 24 hours ago.
Shipped, no packing slip SHIPPED_NO_PACKING_SLIP	Warning	Quantity on ship-confirmed loads exceeds max(packing slip quantity, Deducted + Sold).
Packing slip not invoiced PACKING_SLIP_NOT_INVOICED	Warning	A packing slip has transactions still in Deducted (delivered, not invoiced) and is older than 3 days.
Invoice overdue INVOICE_OVERDUE	Note	An invoice is not fully settled and its due date has passed.
Charges not invoiced CHARGES_NOT_INVOICED	Note	The order is fully invoiced, but a charge on the order appears on none of its invoices (section 13.5).
Margin below the minimum MARGIN_LOW	Warning / Note	Only when Minimum margin for sales is set (Options > General; off when empty). Per active line in the accounting currency: cost = quantity in the inventory unit × the item's cost price (section 15.4); margin = (net line amount – cost) ÷ net line amount. A line sold below cost is a warning; a margin below the minimum is a note; 0 flags only lines below cost. The message says which cost: the standard cost for standard cost items, else the planned cost price (the actual FIFO cost can differ). Lines in another currency, without a cost price or with an unknown inventory quantity are left out.
Quality order failed QUALITY_ORDER_FAILED	Blocker	A quality order of the order, or on a batch a line holds (reserved or picked), has status Fail.

Check	Sev.	Fires when (exact rule)
Quality order open QUALITY_ORDER_OPEN	Warning	Same, status Open.
Batch expired or near expiry BATCH_EXPIRED_OR_NEAR	Warning	A held (reserved or picked) batch has an expiry date on or before today + 14 days.
Batch with a blocking disposition code BATCH_DISPOSITION_BLOCKED	Warning	A held batch has a disposition code listed for sales in the settings.
Linked order at risk LINKED_ORDER_AT_RISK	Warning	A supplying production, purchase or transfer order is due after the line's ship date and is not finished.

Evidence and next step

Each check also gives its evidence lines and a concrete next step; Appendix A shows the next step per check. For example, "Not reserved, stock available" says: *Line 1 (ITEM-1): 20 pcs not reserved · 100 pcs available in WH-A* and advises *Reserve the lines*.

7. The Purchase X-ray

The Purchase X-ray follows a purchase order from creation to payment of the vendor invoice: **Ordered** → **Approved** → **Confirmed** → **Arrived** → **Received** → **Invoiced** → **Paid**, net of returns. It also shows the vendor's responses, the product receipts, posted and *pending* (registered, not yet posted) vendor invoices, and why the order is stuck.

7.1 Opening a purchase order

Open or select an order in **All purchase orders** (the grid and details are one form there; the extension reads what is visible), or select **Purchase** and type the number. The header card shows the order status (`PurchaseOrderStatus`), the **approval status** (`DocumentApprovalStatus`: Draft, In review, Rejected, Approved, In external review, Finalized, Confirmed), vendor, requested and confirmed delivery date, warehouse and the orderer or pool.

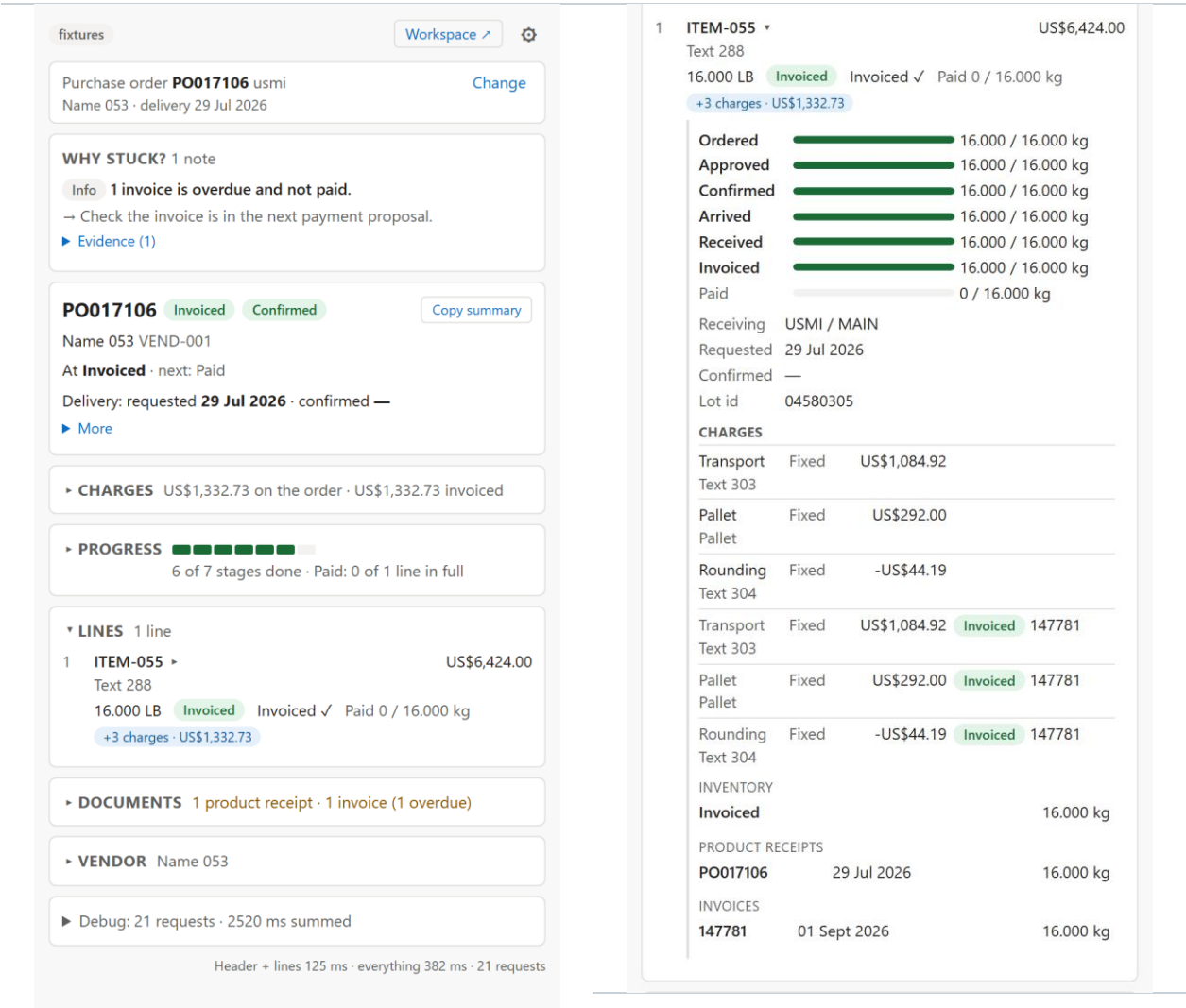


Figure 12. Left: the header of a purchase order with its progress, lines and documents. Right: a purchase line opened with its stages, receipts and invoices.

7.2 Data retrieved

Step	Entity	Filter / key	Used for
header	PurchaseOrderHeadersV2	PurchaseOrderNumber	Status, approval status, vendor and invoice account, name, requested/confirmed delivery and ship dates, default receiving warehouse and site, currency, vendor reference, delivery mode, order pool, orderer.
lines	PurchaseOrderLinesV2	PurchaseOrderNumber, top 1000	Lot id, item, procurement category, ordered quantity and purchase unit, line status, receiving warehouse and site, requested and confirmed delivery date, amount, stopped flag, deleted flag.
responses	PurchaseOrderVendorConfirmationHistories	PurchId	Vendor responses: state, confirmed flag, received and response time, note.
origins, inventTrans	InventTransOriginBiEntities, InventTransBiEntities	ReferenceCategory = Purch; transactions of those origins	Receipt side of the inventory chain: StatusReceipt quantities, packing slip ids, invoice ids and dates per line.
receipts	VendPackingSlipJourBiEntities	PurchId	Product receipts (packing slip id, delivery date).
invoices	VendInvoiceJourBiEntities	PurchId	Posted vendor invoices: id, date, due date, amount, currency, account, ledger voucher, quantity, and the invoice's RecId (parent of invoice header charges).
vendTrans	VendTransBiEntities	Pairs (AccountNum, Invoice), 10 per request	Vendor transactions: amount, settled amount, due date, closed date, voucher, approved-for-payment flag.
settlements	VendSettlementBiEntities	TransRecId in (vendor transactions)	Settlements of the invoices.
pendingLines, pendingHeaders	VendorInvoiceLines, VendorInvoiceHeaders	PurchaseOrder; header reference in (found)	Pending (registered, not posted) vendor invoices: lines with "receive now" quantity; headers with invoice number, date, due date, on-hold flag, review status, approval.
vendor	VendorsV3	VendorAccountNumber	Name, group, on-hold status, hold release date, payment terms, phone.
warehouses	Warehouses	Warehouseld in (lines' receiving warehouses)	Warehouse names.
headerRecId, lineRecIds	PurchTableBiEntities, PurchLineBiEntities	PurchId	RecIds (parents of charges), currency, the intercompany references, and what each line is for (ItemRefType, InventRefId, InventRefTransId: a sales order, a production order).
invoiceLines	VendInvoiceTransBiEntities	PurchID	Posted invoice lines and the order line they bill (parents of line charges).
tableIds, orderCharges, invoiceCharges, chargeCodes	SystemTableIdTableEntities, MarkupTransBiEntities, MarkupTableBiEntities	See section 13	Charges on the order and on its invoices (module "Vend").
quality	QualityOrderHeaders	PurchaseOrderNumber	Quality orders made for the order.
priceHistory, priceHistoryOrders, priceAgreements	VendInvoiceTransBiEntities, PurchaseOrderHeadersV2, PurchasePriceAgreements	Items of the open lines	The last price paid to this vendor for the item and the trade agreements valid today (check "Price off the last price or agreement").
demandDue	SalesLineBiEntities	InventTransId in (lots the lines are for)	The sales line a purchase line is for: its ship dates (check "Linked order at risk").

Step	Entity	Filter / key	Used for
itemUnits	ReleasedProductsV2	ItemNumber in (items)	Inventory units.
impact steps	InventTransBiEntities, InventDimBiEntities, InventTransOriginBiEntities, WarehousesOnHandV2, SalesLineBiEntities	Items and warehouses of the lines with status Backorder	Which demand waits for the open receipts (section 12.6).

7.3 How it is calculated

Quantities: inventory based and net

The line total is the sum of the line's inventory transactions (receipt side), **net**: a return or correction (an issue-side transaction with negative quantity, for example **Sold** on a credit note) reduces what was received and invoiced. Lines without inventory transactions (non-stock items, procurement categories) fall back to the **line status** (**Backorder**, **Received**, **Invoiced**, **Canceled**).

The **Approved** stage applies only when change management is on for the order (**IsChangeManagementActive**). Without it D365 has no approval step: the order stays Draft until it is confirmed, so the stage is not counted.

Stage	Quantity done	Notes
Ordered	total	
Approved	total if the header approval is Approved, In external review, Confirmed or Finalized; else 0.	Unknown while the header loads.
Confirmed	total if approval is Confirmed or Finalized, or a vendor response exists with Confirmed = Yes, state Confirmed or Acknowledged with change.	Optional stage.
Arrived	Arrived + Registered + Received + Purchased, plus returns (issue-side Sold, Deducted, Picked, which are negative).	Optional stage. Without inventory: 100% if line status is Received or Invoiced.
Received	Received + Purchased + returns.	
Invoiced	Purchased + Sold (net).	Without inventory: 100% if line status is Invoiced.
Paid	Sum over invoices of the line's quantity × paid ratio of the invoice.	Without inventory: the whole line when every invoice is paid.

The quantity in each key is the sum of **Qty** per status with sign (receipts positive, returns negative), so that "Received 100, returned 20" counts as 80.

Payment of a vendor invoice

Vendor invoice status

```

own transaction = VendTrans row with TransType = Purch, same invoice id and account
                  (and voucher when the invoice has one)
amount    = abs(AmountCur)           // vendor transactions are negative (a liability): shown
positive
settled    = abs(SettleAmountCur)
fully      = Closed date present OR settled >= amount - 0.005
status     = paid | partly paid | open;   overdue = not fully AND due date < today
open amount = fully ? 0 : amount - settled
paid ratio  = min(1, settled / amount)
approved   = VendTrans.Approved        (an invoice not approved for payment is flagged)

```

Received, not yet invoiced

For every active line the quantity in status **Received** is the quantity **received but not invoiced**, and the oldest **DatePhysical** among those transactions is "received since". Pending invoice quantity per line is the sum of **ReceiveNow** over the pending invoice lines for that purchase line.

What the line is for, and what it holds up

A purchase line can be bought for a sales order or a production order ("pegged"). The Trace card links to it, and the check **Linked order at risk** compares the line's delivery date with the ship date of the sales line it is for. The check **Holds up demand** uses the availability projection of chapter 12: it names sales orders, production components and transfers that are short now and covered only once this line is received, with their value.

7.4 The 14 checks of a purchase order

Check	Sev.	Fires when (exact rule)
Not approved PO_NOT_APPROVED	Warning (Blocker if rejected)	Only for orders with change management. Approval status is Draft or In review (warning), or Rejected (blocker).
Line stopped PO_LINE_STOPPED	Blocker	An active line has IsLineStopped = Yes.
Vendor on hold PO_VENDOR_ON_HOLD	Warning / Blocker	The vendor's on-hold status is All or Purchase order (blocker), or Invoice or Payment (warning). A hold whose release date has passed is not reported, as D365 treats it as lifted; a hold with a release date in the future shows that date.
Not confirmed PO_NOT_CONFIRMED	Warning	Approval status is exactly Approved, or Draft on an order without change management; no vendor response confirms it; and some line that is not completely received is due (confirmed, else requested line, else header date) within 7 days or already.
Late delivery PO_LATE_VS_CONFIRMED	Warning	Per active line, date = line confirmed delivery, else header confirmed (else requested when the setting is on); date + grace days (0) is before today, and Received stage is known and not complete.
Holds up demand HOLDS_UP_DEMAND	Warning	An open line's receipt is the one that covers demand that is short now (section 12.6).
Received, not invoiced PO_RECEIVED_NOT_INVOICED	Warning	Quantity received and not invoiced > 0 and the oldest receipt is at least 7 days old.
Invoiced, not received PO_INVOICED_NOT_RECEIVED	Warning	A pending invoice's quantity for a line exceeds received-and-not-invoiced quantity (only when the purchase unit equals the inventory unit, so no unit conversion is guessed).
Invoice on hold PO_INVOICE_ON_HOLD	Warning	A pending invoice is on hold, in review or rejected, or a posted invoice is not approved for payment and not paid.
Invoice due PO_INVOICE_DUE	Note	A posted invoice is open or partly paid and due within 3 days (or already overdue).
Price off the last price or agreement PO_PRICE_DEVIATES	Warning / Note	Per open line with an item, two references in the line's currency and purchase unit: the last price paid , the net price per unit of the latest posted vendor invoice line of the item from another purchase order of the same vendor in the last year; and the trade agreement valid today for this vendor or all vendors, for the line's quantity (the lowest price). The line differs by more than 10 % (Options): a warning when it is above a reference, a note when only below. Either reference alone is enough.
Quality order failed / open QUALITY_ORDER_FAILED, QUALITY_ORDER_OPEN	Blocker / Warning	A quality order of the purchase order has status Fail / Open. (A purchase order holds no batches, so only its own quality orders count.)
Linked order at risk LINKED_ORDER_AT_RISK	Warning	A line is delivered (confirmed, else requested) after the ship date of the sales line it is for, and is not yet received.

8. The Production and Batch X-ray

Production orders (discrete manufacturing) and batch orders (process industry, with formulas, co-products and by-products) are one order type in the panel. The X-ray shows the status timeline, **Materials** (BOM or formula lines), **Operations**, **Outputs**, estimated versus realised **Cost**, unposted journals, warehouse work, quality orders and the order **as designed**, and explains why the order is stuck.

8.1 Opening a production order

Open or select an order in **All production orders**, or select **Production** and type the number. The extension finds out from the order whether it is a production order or a batch order (a production order is of type Standard; a batch order is of type Process).

fixtures Workspace

Production order **MO3003982** co05
ITEM-205 · delivery 19 Oct 2026 [Change](#)

WHY STUCK? 1 blocker · 1 warning

Blocker 1 component can't be covered from stock.
→ Order or produce the missing quantity, or move stock to the consumption warehouse; then reserve the line.
▶ Evidence (1)

Warning 2 operations should have finished already.
→ Report progress on the operation (route or job card), or reschedule the order.
▶ Evidence (2)

MO3003982 Started Production order
ITEM-205 · Name 273
82 of 100 kg reported as finished · 18 kg to go
Scheduled: 01 Oct 2026 → 19 Oct 2026 08:57 · delivery 19 Oct 2026
For sales order SO3016229 →
▶ More

▶ PROGRESS 0 of 6 stages done · Materials reserved 1 / 11 lines

▶ MATERIALS (BOM) 11 lines · 1 short

1	ITEM-206	consumed 33 L	39,17 L
2	ITEM-207	consumed 96 BA2.5KG	116,62 BA2.5KG
3	ITEM-208	consumed 12 pcs	14,58 pcs
4	ITEM-209	consumed 17 kg	19,44 kg
5	ITEM-210		3,24 L
6	ITEM-211	consumed 7 BA2.5KG	8,1 BA2.5KG
7	ITEM-212	consumed 101 pcs	121,38 pcs
8	ITEM-213	consumed 50,19 kg	61,2 kg
9	ITEM-214	consumed 14 L	15,91 L
10	ITEM-215	consumed 10 BA2.5KG	10,81 BA2.5KG
11	ITEM-216	manual reservation	3 pcs

▶ OPERATIONS 0 / 4 completed

▶ OUTPUTS ITEM-205 82 / 100 kg

▶ COST 27.004,97 estimated · 22.500,28 realized

Journals, work & quality: nothing open, no quality orders.

▶ AS DESIGNED same as designed

▶ TRACE for 1 order · 10 batches

Figure 13. A production order: blocker and warning on top, header with reported quantity and sales order link, materials with their consumption, and the folded cards.

8.2 The header and status timeline

The header shows status pills (for example **Started**), the item, "82 of 100 kg reported as finished · 18 kg to go", the scheduled start and end, the delivery date, and a link "For sales order SO3016229 →" when the order was made for a sales line (or "for production order" for a sub-order). The **More** fold shows the production pool, site, warehouse, BOM or formula, route, and the **status timeline**:

Timeline step	D365 status	Date shown
Created	Created	—
Estimated	CostEstimated	EstimatedDate
Scheduled	Scheduled	ScheduledDate
Released	Released	ReleasedDate
Started	StartedUp	StartedDate
Reported as finished	ReportedFinished	ReportedAsFinishedDate
Ended	Completed	EndedDate

"Ended" is "Completed"

D365 calls the final status **Completed** in its data; its forms call it **Ended**. The panel uses "Ended". An order is only ended when its cost is settled.

8.3 Data retrieved

Step	Entity	Filter / key	Used for
prodTable	ProdTableBiEntities	ProdId	The order's own row: type, status, item, quantities, the reference to what the order is for (InventRefType, InventRefId, InventRefTransId), parent and collect-level order, pool, BOM id and date, route, scheduled start and end, delivery date, RecId.
header / batchHeader	ProductionOrderHeaders or BatchOrderHeaders	Order number	Name, status and all status dates, scheduled/started/remaining quantities, scheduled start and end with time, site and warehouse, source BOM/formula, route and validity date, lot id, demand sales order and line lot, parent order, automatic reservation mode, yield (batch), variant.
components	ProductionOrderBillofMaterialLines or BatchOrderFormulaLines	Order number	Material lines: item, line type, flushing principle, estimated, started and remaining quantity, lot id, operation, consumption warehouse and site, fully-consumed flag, batch, scheduled consumption date, reservation mode, quantity per series.
componentRefs	ProdBOMBiEntities	ProdId	What each component line is pegged to: a sub-production order or a marked purchase order.
coProducts, byProducts	BatchOrderCoProductsV2, BatchOrderByProductsV2	Batch orders only	Co- and by-products with estimated, reported and remaining quantity and cost allocation.
operations	ProductionOrderRouteOperations or BatchOrderRouteOperations	Order number	Route operations: number, priority, resource group, scheduled from/to, estimated process and setup time, started and completed flags, completion %.
jobs	ProductionOrderRouteJobs	Order number (also for batch orders)	Route jobs: type, status, resource, scheduled and actual times, duration.
resources	OperationsResources	ResourceId in (found)	Resource names.
routeTrans	ProdRouteTransBiEntities	TransRefId = order and TransRefType = Production	Posted hours and good/error quantity per operation, cause of error, amount, cancelled flag.
cost, costGroups	ProdCalcTransBiEntities, CostGroups	TransRefId = order and TransRefType = Production	Estimated and realised cost, per cost group; names and types of the groups.

Step	Entity	Filter / key	Used for
pickingList	ProductionPickingListJournalEntries	Order number	Picking list journal lines, posted or not: consumption per lot, unposted journals.
reportFinished	ReportAsFinishedProductionJournalEntries	Order number	Report-as-finished lines, posted or not: good and error quantity per output.
routeCards, jobCards	RouteCardProductionJournalEntries , JobCardProductionJournalEntries	Order number, IsPosted = No	Unposted route and job card lines.
origins, inventTrans, inventDims	as for sales	ReferenceCategory in (Production, ProdLine, PmfProdCoBy)	Inventory of the outputs (receipt side) and the components (issue side).
work, workLines	WHSWorkTableBiEntities , WHSWorkLineBiEntities	OrderNum = order and WorkTransType in (ProdPick, ProdPut, ProdProcessPut)	Picking work of raw materials, and put-away work of finished goods and co-/by-products. Production orders have no loads, so work is found by order number and work type.
pool	ProductionPools	PoolId	Pool name.
demandLine	SalesLineBiEntities	InventTransId = the order's demand lot	The sales line the order is for: ship dates.
subOrders, refPurchaseLines	ProdTableBiEntities , PurchaseOrderLinesV2	Sub-orders and marked purchase lines of the components	Status and scheduled end of sub-orders; confirmed or requested delivery of marked purchase lines.
designVersions, designLines	BillofMaterialsVersionsV4 + BillofMaterialsLinesV3 , or FormulaVersionsV2 + FormulaLinesV2	BOM id or formula id of the order	The BOM or formula as designed, to compare with the order ("As designed").
onHand, status and disposition steps, future steps	as for sales	Items and consumption warehouses of components not yet reserved	Stock for materials (usable, blocked, expired) and availability over time.
quality, batches, batchQuality, itemUnits	as for sales	ProductionOrderNumber, held batches	Quality orders, batch facts, inventory units.
impact steps	see chapter 12	The order's output lot	Which demand waits for this order's output.

8.4 How it is calculated

Materials (components)

Each component line is evaluated from its own inventory transactions (issue side, found through its lot id):

Per component line (all in the item's inventory unit)

```

estimated    = abs(EstimatedInventoryQuantity)
notReserved  = OnOrder + ReservOrdered           // not yet physically reserved
reserved     = ReservPhysical
picked       = Picked
consumed      = Deducted + Sold                   // from the transactions
              else sum of ConsumptionInventoryQuantity of posted picking list lines
              (some consumed orders have no component transactions left; their posted
               journals do)
if a line has no transactions at all (inventory loaded): notReserved = reserved = picked =
0

phantom lines and lines without quantity are not materials to supply;
picking is NOT expected for phantom lines and for flushing principle Start or Finish
(they are consumed automatically).

```

Material stage	A line counts as done when
Reserved	$\text{notReserved} \leq 0$ and $(\text{reserved} + \text{picked} + \text{consumed} > 0)$, or the line is fully consumed, or nothing remains).
Picked	Only for lines where picking is expected: $\text{picked} + \text{consumed} \geq \text{estimated}$, or the line is fully consumed.
Consumed	The line is flagged fully consumed, or $\text{consumed} \geq \text{estimated}$.

The counts shown are **lines** ("Materials reserved 1 / 11 lines"), not quantities: components are different items in different units and cannot be added. The row of a component states "Not reserved", "Partly consumed", "Consumed" or "manual reservation" (when its Reservation setting is Manual), and its drilldown shows inventory, batches, stock and the pegged sub-order or purchase order with its due date.

Operations

- Only **primary** operations (priority Primary or empty) are listed. Secondary-priority rows are alternatives.
- Hours** = sum of **Hours** over the operation's posted route transactions that are not cancelled (every resource's hours are real, so they add up).
- Good and error quantity** = sum over the **primary** rows only: every resource of an operation reports the same quantity, so counting all rows would multiply it.
- Started / finished** come from **IsOperationStarted** and **IsOperationCompleted**; actual from/to dates from the jobs (the operation ends when **all** its jobs have an actual end).
- Estimated hours** = estimated process time + estimated setup time.

Outputs: finished goods, co-products and by-products

- Reported good and error quantity** come from the *posted* report-as-finished journal lines, matched to the output by lot id (and, for co- and by-products, by item and production type Co_Product / By_Product). Unposted lines are not counted but reported as unposted journals.
- The planned quantity of the main item is the scheduled quantity of the order; for co- and by-products it is the estimated quantity (the quantity on the formula is per series).
- Put away** shows the closed put-away work (warehouse management) of the finished goods; co-/by-products use the process put-away work.
- A co- or by-product counts as reported only when a **posted quantity > 0** exists: ending an order sets the remaining quantity to zero without reporting.

Estimated versus realised cost

Cost

level L rows (L = CollectRefLevel: 0, or parent + 1 for a pegged sub-order) = the total
level L+1 rows = the breakdown per cost group; never add level L and level L+1 together

realised per row = RealCostAmount + RealCostAdjustment

estimated = sum of CostAmount of the level L rows (else the sum of the level L+1 groups)

realised = sum of realised of the level L rows (else the sum of the level L+1 groups)

variance = realised - estimated

variance % = variance / estimated x 100 (empty when estimated = 0)

settled = (order status = Completed)

The variance is only meaningful once the order has **ended**: until then the realised cost is cost in work in progress and the variance is not posted. The Cost card lists each cost group (direct materials, direct manufacturing, indirect, outsourcing) with its estimate, realised cost and the difference.

As designed versus as ordered

The order was created from a BOM or formula version (valid on the order's BOM date). The "As designed" card compares that design with the order's own components **by item, per series** (quantity divided by the quantity denominator), so a different order quantity is not a difference. Several lines of one item are added up. Findings: **added on the order, in the BOM but not on the order, quantity changed** (a difference above 0.000001 per series), **line type changed**. A phantom line of the design is exploded into its own components on the order, so it is not compared itself, and order lines missing from the design are then counted as "from phantoms" instead of added. Differences are manual changes on the order, or a BOM changed since the order was created.

Reservation due

Whether D365 should have reserved a component by now depends on its **Reservation** setting and the order status:

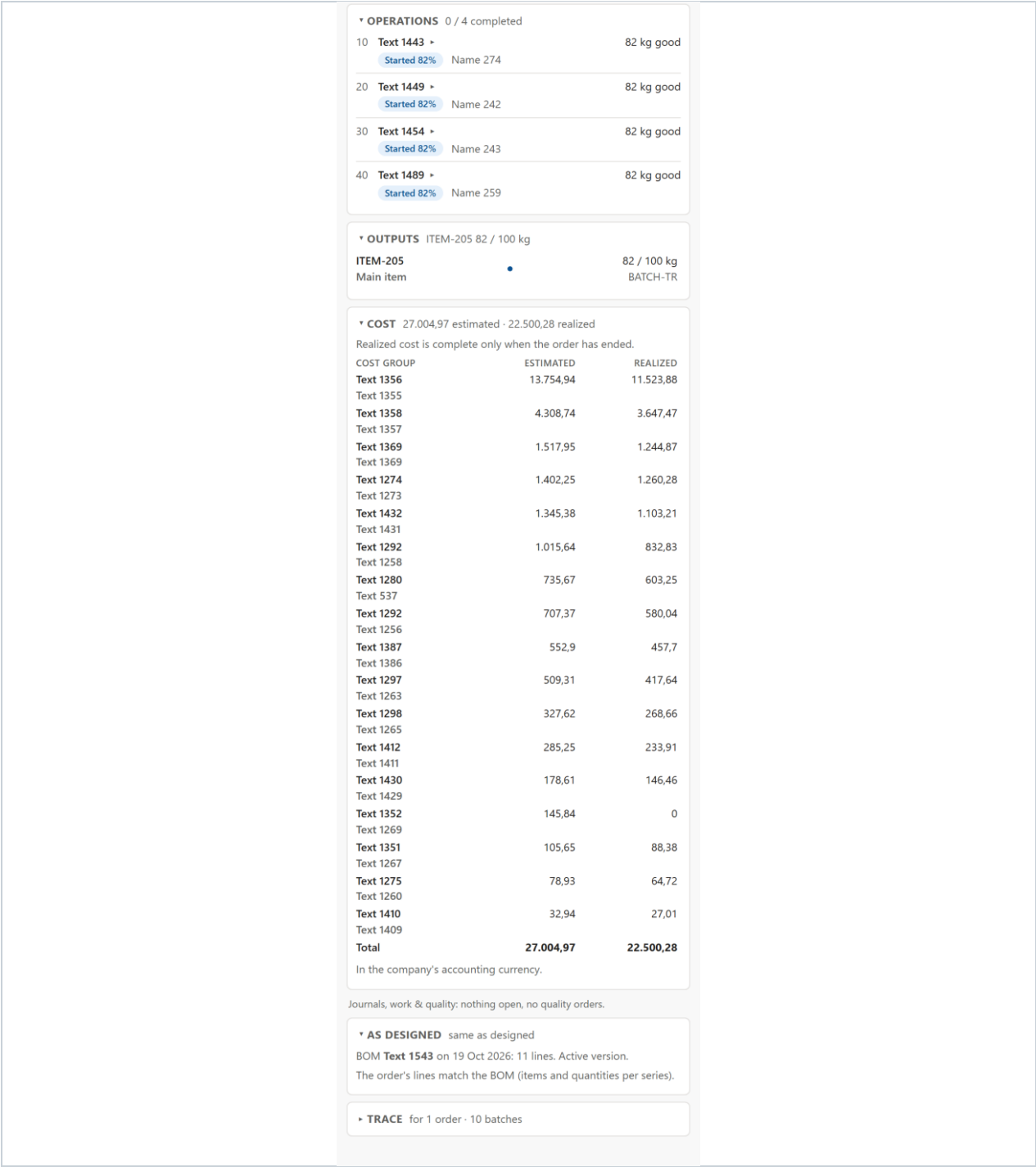
Reservation setting	Reserved from status	Notes
Manual (None)	never	Never flagged "not reserved".
At estimation	Estimated	
At scheduling	Scheduled	
At release	Released	Also the assumption when the setting is unknown.
At start	Started	

8.5 The 23 checks of a production order

Material and reservation checks only run while the order is **in progress**: status Estimated, Scheduled, Released or Started (not Created, not Reported as finished, not Ended).

Check	Sev.	Fires when (exact rule)
Holds up demand HOLDS_UP_DEMAND	Warning	Demand is short now and covered only when this order's output arrives (section 12.6).

Check	Sev.	Fires when (exact rule)
Material shortage MATERIAL_SHORTAGE	Blocker	A material line still needs stock (notReserved > 0), usable stock in its consumption warehouse is lower, and incoming supply does not cover it by the date it is needed (or is unknown).
Material short now, covered in time MATERIAL_SHORT_COVERED_BY_SUPPLY	Note	As above, but open receipts bring it before it is needed.
Material not reserved, stock available MATERIAL_NOT_RESERVED_STOCK_AVAILABLE	Warning	D365 should have reserved the line by now (Reservation setting vs status), it is not, and usable stock covers it.
Stock blocked by inventory status STOCK_BLOCKED_BY_STATUS	Warning	Shortage, and the warehouse holds stock in a blocking status.
Stock in blocked or expired batches STOCK_BLOCKED_BY_DISPOSITION	Warning	Shortage, and the warehouse holds stock in batches blocked for production or expired.
Sub-order or purchase order late SUB_ORDER_LATE	Warning	A pegged sub-production order or marked purchase line (not yet reported finished / ended / received / invoiced) is due after this order's scheduled start.
Released, not started RELEASED_NOT_STARTED	Warning	Status Released and the scheduled start passed at least 24 hours ago.
Picking work open PICKING_WORK_OPEN	Warning	Raw-material picking work is Open or InProcess for at least 8 hours.
Unposted journals UNPOSTED_JOURNALS	Warning	A picking list, report-as-finished, route card or job card journal of the order is not posted.
Operation behind schedule OPERATION_BEHIND	Warning	Status Released or Started, and an operation is not completed while its scheduled end is in the past.
High scrap HIGH_SCRAP	Warning	error / (good + error) > 5 % for the reported finished quantity, or for an operation.
Consumption off the estimate CONSUMPTION_VARIANCE	Note	Order reported as finished or ended; expected = estimated × (good reported ÷ scheduled), and the whole estimate for lines with Constant consumption; a material's consumption differs from expected by more than 10 %.
Reported as finished, not put away RAF_NOT_PUT_AWAY	Warning	Finished goods were reported, but their put-away work is open.
Co-product not reported COPRODUCT_NOT_REPORTED	Warning	Batch order: the main item is reported but a planned co-product has 0 reported.
Reported as finished, not ended REPORTED_NOT_ENDED	Note	Status Reported as finished for at least 7 days.
Cost variance COST_VARIANCE	Note	Ended order; variance % > 10 %. Setting: count only overruns (above estimate).
Quality order failed / open QUALITY_ORDER_FAILED, QUALITY_ORDER_OPEN	Blocker / Warning	Quality order of the order (or on a component batch it holds) failed / is open.
Sales order at risk SALES_DEMAND_AT_RISK	Warning	The sales line the order is for ships (confirmed, else requested) before the order's scheduled end.
BOM or formula changed on the order BOM_DEVIATES_FROM_DESIGN	Note	The order's components differ from the BOM or formula version.
Batch expired or near expiry BATCH_EXPIRED_OR_NEAR	Warning	A held component batch expires within 14 days or has expired.
Batch with a blocking disposition code BATCH_DISPOSITION_BLOCKED	Warning	A held component batch has a code blocking production (settings).



9. The Transfer X-ray

A transfer order moves stock from one warehouse to another through a **transit warehouse**. The Transfer X-ray shows the route, line by line: **Reserved** → **Released** → **Picked** → **Shipped (in transit)** → **Received** → **Put away**, the warehouse work and loads on both ends, and twelve checks.

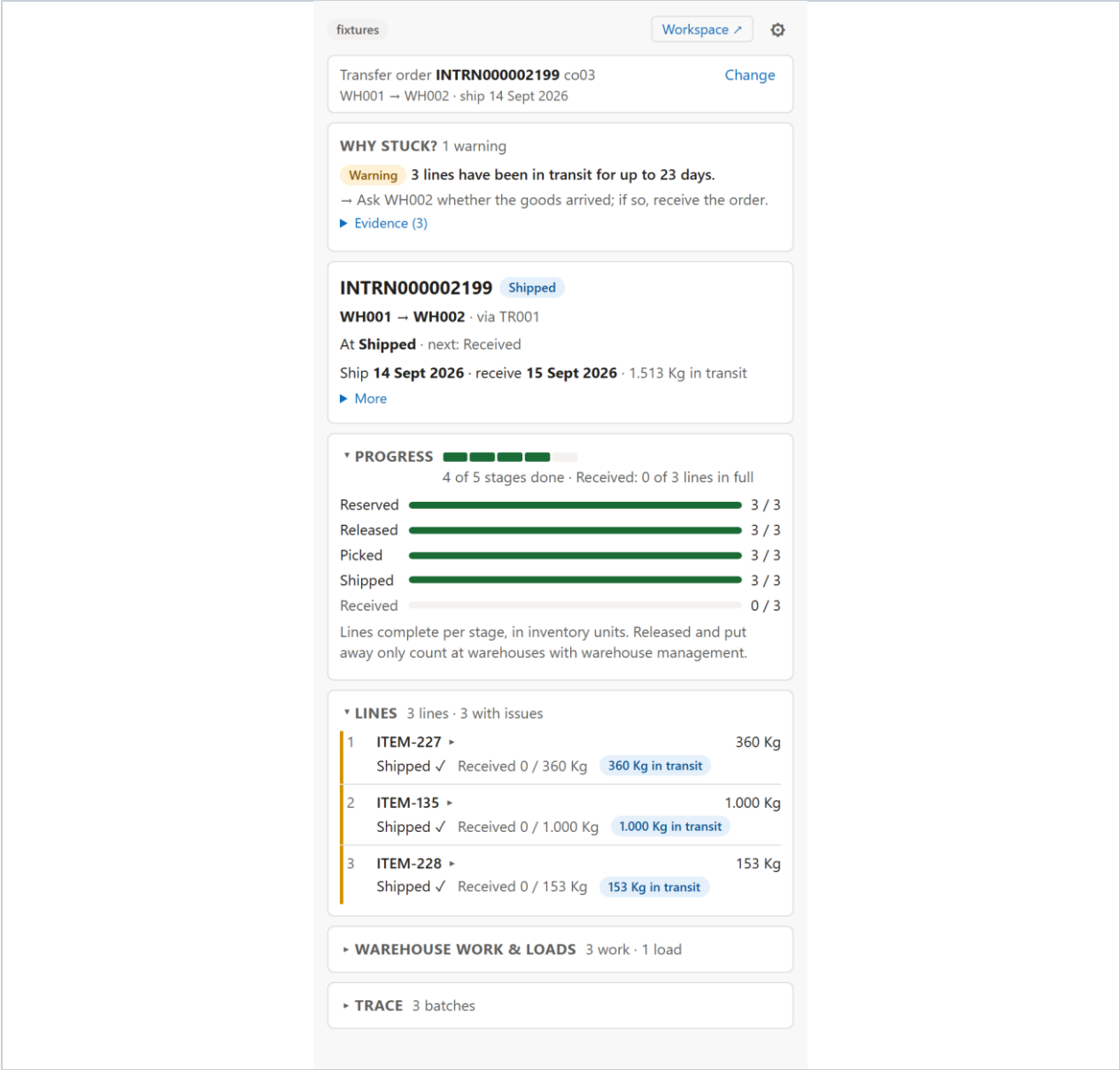


Figure 15. A transfer order that was shipped and never received: the check "In transit too long" names the three lines and how many days they have been on the road.

9.1 Opening a transfer order

Open or select an order in **Transfer orders** (grid and details are one form), or select **Transfer** and type the number. The order bar shows the route ("WH001 → WH002"), the header card the status (Created, Shipped, Received), the transit warehouse ("via TR001"), the requested ship and receipt date and the quantity in transit.

9.2 Data retrieved

Step	Entity	Filter / key	Used for
header	TransferOrderHeaders	TransferOrderNumber	Status, shipping, receiving and transit warehouse, requested ship and receipt date, delivery mode, "reserve lines automatically" default.
headerBi	InventTransferTableBiEntities	TransferId	Creation time (not on the standard entity).
lines	TransferOrderLinesV2	TransferOrderNumber	Item and variant, transfer quantity, shipped, received, scrapped, remaining to ship and to receive quantity, line status, inventory unit, shipping warehouse and site, dates, batch and serial, and the five lot ids of the line.
origins	InventTransOriginBiEntities	ReferenceId = order; category in (TransferOrderShip, TransferOrderReceive, TransferOrderScrap)	The inventory legs of every line.
inventTrans, inventDims	InventTransBiEntities, InventDimBiEntities	Origins; dimension ids	Quantities per status per leg, dates (shipped at, received at), warehouse, location, batch.
work, workLines	WHSWorkTableBiEntities, WHSWorkLineBiEntities	OrderNum = order; WorkTransType in (TransferIssue, TransferReceipt)	Pick work at the shipping warehouse and receipt/put-away work at the receiving warehouse.
loadLines, loads	WHSLoadLineBiEntities, WHSLoadTableBiEntities	OrderNum = order and InventTransType = TransferOrderShip	Work created and picked quantities, load status and ship confirmation.
warehouses	Warehouses	Header and line warehouses	Names and whether each end uses warehouse management.
onHand, status and disposition steps	as for sales	Item + shipping warehouse of the lines not yet reserved	Usable stock at the shipping warehouse.
peggedSales	SalesLineBiEntities	InventRefType = InventTransfer and InventRefId = order	The sales lines this transfer supplies (trace link).
quality, batches, batchQuality	as for sales	QMSTransferOrderNumber, held batches	Quality orders and batch facts.

Why the journals are not used

The transfer journal entities returned nothing in the environments tested, so the posting dates are taken from the **inventory transactions of the five legs** instead.

9.3 How it is calculated

A transfer line has **five lots**: the issue at the shipping warehouse, the receipt in transit, the issue out of transit, the receipt at the receiving warehouse, and the scrap lot. Their transactions give the quantities per phase.

Transfer line quantities

effective total = shipped + remaining to ship // a line shipped short and closed
 counts what was shipped
 in transit = max(0, shipped - received - scrapped)
 shipped at = latest physical date of the issue lot transactions with status Sold or Deducted
 received at = latest physical date of the receipt lot transactions with status Purchased or Received

Stage	Quantity done	Applies when
Reserved	max(ReservPhysical + Picked + Deducted + Sold of the issue lot, shipped)	Always. Shipped always counts as reserved and picked.
Released	max(work created quantity of the load lines, shipped)	The shipping warehouse uses warehouse management.
Picked	max(Picked + Deducted + Sold, shipped)	Always.
Shipped	shipped quantity of the line	Always.
Received	received + scrapped	Always.
Put away	Sum of InventQtyWork of closed Put work lines of receipt work for the line	The receiving warehouse uses warehouse management.

Whether an end uses warehouse management comes from the **Warehouses** flag; when that row is not available, the presence of work of that kind proves it, and when neither is known the stage stays unknown. The next stage of the order is the first stage (after the reached one) where any line is applicable and not complete.

9.4 The 12 checks of a transfer order

All transfer checks are warnings. The four stock checks use the same "usable stock" rule as sales (section 6.4) with the codes listed for **transfer** in the settings.

Check	Fires when (exact rule)
Shortage at the shipping warehouse TRANSFER_SHORTAGE	A line has unreserved quantity > 0 and usable stock at the shipping warehouse is lower.
Not reserved, stock available TRANSFER_NOT_RESERVED_STOCK_AVAILABLE	Unreserved > 0 and usable stock covers it. The next step depends on whether the order reserves automatically.
Stock blocked by inventory status STOCK_BLOCKED_BY_STATUS	Shortage, and the shipping warehouse holds blocked-status stock.
Stock in blocked or expired batches STOCK_BLOCKED_BY_DISPOSITION	Shortage, and it holds stock in batches blocked for transfers (settings) or expired.
Not shipped on time TRANSFER_NOT_SHIPPED	Quantity remains to ship and (line ship date, else header ship date) + grace days (the shared "late after" setting, default 0) is before today.
In transit too long TRANSFER_IN_TRANSIT_TOO_LONG	In transit > 0 and the line was shipped more than 3 days ago. The message gives the longest wait ("up to 23 days").
Received, not put away TRANSFER_RECEIVED_NOT_PUT_AWAY	Receipt work at the receiving warehouse is open (not Closed or Cancelled) for more than 8 hours.
Received ≠ shipped TRANSFER_QTY_MISMATCH	A line is closed on both sides (nothing remaining to ship or receive), but received + scrapped differs from shipped.
Quality order failed / open	As for sales, on the order or on batches a line holds.
Batch expired or near expiry, Batch with a blocking disposition code	As for sales, with the codes for transfer.

10. The Return X-ray

A return order (RMA) is a sales order of type *return item*. The X-ray shows each return line through **Arrived** → **Received** → **Credited**, with its disposition code, the arrival journals, the packing slip that received the goods, the credit notes, the replacement order and eight checks.

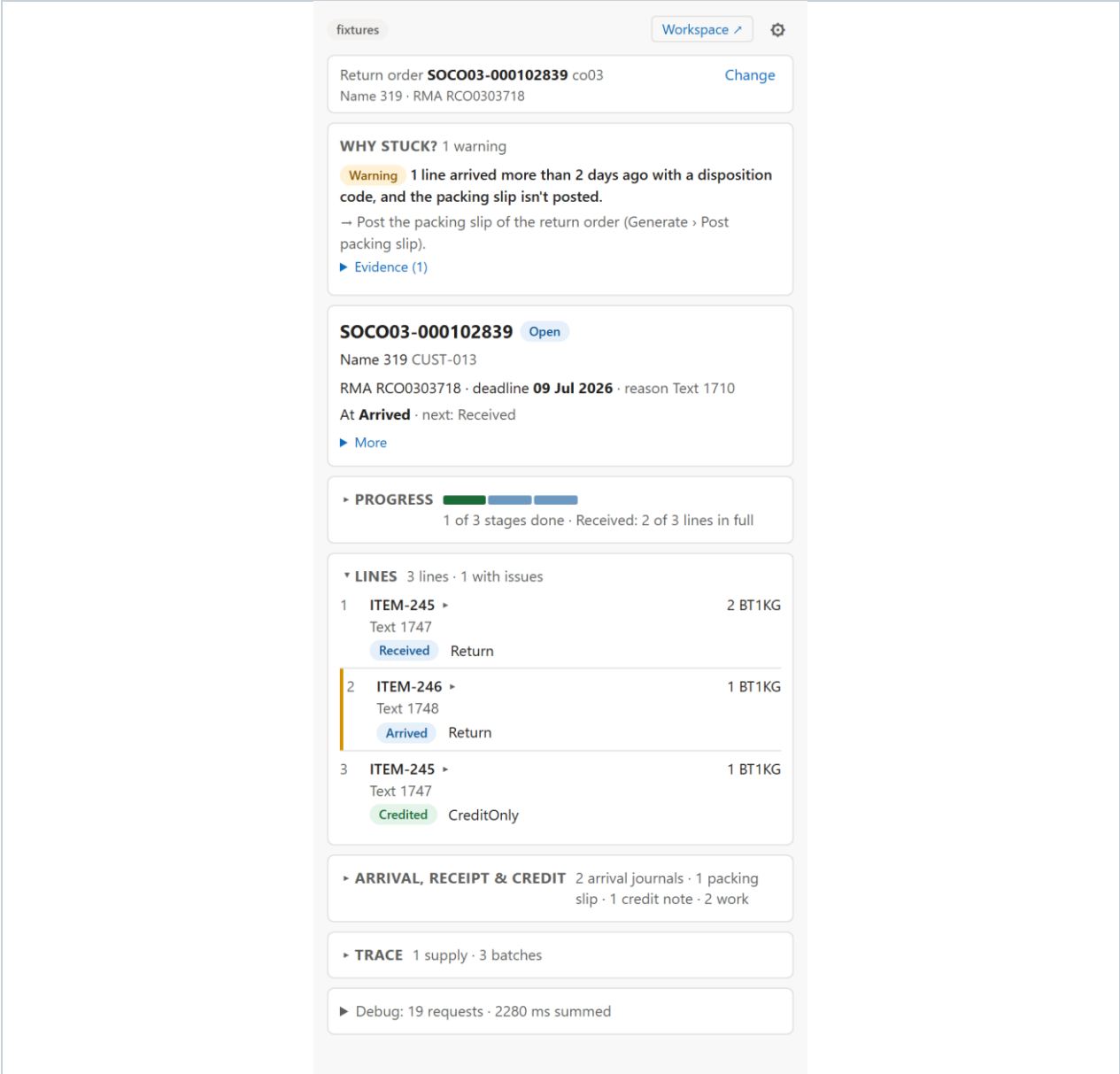


Figure 16. A return order: arrival, disposition and credit status per line.

10.1 Opening a return order

Select **Return** and enter the return order number or the RMA number, or open the order in D365 (the return order list shows the RMA number, the details form the return order number: the header query accepts both).

10.2 Data retrieved

Step	Entity	Filter / key	Used for
header	ReturnOrderHeadersV2	ReturnOrderNumber or RMANumber	Return and RMA number, customer, return status, deadline, reason code, replacement order number, default return warehouse, processing-stopped flag.
name	SalesTableBiEntities	SalesId	The customer's name as on the order.
lines	ReturnOrderLinesV2	ReturnOrderNumber	Item and variant, return quantity, returned quantity, line status, disposition code, expected and actual arrival date, closed date, warehouse, batch and serial, return lot and the lot of the line it returns.
dispositions	ReturnDispositionCodes	DispositionCode in (found)	Description and action of each code (credit, scrap, replace, return to customer).
reason	ReturnReasonCodeBiEntities	ReasonCodeId	Description of the customer's return reason.
originalLines	SalesLineBiEntities	InventTransId in (returning lots)	The sales line the goods came from ("Find sales order").
origins, inventTrans, inventDims	as for sales	ReferenceCategory = Sales	Receipt-side quantities, dates and positions of the return lines.
arrivals, arrivalHeaders	ItemArrivalJournalLinesV2 , ItemArrivalJournalHeadersV2	TransactionReferenceNumber = return order; journals found	Item arrival registration: whether the journal is posted, when, quantity.
packingSlips	CustPackingSlipJourBiEntities	SalesId	Posted packing slips of the return: the goods were received.
creditNotes	CustInvoiceJourBiEntities	SalesId	Posted invoices of the return: its credit notes.
replacement	SalesOrderHeadersV2	The replacement order number	Status of the replacement order.
work	WHSWorkTableBiEntities , WHSWorkLineBiEntities	OrderNum = order, WorkTransType = ReturnOrder	Return work.
quality, batches	as for sales	QMSSReturnOrderNumber	Quality orders and batch facts.

10.3 How it is calculated

The stages of a return line follow its D365 **line status** (ReturnStatusLine). There is no quarantine order entity, so quarantine appears as the line status, the inventory status and quality orders.

Line status	Rank	Meaning	Stage reached
Awaiting / None	0	Expected, nothing arrived.	none; next: Arrived
Registered	1	Arrived (item arrival registered).	Arrived; next: Received
Quarantine	1	Arrived, being inspected.	Arrived; next: Received
Received	2	Packing slip posted: goods received.	Received; next: Credited
Invoiced	3	Credit note posted.	Credited
Canceled	-1	Cancelled.	excluded

The order has reached the stage of its **slowest active line**. The stage counts are "lines whose rank is above the stage" and the quantities are the sums of the (absolute) return quantities. Received date of a line is the latest physical date of its received transactions; it falls back to the latest packing slip date of the order when the transactions do not say.

10.4 The 8 checks of a return order

Check	Sev.	Fires when (exact rule)
Return not arrived <code>RMA_NOT_ARRIVED</code>	Note	The return deadline has passed and every active line is still Awaiting.
Arrived, no disposition code <code>RMA_ARRIVED_NO_DISPOSITION</code>	Warning	A line is Registered or in Quarantine, has no disposition code, and arrived more than 2 days ago.
Arrival journal not posted <code>RMA_UNPOSTED_ARRIVAL</code>	Warning	An item arrival journal for the return exists and is not posted.
Arrived, packing slip not posted <code>RMA_ARRIVED_NOT_RECEIVED</code>	Warning	A Registered line has a disposition code and arrived more than 2 days ago: it cannot be credited until the packing slip is posted.
Received, not credited <code>RMA_RECEIVED_NOT_CREDITED</code>	Warning	A Received line whose disposition action ends in a credit (Credit, Credit only, Scrap, Replace and credit, Replace and scrap, or no action known; not Return to customer) was received more than 7 days ago.
Replacement not shipped <code>RMA_REPLACEMENT_PENDING</code>	Note	The replacement sales order exists and still has status Backorder.
Quality order failed / open <code>QUALITY_ORDER_FAILED</code> , <code>QUALITY_ORDER_OPEN</code>	Blocker / Warning	Quality order of the return order failed / is open.

11. Batch and serial trace (recall)

The trace answers: **where did this batch (or serial number) come from, and where did it go?** It is built for a recall: it names the customers who received the batch, the production orders that consumed it, the stock that is still on hand and where, and offers the customer list as a CSV file.

The screenshot shows a web interface for batch tracing. At the top, there's a search bar with 'Batch BO00002046 (ITEM-053) usmi' and a 'Change' button. Below this is a 'WHY STUCK?' section with a green checkmark and 'No problems found.' The main section is titled 'BO00002046 ITEM-053' with a 'Customers (CSV)' button. It contains a table with columns: Received, Produced, Consumed, Sold, Returned, On hand, and Customers. The data shows 0 for Received, Produced, and Consumed; 30 for Sold; 0 for Returned and On hand; and 1 for Customers. Below the table is a note: 'Rebuilt from the inventory transactions of this company. D365's own tracing form can differ in places: see the Debug view for what was read.' There are three expandable sections: 'DOWNSTREAM: WHERE IT WENT' showing '1 order · 30 pcs' and 'Sold SO010898 → 30 pcs' on '22 Sept 2026 · MAIN'; 'UPSTREAM: WHERE IT CAME FROM' showing 'none' and 'No receipt of this batch in this company.'; and 'ON HAND NOW' showing 'none'.

Figure 17. The trace of a batch: summary, downstream (where it went) and upstream (where it came from), and where it is on hand now.

11.1 Opening a trace

- Select **Batch**, enter the batch number (and optionally the item) and press Search. Without an item, the item is found from the batch; when the batch exists for several items you pick one. For a **serial number**, enter the item as well.
- Or click a batch in the **Batches** table of any X-ray, or press Alt+Shift+L on a batch number in D365.

11.2 Data retrieved

Step	Entity	Filter / key	Used for
dims	<code>InventDimBiEntities</code>	inventBatchId (or inventSerialId), top 5000	Every dimension that carries the batch: all items, warehouses, locations, statuses, license plates.
batch	<code>ItemBatches</code>	ItemNumber and BatchNumber	Expiry, best-before, shelf-life advice, manufacturing date, disposition code, vendor batch, country of origin.
quality	<code>QualityOrderHeaders</code>	ItemBatchNumber and ItemNumber	Quality orders on the batch.

Step	Entity	Filter / key	Used for
trans	InventTransBiEntities	ItemId and inventDimId in (dimensions)	The item's transactions on those dimensions: quantity, statuses, physical and financial date, packing slip, invoice, return origin.
origins	InventTransOriginBiEntities	SourceKey in (origin keys)	Which orders the transactions belong to (category and order number).
sales, purchases	SalesTableBiEntities, PurchTableBiEntities	SalesId / PurchId in (found)	Customer or vendor of each order, and whether a sales order is a return order.
itemUnits	ReleasedProductsV2	ItemNumber	Inventory unit.
Hop through production (on demand)	InventTransOriginBiEntities, InventTransBiEntities, InventDimBiEntities, ProductionComponentLotAssociations, ProductionProductLotAssociations	The production order opened	Output or component batches on the other side of a production order (section 11.4).

Rebuilt, not read

D365 has no tracing-register entity. The trace is **rebuilt from the inventory transactions** of the company, so it can differ from D365's own tracing form in places. The Debug view lists exactly what was read. The trace stays within one company, and a transfer's transit legs are left out.

11.3 How it is calculated

Only **physical** movements count. Receipts **Purchased**, **Received**, **Registered** and issues **Sold**, **Deducted** are quantities; issues still **Picked** or **ReservPhysical** are **held**: the stock is still in the warehouse but committed. Expected receipts (Ordered, Arrived) and open issues (OnOrder, ReservOrdered) do not count.

Each transaction is assigned to a **node** by its origin's reference category and direction; transactions of the same kind, direction and order form one node:

Node	Origin category and direction
Received from a vendor	Purch, in
Returned to a vendor	Purch, out
Produced	Production or PmfProdCoBy (finished goods, co-/by-products), in
Consumed in production	ProdLine (components), out
Sold to a customer	Sales, out (a sales order of type return item turns it into a return)
Returned by a customer	Sales, in
Moved	TransferOrderShip / Receive / Scrap, InventTransfer
Adjusted	Inventory journals, loss/profit, counting
Quarantine	QuarantineOrder, WHSQuarantine

Summary figures

```

received  = quantity of "received from a vendor" nodes (in)
produced  = quantity of "produced" nodes (in)
consumed  = consumption out - consumption in
sold      = quantity of "sold" nodes (out)
returned  = quantity of "returned by a customer" nodes (in)
customers = number of distinct customer accounts with sold quantity > 0

on hand now = per warehouse + location + inventory status: sum of Qty of
              receipts (Purchased, Received, Registered) and issues (Sold, Deducted,
              Picked)
              (picked stock has left its location, not the warehouse, like D365's
              InventSum);
              places with quantity <= 0 are left out, largest first

```

A transfer's *transit* legs (into transit at shipment, out of transit at receipt) are not movements of the batch between warehouses, so they are skipped; the node counts the shipment and the receipt. Stock still in transit is in "on hand now".

11.4 Production hops: through a production order

A production order connects batches: component batches go in, output batches come out. Open a production node to continue the trace one level further:

- **By lot:** when the production order has **lot associations** (the entities `ProductionComponentLotAssociations` and `ProductionProductLotAssociations`, filled when the order tracks which component batch went into which output batch), only the batches in the same association group are shown. This is exact.
- **By order:** without lot associations, every batch that moved on the other side of the order is shown. The panel labels the link "by lot" or "by order" so you know how exact it is.
- Each hop loads a full level for the next batch (dimensions, transactions, origins, customers). **Stop** ends a trace between requests.

11.5 The customer list for a recall

Customers (CSV) saves one row per sales order that shipped the batch: customer account, customer name, sales order, item, batch (or serial), ship date (the last physical date), quantity and invoices. The file is built in the browser and saved by you; it is the only way data leaves the panel, and only as a file you save. It starts with a byte-order mark so Excel reads accents correctly.

11.6 The three checks of a trace

Check	Sev.	Fires when (exact rule)
Quality order failed <code>QUALITY_ORDER_FAILED</code>	Blocker	A quality order on the batch failed, and the batch went to customers or into production, or stock is still on hand. The message states where it went and how much is on hand: "The batch failed quality and went to 2 customers; 40 pcs is still on hand."
Quality order open <code>QUALITY_ORDER_OPEN</code>	Warning	A quality order on the batch is open, although the batch already went to customers or into production.
Batch expired or near expiry <code>BATCH_EXPIRED_OR_NEAR</code>	Warning	Stock is on hand and the expiry date is on or before today + 14 days.

11.7 Truncation

Each level is read with a row limit of 5,000 transactions. A batch with more is shown as **truncated** and its numbers are incomplete. A batch number can repeat across items (one environment had a batch shared by thousands of items), so the queries filter on item as well and the model always matches item **and** batch.

12. The Item X-ray

The Item X-ray answers, for one item: how much can I use now, what happens to the stock as every open receipt and issue comes due, when can I deliver, and is the item set up right? It shows the stock, the running balance per warehouse, the planned orders of one master plan, the planning settings, price and cost, usage history, structure, quality and warehouse setup, and 19 checks. The running balance is the same calculation that decides, in the sales, production and transfer X-rays, whether a line that is short today is really in trouble or will be covered in time by incoming supply.

12.1 Opening it

- Select **Item** in the panel, type an item number, barcode, customer or vendor item number, or part of the name (placeholder "item, barcode or name"), optionally a warehouse (empty means every warehouse of the item), and press Search.
- Or click **Availability** › in the drilldown of a sales line (or a production component) to open that item in that warehouse.
- Or open **Released products** (list or details) or the **On-hand list** in D365 with Follow D365 on: the panel opens the item on screen.
- Or select an item number anywhere in D365 and press **Alt+Shift+L**.

Finding an item

When the text is not an item number (no released product, no stock and no open orders), the panel searches in one round: the barcode, a customer's or vendor's item number (exact), and from 3 characters the start of the item number and part of the search name or product name. Each search returns at most 20 rows, and a * you type is ignored. One hit opens with a note such as "X isn't an item number in demo: opened ...". Several hits become a pick list that says how each was found, for example "(barcode ...)". Orders, quality orders and batches with that number are found too.

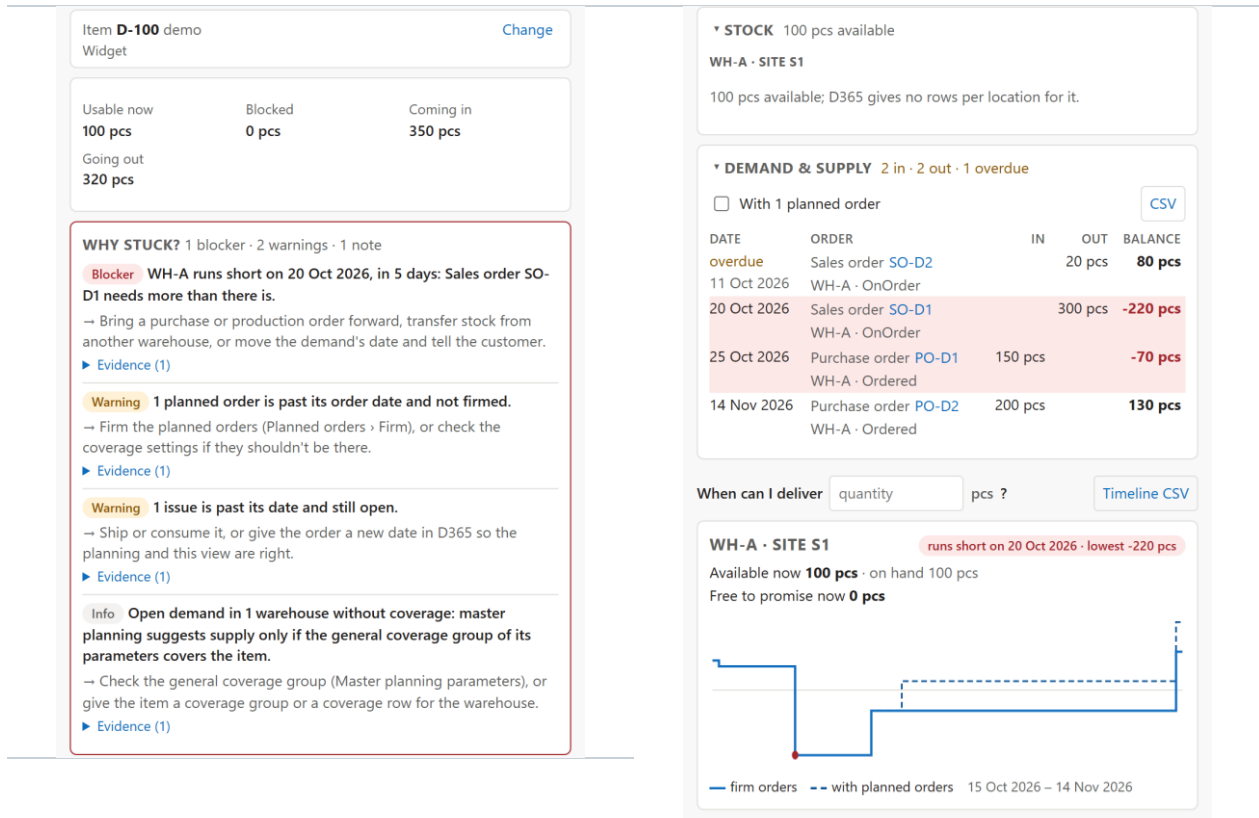


Figure 18. The Item X-ray of the fictional item D-100: header, quick totals and checks (left); stock, demand and supply with the running balance, and the warehouse card with its chart (right).

12.2 What you see

Element	Meaning
Header	Item and name, setup badges (lifecycle state, WMS, inventory model, "Negative stock allowed", "Stopped for ..."), the quick totals Usable now , Blocked , Coming in and Going out , the variant and warehouse chips, and the Master plan selector when there is more than one plan.
Why stuck?	The 19 item checks (section 12.7).
Stock (open)	Stock per warehouse and inventory status, Batches , by expiry , and locations and license plates. Per location the available quantity is D365's calculated available physical; totals come from WarehousesOnHandV2 , and the card says how much of the total the breakdown accounts for.
Demand & supply (open)	Every open receipt and issue by date with the running balance; With N planned order(s) adds the planned orders; CSV . When the open transactions do not add up to D365's own totals the card says "Doesn't match D365's totals".
When can I deliver ... ?	Enter a quantity: per warehouse the earliest date it can be promised without taking stock from other open orders (section 12.5). Timeline CSV saves the balance.
Warehouse cards	One per warehouse (and variant): Available now , Free to promise now , a red pill "runs short on ... · lowest ...", and a chart of the projected stock with firm orders and with planned orders.
Planned orders	The planned orders of the chosen master plan, with order date and requirement date. They are drawn as the second line of the chart, not counted in the firm balance or the promise.
Planning settings (folded)	Coverage and Order settings , each value with where it comes from: the item's coverage row or its coverage group, the default order settings or a site's.
Price & cost (folded)	Cost price (active and pending), Trade agreements valid today , Last purchase and close .

Element	Meaning
Usage history (folded)	Issues and receipts of the last 12 months, and the purchase lead time of the last 10 lines received against the setup (flagged when more than 25 % off).
Structure (folded)	Own BOM or formula, Where used and Engineering (versions and change orders).
Quality (folded)	Quality orders of the item (open, failed, passed) and its quality groups.
Warehouse (folded)	Open work, Counting and arrival , and Setup (fixed locations, stocking limits, physical dimensions).

Folded cards load their data only when you open them, and remember whether they are open in this browser. For a service (not stocked) the stock, balance and warehouse cards are left out.

One master plan

D365 keeps the same requirements in every plan that ran, so counting the planned orders of all plans would count the supply several times. The Item X-ray uses one plan: by default the plan whose planned orders changed last. Choose another in **Master plan**; your choice is remembered per company in this browser.

12.3 Data retrieved

Step	Entity	Filter / key	Used for
onHand	WarehousesOnHandV2	ItemNumber (and warehouse), top 2000	Per warehouse and product variant: on hand, available, reserved, ordered, on order, site, product name.
statusOnHand, statusDefs	InventoryOnHandForAI, InventoryStatuses / WHSInventoryStatusCDREntities	Item + warehouse, AvailPhysical ≠ 0	Stock in blocking inventory statuses.
dispoBatches, expiredBatches, dispoDims, dispoTrans	ItemBatches, InventDimBiEntities, InventTransBiEntities	Batches of the item that are blocked or expired	Stock in blocked or expired batches (all processes' codes count here).
futureTrans	InventTransBiEntities	ItemId and (StatusReceipt in (Ordered, Arrived) or StatusIssue in (OnOrder, ReservOrdered)); receipts and issues requested apart	The open receipts and issues with their expected date (DateExpected).
futureDims, futureOrigins	InventDimBiEntities, InventTransOriginBiEntities	Dimension ids; origin keys	Warehouse, site and variant of each movement; the order behind it (category and number) and its lot.
planned	PlannedOrders	ItemNumber (and requirement warehouse), top 1000	Planned orders: type, plan, order date, requirement date, delivery date, quantity, warehouse, processing status, vendor.
itemUnits	ReleasedProductsV2	ItemNumber	Inventory unit: every quantity of the view is in it.
identity	ReleasedProductsV2 ProductsV2 ReleasedProductVariantsV2 InventModelGroupCDREntities ProductSpecificOrderSettingsV3 ReleasedProductReadinessChecks ProductLifecycleStateProcesses	ItemNumber	Name, units, own cost and sales price, model group (inventory model, negative stock, shelf life), variants, stopped flags per site, readiness checks, lifecycle state.

Step	Entity	Filter / key	Used for
stock	ProjInventoryOnHand ItemBatches WarehouseOnHandIncludingCa tchWeightItems	ItemNumber	Stock per location, license plate and batch; catch weight on hand when the regular entity has no row.
planning settings	ItemCoverageSettingsV2 ItemCoverageWithDerivedSet tingsEntity MasterPlanningProductCover ageGroups	ItemNumber, when opened	Coverage per site and warehouse, with the coverage group's values.
price & cost	InventItemPricesV2 InventItemPendingPricesV2 SalesPriceAgreements PurchasePriceAgreements VendInvoiceTransBiEntities InventSettlementBiEntities UnitOfMeasureConversions ProductSpecificUnitOfMeasu reConversions UnitsOfMeasure Ledgers	ItemNumber	Cost prices, agreements, the last purchase and inventory close, unit conversions, the accounting currency.
usage	InventTransBiEntities CustInvoiceTransBiEntities PurchLineBiEntities VendPackingSlipTransBiEnti ties	ItemId, last 12 months, when opened	Usage per month, the actual purchase lead time.
structure	BillofMaterialsVersionsV4 BillofMaterialsLinesV3 FormulaVersionsV2 FormulaLinesV2 RouteVersionsV2 ProductionOrderBillofMater ialLines ReleasedEngineeringProduct Versions EngineeringChangeOrderProd ucts	ItemNumber, when opened	Own BOM or formula and route, where used, engineering versions and change orders.
quality	QualityOrderHeaders QualityGroupItemAssignment s	ItemNumber	Quality orders and quality groups.
warehouse	WHSWorkLineBiEntities CycleCountingWarehouseWork LinesV3 InventoryCountingJournalHe aders InventoryCountingJournalLi nes ItemArrivalJournalHeadersV 2 ItemArrivalJournalLinesV2 FixedProductWarehouseLocat ionsV2 WarehouseStockingLimitsV2 ItemPhysicalDimensionDetai ls	ItemNumber, when opened	Open work, counting and arrival journals, fixed locations, stocking limits, physical dimensions.
search	ProductBarcodesV3 CustomerProductDescription sV2 VendorProductDescriptionsV 2 ReleasedProductsV2 ProductsV2	The typed text, top 20	Finding an item by barcode, external item number or name.

12.4 How the balance is calculated

The balance follows what D365 itself calls **available**. It starts from usable stock and adds and subtracts only the movements that change availability:

Running balance of one item in one warehouse (and product variant)

```
start      = usable now = available on hand
            - available stock in blocking inventory statuses
            - available stock in blocked / expired batches

+ receipts : transactions with StatusReceipt in ( Ordered , Arrived )      // not yet
in stock
- issues   : transactions with StatusIssue   in ( OnOrder , ReservOrdered ) // not yet
physically reserved

NOT counted : physically reserved and picked issues (already out of "available"),
              planned orders (not firmed), safety stock, forecasts

date of a movement = DateExpected; empty or before today => counts TODAY, marked overdue
order on one day   = receipts first, then issues, then by order number
balance after movement = previous balance + qty (receipts positive, issues negative)
first short = the first movement after which balance < 0
lowest      = the lowest balance reached, and its day
```

- **Why it is trustworthy:** physically reserved and picked stock is out of "available" already, so counting those issues again would count them twice. All figures come from D365's open inventory transactions, the same ones the on-hand form sums as "Ordered" and "On order".
- **Movements** are grouped per order line, warehouse, product variant, date, direction and status; movements with zero net quantity are dropped.
- **Completeness:** the timeline is only trusted when all three future steps loaded in full (not failed, not truncated, no request that returned as many rows as its limit). Otherwise the X-ray draws no coverage conclusion rather than a wrong one.
- Planned orders (of one master plan) have an order date; one that is past its order date and not firmed is flagged (check "Planned order past its order date"). They are not part of the firm balance; the chart shows a second line with them.

Coverage: is a demand line covered in time?

Coverage of a demand line (sales line, production component, transfer line)

```
day        = the demand's day in the timeline (its expected date, or today when overdue)
on time    = balance at the end of that day >= 0      // after ALL other open demand
up to that day
covered from = if not on time: the first later day whose balance is >= 0 (none: "not in
sight")
receipts that bring the stock = receipts from today up to the day it is covered

null (no conclusion) when the line's own open issue is not among the loaded movements
```

This is what turns "short today" into either **Shortage** (a warning: not covered, or covered too late) or **Short now, covered in time** (a note: nothing to do, keep an eye on the supply orders).

12.5 When can I deliver? (available to promise)

OData does not offer D365's "available to promise", so it is calculated from the running balance. A new issue of quantity q on day d takes q from the balance of day d and of every later day, so it only fits when none of those balances would go below zero:

Available to promise

```
free(d) = lowest balance from the end of day d onwards      // what can be promised for
day d
free now = max(0, free(today))
free at the end = max(0, balance after the last movement)
earliest day for q = the first day d (today or a later movement day) with free(d) >= q
                    (free(d) only grows with d, so the first one found is the answer)
receipts that make it possible = the receipts of that day
overdue receipts in the balance = receipts past their expected date: a promise that leans
on them is optimistic
answer "not even after the last receipt" when no day qualifies
```

Example from the figure: 100 pieces on hand, 20 overdue demand, 300 demand on 10 Oct, 150 receipt on 15 Oct, 200 receipt on 4 Nov. After the last receipt 130 pieces are free; a request for 250 therefore says "not with the open orders · at most 130 pcs after the last receipt".

12.6 Impact chains: what does a late receipt hold up?

For a purchase line or a production order that still has to arrive, the X-ray shows **which demand waits for it**. From the running balance of its item in its warehouse the projection is run twice, once with the receipt and once without it:

- **Waiting:** demand that is short on its own date and is covered when this receipt arrives, but not (or only later) without it. A late receipt holds these up.
- **Depends:** demand that is covered on time only thanks to this receipt. It goes short if the receipt slips.

Sales lines among the demand are read from **SalesLineBiEntities** to show the **customer** and the **open value**:

Open value of a sales line

```
open value = LineAmount x RemainSalesPhysical / SalesQty      // empty when D365 gave no
figures
```

The check **Holds up demand** reports the number of sales orders (with their value) and other orders (production, transfer) held up, each with the day it is needed and the day it is covered. It appears in the Purchase X-ray (per open line), in the Production X-ray (for the output), and in the Exceptions page under the **Late** preset.

12.7 The 19 item checks

Check	Sev.	Fires when (exact rule)
Runs short AVAILABILITY_RUNS_SHORT	Warning (Blocker within 7 days)	After the open receipts and issues the balance of a warehouse goes below zero, and all movements loaded in full. A blocker when it runs short within 7 days. Names the first order that pushes it under, the quantity short and the lowest balance, and says whether the planned orders of the master plan would cover it.
Supply overdue SUPPLY_OVERDUE	Warning	An open purchase, production or transfer receipt is past its expected date and not received: the balance counts on it today.

Check	Sev.	Fires when (exact rule)
Planned order past its order date PLANNED_ORDER_LATE	Warning	A planned order of the master plan has an order date before today and is not firmed.
Negative on hand NEGATIVE_ON_HAND	Blocker (Note when allowed)	Physical on hand is below zero in a warehouse. Only a note when the item model group allows negative physical inventory.
Demand overdue DEMAND_OVERDUE	Warning	An open sales, production or transfer issue is past its expected date and not shipped or consumed: the balance counts it today.
Only blocked stock ONLY_BLOCKED_STOCK	Warning	A warehouse has stock, but none of it is usable: all of it is in a blocking inventory status or a blocked or expired batch.
Below the minimum BELOW_SAFETY_STOCK	Warning	The projected stock of a warehouse goes below the minimum of the item's coverage, without going below zero (that is "Runs short").
Expires before use EXPIRING_BEFORE_USE	Warning	A batch expires within 30 days, and the open demand of its warehouses up to its expiry is less than the batch: part of it will expire unused.
Stopped, with open orders STOPPED_WITH_OPEN_ORDERS	Warning	The item is stopped for sales, purchase or inventory (order settings, per site), or its lifecycle state blocks a process, while open orders of that kind exist.
Zero or missing cost ZERO_OR_MISSING_COST	Warning	A standard cost item has stock, but its cost price is 0: the active cost price is 0, or there is none and the released product's own cost price is 0 too. Other inventory models value stock from the transactions.
Sales price below cost PRICE_BELOW_COST	Warning	A sales price agreement valid today (accounting currency, inventory unit), or the base sales price when set, is below the cost price in force: the standard cost for standard cost items, a planned cost for other inventory models.
Failed or open quality order OPEN_QUALITY_FAILURE	Warning	A quality order of the item failed, or is still open for a batch in stock.
Unit conversion missing UOM_CONVERSION_MISSING	Warning	The item is sold or bought in another unit than its inventory unit, has open orders in it, and no conversion between the two exists.
Demand without coverage MISSING_COVERAGE	Note	A warehouse has open demand, but the item has no coverage row there and no coverage group: master planning plans it only if the general coverage group of its parameters covers it (not readable through OData).
Above the maximum EXCESS_STOCK	Note	Usable stock in a warehouse is above the maximum of the item's coverage. Only for the Min/Max coverage method.
Slow mover SLOW_MOVER	Note	There is stock, and nothing has been issued for 180 days.
Pending cost price not activated PENDING_COST_NOT_ACTIVATED	Note	A pending cost price is older than 30 days and still not activated (any inventory model).
Engineering change while in production OPEN_ENGINEERING_CHANGE	Note	A change order names the item and is not in effect yet, while open production orders use the item. D365 gives change orders no status, so "not yet in effect" stands in for "open".
Product readiness check open READINESS_CHECK_OPEN	Note	A product readiness check of the item is pending, open or failed.

The thresholds (7, 30, 180 and 30 days) can be changed under **Item checks** on the Options page (section 26.3). The checks load their own data when the item opens (cost prices, agreements, the last issue, quality orders, readiness checks, lifecycle state, change orders and unit conversions), so they do not wait for a folded card to be opened.

What this view cannot see

Net requirements (ReqTrans) with futures and action messages have no OData entity. Safety stock (the coverage minimum) is shown and checked, but not subtracted from the balance; forecasts are not in it. The general coverage group of the master planning parameters cannot be read. The Item X-ray judges expired batches against today; the order X-rays judge them against each line's date.

13. Charges

Charges (D365 calls them *markup*) are extra amounts on a sales or purchase order: freight, handling, allowances. The Charges card shows them on the **order** (header and line) and on its **posted invoices**, and the check *Charges not invoiced* finds order charges that never reached an invoice.

13.1 What you see

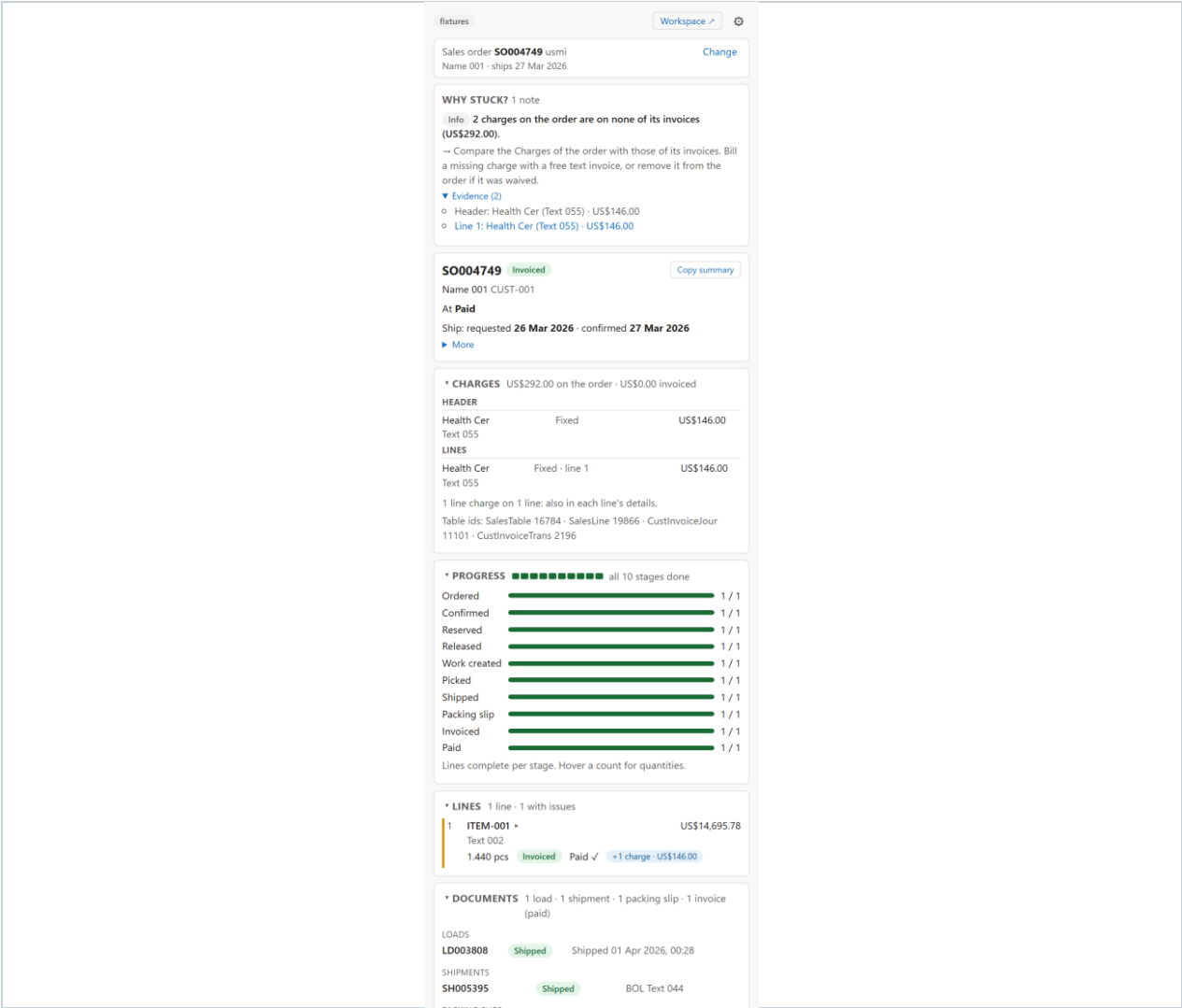


Figure 19. The Charges card of an invoiced sales order with the check "Charges not invoiced" and its evidence.

- The **summary line** on the card: "US\$292.00 on the order · US\$0.00 invoiced", or "≈ −\$157.34 estimated" for a charge D365 has not calculated yet, or "1 not calculated yet", or "none", or "not configured".
- A **list** of charges, header first and then per line, with code, description, category (Fixed, Percent, per piece, per specific unit), value, calculated amount, tax and flags (**Keep**: charged again on every invoice; **Invoiced** with the invoice id).
- A **badge on each line** row: "+1 charge · US\$146.00".
- **Totals per currency**: on the order, estimated, not calculated yet, and invoiced.

13.2 Data retrieved

Charges live in one table (**MarkupTrans**) for every parent: order headers and lines, invoice headers and lines, for both sales and purchase. A charge row points to its parent through the pair **table id + record id** (**TransTableId**, **TransRecId**), so the extension first needs the parents' record ids and the **table ids** of the eight parent tables (SalesTable, SalesLine, CustInvoiceJour, CustInvoiceTrans, PurchTable, PurchLine, VendInvoiceJour, VendInvoiceTrans). Table ids **differ per environment**.

Step	Entity	Used for
tableIds	SystemTableIdTableEntities	The eight table ids, in one request (a system entity without company field). Resolved once per D365 host and cached in your settings (ids only, never business data); skipped afterwards ("known for this environment").
Parents' RecIds	SalesTableBiEntities (order), SalesLineBiEntities (lines), CustInvoiceJourBiEntities (invoice headers), CustInvoiceTransBiEntities (invoice lines); for purchase PurchTableBiEntities , PurchLineBiEntities , VendInvoiceJourBiEntities , VendInvoiceTransBiEntities	The SourceKey (RecId) of each parent and the lot id that ties a line charge to its order line.
orderCharges, invoiceCharges	MarkupTransBiEntities	One request per parent table: TransTableId eq <id> and TransRecId in (parents) and not deleted. Fields: code, text, category, value, calculated amount, currency, original record (OrigRecId), posted, keep, tax, auto, specific unit.
chargeCodes	MarkupTableBiEntities	The description of charge codes whose own text is empty (module Cust or Vend).

The charge parts are shown as **not configured** when a table id is unknown, **unavailable** when a parent or charge step failed ("no permission" for HTTP 403), **loading** while pending, and only **ready** when read completely. The extension never shows "no charges" by accident.

13.3 How it is calculated

The amount of a charge

Amount, estimate and totals

```

amount = CalculatedAmount          when it is not 0
      = Value                      for a Fixed charge
      = 0                         when Value = 0
      = null ("not calculated yet") for a percent or per-piece charge on the ORDER
      = 0                         for such a charge on an INVOICE (a posted charge of 0
is 0)

estimate (only for amount = null):
  Percent, header : order amount x value / 100          order amount = net amount of the
active lines
  Percent, line   : line amount x value / 100
  Pcs (per piece) : line quantity x value
  UnitSpecific   : line quantity x value              only when the charge's unit equals
the line's own unit                                (no unit conversion is guessed)

  otherwise      : no estimate

totals per currency: order = sum of calculated order amounts
                    estimated = sum of the estimates of not-yet-calculated order charges
                    invoiced = sum of invoice charge amounts

```

Estimates were validated on a real order: the percentage on the order's current lines gave the exact amount D365 later billed. They are labelled "≈ ... estimated".

13.4 Settings test for table ids

Because a wrong table id is not detectable from the data, the  menu and the Options page offer a **Test**: one small read per table id, "charges found with this id (e.g. FREIGHT)" or "no charges with this id in <company>". Manual entries win over the cached ones; "Clear my entries" returns to the automatic ids.

13.5 The check "Charges not invoiced"

Info only, and deliberately **conservative**. It runs only when the order is fully invoiced (status Invoiced). It becomes inconclusive (never "no problem") when the charge parts are not configured, unavailable or still loading. The matching of order charges to invoice charges is:

1. **Origin**: an invoice charge whose **OrigRecId** is the order charge's record id settles it. Exact; proven on sales orders. (On purchase orders the origin is an intermediate copy, so step 2 carries them.)
2. **Same code and currency**, preferring the same order line. A charge D365 recalculates per invoice (Keep, Percent, per piece or no amount) matches on the code alone, because partial invoices legitimately bill other amounts. Any other charge also needs the **same amount** (within 0.005), and each invoice charge settles only one order charge. Same place first (header ↔ header, line ↔ its line), then anywhere, because D365 can allocate header charges to invoice lines.

Invoice-only charges (added at invoicing) are never reported; order charges worth 0 are skipped. What remains is listed: "2 charges on the order are on none of its invoices (US\$292.00)", with the next step to bill it with a free text invoice or remove it from the order if it was waived.

14. The Workspace and the Exceptions page

The side panel looks at one order or item. The Workspace looks at all of them. It is a full browser page of the extension with 13 pages in six areas. Open it with **Workspace**  in the panel; it opens in a new tab for the D365 tab and company you were in. Click an area in the header; when it has more than one page, its pages show in a second row. An area opens on the page you last used in it. Each page has its own address (#exceptions, #stock, #load, ...), keeps its results while you look at another page, and the browser tab shows where you are, for example "Production › Resource load".

Area	Pages	Chapter
Exceptions	Exceptions: open orders with a problem	14
Planning	Availability · Planned orders · Master data	16, 20, 21
Production	Orders to start · Resource load · Yield & scrap	17, 23, 25
Warehouse	Stock · Warehouse work	15, 24
Sales & purchase	Customers · Credit & holds · Vendors	18, 22, 18
Finance	Month end	19

The Workspace is covered by the licence: without a licence or trial it shows the activation screen (section 2.7).

Keep a D365 tab open

Like the side panel, the Workspace reads D365 *through a D365 tab* of the same browser, with your session and roles. If several D365 tabs are open, a selector in the page header lets you choose the tab. Without a D365 tab it says "Open Dynamics 365 in a tab of this browser window, then reload this page."

14.1 What all Workspace pages have in common

- A form at the top: **Company** (one company id; several, separated by commas, on the Exceptions page) and the settings of that report, and a **Run** button (**Scan** on the Exceptions page), which reads **Run again** after a run and **Stop** while it runs.
- A line "Loaded at 13:19 in 1 s · 12 queries to D365" after each run, with the number of requests it needed.
- **Summary chips** with the counts and totals; clicking a chip filters the table to those rows.
- A **filter box** and, on most pages, **CSV**, which saves the rows shown as a file for Excel. The file is built in your browser.
- **Stop** ends a running report between requests; what was loaded so far is kept.
- **Problems and cut-off results are never hidden**: a step that failed is listed with its message ("a step could not be loaded"), and a step whose answer hit a row limit is listed as cut off with the warning that totals may be low (section 5.6).
- **Mode** (light, dark, follow the browser) and the  link to all settings.

14.2 The Exceptions page

The Exceptions page lists **every open sales, purchase, production and transfer order in a window** that has a problem, most urgent first. For each order it runs the **same checks as the X-ray** (so a row says exactly what the X-ray would say), but only the steps those checks need, and shows the orders that have issues.

Supply Chain X-ray Exceptions Planning Production Warehouse Sales & purchase Finance fixtures · dev Follow the browser

demo · Sales, Purchase, Production, Transfer · overdue up to 90 days, due within 14 · Everything (64 checks) [Change](#) [Scan again](#)

12 open orders in the window · checked 12 of 12 · scanned at 12:28 in 1 s
Each order runs only what its chosen checks need: sales 40 of 56 steps · purchase 22 of 31 steps · production 46 of 53 steps · transfer 21 of 26 steps. Orders checked together: 95 queries to D365 instead of 249.

12 orders 10 with issues 3 blocked 7 warnings €6,110.00 in 6 sales orders with issues

Most frequent: 1 Sales · Order on hold 1 Sales · Credit management hold 1 Production · Material shortage 2 Sales · Packing slip not invoiced
2 Sales · Not reserved, stock available 2 Sales · Shortage +7 more

Filter: order, customer, vendor, item, warehouse, issue All types Everyone With issues No grouping 10 shown [Copy](#) [CSV](#)

ORDER	WHO / WHAT	DUE	STATUS	ISSUES	VALUE
● Sales SO-D2 demo	South Foods C-SOUTH S1 · WH-A	11 Oct 2026 ship · 4 days late	Open order	Blocker The order is on hold: CHECK. +2 more	€200.00
● Sales SO-D6 demo	North Retail C-NORTH S1 · WH-A	16 Oct 2026 ship · in 1 day	Open order	Blocker The order is on a credit management hold. +1 more	€1,500.00
● Production PRD-2 demo	Cake mix D-500 S1 · WH-A production pool MIX	20 Oct 2026 delivery · in 5 days	Scheduled	Blocker 1 component can't be covered from stock.	
● Sales SO-D5 demo	South Foods C-SOUTH S1 · WH-A	15 Sept 2026 ship · 30 days late	Open order	Warning A packing slip has not been invoiced.	€160.00
● Production PRD-1 demo	Cake mix D-500 S1 · WH-A production pool MIX	17 Oct 2026 delivery · in 2 days	Released	Warning 1 sales order (€1,500.00) is short now and covered only once this arrives.	
● Sales SO-D9 demo	North Retail C-NORTH S1 · WH-A	18 Oct 2026 ship · in 3 days	Open order	Warning Line 1: 250 kg not reserved, although WH-A has the stock.	€750.00
● Production PRD-3 demo	Cake mix D-500 S1 · WH-A production pool MIX	19 Oct 2026 delivery · in 4 days	Released	Warning 1 sales order (€1,500.00) is short now and covered only once this arrives. +2 more	
● Sales SO-D1 demo	North Retail C-NORTH S1 · WH-A	20 Oct 2026 ship · in 5 days	Open order	Warning Line 1 is short: 200 pcs more than WH-A has available, and incoming supply comes too late.	€3,000.00
● Purchase PO-D1 demo	Acme Supplies V- ACME S1 · WH-A	25 Oct 2026 delivery · in 10 days	Open order	Warning 1 sales order (€3,000.00) is short now and covered only once this arrives. +2 more	€600.00
● Sales SO-D3 demo	North Retail C-NORTH S1 · WH-A	31 Aug 2026 ship	Delivered	Warning A packing slip has not been invoiced.	€500.00

Figure 20. The Exceptions page after a scan of the fictional company demo: summary chips, "most frequent" chips, filters and the list of orders with their issues and value.

Starting a scan

Control	Meaning (default)
Company	One or more companies, separated by commas.
Sites / Warehouses	Limit the scan to orders of these sites and warehouses (empty: all). A sales or purchase order matches when one of its lines is in the list (the header's default is often empty); a production order uses its own site and warehouse; a transfer matches on either end.
Sales / Purchase / Production / Transfer	The order types to scan (all four).
Overdue up to ... days back	How far back overdue orders are looked for (90).
Due within ... days ahead	How far ahead orders that are not due yet are looked at (14).
Production ended in the last ... days	Recently ended production orders, only used by the checks that look back at a finished order: cost variance, scrap, consumption, BOM deviation (30).
Check at most ... per type	The most urgent orders of each type are checked first; the rest are listed as "over the limit", to check on request (150).
Presets	Ready-made check selections (below).
Choose checks (64)	Opens the list of all checks per type to switch individual ones on or off. The default selection is every blocker and warning check (64); the 11 note-level checks are opt-in.
+ Save these settings as a view	Saves the order types, window, checks, sites and warehouses under a name (up to 20 views).

Control	Meaning (default)
Scan when the page opens	Starts a scan as soon as the page opens (off by default).

The screenshot displays the 'Supply Chain X-ray' interface, specifically the 'Exceptions' tab. The top navigation bar includes 'Exceptions', 'Planning', 'Production', 'Warehouse', 'Sales & purchase', and 'Finance'. The main area is divided into several sections for configuring checks across different order types: Sales, Purchase, Production, and Transfer. Each section lists various checks with checkboxes and associated thresholds (e.g., days, hours, percentage). For example, under 'Sales', checks include 'Order on hold', 'Processing stopped', 'Credit management hold', 'Customer on hold', 'Work blocked', 'Not reserved, stock available', 'Shortage', 'Short now, covered in time', 'Stock blocked by inventory status', 'Stock in blocked or expired batches', 'Hold removed reservations', 'Late vs. confirmed date', 'Reserved, not released', 'Work not created', 'Work stale', 'Picked, not shipped', 'Shipped, no packing slip', 'Packing slip not invoiced', 'Invoice overdue', 'Charges not invoiced', 'Margin below the minimum', 'Quality order failed', 'Quality order open', 'Batch expired or near expiry', and 'Batch with a blocking disposition code'. Similar lists are provided for Purchase and Production. A 'Transfer' section is also visible. At the bottom, a section titled 'WHICH ORDERS NEED ATTENTION?' explains the scan process and how to use the side panel for more details.

Figure 21. "Choose checks": every check per order type with its severity, and its thresholds next to it.

Which orders are looked at

Orders are found with **one bulk query per order type and company**; the due date decides whether an order is in the window.

Type	Entity	Included statuses	Date used for the window
Sales	SalesOrderHeadersV2	Backorder (open). Plus Delivered when "Packing slip not invoiced" is chosen; plus Invoiced when "Invoice overdue" or "Charges not invoiced" is chosen.	Confirmed ship date, or the requested ship date when none is confirmed (a confirmed date of 1900-01-01 means none).
Purchase	PurchaseOrderHeadersV2	Backorder. Plus Received for the received-not-invoiced checks, plus Invoiced for "Invoice due".	Confirmed delivery date, else requested.

Type	Entity	Included statuses	Date used for the window
Production	ProdTableBiEntities	Created, Estimated, Scheduled, Released, Started, Reported as finished. Plus Completed orders ended within the "ended" days, when a look-back check is chosen.	Delivery date (ended orders: the end date).
Transfer	TransferOrderHeaders	Created (by requested ship date), Shipped (by requested receipt date); plus Received for the put-away and mismatch checks.	Requested ship date (not shipped yet) or requested receipt date.

The page shows the scope **in words** after a scan, with the order numbers, so you can rebuild the same list in D365 and compare ("Check this list").

Presets

Preset	What it selects
Everything	Every blocker and warning check (64).
Blocked orders	Holds, stopped orders and lines, credit hold, customers or vendors on hold, frozen work, unapproved purchase orders.
Late	Late against the confirmed date, linked order at risk, not confirmed, late delivery, holds up demand, released but not started, operation behind, sub-order late, sales demand at risk, transfers not shipped or too long in transit.
Stock & reservation	Shortages, not reserved while stock is there, stock blocked by status, disposition code or expiry (sales, production, transfer).
Warehouse	Work not created, stale or frozen, picked not shipped, shipped without packing slip, picking work open, not put away, unposted journals.
Quality & batches	Quality orders open or failed; batches expired, near expiry or with a blocking disposition code.
Invoicing	Delivered or received and not invoiced, invoiced and not received, invoices on hold, charges not invoiced.
Production cost & yield	Cost variance, high scrap, consumption off the estimate; includes recently ended orders.

How a scan runs

- 1. Find the candidates:** the bulk queries above, then (for the site and warehouse filter) the lines' places, the production orders' dimensions, the transfer warehouses' sites, and the names of the responsible people (**Workers**).
- 2. Sort by urgency:** most days overdue first, then soonest due, then orders without a date.
- 3. Check each order** (up to the limit per type): fetch only the steps the chosen checks need (plus every step they depend on), build the model, run the chosen checks. A chosen check runs even when it is switched off for the X-ray.
- 4. Waves of 40:** orders are checked in waves that start together, so their queries line up and are combined (section 5.10). The list fills while it runs; **Stop** takes effect before the next wave.

The note under the form reports the saving: "Each order runs only what its chosen checks need: sales 31 of 48 steps · production 42 of 49 steps... Orders checked together: 80 queries to D365 instead of 217."

Reading the result

Element	Meaning
Chips: orders, with issues, blocked, warnings, value	Counts of orders found, with issues, with a blocker, with warnings only, and the open value of the sales orders with an issue (sum of the line amounts of the active lines, per currency).
Most frequent	Which checks fire most ("2 Sales · Packing slip not invoiced"). Click one to show only those orders.
Filter box	Searches order, customer, vendor, item, warehouse and issue text.
All types / Everyone / With issues / All orders / Not checked / New since the previous scan	Filters by order type, by responsible person (everyone, a person, no one named), and by state.
Grouping	No grouping, by how late (buckets: overdue more than 30 days, 8 to 30, 1 to 7, due today, due within 7 days, due later, delivered/received/finished, ended, no due date), by check, by customer/vendor/item, by responsible, by site and warehouse, or by order type.
Columns	Severity dot; order (type, number, company); who/what (party, name, site and warehouse, pool or group); due date with "ship · 30 days late"; status pill; issues (the first with "+N more"); value.
Copy / CSV	Copy the rows shown as plain text grouped as on screen, for an e-mail or chat; or save as CSV.

Days late is the number of days from the due date to today, for open orders only; for delivered, received, reported-finished and ended orders the date is no longer a deadline. The severity dot is the worst severity among the order's issues. Colours: late by more than 7 days is red, 1 to 7 days amber.

The screenshot shows the Supply Chain X-ray interface. At the top, there's a navigation bar with tabs: Exceptions (selected), Planning, Production, Warehouse, Sales & purchase, and Finance. Below the navigation bar, a summary bar shows: demo · Sales, Purchase, Production, Transfer · overdue up to 90 days, due within 14 · Everything (64 checks). It also shows 12 open orders in the window, checked 12 of 12, scanned at 12:28 in 1 s. A detailed summary bar shows: 12 orders, 10 with issues, 3 blocked, 7 warnings, €6,110.00 in 6 sales orders with issues. Below this, a 'Most frequent' section lists various issues like '1 Sales · Order on hold', '1 Sales · Credit management hold', etc. The main table lists orders with columns: ORDER, WHO / WHAT, DUE, STATUS, and ISSUES. The table shows 10 orders, including SO-D2, SO-D6, PRD-2, SO-D5, PRD-1, SO-D9, PRD-3, SO-D1 (highlighted), PO-D1, and SO-D3. To the right of the table, a detailed view for order SO-D1 is shown, including a 'WHY STUCK?' warning, order details (North Retail C-NORTH), ship dates, and a progress bar. The progress bar shows 1 of 10 stages done. The 'LINES' section shows 1 line with issues, D-100 Widget, 300 pcs, with a value of €3,000.00. The 'DOCUMENTS', 'CUSTOMER', and 'TRACE' sections are also visible.

Figure 22. Clicking an order opens its full X-ray beside the list, with Check again and Close.

Click an order to open its **full X-ray next to the list**. **Check again** reloads that single order after you fixed something in D365, and updates its row. An order number in the X-ray opens linked orders there.

What changed since the previous scan

The page remembers, **per order type and company**, the last scan: when, with which checks and filters, and which issue ids each order had (no order data beyond issue ids). After the next scan of the same scope it shows **New since 10:05** (orders with an issue they did not have before, including new orders with issues) and **resolved** (orders that had issues and now, checked, have none of them, or left the window).

- Only checks that ran in **both** scans are compared.
- A scan is compared only with earlier scans of the same type and company, so a purchase scan after a sales scan does not count the sales orders as resolved.
- An order missing from a scan with **other filters** is not counted as resolved: it may only have been filtered out.

Check this list (testing)

When **Show "Check this list"** is on, a card after each scan shows (1) the scan's filters in words and the order numbers, to compare with D365's own list, and (2) a **self-check**: a sample of the scanned orders (round-robin over order type and with/without issues, most urgent first) is loaded again the way the side panel loads an order, every step, nothing combined, and the issues are compared with the scan's. It tests the two things that make a scan fast: running only the needed steps, and combining queries.

15. Stock: stock that can't be used

The Stock page (Warehouse area) lists, per warehouse, stock that is on hand but **cannot be used**: blocked by an inventory status, in a batch with a blocking disposition code, in an expired batch, in a batch expiring soon (set against the demand for the item), and negative on hand.

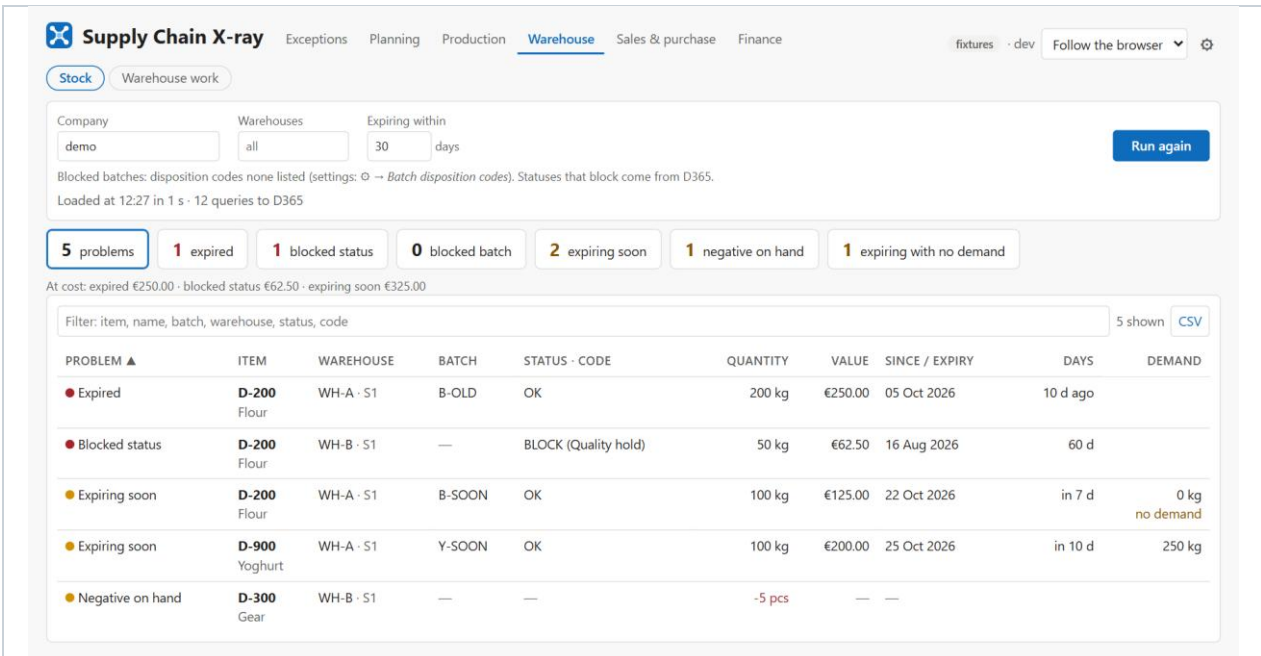


Figure 23. The Stock page with fictional data: one row per problem, with quantity, value at cost, the date since which the stock has been like this, and the demand.

15.1 Controls

Control	Meaning
Company	The legal entity.
Warehouses	Comma-separated list; empty means all.
Expiring within ... days	Batches expiring before today + this many days are listed (30).
Note under the form	The batch disposition codes from the settings that are treated as blocking (section 26.4). Which inventory statuses block comes from D365.

15.2 The five kinds of rows

Kind	Condition	Days column shows
Blocked status	On hand > 0 in an inventory status whose "blocks inventory" flag is Yes.	Days since the stock has been on hand in that status without a break.
Blocked batch	On hand > 0 in a batch whose disposition code is in the settings list.	Days since.
Expired	On hand > 0 in a batch whose expiry date is before today.	Days since the expiry.
Expiring soon	On hand > 0 in a batch expiring before today + N days. Notes "no demand" (no open issues for the item in that warehouse) or "more than the demand" (the expiring batches together exceed the demand).	Days left.
Negative on hand	On hand < 0 for an item in a warehouse (a data problem).	—

15.3 Data retrieved and calculation

Step	Entity	Filter / key	Used for
Inventory statuses	<code>InventoryStatuses</code> (fallback <code>WHSInventStatusCDREntities</code>)	All, top 1000	Which statuses block.
Items in stock / negative	<code>WarehousesOnHandV2</code>	Warehouses; <code>OnHandQuantity > 0</code> (or <code>< 0</code>)	Item, site, variant, on hand and "on order" (the demand).
Stock in a blocking status	<code>WarehouseInventoryStatusesOnHandV2</code>	Blocking statuses, warehouses, <code>OnHand > 0</code>	The blocked-status rows.
Batches in stock	<code>ProjInventoryOnHand</code>	20 items per request; batch $\neq$ empty, <code>AvailPhysical > 0</code>	Which batches really have stock (so batch history of every batch is not read).
Expiring or blocked batches	<code>ItemBatches</code>	Items; expiry before the horizon (and after 1900-01-02), or disposition code in the list	Expiry and code per batch.
Where batches and blocked stock are	<code>InventDimBiEntities</code>	Batches (and warehouses); statuses	Dimensions.
Transactions on those dimensions	<code>InventTransBiEntities</code>	Dimension ids; receipts Purchased, Received, Registered or issues Sold, Deducted, Picked	Exact on-hand per batch, and since when.
Units, cost prices, currency	<code>ReleasedProductsV2</code> , <code>InventItemPricesV2</code> , <code>Ledgers</code>	Items; price type Cost; legal entity	Value at cost (section 15.4).

"Since when": on hand of a group of transactions

take the transactions that count (receipts Purchased/Received/Registered, issues Sold/Deducted/Picked)
 order them by date (physical, else financial, else inventory, else status date); per day receipts before issues
 running quantity: whenever it goes from ≤ 0 to > 0 the date is remembered; whenever it falls to ≤ 0 the date is forgotten
 since = the remembered date when the loop ends (the stock has been above zero without a break since then)

Large companies

"Blocked since" is looked up per dimension. When the blocked stock is spread over more than **2,000** dimensions the dates are left out and the page says so ("Choose fewer warehouses for the dates") rather than taking minutes. A batch that is **reserved in full** has no available stock and is not found through `ProjInventoryOnHand`.

15.4 Values at cost

Quantities are valued at the item's **cost price per inventory unit**, in the company's accounting currency (`Ledgers.AccountingCurrency`). The price is found as:

Cost price of an item at a site and variant

1. the ACTIVE cost price of D365 (InventItemPricesV2, price type Cost, active, from-date not in the future),
 in the item's inventory unit (a price in another unit is left out: no conversion here),
 choosing the most specific:
 variant at the site > variant for all sites > no variant at the site > no
variant for all sites
 several rows of one set: the latest from-date; same date: the one created last
 no site asked and only per-site prices: the only site's price, else the average of the
sites'
2. else the item's own cost price on the released product: $\text{UnitCost} / \text{UnitCostQuantity}$
(if above zero)
3. else no value (the page counts the rows without a cost price)

value = round(quantity x price per unit , 2 decimals)

16. Availability: items that run short

The Availability page lists **every item that runs short within a horizon** in the chosen warehouses, with the day it runs short, the order that causes it, the receipt to expedite, when it is covered again, and the sales value at risk. It is the expedite list of a purchase planner and the "order book at risk" of a sales manager in one.

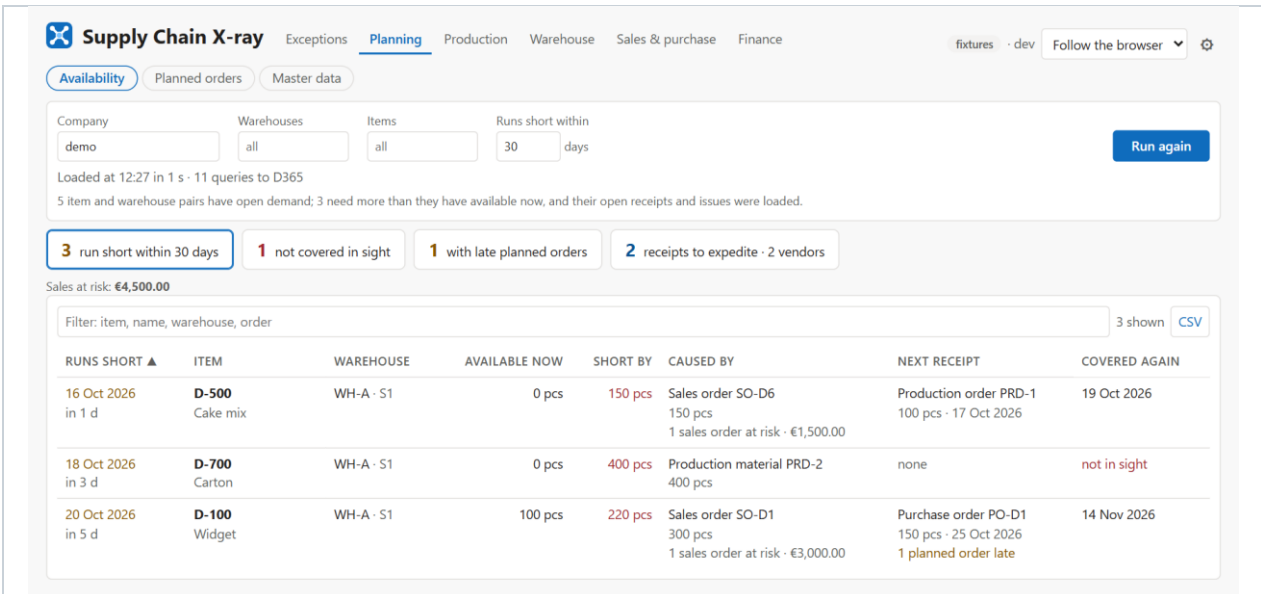


Figure 24. The Availability page: per item and warehouse the day it runs short, how much, what causes it, the next receipt and when stock is covered again.

16.1 Controls

Control	Meaning
Company, Warehouses	Warehouses empty means all.
Items	Restrict to some items (empty: every item with open demand).
Runs short within ... days	The horizon (30).

16.2 How it is calculated

The page is fast because of one fact: **receipts only add**. An item can only go below zero if its open demand is more than it has available now, so one on-hand request finds the candidates and only their open receipts and issues are loaded.

- Demand per item and warehouse:** `WarehousesOnHandV2` rows with `OnOrderQuantity` > 0 or `ReservedOrderedQuantity` > 0, merged per item, warehouse and variant (D365 compares ids without case; rows that differ only by product version are added up).
- Blocked stock:** the statuses that block (`InventoryStatuses`) and the available stock in them (`WarehouseInventoryStatusesOnHandV2`), subtracted from what is usable.
- Candidates:** open demand (`OnOrder` + `ReservedOrdered`) is **greater than available minus blocked**. Only these can run short.
- Load the candidates' movements:** open receipts and issues of those items (requested apart so each side gets its own 5,000-row limit; a group whose answer is full is halved and asked again), their dimensions (warehouse, site, variant), their origins (order category, number and lot), and the planned orders.

5. **Project each candidate** exactly as in chapter 12 (start = available – blocked). If the first shortage falls within the horizon, it becomes a row.

16.3 The columns

Column	Meaning
Runs short	The first day the balance goes below zero, with "in 5 d".
Item / Warehouse	Item, name, warehouse, site, variant.
Available now	Available on hand minus blocked stock.
Short by	The lowest balance (the most that is missing at worst).
Caused by	The movement that takes it below zero, with the number of sales orders at risk and their open value (up to the day it is covered again, or the horizon).
Next receipt	The first open receipt of any date (what to expedite), and a note on late planned orders.
Covered again	The first day after the shortage on which the balance is back at zero or above, or "not in sight".

16.4 Expedite per vendor

Under the table, **one card per vendor** lists the purchase receipts to pull in: the overdue receipts, and those expected after the day the item runs short, up to the day it is covered again (all of them when it is not covered). Each line reads "PO-D1 · item D-100 Widget · 150 pcs · needed by 10 Oct 2026 instead of 15 Oct 2026". **Copy for e-mail** puts the vendor's lines on the clipboard in neutral wording; you write the greeting. The vendor of each order comes from `PurchaseOrderHeadersV2`; an order whose header cannot be read stands alone, never under another vendor's name. Vendors are sorted by the earliest "needed by" date, then by number of lines.

Sales value at risk is the open part of the affected sales lines: $\text{LineAmount} \times \text{RemainSalesPhysical} \div \text{SalesQty}$ from `SalesLineBiEntities`, per currency, rounded to cents. Lines for which D365 gave no figures are counted as unknown and left out of the sum.

17. Orders to start

The Orders to start page (Production area) is the supervisor's day: the production and batch orders to start in the coming days and those that should have started, each marked ready or not: released, material available, reserved and picked, and what is left to do.

Start	Order	Status	Material	Reserved	Picked	To do
13 Oct 2026 08:00 should have started	PRD-3 D-500 · Cake mix · 100 pcs	Released	available	0 / 1	0 / 1	To do reserve 1 component, pick 1 component
16 Oct 2026 08:00	PRD-1 D-500 · Cake mix · 100 pcs	Released	available	1 / 1	1 / 1	Ready
18 Oct 2026 08:00	PRD-2 D-500 · Cake mix · 400 pcs	Scheduled	1 short	0 / 1	0 / 1	Short of material release, get 1 component, reserve 1 component, pick 1 component

Figure 25. The Orders to start page: the filters, then each order with start, status, material, reserved, picked and a to-do line.

17.1 Which orders

From `ProdTableBiEntities`: orders in the chosen statuses and production pools, with a scheduled start in the window or, for unscheduled orders (start date 1900-01-01), a delivery date in the window. Sites and warehouses come from the order's inventory dimension. At most 500 orders per run. The settings are remembered with the other report settings (section 26.2).

Control	Meaning (default)
Company	The legal entity.
Starting within ... days	Orders that start from today up to this many days ahead (7; 0 to 60).
Late up to ... days back	Orders that should have started up to this many days ago (14; 0 to 365; 0: none).
Sites, Warehouses, Production pools	Empty: all. Warehouses are shared with Stock, Availability, Planned orders and Warehouse work.
Status	Created, Estimated, Scheduled, Released (all on).
Check at most ... orders	Readiness is checked for at most this many orders (100; 10 to 1,000). The others are listed as "not checked", with a note to narrow the filters or raise the limit.

The list shows as soon as the orders are found. Readiness fills in per wave of 40 ("checking..."): today's and the coming days' orders first, then the late ones, the most recent first. **Stop** keeps the rows found so far.

17.2 How readiness is calculated

Each order is checked in waves of 40, like the exception list (section 14.2): only the steps its readiness checks need run, and the queries are combined. The readiness is read from the built model (the components); the problems come from the same checks as the X-ray: material shortage, material short but covered, not

reserved while stock is available, stock blocked by status or disposition, sub-order late, picking work open, released but not started.

Per order

```

components      = material lines that still go into the order: not phantom, not fully
consumed, remaining > 0
reserved        = components with notReserved <= 0                      (shown "done / of")
picked          = components where picking is expected and picked >= remaining (shown
"done / of")
short           = components named by MATERIAL_SHORTAGE (+1 when SUB_ORDER_LATE and none
is short)
covered         = components named by MATERIAL_SHORT_COVERED_BY_SUPPLY
released        = status Released

```

```

verdict = short   if short > 0
         todo     if anything is left to do
         ready    otherwise
to do    = "release" (not released), "get n components" (short), "reserve n components",
"pick n components"
start    = scheduled start day, else delivery date; overdue = start < today

```

The chips count orders to start, ready, short of material, should have started, not released, not reserved, not picked and not checked. Clicking one filters the table. Click a row to open the production X-ray of the order beside the list. An order that could not be checked is shown with its error and a to-do verdict.

18. Customers and Vendors: on time in full

The Customers page measures how well deliveries to customers keep their promise; the Vendors page measures the same for what vendors deliver to you. They are the same calculation on two sides: **sales lines against their packing slips** (customers) and **purchase lines against their product receipts** (vendors).

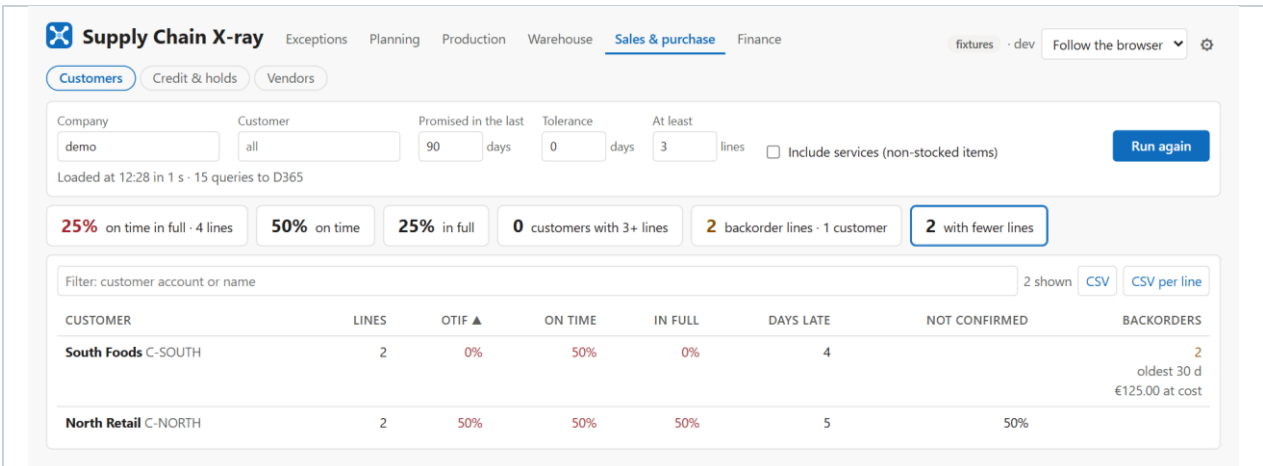


Figure 26. The Customers page: on time in full, on time, in full and backorders; here the list of customers with fewer lines than the minimum.

18.1 Controls

Control	Meaning (default)
Company / Customer (Vendor)	One account or empty for all.
Promised in the last ... days	Lines promised in this period up to yesterday: 90 days for customers, 180 for vendors.
Tolerance ... days	A delivery this many days after the promised date still counts as on time (0).
At least ... lines	Customers and vendors with fewer judged lines are listed apart (3): a percentage of two lines says little.
Include services (non-stocked items)	Off by default: services and freight often have no packing slip or receipt and would count as "not delivered".

18.2 Data retrieved

Step	Entity	Filter / key	Used for
Sales lines promised	<code>SalesLineBiEntities</code>	SalesType = Sales; not Canceled; quantity > 0; promised date in the period; (customer); (stocked product = Yes)	The promise: confirmed ship date, else requested date; quantity, unit, remaining quantity, amount, currency.
Open lines past date	<code>SalesLineBiEntities</code>	SalesStatus = Backorder and RemainSalesPhysical > 0 and promised before today	Backorders.
Packing slip lines	<code>CustPackingSlipTransBiEntities</code>	Delivered from 90 days before the period (early deliveries) to tomorrow; all customers: the whole period; one customer: only its orders	The deliveries: lot, day, quantity.

Step	Entity	Filter / key	Used for
Customer names	CustomersV3	Accounts found	Names.
Purchase side	PurchLineBiEntities, VendPackingSlipTransBiEntities, VendorsV3	PurchaseType = Purch; not deleted; not Canceled; promised confirmed delivery (ConfirmedDlv), else DeliveryDate	Same, with the line's creation date for lead time.
Backorders at cost (customers)	ReleasedProductsV2, InventItemPricesV2, Ledgers	Items of the backorders	Backorders valued at cost (section 15.4).

The promised-in-period query is asked **by date window**: a large period is cut into windows of 30 days that run side by side; a window whose answer is full is halved down to single days.

18.3 How a line is judged

One order line against its deliveries

```

promised   = confirmed date, else requested date           (a line without any date is not
judged)
deadline   = promised + tolerance days
delivered  = sum of the line's delivery quantities (matched on the lot id)
by deadline = sum of the delivery quantities on or before the deadline
first day  = the first delivery with quantity > 0
complete day = the day the running total of deliveries first reaches the ordered quantity

on time = first delivery exists AND first day <= deadline
in full = quantity delivered by the deadline >= ordered quantity

outcome = Not delivered    no delivery at all
         On time, in full  on time AND in full
         Short             on time but not complete by the deadline
         Late              started late but is complete since
         Late and short    started late and still not complete
days late = max(0, days from promised date to the complete day (or to today when not
complete) - tolerance)

```

Why the "under-delivery" percentage is not used

The line's under-delivery percentage is often 100, meaning any partial delivery may close the line. Using it would make every line "in full". The extension compares **quantities** instead.

Only lines promised **before today** are judged (lines promised in the period and not before today), and each lot is judged once.

18.4 Per customer or vendor

Figure	Calculation
OTIF %	lines with outcome On time, in full ÷ judged lines, as a whole percentage.
On time % / In full %	lines on time ÷ judged lines; lines in full ÷ judged lines.
Average days late	The average of days late over the lines that were not on time (late, or still open: until today), one decimal.
Lines without a confirmed date	Lines whose promise is only the requested date, and their share.

Figure	Calculation
Backorders	Open lines (status Backorder, remaining quantity > 0) whose promised date is before today: days late, value = line amount × remaining ÷ quantity per currency; the oldest one; and at cost (customers).
Average lead time (vendors)	First receipt – line creation date, over the lines received after they were created; and the planned lead time (requested date – creation date) of the same lines. A line entered after its receipt says nothing about the vendor's speed and is counted apart ("entered after").
Totals chips	The same percentages over all judged lines of all customers.

Parties are sorted **worst first**: lowest OTIF, then most backorders. Click a customer or vendor to see its late and short lines; click an order to open its X-ray. **CSV per line** saves every judged line with its outcome.

18.5 The delivery line on the customer and vendor cards

In the side panel the customer card of a sales order and the vendor card of a purchase order show the same figures for that one customer or vendor ("Delivery · last 90 days", with a link to the page), loaded when the card is opened, over the periods in the settings (90 and 180 days by default).

18.6 Lead time per item (Vendors)

Click a vendor on the Vendors page to see **Lead time per item**: for each item the lines received after they were created, the actual average lead time (creation to first receipt), every purchase lead time in D365 that can apply, and the difference to the closest one. The heading says "Lead time per item · N off the setup" or "all close to the setup", and the vendor row shows "N items off the setup".

Which lead time master planning uses, and when it is off

```

setups  = coverage purchase lead time where it is overridden (per site, warehouse),
         default purchase order settings, or the site row when it overrides them
actual  = average days from line creation to first receipt
closest = the setup nearest to the actual average
off     = |actual - closest| > 1 day
         AND ( closest = 0 OR |actual - closest| > 25 % of closest )

```

Lines entered after their receipt are left out, and working days are named where the setup uses them. Read from [ProductSpecificOrderSettingsV3](#) and [ItemCoverageSettingsV2](#) (lead time overridden), per 20 items. Not read: the receiving warehouse of the lines (so every setup that can apply is listed), per-configuration order settings and trade agreement lead times (used only for items without a main vendor). The vendor CSV has the columns "Lead time (days)", "Planned lead time (days)" and "Items off the setup".

19. Month end

The Month end page is for finance: what was delivered and not invoiced yet on both sides, the vendor invoices that wait and why, and the production orders that should be ended. Four lists, side by side in four chips.

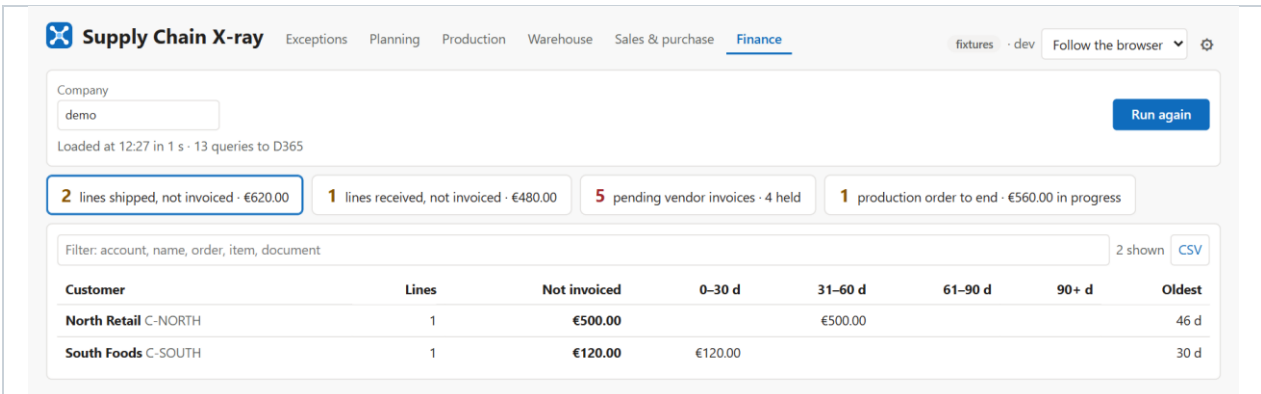


Figure 27. The Month end page: shipped not invoiced per customer with value and age buckets; the other three lists are behind the chips.

19.1 Shipped, not invoiced (customers)

Sales lines that have been **packing-slipped and not invoiced**

(`SalesLineBiEntities.RemainSalesFinancial` > 0, which is D365's own figure; cancelled lines and the negative remainder of returns are left out). Per customer: number of lines, value, value per age bucket and oldest age.

Value and age of an open line

value = line amount x not-invoiced quantity / ordered quantity (in the order's currency; the whole line amount when the ordered quantity is 0)
 age = days since the OLDEST packing slip (or receipt) that is still to invoice the deliveries of the line, newest first, are taken until their quantities add up to the not-invoiced quantity: the assumption is that invoices take the oldest deliveries first, so the open part is the newest
 a cancelled or corrected slip nets to zero and is not "newest"
 age buckets: 0-30 d, 31-60 d, 61-90 d, 90+ d, and "No date" when no dated delivery was found
 parties are sorted by oldest age, then number of lines

The packing slips come from `CustPackingSlipTransBiEntities` (20 lot ids per request), the customer names from `CustomersV3`.

19.2 Received, not invoiced (vendors)

The purchase accrual: purchase lines received and not invoiced

(`PurchLineBiEntities.RemainPurchFinancial` > 0, not cancelled), with the same value and age rules, from the product receipts (`VendPackingSlipTransBiEntities`) and vendor names (`VendorsV3`).

19.3 Pending vendor invoices

Vendor invoices that were **registered but not posted** (`VendorInvoiceHeaders`), with what holds them. D365's own matching status is not in OData, so the differences are found here:

Problem	Rule
In review	Review status is In review (with the age of the invoice).
Rejected	Review status is Rejected in the approval workflow.
On hold	IsOnHold = Yes.
Past due	Due date before today.
Price difference	Per invoice line against its order line (same unit): net price per unit on the invoice (net amount ÷ quantity) differs from the order line's (line amount ÷ quantity) by more than the price tolerance (a percentage you set on the page, applied at once; minimum absolute difference 0.00005).
Quantity difference	For a stocked order line: the quantity on all pending invoices together ("receive now") exceeds what is received and not invoiced (RemainPurchFinancial).
Total difference	Invoice total as entered without sales tax (ImportedAmount - ImportedSalesTax) differs from the sum of its lines by more than 0.01. Header charges are not loaded, so an invoice with them differs by those.

Invoices with problems are listed first, oldest first. The lines come from **VendorInvoiceLines** and the order lines from **PurchLineBiEntities**.

19.4 Production orders to end

Production and batch orders **reported as finished and not ended** (**ProdTableBiEntities**, status Reported as finished), the oldest first: their cost stays in work in progress, and the variance is not posted, until someone ends them. For each: item, pool, quantity, the date reported as finished and age, the **estimated cost** and the **cost realised so far** (from **ProdCalcTransBiEntities**, the total at the order's own level, in the accounting currency), and the difference. A row opens the production X-ray.

20. Planned orders

The Planned orders page (Planning area) lists the planned purchase, production and transfer orders whose order date has passed, or comes within a few days, and that are not firmed, with the shortage each one holds up. Firming a planned order takes it off the list.

The screenshot shows the 'Planned orders' page in the Supply Chain X-ray application. The page has a top navigation bar with tabs for 'Exceptions', 'Planning', 'Production', 'Warehouse', 'Sales & purchase', and 'Finance'. The 'Planning' tab is active. Below the navigation bar, there are filters for 'Company' (demo), 'Warehouses' (all), 'Plan' (changed last), 'Order date due within' (7 days), and 'Shortage within' (30 days). A 'Run again' button is visible. Below the filters, there are three status indicators: '1 planned order to firm', '1 hold up a shortage', and '1 past their order date'. A table below shows the planned order details:

PLANNED ORDER	ITEM	WAREHOUSE	QUANTITY	ORDER DATE	NEEDED	SHORTAGE ▲
PL-1 Planned purchase order · V-ACME	D-100	WH-A	100 pcs	13 Oct 2026 2 d late	27 Oct 2026	short 20 Oct 2026 by 220 · Sales order SO-D1 1 sales order · €3,000.00

Figure 28. The Planned orders page for the fictional company demo: a planned purchase order two days past its order date that holds up a shortage of sales order SO-D1.

20.1 Controls

Control	Meaning (default)
Company	The legal entity.
Warehouses	Requirement warehouses; empty: all. Shared with Stock, Availability, Orders to start and Warehouse work.
Plan	The master plan to read. Empty: the plan whose planned orders changed last.
Order date due within ... days	Planned orders whose order date has passed or comes within this many days (7; 0 to 60).
Shortage within ... days	The horizon for the shortage each order holds up (30; shared with Availability).

20.2 How it is calculated

- Planned orders come from **PlannedOrders**, by order date up to today plus the days set, with a requirement quantity above zero, from one plan only: D365 keeps the same requirements in every plan that ran. The note names the plan read and the other plans with their counts.
- The shortage is the Availability report (chapter 16) for just these items, in the same warehouses and horizon, without the planned orders: the day the item runs short in the planned order's warehouse, by how much, the order that causes it, and the sales orders at risk with their value.
- Orders that hold up a shortage come first, the earliest shortage first; then the most days late.

20.3 Reading the result

The tiles count the planned orders to firm, those that hold up a shortage and those past their order date. The columns are **Planned order** (with type and vendor), **Item**, **Warehouse**, **Quantity**, **Order date** ("2 d late", "today", "in 3 d"), **Needed** and **Shortage** ("short 20 Oct 2026 · by 220 · Sales order SO-D1", the sales orders at risk and their value, or "none in 30 d"). A row opens the item's Item X-ray beside the list, where the planned orders are the second line of the chart. **CSV** saves the rows.

21. Master data

The Master data page (Planning area) finds setup problems of the items on open orders: the items on an open sales line, an open purchase line or an open production order, or the items you name. The checks that stop orders come first.

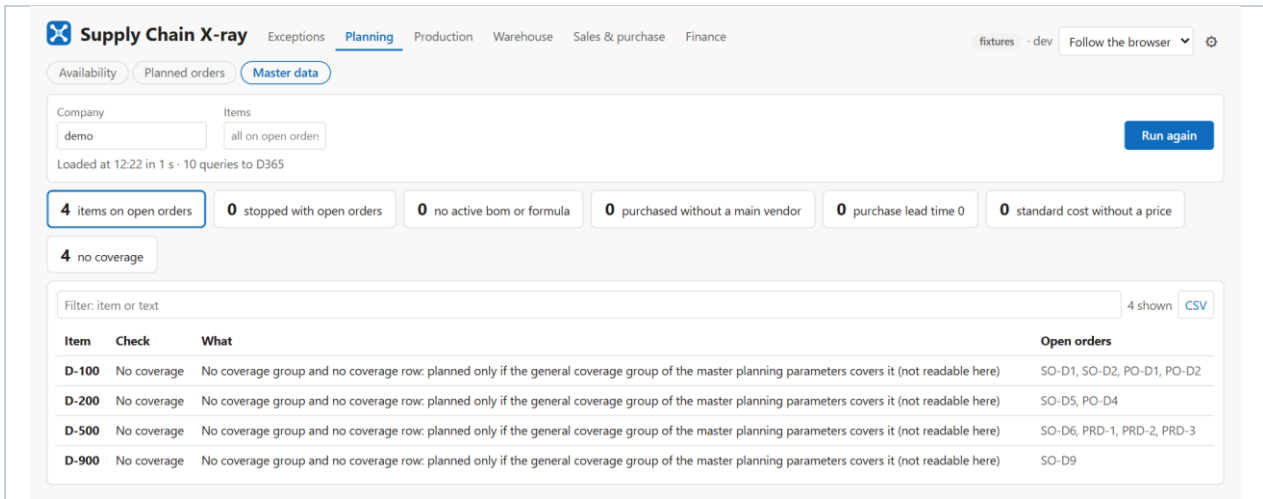


Figure 29. The Master data page for the fictional company demo: one tile per check, then one row per item and problem with its open orders.

21.1 Controls and checks

Controls: **Company** and **Items** (empty: all items on open orders). Each check has a tile that filters the list; a row opens the Item X-ray, which shows every setting with where it comes from. **CSV** saves the rows.

Check	Sev.	Rule
Stopped with open orders	Warning	Purchase, sales or inventory is stopped in the item's default order settings while open orders of that kind exist.
No active BOM or formula	Warning	Default order type Production, and no BOM version (for formula items, formula version) that is active, approved and valid today on any site.
Purchased without a main vendor	Warning	Default order type Purchase and no main vendor: planned purchase orders get none.
Purchase lead time 0	Note	Lead time 0 in the default purchase order settings, with no coverage override above 0 (the lead time planning uses, section 18.6).
Standard cost without a price	Note	Standard cost inventory model and no active cost price.
No coverage	Note	No coverage group and no coverage row. Master planning may still plan the item through the general coverage group of its parameters, which OData cannot read.

21.2 Data retrieved

The open lines' items from **SalesLineBiEntities** and **PurchLineBiEntities** (open, stocked) and the open orders from **ProductionOrderHeaders**, asked by date (one window, halved while the answer is full); then per 20 items **ReleasedProductsV2**, **ItemCoverageSettingsV2**, **ProductSpecificOrderSettingsV3**, **BillOfMaterialsVersionsV4**, **FormulaVersionsV2** and the cost prices (**InventItemPricesV2**), and the model groups (**InventModelGroupCDREntities**). Not checked: per-site order settings and site-specific stops, route versions, and the vendor's own setup.

22. Credit & holds

The Credit & holds page (Sales & purchase area) answers two questions for one company: which open sales orders can't go out, and which customers are over or near their credit limit? For each blocked order it shows what is already reserved or picked and could ship once the block is lifted.

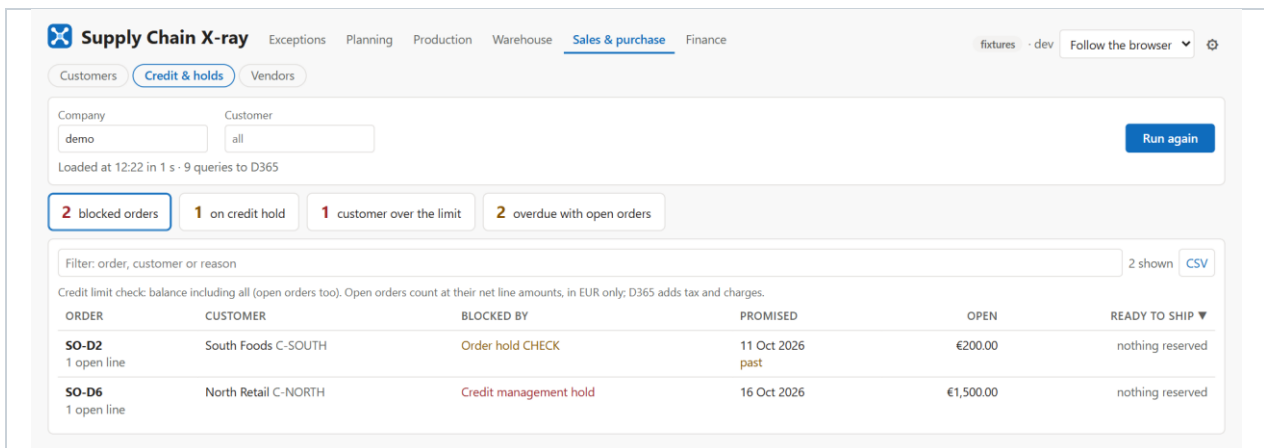


Figure 30. The Credit & holds page for the fictional company demo: the blocked orders with what blocks them, the open value and what is ready to ship.

22.1 Controls and result

Controls: **Company** and **Customer** (an order or invoice account; empty: all). The tiles count the blocked orders, those on credit hold, the customers over the limit, at 90 %+ of the limit, and overdue with open orders. Two tables follow, each with its own **CSV**:

- **Blocked orders:** Order (with its open lines), Customer, Blocked by, Promised ("past" when before today), Open (with "+ ... delivered" not invoiced) and Ready to ship. A row opens the sales X-ray.
- **Customers:** Customer, Limit, Used, %, Overdue (with the oldest), Open orders and Blocked. A customer opens its blocked orders and filters the order list.

22.2 What blocks an order

Open sales orders (not shipped, or shipped and not invoiced) that D365 holds back:

- "Credit management hold": in credit control and not released; or "Rejected by credit management";
- "Order stopped" (processing stopped);
- "Order hold <code>": an order hold that is not cleared (`MCRHoldCodeTransBiEntities`);
- a customer or invoice account on hold for all transactions or for invoicing.

Open is the value not shipped yet; delivered is the value shipped and not invoiced, both at the lines' net amounts. **Ready to ship** is the value of the quantities reserved physically or picked.

22.3 The credit check

Credit limit of a customer, as D365 checks it

```

account = the invoice account (its limit CreditMax, in the accounting currency)
checked = not unlimited (credit management) AND
          ( (check type <> None AND limit > 0) OR the limit is mandatory )
used    = balance of open customer transactions (CustTransOpenBiEntities, AmountMST)
          + delivered not invoiced (check type: balance including packing slips)
          + all open orders (check type: balance including all)
over    = used > limit; near = used >= 90 % of the limit
overdue = open amounts past their due date

```

The check type comes from the company's parameters (`CustomerParameters`); the note above the table says which one applies. Open orders count at their net line amounts and only in the accounting currency: D365

adds tax and charges, so its own figure can be a little higher, and orders in another currency are listed as "not converted". Large lists are asked by date, a range halved while its answer is full.

23. Resource load

The Resource load page (Production area) shows, per operations resource, the hours reserved per day over the coming days against the working hours of a calendar, the overloaded resources first.

No screenshot: the sample data has no capacity reservations. The page has the controls **Company**, **Resources** (empty: all), **Calendar**, **Days** (14; 1 to 60) and **Include planned orders** (off), the tiles "resource(s) with reservations" and "overloaded on some day", and the columns **Resource** (bottlenecks marked), **Hours**, **Capacity**, **Load**, **Over** and **Per day** (a small cell per day, red when over capacity).

23.1 How it is calculated

- Hours reserved per resource and day come from **OperationsResourceCapacityReservations**: production orders, and with **Include planned orders** the planned orders of one plan (the one with the most reservations).
- Capacity comes from the one working-time calendar you name in **Calendar** (remembered), applied to every resource: D365 assigns calendars per resource or resource group, but those assignments cannot be read through OData. Without a calendar the page shows the load alone.
- Working hours of a day: its time intervals at their efficiency (**WorkCalendarTimeIntervals**); Closed and Holiday days: 0; "use base calendar" days: the base calendar's day; days not generated in the calendar are counted and named in the note.
- A day is over when more hours are reserved than it has. Load % is hours ÷ capacity; a day at 85 % or more counts as high.

Click a resource to see its days with the orders reserving them, the most hours first; a production order opens its X-ray. Not included: resource groups' capacity and capacity units of a resource.

24. Warehouse work

The Warehouse work page (Warehouse area) shows, per warehouse, the open warehouse work by kind and age, the shipments not waved and the loads past their scheduled ship date.

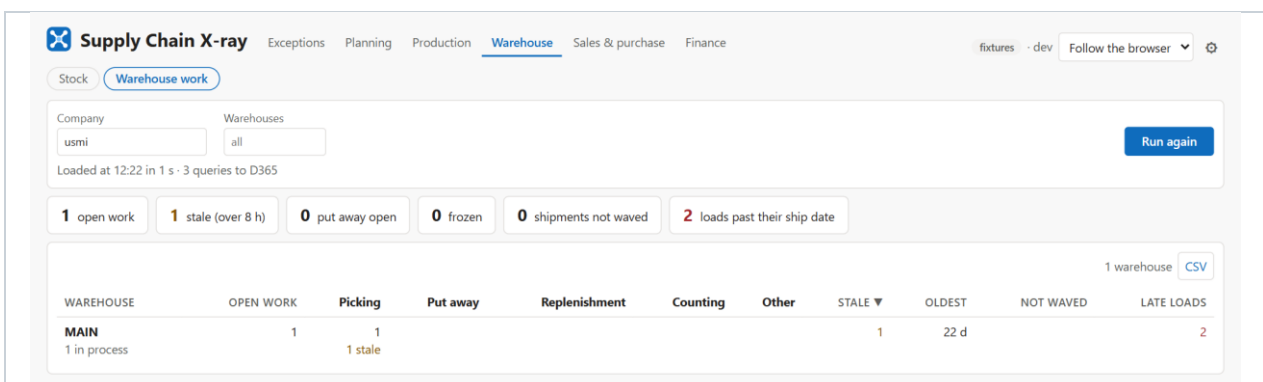


Figure 31. The Warehouse work page on Microsoft sample data: open work by kind, stale work, shipments not waved and loads past their ship date.

24.1 Controls and columns

Controls: **Company** and **Warehouses** (empty: all). The tiles count the open work, stale work (open longer than the "Work is stale after" threshold of the Options page, 8 hours), put away open, frozen work, shipments not waved and loads past their ship date. Columns: **Warehouse**, **Open work**, **Picking**, **Put away**, **Replenishment**, **Counting**, **Other**, **Stale**, **Oldest**, **Not waved** and **Late loads**. Ages are in hours up to 48 hours, then in days.

24.2 How it is calculated

- Open work: `WHSWorkTableBiEntities` in status Open, In process or Pending review, by kind: picking (sales, transfer issue, production and kanban picking), put away (purchase, transfer and return receipts, production output), replenishment, counting and other.
- Shipments not waved: `WHShipmentTableBiEntities` with status Open. No entity exposes the wave itself; the shipment's status says it.
- Late loads: `WHSLoadTableBiEntities` not shipped, with a scheduled ship date before now.

Click a warehouse to see its 50 oldest open work orders with their order (which opens the order's X-ray) and load, the shipments not waved and the late loads. **CSV** saves one row per warehouse. Not included: wave lines, work per user or zone, and labour.

25. Yield & scrap

The Yield & scrap page (Production area) shows, per item, scrap and yield from the posted reports as finished, month by month, with the trend, and the orders with the most error.

No screenshot: the sample data has no posted reports as finished. The page has the controls **Company**, **Items** (empty: all) and **Months** (12, this month included; 2 to 36), the tiles "item(s) reported as finished", "above 5% scrap" (the Options threshold **Scrap above**) and "scrap rising", and the columns **Item**, **Orders**, **Good**, **Error**, **Scrap**, **Yield**, **Trend** and **Months** (small bars of the scrap per month).

Scrap, yield and trend per item

scrap (month) = error / (good + error) reported as finished in the month (main item only)
 yield (month) = good / scheduled quantity for the orders whose LAST report as finished falls in the month
 trend = scrap % of the last 3 months - scrap % of the months before (rising: 1 point or more)

Read from `ReportAsFinishedProductionJournalEntries` (posted) and the scheduled quantities in `ProductionOrderHeaders`. Click an item to see its months and its ten orders with the most error; an order opens its production X-ray. **CSV** has the months in columns. Not counted: co- and by-products, unposted journals and scrap on route operations.

26. Settings

Settings are on the Options page (⚙ → **All settings...**, or the extension's options in the browser). They are saved in this browser profile only, are used by the side panel and the Workspace right away, and contain no order data. In the store version the page starts with the Licence section (section 2.7). A zip install keeps its settings only while it stays in the same folder (section 2.3).


Supply Chain X-ray settings

Saved in this browser only, and used by the side panel right away. Supply Chain X-ray stores no order data.

[General](#)
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[Purchase order checks](#)
[Production checks](#)
[Transfer checks](#)
[Return checks](#)
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General

☒ **Follow D365:** load the order that is open or selected in the D365 tab. Also in the panel's ⚙ menu.

☐ **Show Debug:** a Debug section at the end of each X-ray, with every request (URL, time, rows), each check's result, and what D365 has no entity for. For troubleshooting: off by default. Also in the panel's ⚙ menu.

Mode: Follow the browser ▼

Batch disposition codes that block reservation
From Inventory management > Setup > Batch > Batch disposition codes: per code, its Setup says which process it blocks. D365 still counts such batches as available on hand; with the codes listed here, the stock checks don't, and name the blocked batches. D365 doesn't share this setup with other apps, so list the codes once here. Leave a box empty to switch this off for that process.

Sales: codes that block reservation

Production: codes that block reservation

Transfer: codes that block reservation

used by transfer orders (coming)

☒ **Expired batches are unavailable:** stock in batches that expire before the line's date doesn't count as usable in the stock checks of sales, production and transfer orders, and is named in their evidence. D365 still counts it as available on hand. The line's date is the one D365 checks: a sales line's receipt date (else its ship date), a component's raw material date, a transfer line's receipt date. Only for items with a shelf life whose item model group has the shelf life check on, by its pick criteria (expiry or best before date), as D365 itself does; other items' expired batches stay usable. Turn off if your company ships or consumes expired batches on purpose.

Minimum remaining shelf life for sales

days. Empty: none. With expired batches unavailable, a batch can't be used for a sales line when it expires before the line's date (confirmed receipt, else requested receipt, else confirmed ship, else requested ship date) plus these days. Only items with a shelf life and the shelf life check on, as D365 does with the customer's sellable days.

Minimum margin for sales

% Empty: off. A sales line whose net amount leaves less than this margin over its quantity at the item's cost price is flagged; 0 flags only lines below cost. The cost price is the standard cost for standard cost items, else a planned price (the actual cost can differ), and the check says which. Lines in another currency than the company's are left out. Loads the items' cost prices with each sales order.

Reports

The Workspace pages **Stock**, **Availability**, **Production**, **Customers** and **Vendors** (Workspace > in the panel), and the delivery line on the customer and vendor cards. The same values can be changed on those pages.

Customers: lines promised in the last days

Vendors: lines promised in the last days

On time up to days after the promised date

List apart below lines per customer or vendor

Stock: batches expiring within days

Availability: items running short within days

Production: orders starting within days

Production: and late orders up to days back (0: none)

Production: check readiness of at most orders

Figure 32. The Options page: General settings, batch disposition codes, the shelf life and margin settings, and the report settings. In the store version a Licence section comes first (section 2.7).

26.1 General

Setting	Meaning (default)
Follow D365	The panel loads the order open or selected in the D365 tab (on).
Show Debug	Adds the Debug section to every X-ray (off).
Mode	Follow the browser, Light or Dark (follow the browser).
Batch disposition codes that block reservation	Per process (sales, production, transfer) the codes of D365's Batch disposition codes whose setup blocks that process. See section 26.4.
Expired batches are unavailable	Stock in batches that expire before the line's date does not count as usable in the stock checks of sales, production and transfer orders, and is named in their evidence. The line's date is the one D365 checks: a sales line's receipt date (else its ship date), a component's raw material date, a transfer line's receipt date. Only for items with a shelf life whose item model group has the shelf life check on (on).
Minimum remaining shelf life for sales	Days; empty: none (1 to 3,650). With expired batches unavailable, a batch can't be used for a sales line when it expires before the line's date plus these days. D365 does this with the customer's sellable days, which OData cannot read.
Minimum margin for sales	Percent; empty: off (0 to 99). Switches on the check Margin below the minimum (section 6.7) and loads the items' cost prices with each sales order; 0 flags only lines below cost.

26.2 Report settings

Used by the Workspace pages Stock, Availability, Orders to start, Customers and Vendors, and by the delivery line on the customer and vendor cards. The same values can be changed on those pages.

Setting	Default	Range	Meaning
Customers: lines promised in the last	90 days	7 to 730	Period judged for customers.
Vendors: lines promised in the last	180 days	7 to 730	Period judged for vendors.
On time up to	0 days	0 to 30	Days after the promised date that still count as on time.
List apart below	3 lines	1 to 100	Customers and vendors with fewer judged lines are listed apart.
Stock: batches expiring within	30 days	1 to 365	Horizon of "expiring soon".
Warehouses (Stock, Availability, Planned orders, Orders to start, Warehouse work)	all	up to 20	Warehouse ids; empty means all.
Availability: items running short within	30 days	1 to 365	Horizon of the Availability page.
Include services (non-stocked items)	off	yes / no	Include lines of non-stocked items in customer and vendor delivery.
Production: orders starting within	7 days	0 to 60	Window of the Orders to start page.
Production: and late orders up to	14 days back	0 to 365	Late starts on the Orders to start page (0: none).
Production: check readiness of at most	100 orders	10 to 1,000	Readiness limit of the Orders to start page.

26.3 Switching checks on and off, and thresholds

Under **Sales order checks**, **Purchase order checks**, **Production and batch order checks**, **Transfer order checks**, **Return order checks** and **Item checks** every check is listed with its severity, its description, a checkbox to switch it off, and its thresholds next to it. A switched-off check is not run and shows as "couldn't run" in the Debug view (the Exceptions page can still run a chosen check that is switched off for the X-ray). Two options belong to groups of checks:

- **Also use the requested date when a line has no confirmed date** (shared by "Late vs. confirmed date" and "Late delivery"; off). Without it a line with no confirmed date is never late; with it the requested date is the last fallback. Many companies have orders without confirmed dates, so this decides whether those orders can be flagged at all.
- **Only cost above the estimate** for "Cost variance" (off): count overruns, not results below the estimate.

All thresholds

A threshold is a whole number within its range; values outside the range are corrected when saved.

Threshold	Order type	Default	Range	Used by
Work is stale after	Sales	8 hours	1 to 720 hours	WORK_STALE
Picked but not shipped after	Sales	24 hours	1 to 720 hours	PICKED_NOT_SHIPPED
Packing slip not invoiced after	Sales	3 days	0 to 365 days	PACKING_SLIP_NOT_INVOICED
Flag unreleased lines shipping within	Sales	2 days	0 to 90 days	RESERVED_NOT_RELEASED
Late after confirmed date +	Sales	0 days	0 to 60 days	LATE_VS_CONFIRMED, PO_LATE_VS_CONFIRMED, TRANSFER_NOT_SHIPPED
Flag unconfirmed orders due within	Purchase	7 days	0 to 90 days	PO_NOT_CONFIRMED
Received but not invoiced after	Purchase	7 days	0 to 365 days	PO_RECEIVED_NOT_INVOICED
Flag unpaid invoices due within	Purchase	3 days	0 to 90 days	PO_INVOICE_DUE
Price off the last price paid or the agreement by more than	Purchase	10 %	1 to 100 %	PO_PRICE_DEVIATES
Not started after the scheduled start +	Production	24 hours	0 to 720 hours	RELEASED_NOT_STARTED
Picking work open after	Production	8 hours	1 to 720 hours	PICKING_WORK_OPEN
Scrap above	Production	5 %	0 to 100 %	HIGH_SCRAP
Consumption off the estimate by more than	Production	10 %	0 to 100 %	CONSUMPTION_VARIANCE
Reported as finished, not ended after	Production	7 days	0 to 365 days	REPORTED_NOT_ENDED
Cost off the estimate by more than	Production	10 %	0 to 100 %	COST_VARIANCE
Shipped, not received after	Transfer	3 days	0 to 365 days	TRANSFER_IN_TRANSIT_TOO_LONG
Received, put-away work open longer than	Transfer	8 hours	1 to 720 hours	TRANSFER_RECEIVED_NOT_PUT_AWAY
Warn when a reserved or picked batch expires within	Sales	14 days	0 to 365 days	BATCH_EXPIRED_OR_NEAR
Arrived, no disposition code after	Return	2 days	0 to 365 days	RMA_ARRIVED_NO_DISPOSITION
Arrived, packing slip not posted after	Return	2 days	0 to 365 days	RMA_ARRIVED_NOT_RECEIVED
Received, not credited after	Return	7 days	0 to 365 days	RMA_RECEIVED_NOT_CREDITED
A blocker when it runs short within	Item	7 days	0 to 90 days	AVAILABILITY_RUNS_SHORT
Batches expiring within	Item	30 days	1 to 365 days	EXPIRING_BEFORE_USE
No issue for	Item	180 days	30 to 1,095 days	SLOW_MOVER
Pending cost price older than	Item	30 days	1 to 365 days	PENDING_COST_NOT_ACTIVATED

26.4 Batch disposition codes

In D365 a **batch disposition code** has a setup per process that says whether batches with that code are *available* or *unavailable* for sales, production and transfers. D365 still counts such batches as available on hand and refuses them only when reserving, so "not reserved, stock available" could be a false alarm. No OData entity exposes this setup, so you **list the blocking codes here, per process**: sales, production and transfer (for example **BLOCKED**, **QUARANTINE**, **PRODONLY**). Codes are trimmed and upper-cased; at most 50 codes per list of at most 20 characters. With an empty list for a process, the disposition steps are skipped for it and nothing changes. The Stock page uses the union of all three lists.

26.5 What is stored where

What	Where	Remark
Settings (thresholds, switches, report periods, codes)	chrome.storage of the extension	Per browser profile. For a zip install, tied to the folder it was installed from.
Charge table ids per D365 host	Settings, up to 20 hosts	Ids only. "Forget" removes a host.
Exception list choices and saved views	Settings	Types, window, checks, sites, warehouses, limit and up to 20 named views. No order data.
Last scan memory ("new since")	Page memory only	Issue ids per order; lost when the Workspace tab closes.
Order data	Memory only	At most 60 seconds per tab; never written to disk.
Licence (key, token, install id, last check)	chrome.storage of the extension	Removed by Forget and Deactivate this browser (section 2.7).
Recent orders	Session storage of the browser	Type, company and number of the last five; gone when the browser closes.
Master plan choice, open or folded cards	Local storage of the panel	Per company (plan) and per card. No order data.

26.6 About

The About section at the end of the Options page shows the version ("Supply Chain X-ray 1.0.0 · read-only"), the link **Check for updates**, which opens the product page <https://pwscanit.com/supply-chain-xray/> in a new tab, and the button **Reset checks and thresholds to defaults** (charge table ids and disposition codes are kept). The Options page and the panel's ☞ menu end with the line "© 2026 PW Scan IT BV · www.pwscanit.com".

27. Troubleshooting, limits and questions

27.1 Troubleshooting

Symptom	Cause and remedy
The toolbar icon does nothing	The panel is enabled on D365 tabs only. Switch to a D365 tab. Check the URL matches one of the three supported domains.
"No sales order found on this D365 page"	The open form is not an order form. Open an order, or type the number. If the D365 tab was open before the extension was installed and the panel can't reach it, reload the tab (F5).
The panel does not follow the order I open	Check Follow D365 in the ☰ menu; check the message "The D365 tab still runs an older Supply Chain X-ray" (reload the tab); the company field is taken from the URL (<code>cmp=</code>) so make sure the tab is in the company you expect.
"Session expired: refresh D365"	Refresh the D365 tab and sign in. The panel does not retry.
The first order takes 20 to 30 seconds	D365 wakes each entity on first use after idle time. Later orders take about a second.
"couldn't run" on some checks	Open Debug: the reason is shown per check: a step failed (no access to an entity), an entity or field is missing in this environment, or the check is switched off.
A section says "No access to ..."	Your security roles do not cover the entity (HTTP 403). Ask your D365 administrator for read access to the related data entity; the rest of the X-ray still works.
Charges card says "not configured"	The table ids could not be resolved (no access to <code>SystemTableIdTableEntities</code>). Enter them manually on the Options page and use Test (section 13.4).
A quantity shows "?"	The data for that stage could not be loaded (a failed step). Open Debug to see which. Missing data is never shown as zero.
"Truncated"	More rows than the limits allow (section 27.2). Narrow the question: fewer warehouses, a shorter period, one customer.
A line is "Not reserved, stock available" but D365 will not reserve	The stock may sit in a batch with a blocking disposition code, or in an expired batch. List the blocking codes (section 26.4) so the check says so.
The numbers differ from a D365 form	See section 27.3. Common causes: the ageing snapshot is a batch-job snapshot; availability is computed from open transactions, not net requirements; the trace is rebuilt from transactions.
Nothing happens after Alt+Shift+L	Click inside the field first; the selected text or the focused field is read. The shortcut is only active on D365 tabs and may be changed at <code>edge://extensions/shortcuts</code> .
The panel or the Workspace shows only "Supply Chain X-ray needs a licence or a free trial."	No licence is active in this browser. Start a trial, click Activate again , or enter your licence key (section 2.7).
"Open a D365 page first: the licence is checked against its environment."	Open D365 in a tab of the same browser window, then try again.
"Licence not checked recently (offline?). Keeps working for N more days."	The browser could not reach <code>https://licence.pwscanit.com</code> . Check the network, proxy or firewall, then click Refresh now on the Options page.
"All seats on this licence are in use."	Deactivate a browser you no longer use (Options › Licence › Deactivate this browser), or ask whoever bought the licence for more seats.

27.2 Limits

Limit	Value
Pages followed per request	5 (then marked truncated)

Limit	Value
Rows per query	at most 5,000; sales lines 1,000; purchase lines 1,000; work lines 5,000; invoice and packing slip lines 5,000; inventory transactions 5,000; order holds 100
Values per filter list	20 (longer lists are split over several requests)
Concurrent requests	6 per tab
Retries on throttling	3, waiting up to 30 seconds
Answer cache	60 seconds per request, in memory
Exception list	Candidates up to 2,000 per type and company; 150 orders checked per type by default (adjustable 1 to 1,000)
Orders to start	At most 500 orders per run; readiness checked for 100 by default (10 to 1,000); late starts 14 days back by default
Batch trace	5,000 transactions per level
Saved views / hosts with table ids	20 / 20
Item search	20 rows per search, from 3 characters for names
Recent	The last 5 orders, items or batches, for the browser session
Planned orders, Master data, Credit & holds, Warehouse work, Resource load, Yield & scrap	Large lists asked by date, a range halved while its answer is full (5,000 rows per request)

27.3 What the extension cannot see

The Debug view lists these per order type, so a quiet check is not read as "all fine":

- **Quality associations** (which items should get a quality order): there is no entity. The X-ray shows the quality orders that exist, not whether one should exist.
- **Quarantine orders**: no entity. Quarantine shows through inventory statuses and quality orders (and the line status on returns).
- **Inventory blocking records** (manual or from a quality order): no entity. Blocked stock shows through its inventory status and the disposition codes you list.
- Net requirements, futures and action messages of master planning, and forecasts: not in the availability balance. Planned orders of one master plan are shown and drawn as a second line, not counted in the firm balance. The general coverage group of the master planning parameters cannot be read.
- The working-time calendar assigned to each resource cannot be read: Resource load uses one calendar you name (chapter 23).
- Catch weight on hand is read from a second entity only for named items; the Stock and Availability scans of all items leave catch weight items out.
- **Return lines created without "Find sales order"** keep no link to the sales line they return.
- Expired batches are judged against each line's date in the order X-rays, and against today in the Item X-ray and the Workspace reports. The customer's sellable days cannot be read: use **Minimum remaining shelf life for sales** (section 26.1).
- **Trace**: within one company; transit legs of transfers are left out; no tracing-register entity exists, so it is rebuilt from the transactions.
- **D365's own invoice matching status** is not in OData; the Month end page recomputes price, quantity and total differences.
- **Intercompany chains** are built from references on the table-mirroring headers and were designed on the metadata; a captured chain was not available at the time of writing.

27.4 Frequently asked questions

Can the extension change anything in D365?

No. Every request is an OData GET. The client refuses any other HTTP method and any URL outside the page's own `/data/` endpoint (section 5.1).

Does any data leave my browser?

No D365 data. There are no analytics and no remote code. The only connection outside D365 is the licence check (section 2.7): your email, the licence key or code, the product and version, a random install id and the D365 host name. The only D365 data that leaves the panel is a file you save yourself (a CSV, or text you copy to the clipboard).

Why does the order say "At Reserved" when part of it is already shipped?

The order is as far as its **slowest line**, and a stage is only reached when the line is complete in it. Part of an order that shipped does not move the whole order beyond Reserved. The progress card shows the partial counts ("Released 600 / 760").

Why are the quantities in pieces when we sell in boxes?

Stage quantities are in the **inventory unit** so that lines in different sales units add up (section 4.5). Quantities that belong to the order line (ordered, invoiced) keep the line's unit.

Why does a check not fire for an order that I think has the problem?

Open Debug and look at the check's state: it may have been **off**, **disabled** (a field is missing in your environment), **inconclusive** (a step failed) or evaluated as **ok**. Check also the thresholds on the Options page: for example "Packing slip not invoiced" fires only after 3 days by default.

Why is the Exceptions list different from my D365 list?

The scan has a window (overdue up to 90 days back, due within 14 days ahead), statuses (open orders; later statuses only for checks that need them) and a limit per type. Use "Check this list" to see the scan's filters in words with the order numbers and compare.

Which entities must my D365 user be able to read?

See Appendix B. If a table-mirroring entity is refused (HTTP 403) only the sections and checks that depend on it are affected.

What happens when I am offline?

The extension needs D365, so it needs the network anyway. The licence check alone may fail for up to 14 days without stopping you (section 2.7).

Where are the prices?

On pwscanit.com/supply-chain-xray/. The **Pricing** and **Buy** links in the extension open that page.

27.5 Support and updates

- Support: support@pwscanit.com. We answer within one business day. Mention the version (Options › About) and, for a check, what the Debug view says.
- Updates: store installs update themselves. **Check for updates** on the Options page opens <https://pwscanit.com/supply-chain-xray/>.
- © 2026 PW Scan IT BV, trading as Scan It Labs. Supply Chain X-ray is proprietary software; use requires a valid licence. It includes the libraries Preact and @noble/ed25519 (MIT licence); their licence texts ship with the extension next to its LICENSE file.

Appendix A. Catalogue of all checks

Generated from the definitions in the extension (title, severity and description as the extension and the Options page show them). Chapters 6 to 12 explain the rules in detail. Thresholds are in section 26.3.

A.1 Sales order checks (26)

Check	Sev.	What it tests
Order on hold	Blocker	HOLD_ACTIVE . An order hold (hold code) has not been cleared.
Processing stopped	Blocker	ORDER_STOPPED . The sales order is marked "processing stopped".
Credit management hold	Blocker	CREDIT_HOLD . Credit management holds the order (in credit control and not released, or rejected).
Customer on hold	Blocker	CUSTOMER_ON_HOLD . The customer account is blocked (all transactions, or invoicing) while the order still has to be invoiced.
Work blocked	Blocker	WORK_FROZEN . Open warehouse work for the order is blocked.
Not reserved, stock available	Warning	NOT_RESERVED_STOCK_AVAILABLE . Open quantity is not physically reserved, although the shipping warehouse has enough available on hand.
Shortage	Warning	SHORTAGE . Open quantity is not reserved, the shipping warehouse doesn't have enough available, and incoming supply (purchase, production, transfers) doesn't cover it by its ship date, or isn't known.
Short now, covered in time	Note	SHORTAGE_COVERED_BY_SUPPLY . Not enough available today, but open purchase, production or transfer orders bring the stock before the line's ship date (after all other open demand by date).
Stock blocked by inventory status	Warning	STOCK_BLOCKED_BY_STATUS . Open quantity is not reserved and usable stock does not cover it, while the warehouse holds stock in a blocking inventory status.
Stock in blocked or expired batches	Warning	STOCK_BLOCKED_BY_DISPOSITION . Open quantity is not reserved and usable stock does not cover it, while the warehouse holds stock in batches with an unavailable disposition code (listed in the settings) or past their expiry date.
Hold removed reservations	Note	RESERVATIONS_REMOVED_BY_HOLD . An active hold uses a hold code that removes inventory reservations, and lines are not reserved.
Late vs. confirmed date	Warning	LATE_VS_CONFIRMED . The confirmed ship date has passed (plus grace days) and the line is not fully shipped.
Reserved, not released	Note	RESERVED_NOT_RELEASED . A fully reserved line in a warehouse-managed warehouse is not released to the warehouse, and ships soon.
Work not created	Warning	WORK_NOT_CREATED . A released load line has less work created than its quantity, after its wave was processed (a note while the wave has not run).
Work stale	Warning	WORK_STALE . Warehouse work has been open or in process for longer than the threshold.
Picked, not shipped	Warning	PICKED_NOT_SHIPPED . Quantity has been picked, but its load is not ship-confirmed after the threshold.
Shipped, no packing slip	Warning	SHIPPED_NO_PACKING_SLIP . Quantity left on a ship-confirmed load, but no packing slip was posted for it.
Packing slip not invoiced	Warning	PACKING_SLIP_NOT_INVOICED . A packing slip is older than the threshold and its quantity is not invoiced yet.
Invoice overdue	Note	INVOICE_OVERDUE . An invoice for the order is past its due date and not fully settled.
Charges not invoiced	Note	CHARGES_NOT_INVOICED . The order is fully invoiced, but a charge on the order (header or line) appears on none of its invoices.
Margin below the minimum	Warning	MARGIN_LOW . A sales line's net amount is below its cost at the item's cost price, or its margin is below the minimum margin for sales (Options). Off unless that setting is set.
Quality order failed	Blocker	QUALITY_ORDER_FAILED . A quality order for the order, or on a batch its lines still hold, failed.
Quality order open	Warning	QUALITY_ORDER_OPEN . A quality order for the order, or on a batch its lines hold, is still open.

Check	Sev.	What it tests
Batch expired or near expiry	Warning	BATCH_EXPIRED_OR_NEAR . A batch a line holds (reserved or picked) is expired, or expires within the threshold.
Batch with a blocking disposition code	Warning	BATCH_DISPOSITION_BLOCKED . A batch a line holds has a disposition code that blocks this process (listed in the settings, D-064).
Linked order at risk	Warning	LINKED_ORDER_AT_RISK . An order linked to a line (its supply, or the demand it is for) is due later than it is needed.

A.2 Purchase order checks (14)

Check	Sev.	What it tests
Not approved	Warning	PO_NOT_APPROVED . The purchase order is still in draft or review, or was rejected (approval status). Only for orders with change management.
Line stopped	Blocker	PO_LINE_STOPPED . A purchase order line is stopped.
Vendor on hold	Warning	PO_VENDOR_ON_HOLD . The vendor is on hold for all transactions, purchase orders, invoices or payments, and its release date (if any) has not passed.
Not confirmed	Warning	PO_NOT_CONFIRMED . The order is approved (or has no approval: no change management) but not confirmed to the vendor, and delivery is due within the window.
Late delivery	Warning	PO_LATE_VS_CONFIRMED . The confirmed delivery date has passed (plus grace days) and the line is not fully received.
Holds up demand	Warning	HOLDS_UP_DEMAND . Sales orders, production orders or transfers are short until this order arrives.
Received, not invoiced	Warning	PO_RECEIVED_NOT_INVOICED . Quantity was received longer ago than the threshold and is not invoiced yet.
Invoiced, not received	Warning	PO_INVOICED_NOT_RECEIVED . A pending vendor invoice covers more quantity than was received (and not yet invoiced).
Invoice on hold	Warning	PO_INVOICE_ON_HOLD . A pending vendor invoice is on hold, in review or rejected, or a posted invoice is not approved for payment.
Invoice due	Note	PO_INVOICE_DUE . A posted vendor invoice is not paid and is overdue or due within the window.
Price off the last price or agreement	Warning	PO_PRICE_DEVIATES . An open line's price differs from the last price paid to this vendor for the item (posted invoices, last year) or from the trade agreement valid today by more than the threshold.
Quality order failed	Blocker	QUALITY_ORDER_FAILED . A quality order for the order, or on a batch its lines still hold, failed.
Quality order open	Warning	QUALITY_ORDER_OPEN . A quality order for the order, or on a batch its lines hold, is still open.
Linked order at risk	Warning	LINKED_ORDER_AT_RISK . An order linked to a line (its supply, or the demand it is for) is due later than it is needed.

A.3 Production and batch order checks (23)

Check	Sev.	What it tests
Holds up demand	Warning	HOLDS_UP_DEMAND . Sales orders, production orders or transfers are short until this order arrives.
Material shortage	Blocker	MATERIAL_SHORTAGE . A component still needs stock, what is available in its warehouse does not cover it, and incoming supply (purchase, production, transfers) doesn't cover it by the date it is needed, or isn't known.
Material short now, covered in time	Note	MATERIAL_SHORT_COVERED_BY_SUPPLY . Not enough of a component available today, but open purchase, production or transfer orders bring it before the date it is needed (after all other open demand by date).

Check	Sev.	What it tests
Material not reserved, stock available	Warning	MATERIAL_NOT_RESERVED_STOCK_AVAILABLE. An order has components that D365 should have reserved by now (their Reservation setting: at release, start, scheduling or estimation; never for Manual), and that are not reserved although the stock in their warehouse covers them.
Stock blocked by inventory status	Warning	STOCK_BLOCKED_BY_STATUS. A component still needs stock and usable stock does not cover it, while its warehouse holds stock in a blocking inventory status.
Stock in blocked or expired batches	Warning	STOCK_BLOCKED_BY_DISPOSITION. A component still needs stock and usable stock does not cover it, while its warehouse holds stock in batches with an unavailable disposition code (listed in the settings) or past their expiry date.
Sub-order or purchase order late	Warning	SUB_ORDER_LATE. A pegged sub-production order or marked purchase order is due after this order's scheduled start.
Released, not started	Warning	RELEASED_NOT_STARTED. The order is released, and its scheduled start passed longer ago than the threshold.
Picking work open	Warning	PICKING_WORK_OPEN. Raw material picking work (warehouse management) has been open longer than the threshold.
Unposted journals	Warning	UNPOSTED_JOURNALS. Picking list, report as finished, route card or job card journals for the order are not posted.
Operation behind schedule	Warning	OPERATION_BEHIND. A route operation is not completed and its scheduled end is in the past.
High scrap	Warning	HIGH_SCRAP. The error quantity is above the threshold share of good + error (reported as finished, or per operation).
Consumption off the estimate	Note	CONSUMPTION_VARIANCE. A component was consumed more or less than estimated, pro-rated to the quantity reported as finished (Constant consumption lines: the whole estimate).
Reported as finished, not put away	Warning	RAF_NOT_PUT_AWAY. Finished goods were reported as finished, but their put-away work (warehouse management) is still open.
Co-product not reported	Warning	COPRODUCT_NOT_REPORTED. On a batch order, the main item is reported as finished but a co-product is not.
Reported as finished, not ended	Note	REPORTED_NOT_ENDED. The order was reported as finished longer ago than the threshold but is not ended: its cost is still in work in progress.
Cost variance	Note	COST_VARIANCE. The realized cost of an ended order is off from the estimate by more than the threshold (or, with the setting, above it by more than the threshold).
Quality order failed	Blocker	QUALITY_ORDER_FAILED. A quality order for the order, or on a batch its lines still hold, failed.
Quality order open	Warning	QUALITY_ORDER_OPEN. A quality order for the order (or its output batch) is still open.
Sales order at risk	Warning	SALES_DEMAND_AT_RISK. The sales line this order is for ships before the order's scheduled end.
BOM or formula changed on the order	Note	BOM_DEVIATES_FROM_DESIGN. The order's components differ from the BOM or formula version it was created from.
Batch expired or near expiry	Warning	BATCH_EXPIRED_OR_NEAR. A batch a line holds (reserved or picked) is expired, or expires within the threshold.
Batch with a blocking disposition code	Warning	BATCH_DISPOSITION_BLOCKED. A batch a line holds has a disposition code that blocks this process (listed in the settings, D-064).

A.4 Transfer order checks (12)

Check	Sev.	What it tests
Shortage at the shipping warehouse	Warning	TRANSFER_SHORTAGE. A line is not reserved yet, and the shipping warehouse does not have enough usable stock for it.
Not reserved, stock available	Warning	TRANSFER_NOT_RESERVED_STOCK_AVAILABLE. A line is not reserved, although the shipping warehouse has enough usable stock.
Stock blocked by inventory status	Warning	STOCK_BLOCKED_BY_STATUS. A line is not reserved and usable stock does not cover it, while the shipping warehouse holds stock in a blocking inventory status.

Check	Sev.	What it tests
Stock in blocked or expired batches	Warning	STOCK_BLOCKED_BY_DISPOSITION . A line is not reserved and usable stock does not cover it, while the shipping warehouse holds stock in batches whose disposition code blocks transfers (listed in the settings) or that are past their expiry date.
Not shipped on time	Warning	TRANSFER_NOT_SHIPPED . The ship date has passed (plus the grace days), and quantity remains to be shipped.
In transit too long	Warning	TRANSFER_IN_TRANSIT_TOO_LONG . Shipped longer ago than the threshold, and not received yet.
Received, not put away	Warning	TRANSFER_RECEIVED_NOT_PUT_AWAY . Put-away work at the receiving warehouse is open longer than the threshold.
Received ≠ shipped	Warning	TRANSFER_QTY_MISMATCH . A line is closed on both sides, but received plus scrapped differs from what was shipped.
Quality order failed	Blocker	QUALITY_ORDER_FAILED . A quality order for the order, or on a batch its lines still hold, failed.
Quality order open	Warning	QUALITY_ORDER_OPEN . A quality order for the order, or on a batch its lines hold, is still open.
Batch expired or near expiry	Warning	BATCH_EXPIRED_OR_NEAR . A batch a line holds (reserved or picked) is expired, or expires within the threshold.
Batch with a blocking disposition code	Warning	BATCH_DISPOSITION_BLOCKED . A batch a line holds has a disposition code that blocks this process (listed in the settings, D-064).

A.5 Return order checks (8)

Check	Sev.	What it tests
Return not arrived	Note	RMA_NOT_ARRIVED . The return deadline has passed and nothing of the return has arrived.
Arrived, no disposition code	Warning	RMA_ARRIVED_NO_DISPOSITION . A return line arrived longer ago than the threshold and has no disposition code yet.
Arrival journal not posted	Warning	RMA_UNPOSTED_ARRIVAL . An item arrival journal for the return is not posted: the arrival isn't registered yet.
Arrived, packing slip not posted	Warning	RMA_ARRIVED_NOT_RECEIVED . A return line arrived with a disposition code longer ago than the threshold, and its packing slip isn't posted: it can't be credited yet.
Received, not credited	Warning	RMA_RECEIVED_NOT_CREDITED . A return line was received (packing slip) longer ago than the threshold, and no credit note is posted.
Replacement not shipped	Note	RMA_REPLACEMENT_PENDING . The return has a replacement order that hasn't shipped yet.
Quality order failed	Blocker	QUALITY_ORDER_FAILED . A quality order for the order, or on a batch its lines still hold, failed.
Quality order open	Warning	QUALITY_ORDER_OPEN . A quality order for the order, or on a batch its lines hold, is still open.

A.6 Batch trace checks (3)

Check	Sev.	What it tests
Quality order failed	Blocker	QUALITY_ORDER_FAILED . A quality order on the batch failed, and the batch went to customers or into production, or is still on hand.
Quality order open	Warning	QUALITY_ORDER_OPEN . A quality order on the batch is still open, although the batch already went to customers or into production.
Batch expired or near expiry	Warning	BATCH_EXPIRED_OR_NEAR . Stock of the batch is on hand, and the batch is expired or expires within the threshold.

A.7 Item checks (19)

Check	Sev.	What it tests
Runs short	Warning	AVAILABILITY_RUNS_SHORT . After the open receipts and issues by date, the available stock in a warehouse goes below zero: the first order that pushes it under. A blocker when it runs short within the set days, and it says whether the planned orders (of the plan changed last) would cover it.
Supply overdue	Warning	SUPPLY_OVERDUE . An open purchase, production or transfer receipt is past its expected date and not received: the balance counts on it today.
Planned order past its order date	Warning	PLANNED_ORDER_LATE . A planned order of the item should have been ordered or started by now and isn't firmed: the stock it plans for won't come in time.
Negative on hand	Blocker	NEGATIVE_ON_HAND . Physical on hand is below zero in a warehouse: stock was issued that D365 never received. Information only when the item model group allows negative physical inventory.
Demand overdue	Warning	DEMAND_OVERDUE . An open sales, production or transfer issue is past its expected date and not shipped or consumed: the balance counts it today.
Only blocked stock	Warning	ONLY_BLOCKED_STOCK . A warehouse has stock, but none of it is usable: all of it is in a blocking inventory status or a blocked or expired batch.
Below the minimum	Warning	BELOW_SAFETY_STOCK . The projected stock of a warehouse goes below the minimum of the item's coverage (without going below zero: that is "Runs short").
Expires before use	Warning	EXPIRING_BEFORE_USE . A batch expires within the set days, and the open demand of its warehouses up to its expiry is less than the batch: part of it will expire unused.
Stopped, with open orders	Warning	STOPPED_WITH_OPEN_ORDERS . The item is stopped for sales, purchase or inventory (order settings, per site), or its lifecycle state blocks a process, while open orders of that kind exist.
Zero or missing cost	Warning	ZERO_OR_MISSING_COST . There is stock of a standard cost item, but its cost price is 0: the active cost price in force is 0, or there is none and the released product's own cost price is 0 too. Other inventory models value stock from the transactions, not the item price.
Sales price below cost	Warning	PRICE_BELOW_COST . A sales price agreement valid today (in the accounting currency and the inventory unit), or the base sales price when set, is below the cost price in force: the standard cost for standard cost items, a planned cost for the other inventory models.
Failed or open quality order	Warning	OPEN_QUALITY_FAILURE . A quality order of the item failed, or is still open for a batch in stock.
Unit conversion missing	Warning	UOM_CONVERSION_MISSING . The item is sold or bought in another unit than its inventory unit, has open orders in it, and no conversion between the two exists.
Demand without coverage	Note	MISSING_COVERAGE . A warehouse has open demand, but the item has no coverage row there and no coverage group: master planning plans it only if the general coverage group of its parameters covers it.
Above the maximum	Note	EXCESS_STOCK . Usable stock in a warehouse is above the maximum of the item's coverage. Only where the coverage method is Min/Max: on other methods the maximum means nothing to planning.
Slow mover	Note	SLOW_MOVER . There is stock, and nothing has been issued for the set number of days.
Pending cost price not activated	Note	PENDING_COST_NOT_ACTIVATED . A pending cost price is older than the set days and still not activated.
Engineering change while in production	Note	OPEN_ENGINEERING_CHANGE . A change order names the item and isn't in effect yet, while open production orders use the item. D365 gives no status on change orders, so "not yet in effect" stands in for "open".
Product readiness check open	Note	READINESS_CHECK_OPEN . A product readiness check of the item is pending, open or failed.

Shared checks

Checks with the same id on several order types (quality orders, batch expiry, batch disposition, stock blocked by status or disposition, holds up demand) share one switch in the settings: switching one off switches it off everywhere.

Appendix B. D365 entities read by the extension

All 130 OData entities that the extension reads, with what they are used for and by which features. Every one is read with GET only. "Number lookup" is the search of a number as another type (section 3.5); "Shared inventory", "Shared work", "Quality" and "Links" are building blocks used by several X-rays. Entity names ending in **BiEntities** or **CDREntities** mirror D365 tables (section 5.4).

Entity	What it holds	Used by
BatchOrderByProductsV2	By-products of a batch order	Production
BatchOrderCoProductsV2	Co-products of a batch order	Production
BatchOrderFormulaLines	Formula (material) lines of a batch order	Production
BatchOrderHeaders	Batch order header	Production
BatchOrderRouteOperations	Route operations of a batch order	Production
BillofMaterialsLinesV3	BOM lines as designed	Production
BillofMaterialsVersionsV4	BOM versions (validity, active, approved)	Production; Item X-ray; Master data
CostGroups	Cost groups (names and types)	Production
CredManTableBiEntities	Credit hold records of an order: reason, document checked, workflow status, review date	Sales
CustAgedBalances	Customer ageing snapshot	Sales
CustInvoiceJourBiEntities	Posted customer invoice headers (table CustInvoiceJour)	Return, Sales
CustInvoiceTransBiEntities	Posted customer invoice lines (CustInvoiceTrans)	Sales
CustomerParameters	The company's type of credit limit check	Credit & holds
CustomerProductDescriptionsV2	Customers' own item numbers	Item search
CustPackingSlipJourBiEntities	Customer packing slip headers	Return, Sales
CustPackingSlipTransBiEntities	Customer packing slip lines	Customers, Month end, Sales
CustSettlementBiEntities	Customer settlements (payments, credit notes)	Sales
CustTransBiEntities	Customer transactions	Sales
CustTransOpenBiEntities	Open customer transactions	Sales; Credit & holds
CustomersV3	Customer master	Customers, Sales; Credit & holds
CycleCountingWarehouseWorkLinesV3	Cycle counting work	Item X-ray
EngineeringChangeOrderProducts	Engineering change orders that name an item	Item X-ray
FixedProductWarehouseLocationsV2	Fixed locations of an item	Item X-ray
FormulaLinesV2	Formula lines as designed	Production
FormulaVersionsV2	Formula versions	Production; Item X-ray; Master data
InventDimBiEntities	Inventory dimensions (site, warehouse, location, batch, serial, status...)	Exceptions, Item, Shared inventory, Stock, Trace
InventItemPendingPricesV2	Pending (not activated) cost prices	Item X-ray
InventItemPricesV2	Item prices incl. active cost prices	Shared inventory; Item X-ray; Master data; Sales (margin)
InventModelGroupCDREntities	Item model groups: inventory model, negative stock, shelf life check	Sales (margin, expired batches); Item X-ray; Master data
InventoryCountingJournalHeaders	Counting journals	Item X-ray
InventoryCountingJournalLines	Counting journal lines	Item X-ray
InventTransBiEntities	Inventory transactions	Item, Shared inventory, Stock, Trace

Entity	What it holds	Used by
InventTransOriginBiEntities	Origin of inventory transactions (order number, category, lot)	Item, Shared inventory, Trace
InventTransferTableBiEntities	Transfer order header (creation time)	Transfer
InventoryOnHandForAI	Live on-hand rows with inventory status	Shared inventory
InventoryStatuses	Inventory statuses and whether they block	Shared inventory, Stock
InventSettlementBiEntities	Inventory close settlements	Item X-ray
ItemArrivalJournalHeadersV2	Item arrival journal headers	Return
ItemArrivalJournalLinesV2	Item arrival journal lines	Return
ItemBatches	Batch master: dates, disposition code	Number lookup, Shared inventory, Stock, Trace
ItemCoverageSettingsV2	Item coverage rows per site and warehouse	Item X-ray; Vendors (lead time per item); Master data
ItemCoverageWithDerivedSettingsEntity	Item coverage with the coverage group's values filled in	Item X-ray
ItemPhysicalDimensionDetails	Physical dimensions per unit	Item X-ray
JobCardProductionJournalEntries	Job card journal lines	Production
Ledgers	Accounting currency per legal entity	Shared inventory
MCRHoldCodeTransBiEntities	Order holds	Sales; Credit & holds
MarkupTableBiEntities	Charge codes	Charges
MarkupTransBiEntities	Charges on orders and invoices	Charges
MasterPlanningProductCoverageGroups	Coverage groups	Item X-ray
OperationalSites	Sites and their time zone	Production
OperationsResourceCapacityReservations	Hours reserved per resource per day	Resource load
OperationsResources	Resources and their names	Production; Resource load
PackingSlipTrackingInformation	Tracking numbers of packing slips	Sales
PlannedOrders	Master planning: planned orders	Item; Planned orders
ProdBOMBiEntities	Production BOM lines with their pegging	Production
ProdCalcTransBiEntities	Production cost calculation (estimate and realised)	Month end, Production
ProdRouteTransBiEntities	Posted route transactions (hours, good, error)	Production
ProdTableBiEntities	Production orders table (status, dates, references)	Exceptions, Links, Month end, Number lookup, Production, Production board
ProductBarcodesV3	Barcodes	Item search
ProductionComponentLotAssociations	Lot associations: components	Trace
ProductionOrderBillofMaterialLines	BOM lines of a production order	Production
ProductionOrderHeaders	Production order header	Production; Yield & scrap; Master data
ProductionOrderRouteJobs	Route jobs	Production
ProductionOrderRouteOperations	Route operations of a production order	Production
ProductionPickingListJournalEntries	Picking list journal lines	Production
ProductionPools	Production pools	Production
ProductionProductLotAssociations	Lot associations: finished products	Trace
ProductLifecycleStateProcesses	Processes a lifecycle state blocks	Item X-ray
ProductSpecificOrderSettingsV3	Default order settings per item and site: stopped flags, lead times, main vendor	Item X-ray; Vendors; Master data
ProductSpecificUnitOfMeasureConversions	Item-specific unit conversions	Item X-ray

Entity	What it holds	Used by
ProductsV2	Shared products and their names	Item search; Item X-ray
ProjInventoryOnHand	On hand per item, batch, warehouse and status	Stock
PurchLineBiEntities	Purchase lines (table PurchLine)	Links, Month end, Purchase, Vendors; Master data; Item X-ray
PurchTableBiEntities	Purchase order headers (table PurchTable)	Links, Purchase, Trace
PurchaseOrderHeadersV2	Purchase order header	Availability, Exceptions, Number lookup, Purchase
PurchaseOrderLinesV2	Purchase order lines	Exceptions, Production, Purchase
PurchaseOrderVendorConfirmationHistories	Vendor responses to purchase orders	Purchase
PurchasePriceAgreements	Purchase trade agreements	Purchase (price check); Item X-ray
QualityGroupItemAssignments	Quality groups of an item	Item X-ray
QualityOrderHeaders	Quality orders	Number lookup, Quality, Shared inventory
QualityOrderLineResults	Test results of quality orders	Quality
ReleasedEngineeringProductVersions	Engineering product versions	Item X-ray
ReleasedProductReadinessChecks	Product readiness checks	Item X-ray
ReleasedProductsV2	Released products: inventory unit, own cost price	Shared inventory; Item X-ray; Item search; Master data
ReleasedProductVariantsV2	Product variants	Item X-ray
ReportAsFinishedProductionJournalEntries	Report-as-finished journal lines	Production; Yield & scrap
ReturnDispositionCodes	Return disposition codes and actions	Return
ReturnOrderHeadersV2	Return order header	Number lookup, Return
ReturnOrderLinesV2	Return order lines	Links, Return
ReturnReasonCodeBiEntities	Return reason codes	Return
RouteCardProductionJournalEntries	Route card journal lines	Production
RouteVersionsV2	Route versions	Item X-ray
SalesInvoiceHeadersV2	Sales invoice headers	Sales
SalesLineBiEntities	Sales lines (table SalesLine)	Availability, Customers, Item, Links, Month end, Production, Return, Sales, Transfer; Credit & holds; Master data
SalesOrderConfirmationHeaders	Sales order confirmations	Sales
SalesOrderHeadersV2	Sales order header	Exceptions, Number lookup, Return, Sales
SalesOrderHoldCodes	Hold codes	Sales
SalesOrderLinesV3	Sales order lines	Exceptions, Sales
SalesPriceAgreements	Sales trade agreements	Item X-ray
SalesTableBiEntities	Sales order headers (table SalesTable)	Links, Return, Sales, Trace; Credit & holds
SystemTableIdTableEntities	Table ids of D365 tables	Charges
TransferOrderHeaders	Transfer order header	Exceptions, Links, Number lookup, Transfer
TransferOrderLinesV2	Transfer order lines	Transfer
UnitOfMeasureConversions	Standard unit conversions	Item X-ray
UnitsOfMeasure	Units of measure	Item X-ray
VendInvoiceJourBiEntities	Posted vendor invoice headers	Purchase
VendInvoiceTransBiEntities	Posted vendor invoice lines	Purchase; Purchase (price check); Item X-ray
VendPackingSlipJourBiEntities	Product receipt headers	Purchase

Entity	What it holds	Used by
VendPackingSlipTransBiEntities	Product receipt lines	Month end, Vendors
VendSettlementBiEntities	Vendor settlements	Purchase
VendTransBiEntities	Vendor transactions	Purchase
VendorInvoiceHeaders	Pending vendor invoice headers	Month end, Purchase
VendorInvoiceLines	Pending vendor invoice lines	Month end, Purchase
VendorProductDescriptionsV2	Vendors' item numbers	Item search
VendorsV3	Vendor master	Purchase, Vendors
WHSInventStatusCDREntities	Warehouse inventory statuses (fallback)	Shared inventory, Stock
WHSLoadLineBiEntities	Warehouse load lines	Sales, Transfer
WHSLoadTableBiEntities	Warehouse loads	Sales; Warehouse work
WHSWorkLineBiEntities	Warehouse work lines	Sales, Shared work
WHSWorkTableBiEntities	Warehouse work headers	Shared work; Warehouse work
WHShipmentTableBiEntities	Warehouse shipments	Sales; Warehouse work
WarehouseInventoryStatusesOnHandV2	On hand per warehouse and inventory status	Stock
WarehouseOnHandIncludingCatchWeightItems	On hand including catch weight items	Shared inventory (fallback)
Warehouses	Warehouses (name, WMS flag, site)	Exceptions, Purchase, Shared inventory
WarehousesOnHandV2	On hand per warehouse: available, reserved, ordered, on order	Availability, Item, Shared inventory, Stock
WarehouseStockingLimitsV2	Stocking limits	Item X-ray
WorkCalendarDays	Calendar days: open, closed, holiday	Resource load
WorkCalendars	Working-time calendars	Resource load
WorkCalendarTimeIntervals	Working times and efficiency	Resource load
Workers	Workers (responsible people)	Exceptions

Appendix C. Glossary

Term	Meaning
Active line	An order line that is not cancelled.
Backorder	D365 status of an order or line that is open: not yet fully delivered (sales, purchase) .
Batch disposition code	A code on a batch that says per process (sales, production, transfer) whether the batch may be used.
Blocker / Warning / Note	The three severities of a check (section 4.2).
Candidate	An open order that the exception list will check.
Check (rule)	An exact rule applied to the data of an order; when it fires it produces an issue.
Content script	The small script the extension runs in the D365 page. It performs the OData requests and reads the open order from the page.
Evidence	The facts behind an issue: one line per order line, load, work or invoice.
Frozen (work blocked)	A warehouse work order that is blocked and cannot be picked.
Inventory dimension	The combination of site, warehouse, location, batch, serial, license plate and inventory status where stock is held.
Inventory status	A status on stock (for example Available, Blocked). Some statuses block the inventory.
Lot (InventTransId)	The id of an order line's inventory: ties the line to its inventory transactions, loads, work and invoices.
Master plan	The one plan whose planned orders the Item X-ray and the Planned orders page read: by default the plan changed last.
OData	The web service through which D365 exposes its data entities.
OTIF	On time, in full: the share of order lines delivered by their promised date and in the ordered quantity.
Origin	The record that ties inventory transactions to an order (reference category and number).
Pegging	The link between a demand line and the order that supplies it (a purchase, production or transfer order).
RecId / SourceKey	The record id of a D365 table row; used as join key in the table-mirroring entities.
RMA	Return material authorization: the number of a return order.
Seat	A licence place for one user's browsers; freed with Deactivate this browser.
Step	One unit of loading in the step graph (one or more queries) (section 5.5).
Trial	Five days of full use without payment details, started with an email address (section 2.7).
Usable stock	Available stock minus stock in blocking statuses, blocked batches and expired batches.
WMS (advanced warehouse management)	D365 warehouse management processes: waves, loads, work. Warehouses without it have no loads, shipments or work.
Workspace	The full-page tool of the extension: 13 pages in six areas (chapter 14).

Appendix D. Keyboard shortcuts and quick reference

Shortcut / control	Function
Alt+Shift+O	Open the Supply Chain X-ray side panel.
Alt+Shift+L	Open the selected text or focused field (an order, item, quality order or batch number) in the panel.
Enter in the search box	Search.
Click an id	Copy order, load, work, shipment, packing slip or invoice id.
Copy summary	Plain-text snapshot of a sales or purchase order.
← Back	Return to the order you came from through a link.
Workspace ↗	Open the Workspace.
⚙	Quick settings; All settings... for the Options page.
Recent	Reopen one of the last five orders, items or batches.
Check for updates (Options › About)	Opens https://pwscanit.com/supply-chain-xray/ .
Options › Licence	Trial, licence key, sign in with email, Manage subscription, Deactivate this browser.
Support	support@pwscanit.com , answer within one business day.