

Technical New Feature Highlights 2024 R1

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Sage



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New Features Highlights 2023 R2

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Extensibility Framework (X3 Builder)

- Introducing the Extensibility Framework

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Security Improvements

- Allowed Hosts “Whitelist” management
- Enhancements around “Brute force” attacks.

Miscellaneous Improvements

- Performance improvement for moving and copying files at operating-system level.
- SQL Server optimisation – removal of default “FAST 1” database-hint.
- Windows Services “Recovery policies”
- Data Clean and Control
- ATP Improvements

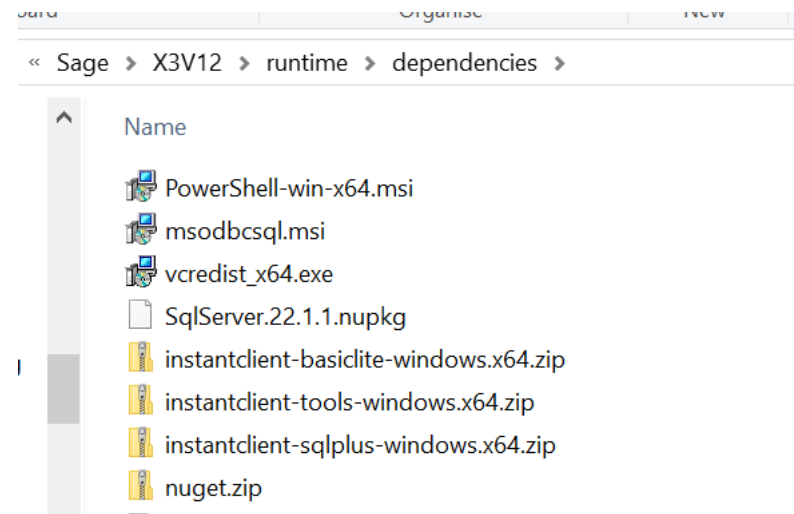
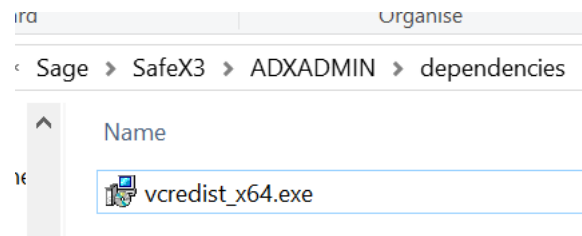
Appendix

Installer Improvements

Improved pre-requisite checks in Installers

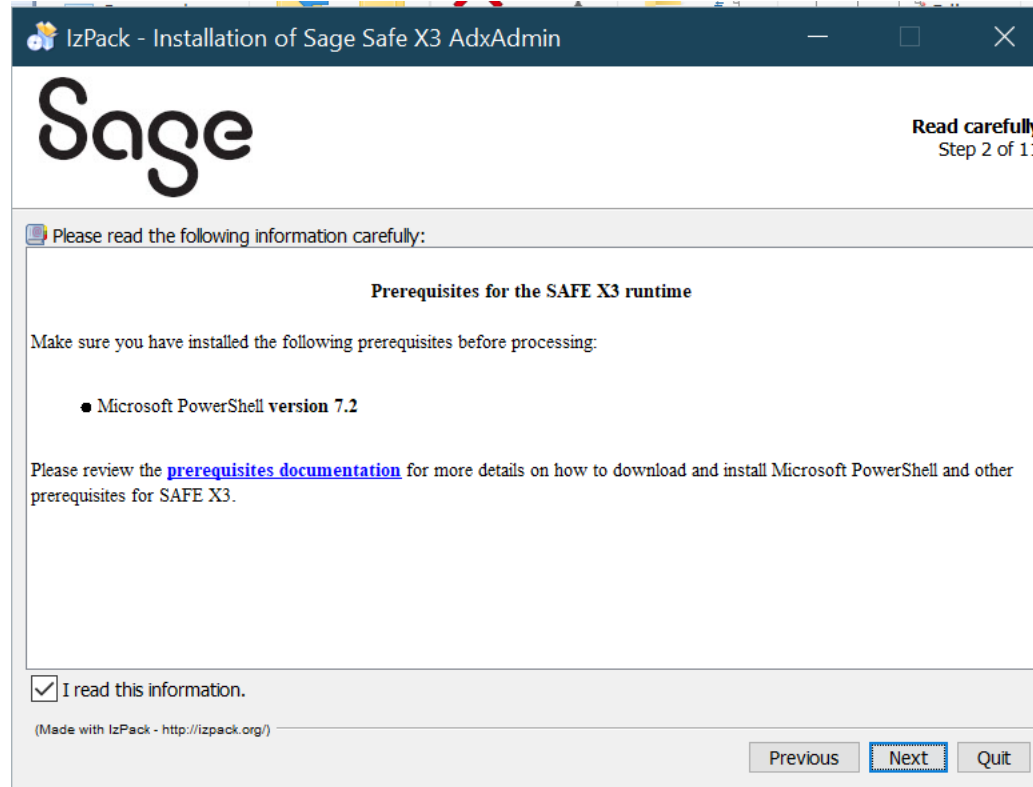
Release 2024 R1 sees the introduction of improved handling of pre-requisites in the installers for **runtime** and **adxadmin** components. This feature is referred to as the “Sage AutomaticPrerequisiteFramework” also known as “SageAPF”.

During the installation of these two components, directories called “dependencies” are created under their base directories, and these contain other components required by them for the installation – for example, you could have D:\Sage\SafeX3\ADXADMIN\dependencies and D:\Sage\X3V12\runtime\dependencies.



Improved pre-requisite checks in Installers

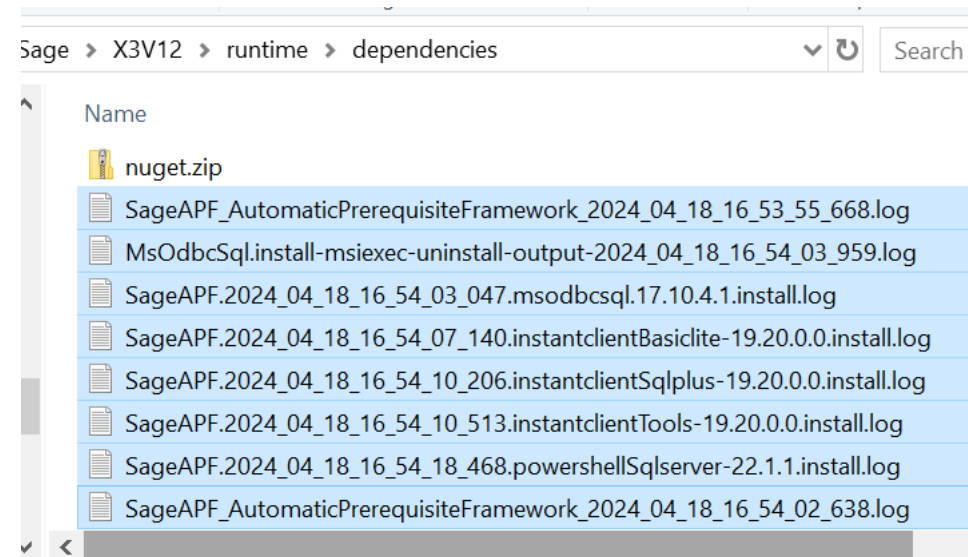
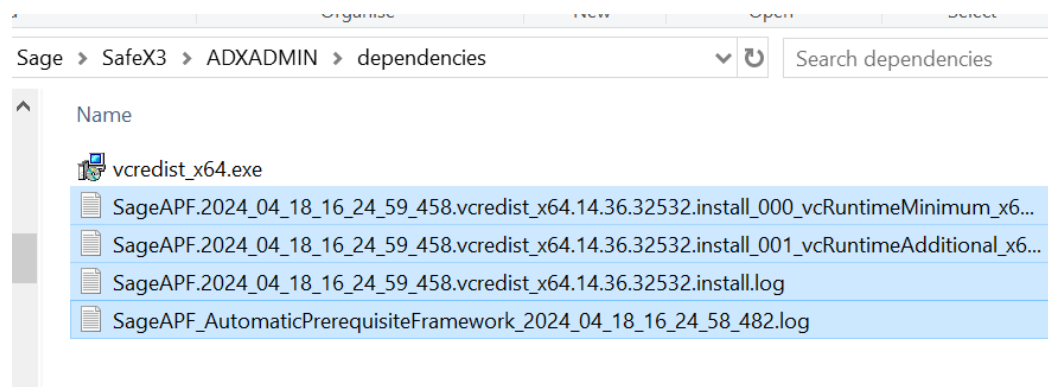
Please note that both the runtime and adxadmin still require powershell to have been installed prior to executing the installers:



Improved error-messaging

Improved logging/error-message recording during Installation –the “SageAPF” now generates log-files in the dependencies sub-directories when the installers run installation processes for the packages in the dependencies sub-directory.

For example:

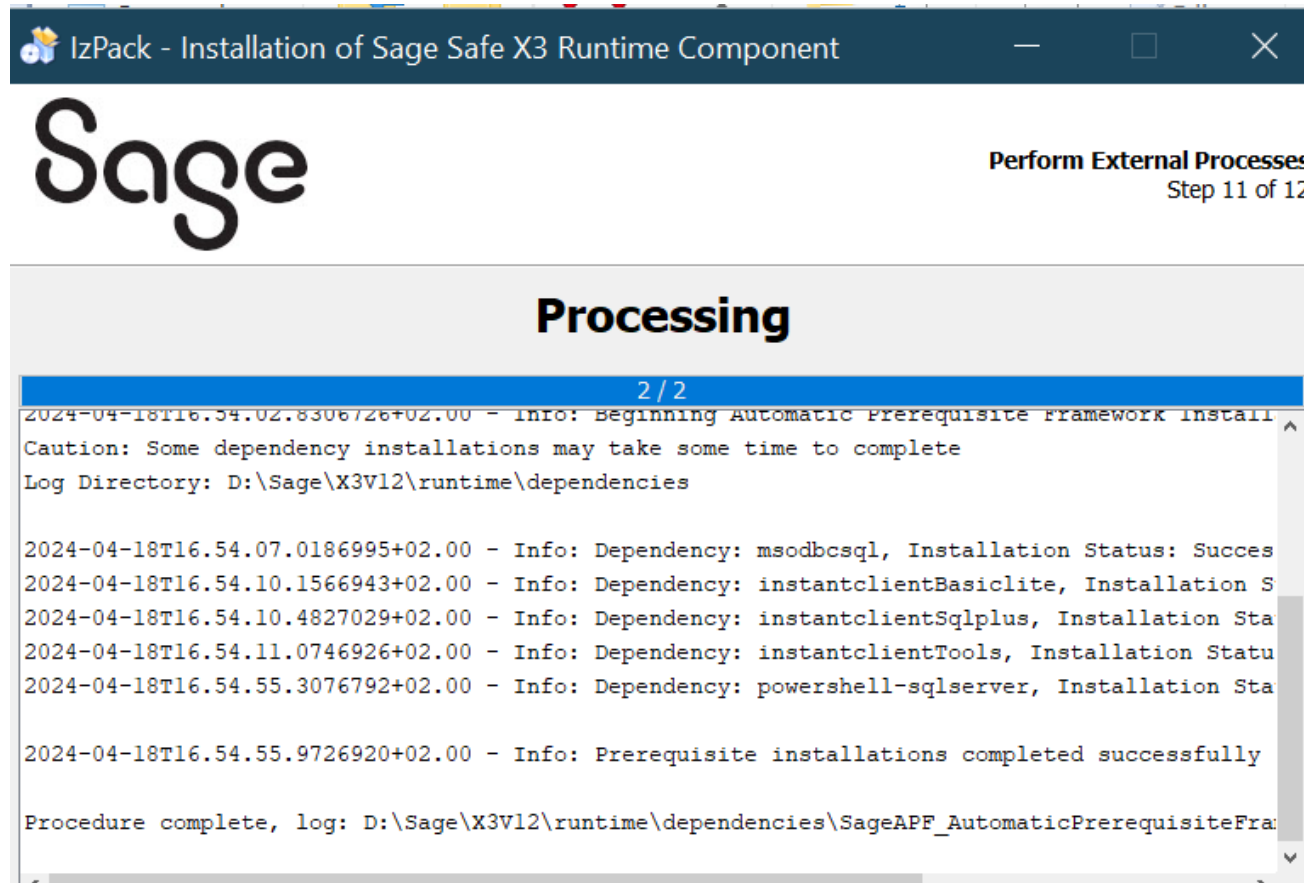


It is planned to roll SageAPF out to other components in future Releases.

Improved error-messaging

The log-files are mentioned in the Installers' Processing page.

For example:



The screenshot shows a window titled "IzPack - Installation of Sage Safe X3 Runtime Component". The Sage logo is on the left, and "Perform External Processes Step 11 of 12" is on the right. The main area is titled "Processing" and contains a log window with the following text:

```
2 / 2
2024-04-18T16:54:02.8306726+02:00 - Info: Beginning Automatic Prerequisite Framework Install
Caution: Some dependency installations may take some time to complete
Log Directory: D:\Sage\X3V12\runtime\dependencies

2024-04-18T16:54:07.0186995+02:00 - Info: Dependency: msodbcsql, Installation Status: Success
2024-04-18T16:54:10.1566943+02:00 - Info: Dependency: instantclientBasiclite, Installation Status: Success
2024-04-18T16:54:10.4827029+02:00 - Info: Dependency: instantclientSqlplus, Installation Status: Success
2024-04-18T16:54:11.0746926+02:00 - Info: Dependency: instantclientTools, Installation Status: Success
2024-04-18T16:54:55.3076792+02:00 - Info: Dependency: powershell-sqlserver, Installation Status: Success

2024-04-18T16:54:55.9726920+02:00 - Info: Prerequisite installations completed successfully

Procedure complete, log: D:\Sage\X3V12\runtime\dependencies\SageAPF_AutomaticPrerequisiteFra
```


Improved configuration of Xtrem

New installation notes and new features.

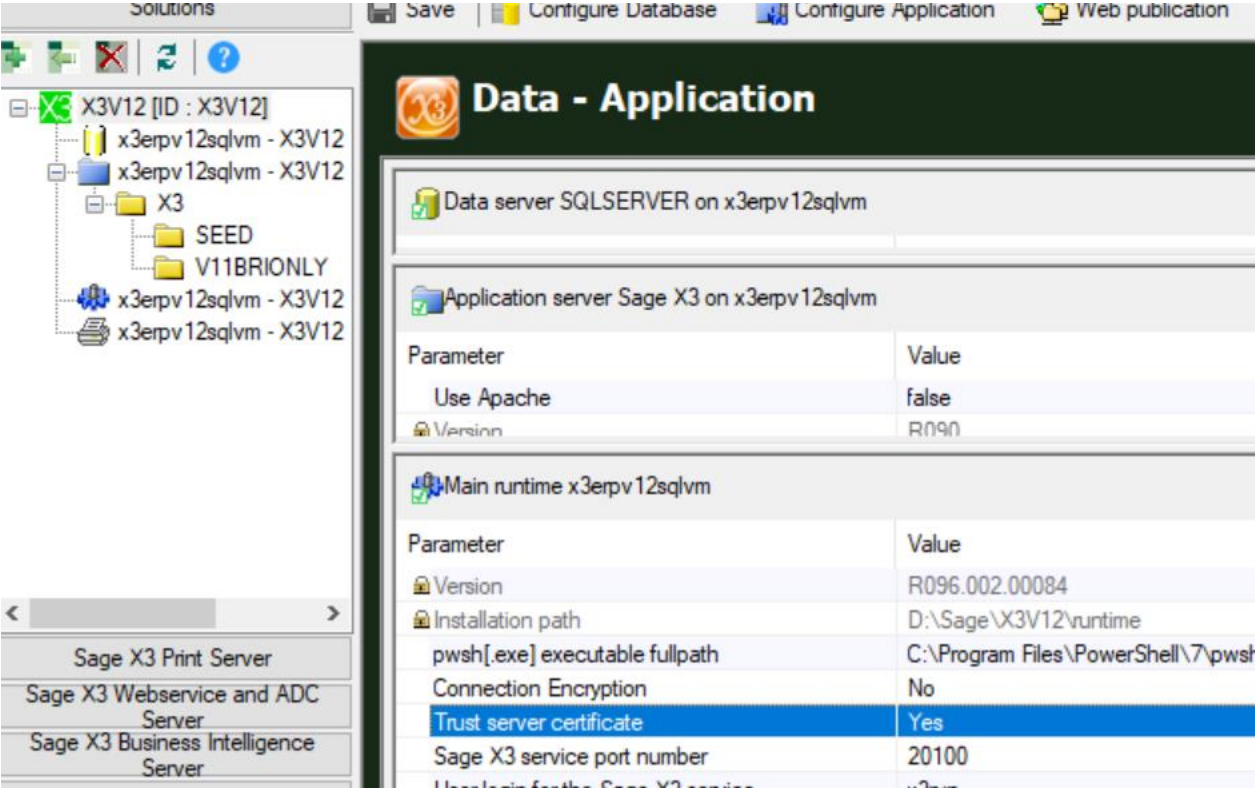
New, improved Online Help for X3 Services installation

https://online-help.sagex3.com/erp/12/en-us/Content/V7DEV/getting-started_Sage-X3-Services-installation.html

2024 R1 is a very significant Release for X3 Services – it introduces a lot of new/updated features as well as the first Release with the Extensibility Framework (aka X3 Builder).

Enable configuration of Encryption

The 2023 R2 Release introduced the ability to specify Connection Encryption and Trust server certificate for X3.



2024 R1 introduces this feature for X3 Services.

Enable configuration of Encryption

The Connected encryption and Trust server certificate settings previously introduced to SafeX3 Console are now configurable in the MS SQL service option.

In addition, MS SQL service option now has the ability to synchronise with the Connected encryption and Trust server certificate settings configured in the SafeX3 Console – this is via the new Action “Get security settings”.

The screenshot displays the Sage X3 console interface. At the top, the navigation bar includes the Sage logo, 'X3', a calendar icon, a refresh icon with '1', the user 'Super administrator', and the instance 'SEED 35'. The breadcrumb trail is 'All > Administration > Administration'. The main content area is titled 'SQL Server service' and shows a progress bar at 100%. A modal window is open, displaying the details of the 'Get security settings' action:

Job title	Get security settings
Phase	Completed
Start date	25/04/2024
Start time	11:49
Elapsed seconds	1
Remaining seconds	0

Below the modal, the configuration table shows the status of security settings:

Connection encryption	x
Trust server certificate	✓

The 'Actions' menu on the right includes 'Edit', 'Get security settings' (highlighted), 'Delete', 'Refresh', and 'List of msSqlServices'.

Testing Xtrem Installation

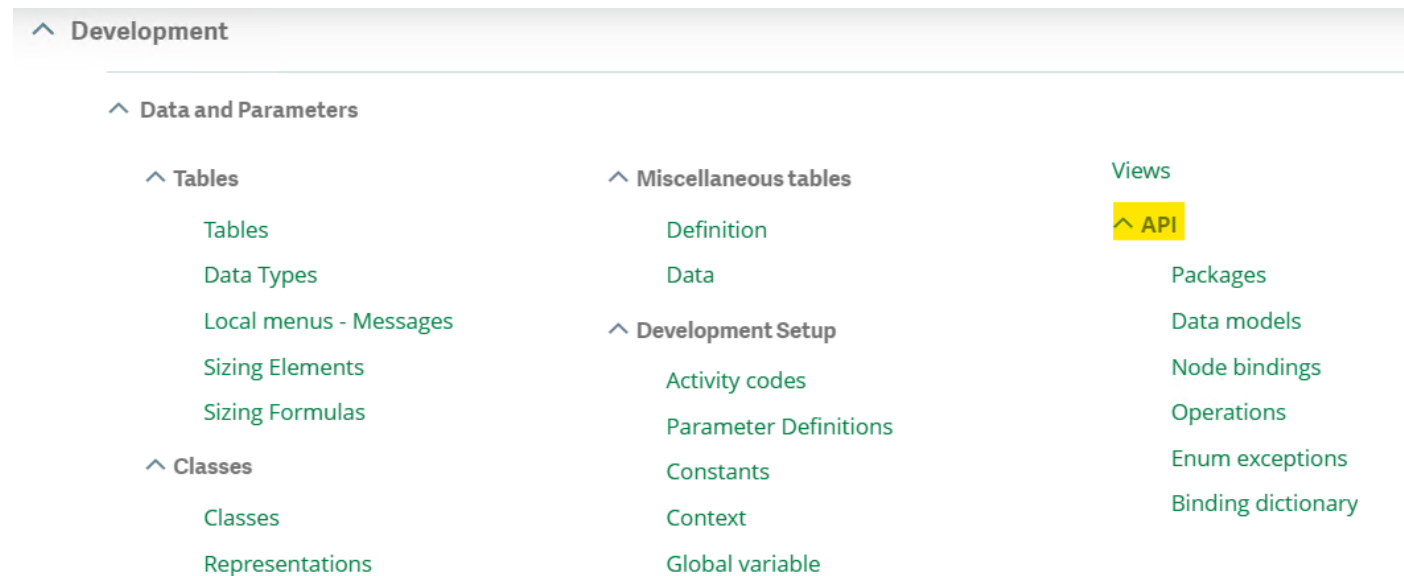
As mentioned in the new improved Online Help for X3 Services installation:

Using “invoke-webrequest” to test/verify the installation is no-longer required, as of 2024 R1.

Additional Functions for 2024 R1

Additional options and tables were introduced in 2023 R2 to support the Beta Programme for Xtensibility, but they were not “live” for general installations. However, they are now, and they are integral to the extended X3 Services/Xtrem Framework.

The new options are found under the Development, Data and Parameters, API menu – these options provide access to new tables.



In addition, new columns in existing tables are accessible via the Development, Data and Parameters, Tables, Tables option.

Additional Functions for 2024 R1

The purpose of the new functions is as follows:

- Packages – Define GraphQL Packages for Custom extensions
- Data models – Define/describe the data for the GraphQL nodes
- Node bindings – Generate node data from API Data models
- Operations – Mutation Operations can be based on either Sub Programs or Import Templates as defined here
- Enum enumeration – Specify new API names for existing properties (Local Menu value-sets)
- Binding dictionary – list of all data linked to GraphQL Nodes

Additional data for 2024 R1

The new options under API menu expose the data held in the following new tables:

AENUMBDGH	- Enum bindings header
AENUMBDGD	- Enum bindings detail
ANODDCPS	- Node Composite references
ANODECPT	- Node Computed properties
ANODE	- Node (API)
ANODEDBG	- Node Bindings
ANODBPDB	- Node binding properties
ANODPROP	- Node properties
ANODREF	- Node references
ANODPEXCL	- Exclusions
ANODTRANS	- Transaction properties
APACKACV	- Activity Codes for Packages
APACKAGE	- (API) Package names
APACKDEPSV	- Package Dependencies
APARIMPEXP	- Import/Export Parameters for Packages
APIOPE	- Package Operations

Additional data for 2024 R1

In addition, new columns have been created on ATABZON to hold API-related data.

Development > Data and Parameters > Tables

Table dictionary

Validation Process Co

General Columns Index Audit

Columns

66 Results Display: 25

Column	Abbreviated Title	Long Title	Property name (API)	Denormalized collection (API)	Package name (API)
1 BPRNUM	BP	BP	code		
2 ENAFLG	Active	Active in Selection	isActive		
3 BRGCOD	Category	Category	category		
4 BRGOBJ		Cust/suppl categ	customerOrSupplierOriginCategory		
5 BPRNAM	Company Name	Company Name	companyName	companyNames	
6 BPRSHO	Short Title	Short title	shortCompanyName		
7 EECNUM	Intra VAT no	Intracommunity VAT no	europeanUnionVatNumber		
8 BETFCY	Inter-site	Inter-site	isIntersite		

```

select CODZONE_0, APROPAM_0, DENCOLGR_0, APACKNAM_0
from SEED.ATABZON where APROPAM_0 <> '' and CODFIC_0='BPARTNER'
order by NUMLIG_0
    
```

CODZONE_0	APROPAM_0	DENCOLGR_0	APACKNAM_0
BPRNUM	code		
ENAFLG	isActive		
BRGCOD	category		
BRGOBJ	customerOrSupplierOriginCategory		
BPRNAM	companyName	companyNames	
BPRSHO	shortCompanyName		
EECNUM	europeanUnionVatNumber		
BETFCY	isIntersite		

Additional data for 2024 R1

Also, new Import/Export Templates have been introduced – these all start with JSO as they are Imports based on JSON data.

Import/Export template			
Template	Description	Object	File Type
JS			
JSOBPC			json (API)
JSOMKI		MTK	json (API)
JSOMKM		MTK	json (API)
JSOMKO		MTK	json (API)
JSOPIH		PIH	json (API)
JSOPTH			json (API)
JSOPTHPTH		PTH	json (API)
JSOSGHLPNG		LPNOPE	json (API)
JSOSGHLPNO		LPNOPE	json (API)
JSOSGHSCS		SCS	json (API)
JSOSGHSCSL		SCSL	json (API)
JSOSGHSIS		SCS	json (API)
JSOSGHSST		SCS	json (API)
JSOSMO		SMO	json (API)
JSOSMR		SMR	json (API)

```
select APIROP_0,APIOPE_0,APIREF_0 from SEED.APIOPE where APIROP_0 <> ' '
order by APIROP_0
```

APIROP_0	APIOPE_0	APIREF_0
JSOBPC	COM_BPC_CREATE	Customer
JSOBPC	COM_BPC_UPDATE	Customer
JSOMKI	MFG_MKI_CREATE	WorkOrderProductionReporting
JSOMKM	MFG_MKM_CREATE	WorkOrderMaterialTracking
JSOMKO	MFG_MKO_CREATE	WorkOrderOperationTracking
JSOPIH	PUR_PIH_CREATE	PurchaseInvoice
JSOPTH	PJM_PTE_CREATE	TimeEntryLine
JSOPTH	PJM_PTE_DELETE	TimeEntryLine
JSOPTH	PJM_PTE_UPDATE	TimeEntryLine
JSOPTHPTH	PUR_PTH_CREATE	PurchaseReceipt
JSOSGHLPNG	STO_SGH_LPN_GROUPING	StockChangeByLpn
JSOSGHLPNO	STO_SGH_LPN_HANDLING	LpnOperations
JSOSGHSCS	STO_SGH_STOCK_CHANGE	StockChange
JSOSGHSCSL	STO_SGH_CHANGE_BYLPN	StockChangeByLpn
JSOSGHSIS	STO_SGH_INTERSITE	StockChange
JSOSGHSST	STO_SGH_SUBCONTRACT	StockChange
JSOSMO	STO_SMH_MISCI_CREATE	MiscellaneousIssue
JSOSMR	STO_SMH_MISCR_CREATE	MiscellaneousReceipt

JWT Configuration in Global Settings

Until 2024 R1, the ClientID and Secret key were stored in the nodelocal.js file. These have now been moved to Global Settings.

```
loginUrl: http://localhost:8124

# The following clientId and secret must be set with
# Both this file and nodelocal.js must be kept safe
# exports.config = {
#   [...]
#   etna: {
#     security: {
#       clientId: "create-your-own-client-id-uuid"
#       secret: "change-to-use-a-strong-secret-for-
#     }
#   }
#   [...]
# };

syracuse:
  clientId: 1afbe5c54c8b4a0dbb55a19750b016ca
  secret: roJzZ917X4#3!KBgdNAer$c6mdqaMzbo
```

All > Administration > Administration > Settings

Settings

AUTHENTI...

Account lock duration (minutes) Send email alert to

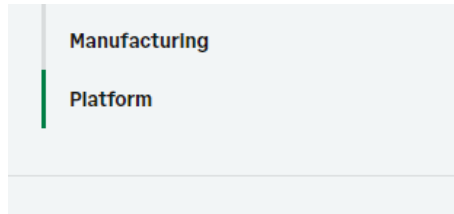
X3 Services

X3 Services client ID	X3 Services secret key	Token lifetime (seconds)
<input type="text" value="Value"/>	<input type="text" value="Value"/>	<input type="text" value="130"/>



Removal of Syracuse/Xtrem dependency

As confirmed in the Release Notes, the dependency between Syracuse and X3 Services has been removed:



efficiency of operations. If you set this parameter to 0, you completely disable the FAST option.

Removed dependencies between Syracuse and Sage X3 Services

The Sage X3 Services release number needs to match the Sage X3 application release. However, you can install a more recent Syracuse web server.

As mentioned, you should install the version of X3 Services which comes with the particular Release – i.e. there is still a dependency between the Release and X3 Services, even if the Syracuse dependency has been removed..

Remember that Mobile Automation and sedApta Web Scheduling both rely on X3 Services, so the relevant version of Web Scheduling needs to be installed.

Classic SOAP Web Pool no-longer required

As confirmed in the updated [Sage X3 Services installation](#), 2024 R1 does not require the setting-up of a SOAP Pool:

Configure the SOAP pool

Note: Since 2024 R1, this configuration is not required anymore.

This is part of the re-engineering of Mutations in 2024 R1 – see later.

Callback URL for Xtrem

Sage X3 2024 R1 has been enhanced to include a new field called **Sage X3 callback URL** that will indicate which URL X3 Services will use when accessing Syracuse to run a mutation – this may be different if the internal domain is not the same as that used by Users to connect.

If this field is empty, the user's URL root is used (The URL root used to connect to Syracuse in the first place). If it's populated, then the URL in that field is used.

This is available in Endpoints and X3 Solutions menu items

The screenshot shows a web interface for configuring an endpoint. The breadcrumb trail is [All](#) > [Administration](#) > [Administration](#) > [Endpoints](#). The page title is **Endpoint** X3ERPVI2 / SEED. There are five tabs: Information, Location, Server parameters, **Services** (selected), and Administration. Under the 'Services' tab, there is a section titled 'Services' with a checkbox for 'Enable SQL configuration' and the text 'SQL service'. To the right, there are two input fields: 'Sage X3 Services URL' and 'Sage X3 callback URL'. The 'Sage X3 callback URL' field is highlighted with a yellow background.

Callback URL for Xtrem

A Knowledge Base Article is available on this subject [How to configure X3 Services for 2023 R1 and later with HTTPS](#) and [How to manage/configure a Callback URL for X3 Services \(sage.com\)](#)

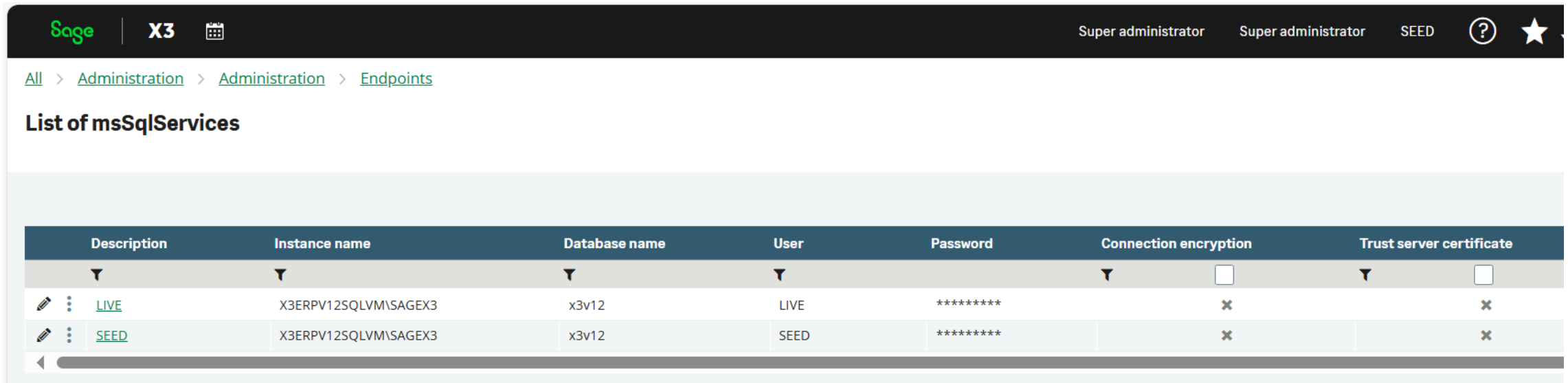
The screenshot shows the Sage X3 administration interface. At the top, there is a navigation bar with the Sage logo, 'X3', and a calendar icon. On the right side of the bar, it displays 'Super administrator' twice and 'X3ERP12 / SEED'. Below the navigation bar is a breadcrumb trail: 'All > Administration > Administration > Endpoints'. The main content area is titled 'X3 solution X3ERP12' and has a tabbed interface with tabs for 'Information', 'File protocol', 'Apache server', 'Runtimes', 'Batch server', 'BO server', 'Services', and 'Endpoints'. The 'Endpoints' tab is selected. Below the tabs, there is a text box containing the text: 'This is the BusinessObjects server associated with the Sage X3 solution'. Underneath this is a section titled 'Services' with three input fields: 'Sage X3 Cloud Development Platform URL' (empty), 'Sage X3 Services URL' (containing 'http://x3erpv12sqlvm:8240'), and 'Sage X3 callback URL' (empty). Below these fields is a section for 'SQL service' with a dropdown menu set to 'SQL Server' and a search box containing 'SEED'. At the bottom, the 'MongoDB service' section is partially visible.

Xtrem can now connect to multiple Endpoints





Xtrem can now be configured for multiple Endpoints – previously, it could only be configured for a single Endpoint.

Steps required:

- 1) Set up a new MS SQL service, stipulating the Folder's schema-name – for example, an environment with SEED and LIVE Folders



The screenshot shows the Sage X3 Administration interface. The top navigation bar includes the Sage logo, 'X3', and a calendar icon. On the right, it shows the user 'Super administrator' and the environment 'SEED'. The breadcrumb trail is 'All > Administration > Administration > Endpoints'. The main heading is 'List of msSqlServices'. Below this is a table with the following data:

Description	Instance name	Database name	User	Password	Connection encryption	Trust server certificate
  LIVE	X3ERP12SQLVMSAGEX3	x3v12	LIVE	*****	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
  SEED	X3ERP12SQLVMSAGEX3	x3v12	SEED	*****	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Xtrem can now connect to multiple Endpoints

2. Configure the Endpoints to have the appropriate MS SQL service – for example, LIVE Endpoint has been set up with LIVE MS SQL service which connects to X3 Database using the Folder’s LIVE schema.

[All](#) > [Administration](#) > [Administration](#) > [Endpoints](#)

Endpoint Live Folder

Information | Location | Server parameters | Services | Administration

Name	Description	
LIVE	Live Folder	⋮

Location

Application
[X3 ERP](#) ⋮

Server parameters

X3 solution	Server folder	Reference
X3V12	⋮ LIVE	X3

X3 solution settings

Historical folder	Type	Help Base URL
✖	■ Production	

Is this endpoint connected to X3...

Services

Sage X3 Services URL	Sage X3 callback URL	SQL service
http://x3erpv12sqlvm:8240		SQL Server ▾ LIVE

Xtrem can now connect to multiple Endpoints

Multi-endpoint processes

X3 Services starts two node.exe processes for general purpose and records activity in the appropriate xtrem log-file.

Initially, only one log which is associated with the equivalent of Syracuse Nanny, exists – in this case, process 5716 – and it shows when Folder Nodes are spawned

```
INFO | xtrem-cli-main/cli | Proxy service is listening on port 8240
INFO | xtrem-cli-main/cli | Forked worker for SEED(pid: 4812)
INFO | xtrem-cli-main/cli | Forked worker for SEED(pid: 1280)
INFO | xtrem-cli-main/cli | proxy request for SEED
INFO | xtrem-cli-main/cli | proxy request for SEED
INFO | xtrem-cli-main/cli | proxy request for SEED
INFO | xtrem-cli-main/cli | Forked worker for LIVE(pid: 4104)
INFO | xtrem-cli-main/cli | Forked worker for LIVE(pid: 3044)
INFO | xtrem-cli-main/cli | proxy request for LIVE
INFO | xtrem-cli-main/cli | proxy request for LIVE
```

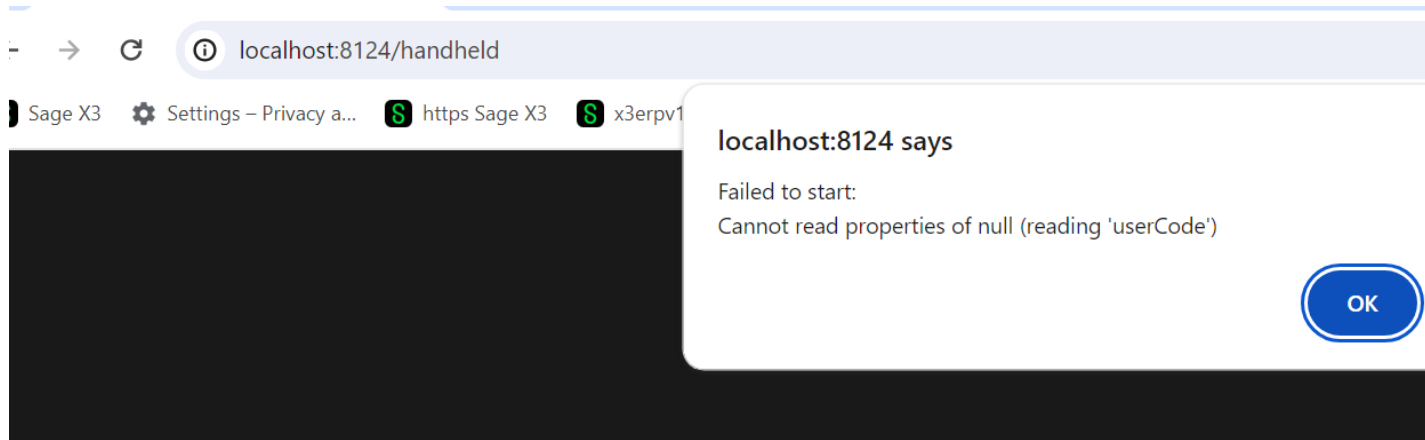
je > SafeX3 > x3-services-41.0.30-win > logs

Name	Date modified	Icon	Name	PID	State	Parent	Private Bytes	Working Set	Path
xtrem.server-4812-2024-05-02.log	02/05/2024 16:20	node.exe	node.exe	4104	Running	SYSTEM	00	275,384 K	D:\Sage\SafeX3\x3-services-41.0.30-win\n...
xtrem.server-5716-2024-05-02.log	02/05/2024 16:24	node.exe	node.exe	3044	Running	SYSTEM	00	275,360 K	D:\Sage\SafeX3\x3-services-41.0.30-win\n...
xtrem.server-1280-2024-05-02.log	02/05/2024 16:19	node.exe	node.exe	4812	Running	SYSTEM	00	298,720 K	D:\Sage\SafeX3\x3-services-41.0.30-win\n...
xtrem.server-4104-2024-05-02.log	02/05/2024 16:21	node.exe	node.exe	1280	Running	SYSTEM	00	240,172 K	D:\Sage\SafeX3\x3-services-41.0.30-win\n...
xtrem.server-3044-2024-05-02.log	02/05/2024 15:59	node.exe	node.exe	4428	Running	SYSTEM	00	9,316 K	"D:\Sage\SafeX3\x3-services-41.0.30-win\n...
		node.exe	node.exe	5716	Running	SYSTEM	00	187,364 K	D:\Sage\SafeX3\x3-services-41.0.30-win\n...
		node.exe	node.exe	3672	Running	SYSTEM	00	21,504 K	D:\Sage\SafeX3\SYRA\syracuse\agent\no...

Xtrem can now connect to multiple Endpoints

Connecting to multiple Endpoints from Mobile Automation

Note that Mobile Automation will connect to whichever folder the User last connected to in X3 when you log into it – if the X3 User has been created, but they’ve not logged in and selected a valid Folder in which their Folder-level User has been set up, the following error will be displayed



For example, I set up “ADC” in Admin Users to be able to log into SEED and LIVE Endpoints and set up the Folder “ADC” User in both Folders – if I’d failed to do this for one folder, the above error would be displayed.

I also set up User “LADC” in Admin Users to connect to LIVE Endpoint only with “LADC” Folder User, and “SADC” to only connect to SEED Endpoint and it only has “SADC” SEED Folder User.

Xtrem can now connect to multiple Endpoints

Connecting to multiple Endpoints using Sandbox

For the /xtrem/explorer/ Sandbox, the connection user will always connect to the Endpoint last connected-to in X3 itself – there's not an endpoint selection mechanism in the way Mobile Automation has.

Therefore, I'd set up a User for each Endpoint – so, connect to the Sandbox as “SADC” for SEED Endpoint Queries/Mutations testing and “LADC” to run Queries/Mutations in LIVE Endpoint.

Xtrem node processes and logging

Improved logging – when X3 Services connects to a Folder in X3, the main X3 Services node.exe process starts-up a child pair of node.exe processes to handle communications with that Folder.

In the past, a xtrem log file was only generated for the main node.exe, but now, a log-file is generated for each node.exe.

In this example, process 8384 acts as a “nanny” to start up folder-processes 4716 and 660 – this is visible in 8384’s log-file:

```

8384 | 001045 | 13:46:58.983 | WARN | xtrem-core/property | PrepaymentInvoice._sourceId: anonymous DataTyp
8384 | 001046 | 13:46:58.983 | WARN | xtrem-core/property | PrepaymentInvoice._etag: anonymous DataTypes a
8384 | 001047 | 13:46:58.984 | WARN | xtrem-core/property | StatementCreation._sourceId: anonymous DataTyp
8384 | 001048 | 13:46:58.984 | WARN | xtrem-core/property | StatementCreation._etag: anonymous DataTypes a
8384 | 001049 | 13:46:59.569 | INFO | xtrem-cli-main/cli | Proxy service is listening on port 8240
8384 | 001050 | 13:48:17.086 | INFO | xtrem-cli-main/cli | Forked worker for SEED(pid: 4716)
8384 | 001051 | 13:48:17.091 | INFO | xtrem-cli-main/cli | Forked worker for SEED(pid: 660)
8384 | 001052 | 13:48:25.657 | INFO | xtrem-cli-main/cli | proxy request for SEED
8384 | 001053 | 13:48:25.733 | INFO | xtrem-cli-main/cli | proxy request for SEED

```

Process Name	PID	State	Session	PPID	Private Bytes	Working Set	Path
MsMpEng.exe	3124	Running	SYSTEM	00	181,064 K		
NisSrv.exe	5500	Running	LOCAL SER...	00	3,176 K		
node.exe	4716	Running	SYSTEM	00	175,852 K		D:\Sage\SafeX3\x3-services-41.0.30-win\...
node.exe	660	Running	SYSTEM	00	244,288 K		D:\Sage\SafeX3\x3-services-41.0.30-win\...
node.exe	8384	Running	SYSTEM	00	177,008 K		D:\Sage\SafeX3\x3-services-41.0.30-win\...
node.exe	4364	Running	SYSTEM	00	9,400 K		"D:\Sage\SafeX3\x3-services-41.0.30-win\...
node.exe	3784	Running	SYSTEM	00	19,860 K		D:\Sage\SafeX3\SYRA\syracuse\agent\no...
node.exe	4932	Running	x3run	00	53,880 K		D:\Sage\SafeX3\SYRA\syracuse\bin\win32...
node.exe	6024	Running	x3run	00	128,568 K		D:\Sage\SafeX3\SYRA\syracuse\bin\win32...
node.exe	6684	Running	x3run	00	139,988 K		D:\Sage\SafeX3\SYRA\syracuse\bin\win32...
node.exe	6732	Running	x3run	00	122,824 K		D:\Sage\SafeX3\SYRA\syracuse\bin\win32...
node.exe	6796	Running	x3run	00	123,308 K		D:\Sage\SafeX3\SYRA\syracuse\bin\win32...
notepad++.exe	8736	Running	x3admin	00	17,256 K		"C:\Program Files\Notepad++\notepad+...

Xtrem node processes and logging

Unfortunately, this starting-up of child node.exe processes can take some time, so the first User to launch Mobile Automation or the Sandbox may encounter an error “Failed to start worker” which is resolved in a short time:

```
-----
4840 | 000031 | 07:53:52.939 | WARN   | xtrem-service/service | Event loop lag detected! Latency: 4220.37ms
4840 | 000032 | 09:41:01.666 | INFO   | xtrem-cli-main/cli    | Forked worker for SEED(pid: 748)
4840 | 000033 | 09:41:01.670 | INFO   | xtrem-cli-main/cli    | Forked worker for SEED(pid: 6440)
4840 | 000034 | 09:42:01.173 | ERROR  | xtrem-cli-main/cli    | Error: Failed to start worker
    at Timeout._onTimeout (/agent/_work/1/s/platform/cli/xtrem-cli-main/build/lib/commands/handlers/start/worker.js:39:26)
    at listOnTimeout (node:internal/timers:573:17)
    at processTimers (node:internal/timers:514:7)
4840 | 000035 | 09:42:01.181 | INFO   | xtrem-cli-main/cli    | Proxy error: Failed to find worker for request to SEED
4840 | 000036 | 09:42:01.193 | ERROR  | xtrem-core/application | Unhandled Rejection: Error: Failed to start worker at Promise Promise
{
  <rejected> Error: Failed to start worker
    at Timeout._onTimeout (/agent/_work/1/s/platform/cli/xtrem-cli-main/build/lib/commands/handlers/start/worker.js:39:26)
    at listOnTimeout (node:internal/timers:573:17)
    at processTimers (node:internal/timers:514:7),
  [Symbol(async_id_symbol)]: 2345,
  [Symbol(trigger_async_id_symbol)]: 2313,
  [Symbol(kResourceStore)]: undefined
}
4840 | 000037 | 09:49:18.976 | INFO   | xtrem-cli-main/cli    | proxy request for SEED
4840 | 000038 | 09:49:18.110 | INFO   | xtrem-cli-main/cli    | proxy request for SEED
```

Xtrem node processes and logging

The child node.exe processes will be listening on separate ports

```
4840 | 000027 | 07:53:49.936 | INFO | xtrem-cli-main/cli | Proxy service is listening on port
4840 | 000028 | 07:53:49.938 | WARN | xtrem-service/service | Event loop lag detected! Latency: 1
4840 | 000029 | 07:53:50.938 | WARN | xtrem-service/service | Event loop lag detected! Latency: 9
4840 | 000030 | 07:53:51.939 | WARN | xtrem-service/service | Event loop lag detected! Latency: 6
4840 | 000031 | 07:53:52.939 | WARN | xtrem-service/service | Event loop lag detected! Latency: 4
4840 | 000032 | 09:41:01.666 | INFO | xtrem-cli-main/cli | Forked worker for SEED(pid: 748)
4840 | 000033 | 09:41:01.670 | INFO | xtrem-cli-main/cli | Forked worker for SEED(pid: 6440)
```

```
748 | 000117 | 09:42:31.311 | INFO | xtrem-service/service | @sage/x3 purchasing sales: 41.0.30
748 | 000118 | 09:42:31.312 | INFO | xtrem-service/service | - @sage/x3-main: 41.0.30
748 | 000119 | 09:42:31.315 | INFO | xtrem-service/service | Service is listening on port 49925 for worker SEED
```

```
6440 | 000118 | 09:42:31.308 | INFO | xtrem-service/service | @sage/x3 main: 41.0.30
6440 | 000119 | 09:42:31.310 | INFO | xtrem-service/service | Service is listening on port 49924 for worker SEED
6440 | 000120 | 09:42:31.312 | WARN | xtrem-service/service | Event loop lag detected! Latency: 3000.000ms
```

Sandbox UI and Naming Conventions

Look-and-feel changes in the xtrem/explorer/ Sandbox

The Sandbox UI has changed

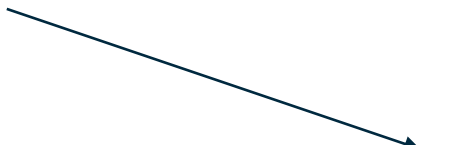
Show Documentation Explorer



Show History



Re-fetch Graph



Open short keys dialog



Open settings dialog



The screenshot shows the GraphQL API sandbox interface. The main area contains a code editor with the following text:

```
1 # GraphQL is an in-browser integrated development
2 # writing, validating, and testing GraphQL queries
3 #
4 # You can use it here to explore and interact with
5 # and demo data provided.
6 #
7 # Type queries on this side of the screen. Typeahead
8 # choices based on the text entered. GraphQL also
9 # validation errors in the code.
10 #
11 # GraphQL queries typically start with a { charac
12 # Comment lines starting with a # are ignored.
13 #
14 # Let's get you started with a simple query to re
15 {
16   xtremMasterData {
17     customer {
```

Annotations on the right side of the interface:

- Prettify query (indicated by a play button icon)
- Merge fragments into query (indicated by a merge icon)
- Copy query (indicated by a copy icon)

At the bottom of the interface, there are tabs for "Variables" and "Headers".

Sandbox UI and Naming Conventions

Changes in the xtrem/explorer/ Sandbox

Naming convention

Previously, the standard Customer Query displayed when the Sandbox is launched was based on “xtremMasterData”, and had a simple field called companyName:

```
{
  xtremX3MasterData {
    customer {
      query {
        edges {
          node {
            _id
            companyName
          }
        }
      }
    }
  }
}
```

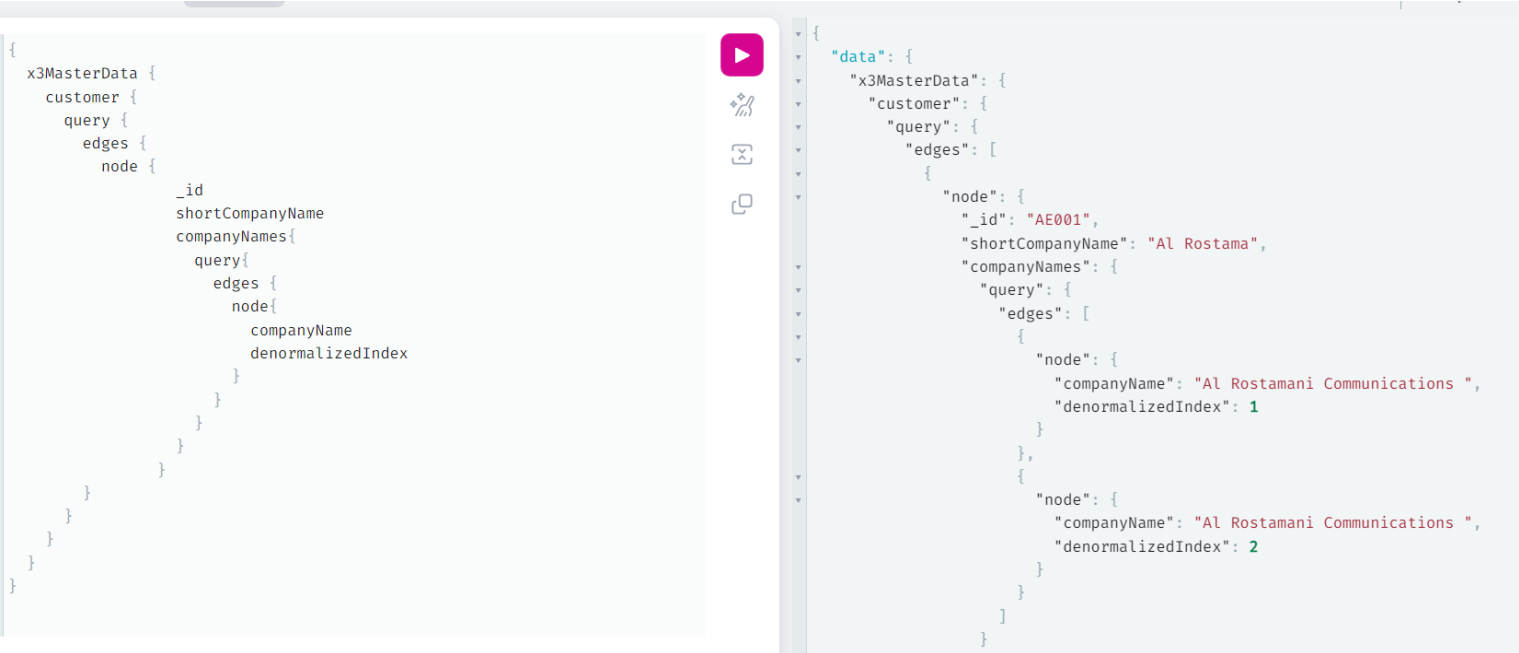
```
# GraphQL is an in-browser integrated development environment (IDE) for
# writing, validating, and testing GraphQL queries.
#
# You can use it here to explore and interact with the Sage X3 GraphQL API
# and demo data provided.
#
# Type queries on this side of the screen. Typeahead support lists available
# choices based on the text entered. GraphQL also highlights syntax and
# validation errors in the code.
#
# GraphQL queries typically start with a { character.
# Comment lines starting with a # are ignored.
#
# Let's get you started with a simple query to return a list of customers.
{
  xtremX3MasterData {
    customer {
      query {
        edges {
          node {
            _id
            companyName
          }
        }
      }
    }
  }
}
```

```
{
  "data": {
    "xtremX3MasterData": {
      "customer": {
        "query": {
          "edges": [
            {
              "node": {
                "_id": "AE001",
                "companyName": "Al Rostamani Communications"
              }
            },
            {
              "node": {
                "_id": "AE002",
                "companyName": "Al Zahra Computers"
              }
            },
            {
              "node": {
                "_id": "AE003",
                "companyName": "Cosmos Computer Co LLC"
              }
            },
            {
              "node": {
                "_id": "AE011",
                "companyName": "Computer Products"
              }
            }
          ]
        }
      }
    }
  }
}
```

Sandbox UI and Naming Conventions

This has changed to “x3MasterData” and the fields have changed as well – companyName has been replaced by a sub-query companyNames as it has been “denormalised”. You can use “shortCompanyName” if you want a simpler Query.

```
{
  x3MasterData {
    customer {
      query {
        edges {
          node {
            _id
            shortCompanyName
            companyNames {
              query {
                edges {
                  node {
                    companyName
                    denormalizedIndex
                  }
                }
              }
            }
          }
        }
      }
    }
  }
}
```



The screenshot shows a GraphQL IDE interface with three panels. The left panel contains a query, the middle panel shows the query being executed, and the right panel displays the resulting JSON data.

```
{
  x3MasterData {
    customer {
      query {
        edges {
          node {
            _id
            shortCompanyName
            companyNames {
              query {
                edges {
                  node {
                    companyName
                    denormalizedIndex
                  }
                }
              }
            }
          }
        }
      }
    }
  }
}
```

```
{
  "data": {
    "x3MasterData": {
      "customer": {
        "query": {
          "edges": [
            {
              "node": {
                "_id": "AE001",
                "shortCompanyName": "Al Rostama",
                "companyNames": {
                  "query": {
                    "edges": [
                      {
                        "node": {
                          "companyName": "Al Rostamani Communications ",
                          "denormalizedIndex": 1
                        }
                      },
                      {
                        "node": {
                          "companyName": "Al Rostamani Communications ",
                          "denormalizedIndex": 2
                        }
                      }
                    ]
                  }
                }
              }
            }
          ]
        }
      }
    }
  }
}
```

Sandbox UI and Naming Conventions

This change to have companyNames as a “denormalised” field can be seen in the ATABZON Table – as mentioned earlier, new fields were added in 2023 R2 in preparation for 2024 R1.

ATABZON is probably the best place to see which entities have changed.

```
select CODFIC_0, CODZONE_0, APROPNAM_0, DENCOLGR_0
from SEED.ATABZON
where DENCOLGR_0 <> ' '
order by CODFIC_0, CODZONE_0
```

results Messages

CODFIC_0	CODZONE_0	APROPNAM_0	DENCOLGR_0
BPADDRESS	BPAADDLIG	addressLine	addressLines
BPADDRESS	TEL	addressPhon...	addressPhoneNumb...
BPADDRESS	WEB	addressEmail	addressEmails
BPARTNER	BPRNAM	companyName	companyNames
BPCUSTOMER	CCE	dimension	dimensions
BPCUSTOMER	CSHVATR...	isActive	cashTaxRules
BPCUSTOMER	DAYMON	paymentDay	paymentDays
BPCUSTOMER	DIE	dimensionType	dimensions
BPCUSTOMER	INVDTA	invoicingElem...	invoicingElements
BPCUSTOMER	INVDTAAMT	percentageO...	invoicingElements
BPCUSTOMER	REP	salesRep	salesReps
BPCUSTOMER	TSCCOD	value	statisticalGroups
BPCUSTOMER	VATENDDAT	endDate	cashTaxRules
BPCUSTOMER	VATSTRDAT	startDate	cashTaxRules
BPDLVCUST	BPDNAM	companyName	companyNames

Sandbox UI and Naming Conventions

Note that this “companyNames” actually refers to the “Trade Name 1” and “Trade Name 2”, BPRNAM_0 & BPRNAM_1, rather than the BPCNAM_0 in previous Releases.

```

select * from SEED.BPARTNER
where BPRNAM_1 <> ' '
order by BPRNUM_0

select * from SEED.BPCUSTOMER
where BPCNUM_0='A0001'
    
```

UPDTICK_0	BPRNUM_0	ENAF LG_0	BRG COD_0	BRG OBJ_0	BPRNAM_0	BPRNAM_1
1	AE001	2	AE	BPC	Al Rostamani Communications	Al Rostamani Communications
1	AE002	2	AE	BPC	Al Zahra Computers	Al Zahra Computers
1	AE003	2	AE	BPC	Cosmos Computer Co LLC	Cosmos Computer Co LLC
1	AE020	2	AE	BPS	Orris Communications	Orris Communications
1	AE021	2	AE	BPS	First Star Computer UAE CAD Distrib	First Star Computer UAE CAD Distrib
1	AE022	2	AE	BPS	Microless Computers JLT	Microless Computers JLT
1	AE023	2	AE	BPS	Silicon Valley Computers	Silicon Valley Computers
2	AO001	2	AO	BPC	Luanda BTT.	0
1	ATF11	2			Finanzamt Wien 1/23 (FA09)	Tax office Austrian VAT declaration
2	BH001	2	BH	BPC	Global Computers And Electronics	Global Computers And Electronics
2	BH002	2	BH	BPC	Voyager IT Solutions	Voyager IT Solutions
2	BH003	2	BH	BPC	Inforise	Inforise

UPDTICK_0	BPCNUM_0	BPCNAM_0	BPCSHO_0	BCG COD_0	GRP_0	BPCTYP_0	BPCINV_0	BPAINV_0	BPCPYR_0	BPAPYR_0
2	AO001	Luanda BTT.	Luanda BTT	AO	AOG01	1	AO001	001	AO001	001

All > Common data > BPs

Business partner

Identity | Addresses | Accounting | Bank details | Contacts | BP

Category: AO | Angolan customers | BP: AO001

Identity

Identity

Short title: Luanda BTT | Acronym: Lda.

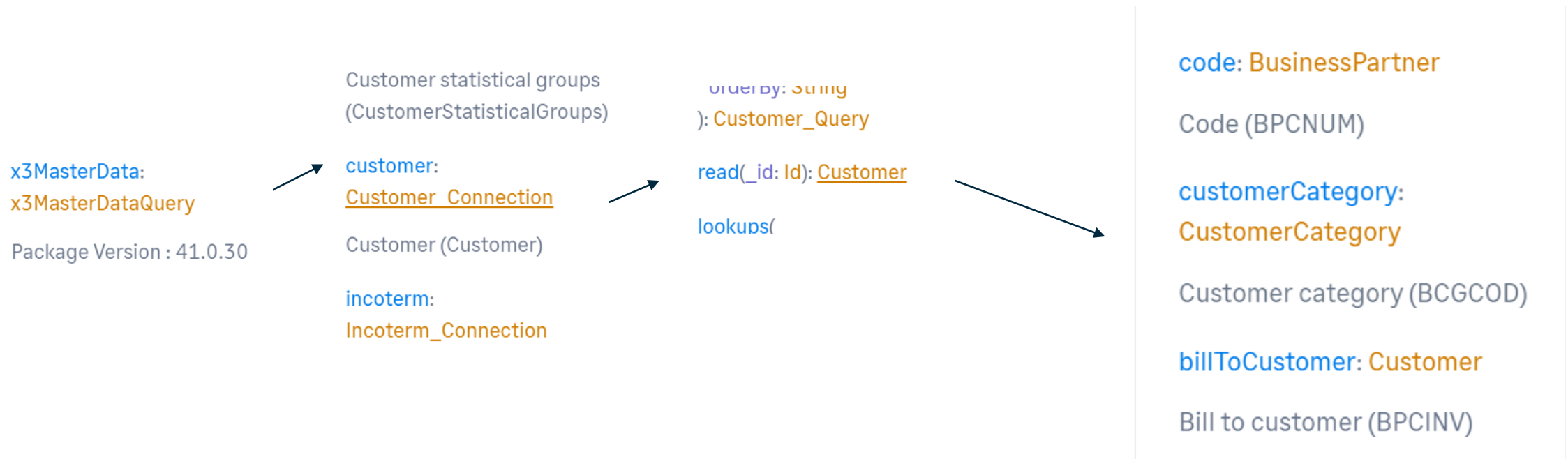
Trade Name 1: Luanda BTT.

Trade Name 2: 0

Sandbox UI and Naming Conventions

Navigating the Query categorisation and names is slightly different too.

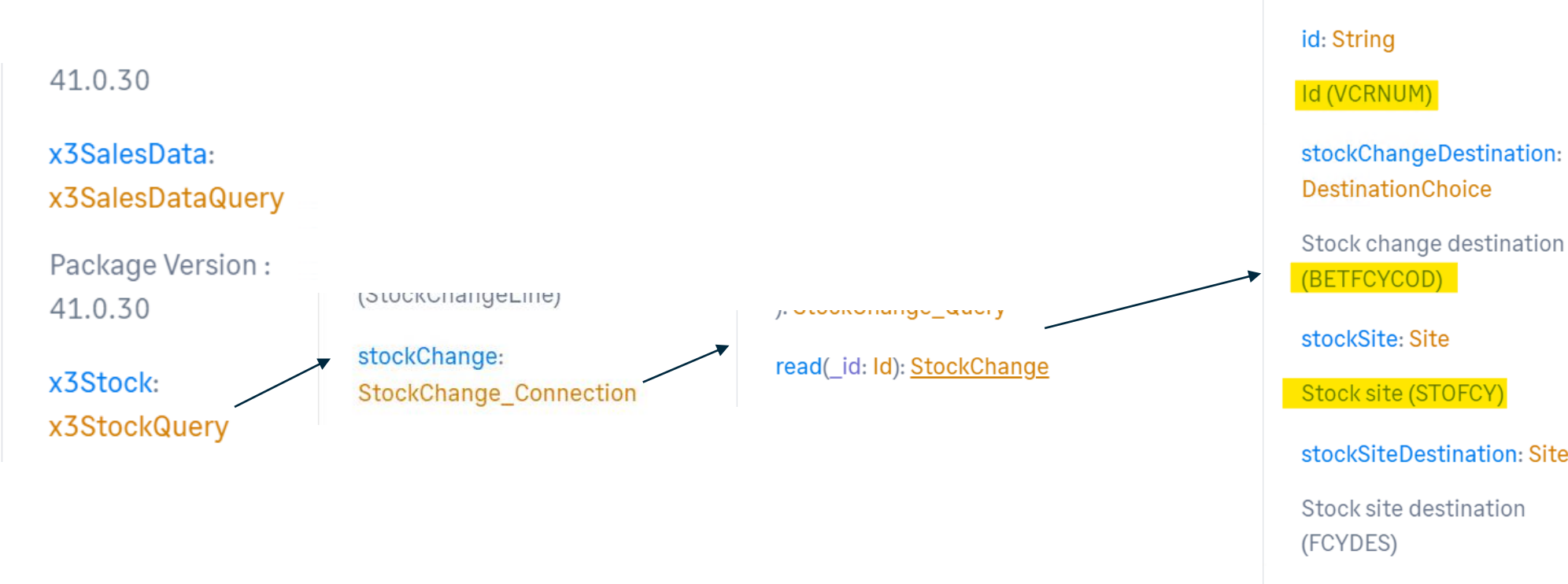
Previously, the standard Customer Query displayed when the Sandbox is launched was based on “xtremMasterData”, but this has changed to “x3MasterData” and the fields have changed as well.



Sandbox UI and Naming Conventions

Naming convention

Previously, another popular Query was based on “xtremInventory”, but this has changed to “x3Stock” and the fields have changed as well – in addition, the X3 Table Column names are included for extra information.

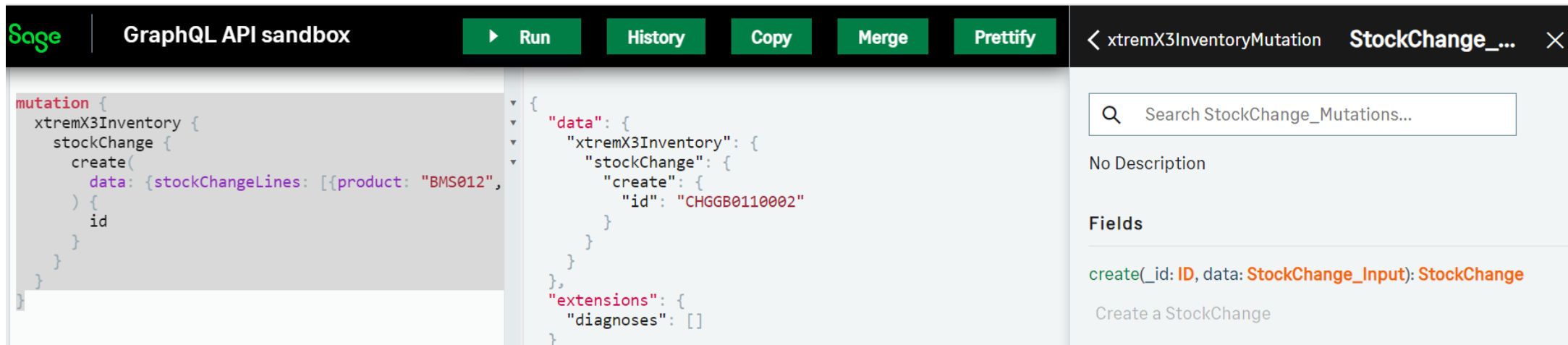


Sandbox UI and Naming Conventions

GraphQL Mutations.

The format of Xtrem Mutations has now changed – the “operation” call has become more GraphQL-like in how it’s laid out.

For example, this is a Mutation from Mobile Automation Stock Change in 2023 R2 SEED with create as the “maintain” operation:



The screenshot displays the Sage GraphQL API sandbox interface. The top navigation bar includes the Sage logo, the title "GraphQL API sandbox", and buttons for "Run", "History", "Copy", "Merge", and "Prettify". The main area is divided into three sections:

- Query Editor:** Shows a GraphQL mutation query:

```
mutation {
  xtremX3Inventory {
    stockChange {
      create(
        data: {stockChangeLines: [{product: "BMS012"},
      ] {
        id
      }
    }
  }
}
```
- Response Viewer:** Shows the JSON response:

```
{
  "data": {
    "xtremX3Inventory": {
      "stockChange": {
        "create": {
          "id": "CHGGB0110002"
        }
      }
    }
  },
  "extensions": {
    "diagnoses": []
  }
}
```
- Documentation Explorer:** Shows the endpoint "xtremX3InventoryMutation StockChange_...". It includes a search bar, a "No Description" message, and a "Fields" section with the signature:

```
create(_id: ID, data: StockChange_Input): StockChange
```

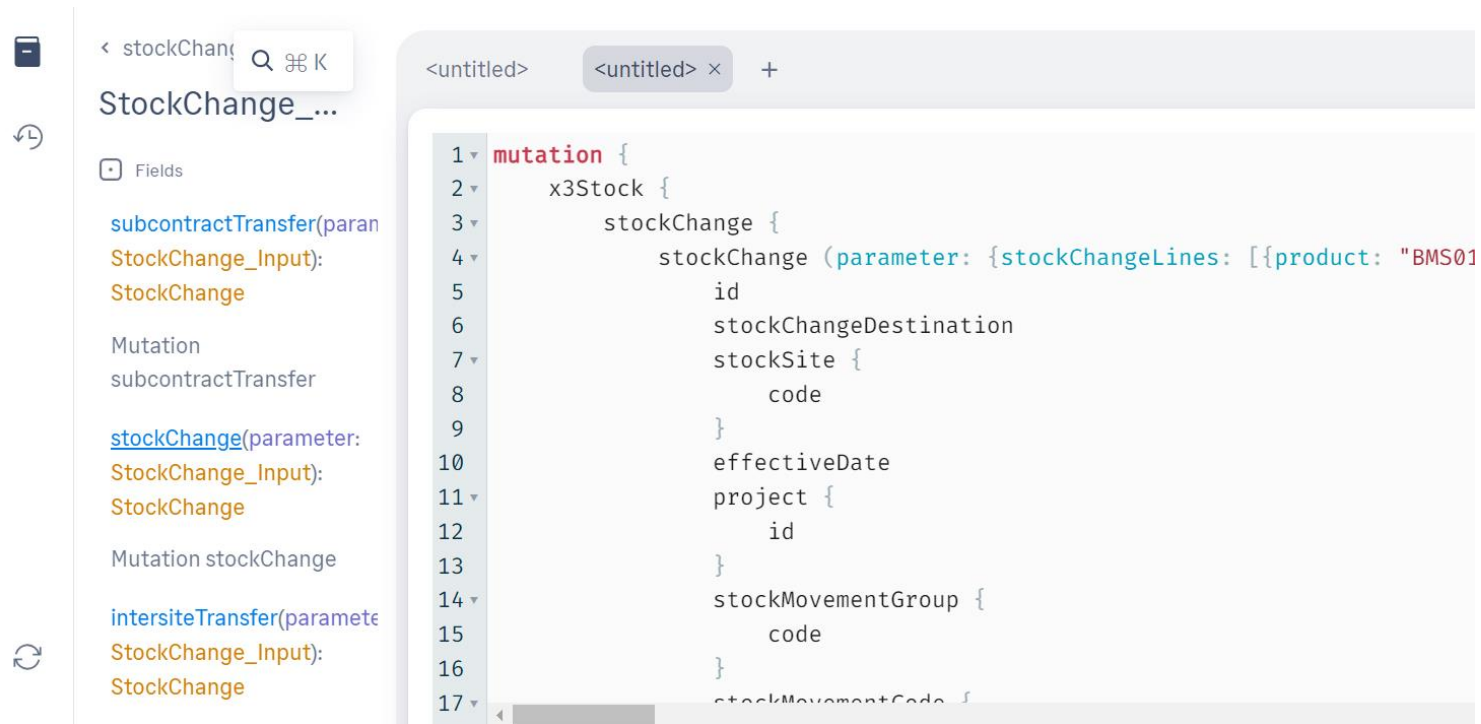
and a button labeled "Create a StockChange".

You can see from the Documentation explorer that the mutation action is to “create” a Stock Change

Sandbox UI and Naming Conventions

Trying this in 2024 R1 gives an error – I increased the xtrem logging level in order to see what Mobile Automation Stock Change invoked.

Looking in the Documentation for Stock Change, it's now in x3Stock and the Mutation is now stockChange with more parameters and a data-block.



The screenshot displays a software interface with a search bar and a code editor. The search bar on the left contains the text 'stockChange' and shows a search icon and keyboard shortcuts. Below the search bar, a list of results is visible, including 'StockChange_...' and 'Fields'. The code editor on the right shows a GraphQL mutation with the following structure:

```
1 mutation {
2   x3Stock {
3     stockChange {
4       stockChange (parameter: {stockChangeLines: [{product: "BMS01
5         id
6         stockChangeDestination
7       stockSite {
8         code
9       }
10      effectiveDate
11     project {
12       id
13     }
14     stockMovementGroup {
15       code
16     }
17     stockMovementCode {
```


New Mutations mechanism

From 2024 R1, X3 Services no-longer requires a SOAP Pool to carry-out GraphQL Mutations – instead, they are done using Import Templates or Sub-programs defined in the Development, Data and Parameters, API, Operations (GESAPIOPE):

The screenshot displays the configuration interface for an API operation. On the left, a table lists various operations and their main node names. The 'STO_SGH_STOCK_CHANGE' operation is selected. The main area shows the configuration for this operation, including node binding (request and response), package name, and the selected import/export template 'JSOSGHSCS'. The right panel provides details for the 'JSOSGHSCS' template, including its header information such as object, function, module, activity code, access code, and standard script.

Operation	Main node name
PJM_PTE_COMPUTE_UOM	TimeEntryLine
PJM_PTE_COST_TYPE	TimeEntryLine
PJM_PTE_CREATE	TimeEntryLine
PJM_PTE_DELETE	TimeEntryLine
PJM_PTE_UPDATE	TimeEntryLine
PUR_PIH_CREATE	PurchaseInvoice
PUR_PTH_CREATE	PurchaseReceipt
STO_CUD_COUNT	StockCountListDetail
STO_CUD_RENUM_COUNT	StockCountListDetail
STO_PREH_PICK_TICKET	PickTicketLine
STO_REO_REORDER	StockReorder
STO_SGH_CHANGE_BYLPN	StockChangeByLpn
STO_SGH_INTERSITE	StockChange
STO_SGH_LPN_GROUPING	StockChangeByLpn
STO_SGH_LPN_HANDLING	LpnOperations
STO_SGH_STOCK_CHANGE	StockChange

API operation configuration:

- Node binding (request): STO_SGH_STOCK_CHANGE, Request node name: StockChange
- Package name: @sage/x3-stock
- Node binding (response):
- Import/Export template: JSOSGHSCS
- Script:
- Sub-program:
- Action:

Import/Export template details (JSOSGHSCS):

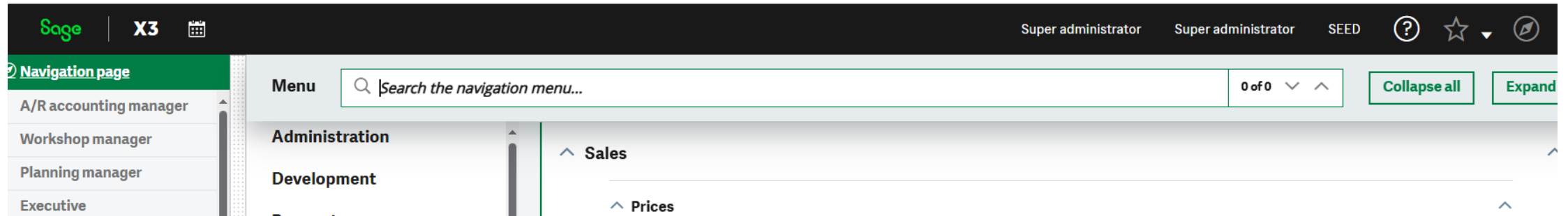
- Header: General
- Object: SCS, Function: GESSCS, Module: Stock
- Activity code: , Access code: , Standard script: IMPSCSS
- Specific script: SPEIMPSCS

X3 UI Improvements

Navigation Page as home page by default

By default, the Navigation Page is open in the main area, but it will be hidden if you click on one of the Landing Pages, and will remain so until the left-hand Compass is clicked again – even if you log out and back in again.

When the Navigation page is selected, the right-hand “Compass” is greyed-out so it’s not useable.

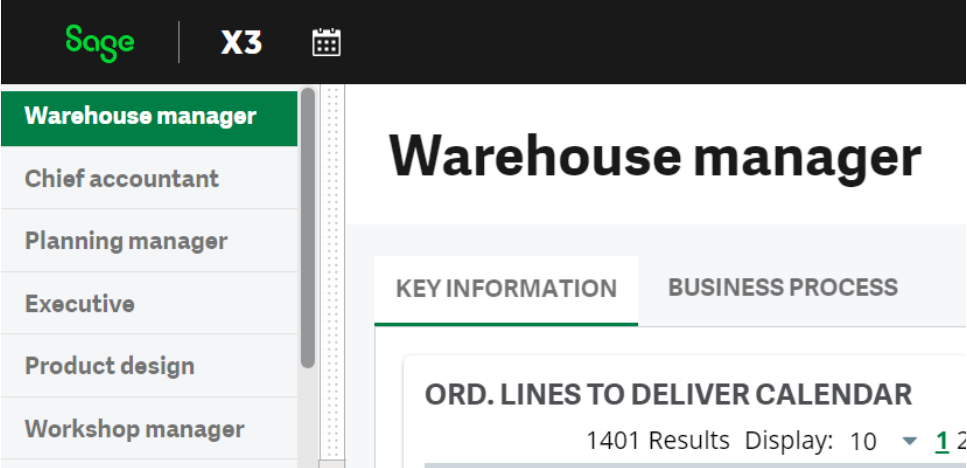


By contrast, when a Landing Page is selected, the right-hand “Compass” is active.

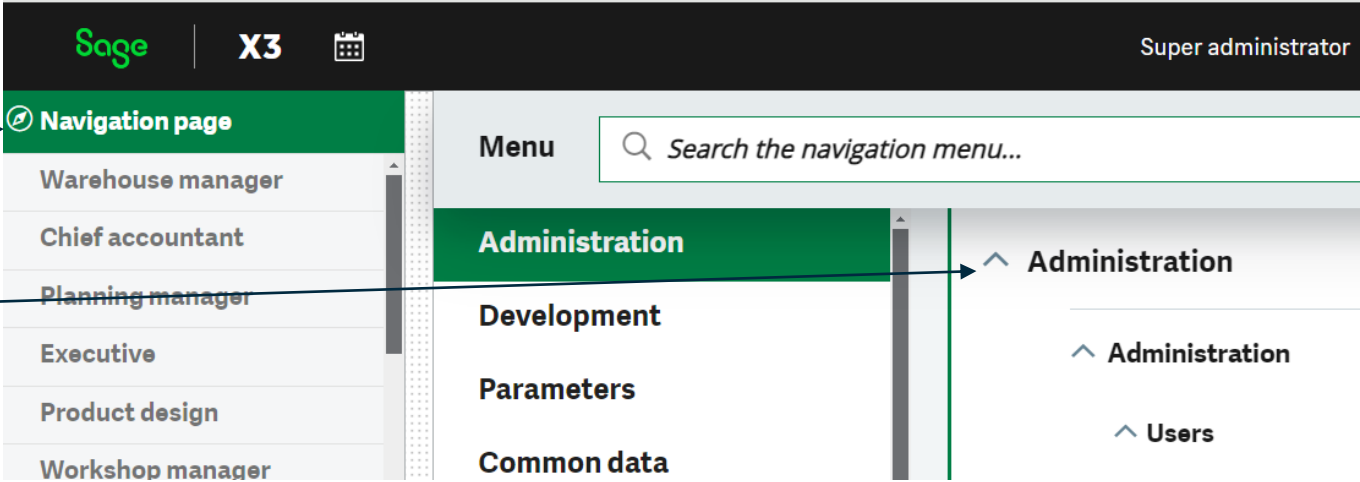


Navigation Page as home page by default

Previously, just the Landing Pages were displayed on the left-hand side of the client.



Now, the Compass is positioned above the Landing Pages, and the Menus are expanded to two levels by default.



UI Performance

Two new features have made it possible to improve the speed of rendering of the User Interface in general:

- 1) The default behaviour of X3 to display the Navigation Menus rather than a Landing Page – Landing Pages need to retrieve and then display data, whereas the Navigation Menu is more static and faster to render.
- 2) Classic Functions can be rendered more quickly by setting the tabs to be collapsed by default.

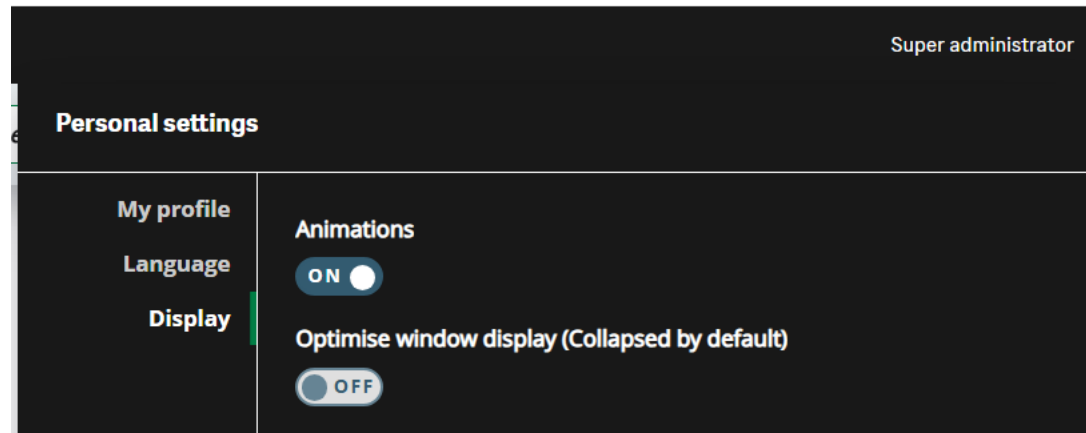
This was initially introduced to 2023R2 as part of one of the Syracuse Hotfixes, but is built into 2024 R1 as standard.

However, the 2024 R1 version also allows you to expand/collapse a tab by clicking anywhere on the heading area, rather than having to click on the up/down arrow at the right-hand side of the heading line.

UI Performance

By setting the tabs to be collapsed by default, their contents aren't displayed to start with.

The default behaviour is set in the Personal Settings for each User – a new option called “Optimise window display (Collapsed by default)” is now available.



UI Performance

When this is set to off, all the tabs are fully expanded when an option is launched – for example, in Sales, Orders, Orders (GESSOH), the Delivery, Invoicing and Lines tab are fully displayed - not just the Controls tab.

All > Sales > Orders

↑ ↑ ↓ ↓ **Sales Order ALL : Full entry** AI

Home **Controls** Delivery Invoicing Lines

Acknowledgment Pr

Inter-site

Inter-company

Delivery

Shipment **Last documents**

Shipping Site * GB013

Last Shipment Number

Home **Controls** **Delivery** Invoicing Lines

Freight Terms

→ EXW

Ex Works (std)

Freight term town

Invoicing

Invoicing Method **Payment / Last documents**

Invoicing Method **Payment Terms ***

One / Shipment One / Closed Order

CH30NET

Cheque 30 days date of Invoice

Home **Controls** **Delivery** **Invoicing** Lines

Invoicing Elements

	Short title	% or Amount
1	Discount %	0.00
2	Freight	0.00
3	Insurance	0.00
4		

Lines

	Product	Description	Major version
1	SFR013	Technical plan validation	

UI Performance

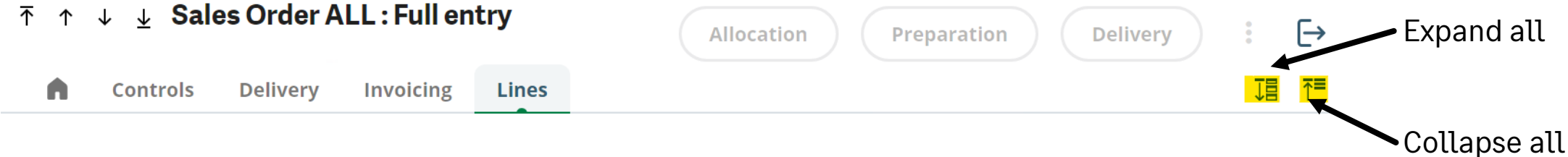
When this is set to on, only the first tab is fully expanded when an option is launched – for example, in Sales, Orders, Orders (GESSOH), the Delivery, Invoicing and Lines tab are collapsed - just the Controls tab is fully expanded and displayed.

The screenshot shows a breadcrumb trail: [All](#) > [Sales](#) > [Orders](#). Below it are navigation icons (up, down, left, right) and the title **Sales Order ALL : Full entry**. A home icon is followed by a tab bar with **Controls**, **Delivery**, **Invoicing**, and **Lines**. The **Controls** tab is active, showing three unchecked checkboxes: **Acknowledgment Printed**, **Inter-site**, and **Inter-company**. Below the tabs, the **Delivery** section is visible, containing a **Shipment** subsection with a **Shipping Site *** field (value: GB013) and a **Last documents** subsection with a **Last Shipment Number** field.

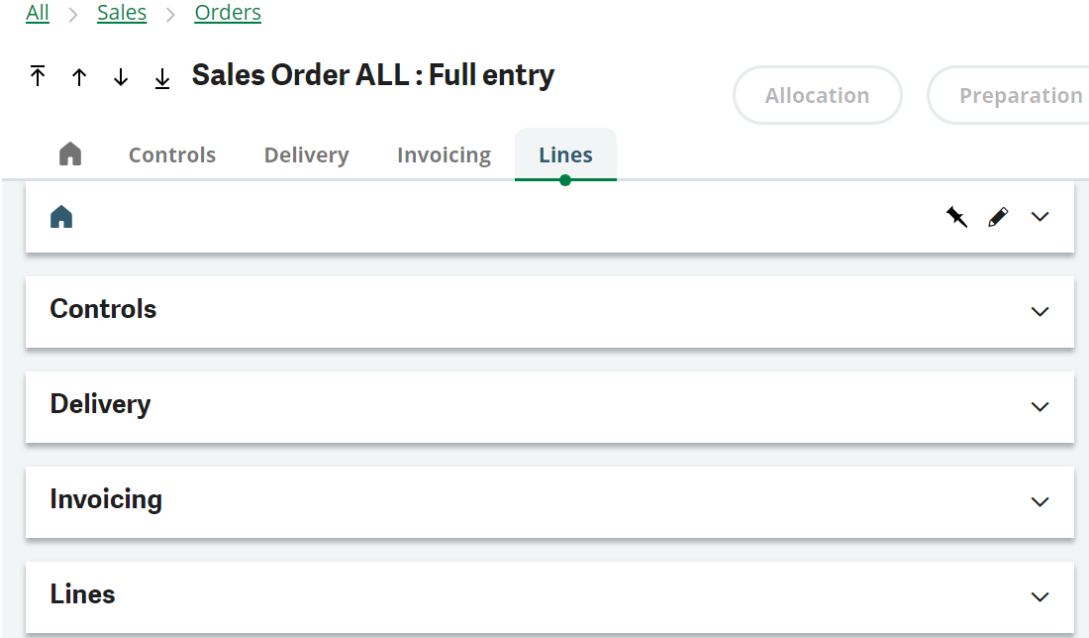
This close-up shows the tab bar with **Controls**, **Delivery**, **Invoicing**, and **Lines**. The **Controls** tab is highlighted with a green underline. Below the tabs, three sections are collapsed into dropdown menus: **Delivery**, **Invoicing**, and **Lines**. The **Controls** section is expanded, showing three unchecked checkboxes: **Acknowledgment Printed**, **Inter-site**, and **Inter-company**.

UI Performance

As an extra part of the feature, all the tabs can be expanded or collapsed using the actions

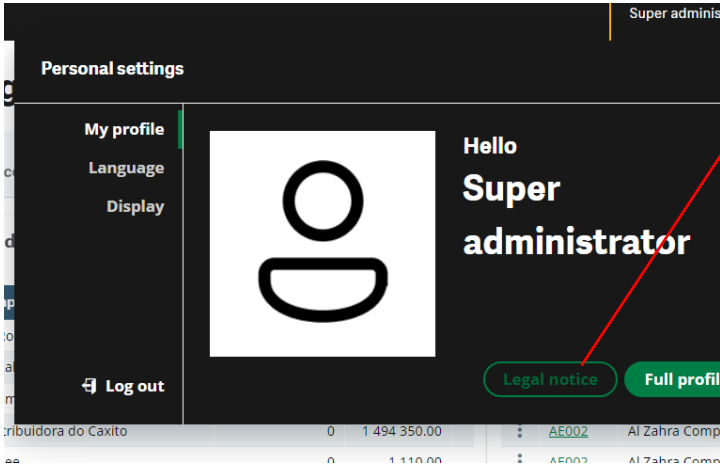


For example, collapsing all the tabs in Sales Orders shows



Syracuse Copyright and Credits updated

Improved the information in the “Credits” section.



Sage X3
Version 12

IDDN number	IDDN.FR.001.120009.xxx.2016	Validity e
Serial number	100371010518	Name of
Name of licensee	SAGE GLOBAL	Registrat
Registration number		

Warning: This software is protected by the Intellectual Property C
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will be liable to criminal penalties provided by the law.

Copyright © 1998 - Sage SAS ↗ Credits ↗

Credits

1187 Results Display: 20

Name	Version	Licenses	Copyrights	Type
.Net Framework	2.0, 3.5	Microsoft redistributed		Client dependency
7za.exe	9.2	LGPL		Component
@adobe/css-tools	4.3.2	MIT	Copyright (c) 2012 TJ Holowaychuk	Package
@ampproject/remapping	2.2.1	Apache License 2.0	copyright owner or entity authorized by	Package
@aws-crypto/crc32	3.0.0	Apache License 2.0	copyright owner or entity authorized by	Package
@aws-crypto/ie11-detection	3.0.0	Apache License 2.0	copyright owner or entity authorized by	Package

Extensibility Framework (X3 Builder)

Extensibility Framework (X3 Builder)

As part of Sage's on-going commitment to X3 Services which leverages GraphQL to implement Interfaces between Sage X3 and Add-ons such as Mobile Automation and sedApta Web Scheduling, V12 2024 R1 is the first release to include Extensibility Framework.

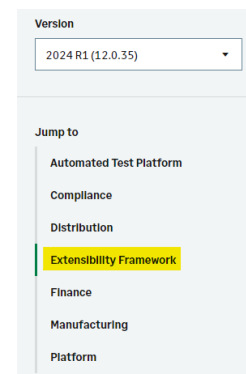
The Framework can be used to customise/extend the standard GraphQL APIs to meet your additional needs.

The Extensibility Framework can be installed using the documentation provided in the updated Online Help:

https://online-help.sagex3.com/erp/12/en-us/Content/V7DEV/getting-started_sage-erp-x3-installation-procedure.html#InstallingSageX3Services

And the 2024 R1 Release Notes:

[2024 R1 \(12.0.35\) | Sage X3](#)

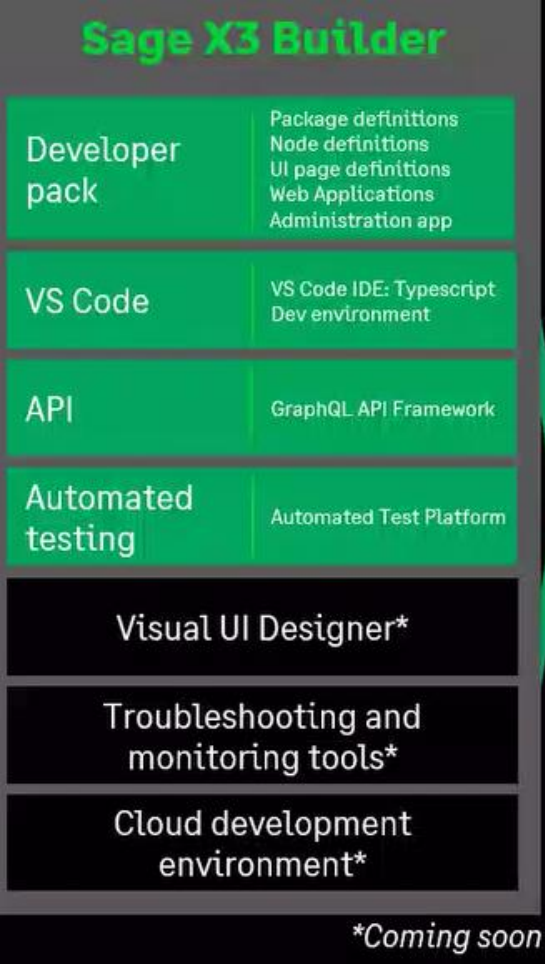


Extensibility Framework (X3 Builder)

The Extensibility Framework is now being re-named and will be known as “X3 Builder”.

Additional documentation will be made available to support the rollout of X3 Builder.

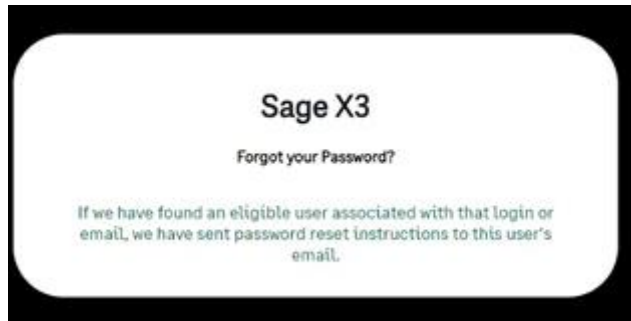
Package definitions are stored in the new functions in the Development, Data and parameters > API menu – as these functions also cover the standard APIs, I’ve mentioned them in the previous section.



Security Improvements

Allowed Hosts “Whitelist” management

We have tightened-up the allowed hosts whitelist – adding a tab to Global Settings and adding Default mailer and Web site domain to a “whitelist” of accepted sources. This is a Security change to stop hackers hi-jacking URLs such as Forgotten Password.



Settings

General settings Authentication X3 Services Proxy **Allow website domains** Mailer C1

Allow website domains

+

Website domain

No data to display

Add allowed domains other than localhost and server name.

Mailer

Default mailer

t des informations confidentielles, exclusivement destinées à la personne à laquelle elles sont adressées. Dans l'hy

Enhancements around “Brute Force” attacks

Login security has been improved – previously, X3 would detect an incorrect login and the User would have to wait before a valid login was accepted. Password Policies could be configured in Administration, Administration, Settings, Password Policies

All > Administration > Administration > Settings

Password policy SAGE

Information Lengths range Complexity (at least 3 rules have to be checked) Black-listed passwords Expiry

Information

Code * Factory Owner

Lengths range

Minimum password length * Maximum password length

Complexity (at least 3 rules have to be checked)

Requires at least one uppercase letter Requires at least one lowercase letter Requires at least one number Requires at least one non-alphanumeric character

Black-listed passwords

Blacklist file
[Select file](#)
Text file with one password per line

Expiry

Expiration period (in days) * Alert user before password expires (in days) *

Enhancements around “Brute Force” attacks

The appropriate Policy could be assigned in Administration, Administration, Settings, Global Settings

The screenshot shows the Sage administration interface. The breadcrumb trail is 'All > Administration > Administration > Settings'. The 'Settings' page has tabs for 'General settings', 'Authentication', 'Proxy', 'Mailer', 'CTI Service', 'Logs', 'Patch', 'Synchronisation', 'History', and 'Global variables'. The 'General settings' section includes input fields for 'Lower bound of two-digit year expansion interval' (1930), 'Upper bound of two-digit year expansion interval *' (2029), and 'Global default locale'. There are checkboxes for 'Display animations' and 'Use HTML for rich text'. The 'Authentication' section has radio buttons for 'Basic' and 'LDAP', and a 'Password policy' dropdown menu. A 'Password policies' table is also visible, showing a policy named 'SAGE' with a minimum length of 10, a maximum length of 128, and a checkmark in the 'Requires at least one uppercase letter' column.

Code	Minimum password length	Maximum password length	Requires at least one uppercase letter
SAGE	10	128	✓

Enhancements around “Brute Force” attacks

Now, more options are available in Administration, Administration, Settings, Global Settings

Authentication

Authentication mode

Authentication *

Basic
 LDAP

Password

Password policy Password policy

Forgot password token validity (minutes) * expressed in minutes

Failed attempts

Number of attempts before locking the account	Duration of attempts increment before reset (minutes)	Account lock duration (minutes)	Send email alert to
<input type="text" value="3"/>	<input type="text" value="1"/>	<input type="text" value="10"/>	<input type="text" value="admin@sagex3.local"/>

The most interesting settings are the Number of attempts before locking an account, and the fact that a notification can be sent to a specific account as well as the email-address associated with the Account being locked-out.

Enhancements around “Brute Force” attacks

The new Settings are

- Number of attempts before locking an account
- The period during which, the failed-attempt count will be reset if the User is able to log in – so, in this case, if the User fails twice within a minute and then logs in correctly on the third attempt, the count is reset without intervention.
- The amount of time between the last failed login-attempt and an automatic reset of the “locked-out” status – in this case, after 10 minutes, the User can try again with the correct password and will be able to log in. Alternatively, the failed-attempt count will start again.
- A notification can be sent to a specific account as well as the email-address associated with the Account being locked-out.

Enhancements around “Brute Force” attacks

On failing to provide the correct password up-to the limit, the following message will be displayed on screen:

Sage X3

Authentication failed. Check the login and password and try again.

On reaching the limit of failed attempts, the following message is displayed and the User is “locked out”:

Sage X3

We cannot authenticate you. Your account has been locked after too many failed attempts (4). Contact your administrator.

Enhancements around “Brute Force” attacks

A new Action has been added to Administration, Usage, Session management, Session information to list any locked-out sessions:

[All](#) > [Administration](#) > [Usage](#) > [Sessions management](#)

Web client sessions

Actions ⋮

Type	Session ID	User login	Connected app	Status	ATP	Web client	Host	Port	Process
Batch	3a40590b1f20	admin		Authenticated	✘		X3ERP12SQLVM		N0
Standard	f522392b1843	admin		Authenticated	✘	127.0.0.1	X3ERP12SQLVM	443	N1

Refresh
Excel report
Help
License usage information
X3 sessions
Authentication lockouts
Pin

Authentication lockouts

Acti

Login	First fail at	Failed attempts	Lockout start	Lockout end
JOEB	Fri, 26 Apr 2024 14:07:28 GMT	4	Fri, 26 Apr 2024 14:07:46 GMT	Fri, 26 Apr 2024 14:17:46 GMT

Miscellaneous Improvements

Copy/Move file performance improvements

The file move and copy operations now use native instructions that are more efficient and enhance the performance across the product, rather than DOS commands.

You can use the **movfile** and **copfile** instructions throughout the product to manipulate files on all file systems, including in custom 4GL scripts.

For more information, refer to the developer documentation.

SQL Server optimisation – “FAST 1” hint

Most Microsoft SQL Server queries generated by the 4GL code include a FAST 1 option – this is the MS SQL Server default behaviour. The FAST 1 option speeds up the retrieval of the first row while the query continues to run.

Selectively remove the Fast 1 option from SQL Server queries generated by X3 to massively enhance performance:

When using a *Read* or *For* instruction to read data, the X3 runtime always adds a hint `OPTION (FAST 1)`.

SQL Server query optimizers would choose a costlier but faster execution plan without the Fast 1 option. This is more obvious with large tables or record-sets.

SQL Server optimisation – “FAST 1” hint

You can alter or disable the FAST option by updating the following parameters: SQLOPTIMZ and SQLOPTNB

Parameter	Description	Value
MAXOPDTRS	Update transaction limit	50000
MEMTXT	Size of text memory	512
NBTRABUFF	Number of lines in memory	50
NXTREC	Threshold for last read access	0
ORAOPTMIZ	Oracle optimization	No
ORAOPTNB	Oracle optimization	0
ORATRAPATH	Oracle optimization	
ROLLBACK	Lock attempts before rollback	3
SELWARN	Limit for control memos	100000
SQLOPTMIZ	Optimisation Sql	No
SQLOPTNB	Optimisation Sql	0
TIMLCK	Unlock time in seconds	5
TIMOUT	Time limit for processes	30

SQL Server optimisation – “FAST 1” hint

- Set the **SQLOPTMIZ – SQL optimization** parameter (SUP chapter, PRF group) to **Yes** to customize the FAST option.
- Set the **SQLOPTNB – SQL optimization** parameter (SUP chapter, PRF group) to any integer to set a specific FAST value to multiply the efficiency of operations. If you set this parameter to **0**, you completely disable the FAST option.

These two new settings can be accessed via two new Functions called as follows

```
Gosub SET_FIRST_GDBOPTMIZ From TRTFIRST
```

And

```
Gosub UNSET_FIRST_GDBOPTMIZ From TRTFIRST
```

Fundamental programmes have been changed to include calls to these new functions, but there may be instances where you want to call them explicitly.

Windows Services “Recovery Policy”

Implement a default recovery policy for the services / daemons created for Sage X3 for Windows and Linux:

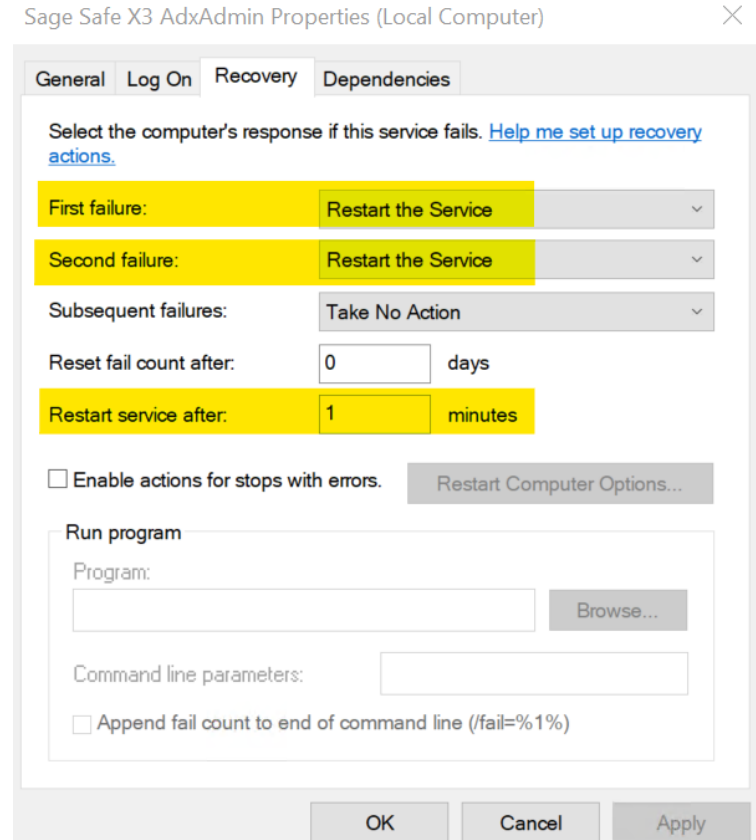
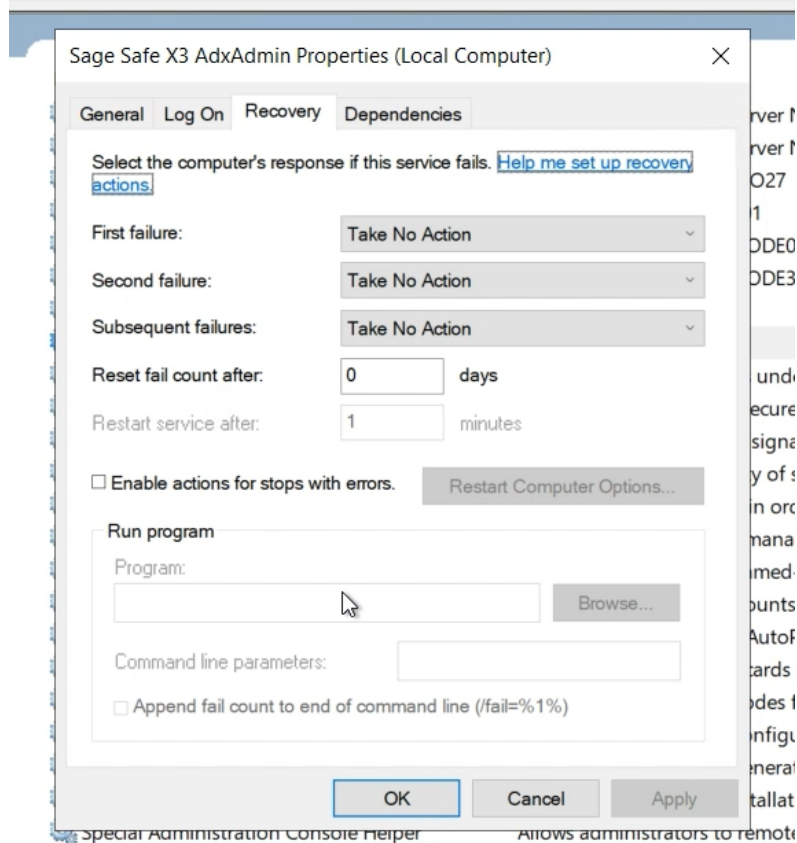
- Print Server
- Runtime
- AdxAdmin
- Syracuse agent
- X3 Services

as per the Recovery Tab of Windows Services.

Now, Services will try to re-start twice before failing, rather than not trying at all.

These settings are part of the Installers, and do not need interaction from the consultant.

Windows Services “Recovery Policy”



Data Clean and Control

A new feature in 2024 R1 is the Data Clean and Control :

This new function, BPIDVALGEN, can be used to validate Business partner records against the French government's SIRENE database that lists all companies registered in France.

You can create, update, or validate legal information for BP records such as the SIREN and SIRET numbers, company name, EU tax ID, and address (city).

The Formula wizard helps to ensure accuracy and consistency when creating and updating BP records.

A bulk process organizes the control of all or a subset of BPs when creating lists of controls and assigning the lists to users. The process identifies potential errors and duplicates. You can access the lists and validate the records.

Currently limited to French suppliers and customers

In summary, Users will be able to Update User-specific lists of BPs with validation - only against the French SIRENE database at the moment.

Data Clean and Control

There are two Activity Codes related to this :

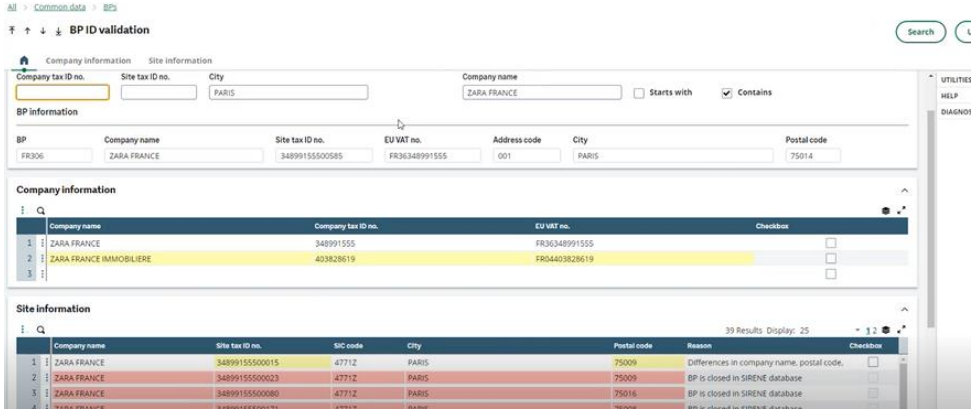
IDVAL – BP DI Validation

EINSI - SIREN/SIRET Validation

BP Validation can be activated/launched in two ways:



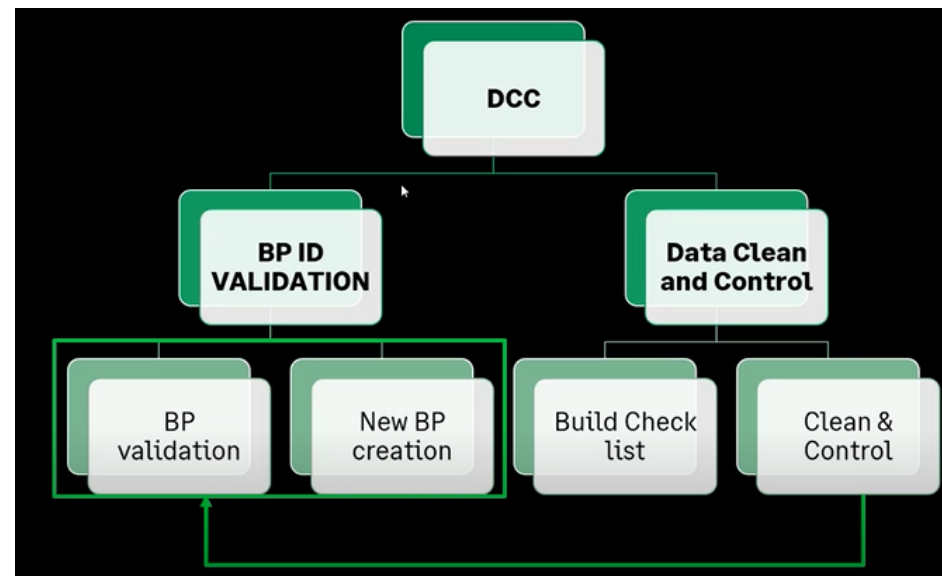
As well as displaying current values from the external database, you can search for other records with the same name, pick one of those, and re-synchronise and update the X3 BP with that data.



Data Clean and Control (DCC)

DCC has two parts :

- BP ID Validation – check the information stored in X3 against the relevant external Database, and allow the X3 BPs to be synchronised with the external Database
- Data Clean and Control – Build lists of BPs which can be associated with specific X3 Users.



ATP Improvements

Several new features have been introduced in 2024 R1:

Password Management

- To conceal the **loginPassword** and **loginUserRootPassword** parameters' passwords in the Allure Report and Jenkins. Refer to the [Sage X3 Automated Test Platform - Jenkins installation and setup guide](#) for more information.
- To update Nexus credentials using the client installer's setup wizard in update mode when Sage modifies the credentials. Refer to the [Sage X3 Automated Test Platform - Client installer guide](#) for more information.

Test GraphQL queries and mutations

Sage X3 Automated Test Platform 3.2.0 adds the capability to test the Extensibility framework and:

- To execute GraphQL queries and mutations.
- To verify GraphQL response results partially or entirely.
- To attach GraphQL responses from the queries or mutations returned by Sage X3.
- To generate Allure report PDFs and display GraphQL attachments, such as executed queries and responses returned by Sage X3.

ATP Improvements

Additional features in ATP for GraphQL

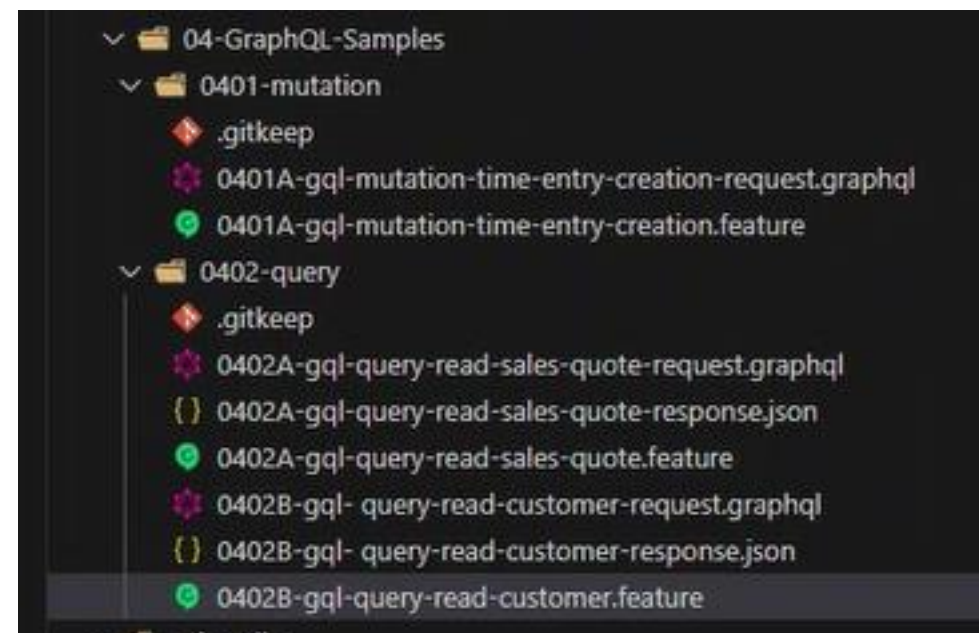
- GraphQL Examples in ATP
- New Step Definitions to cope with GraphQL

Evolution of ATP

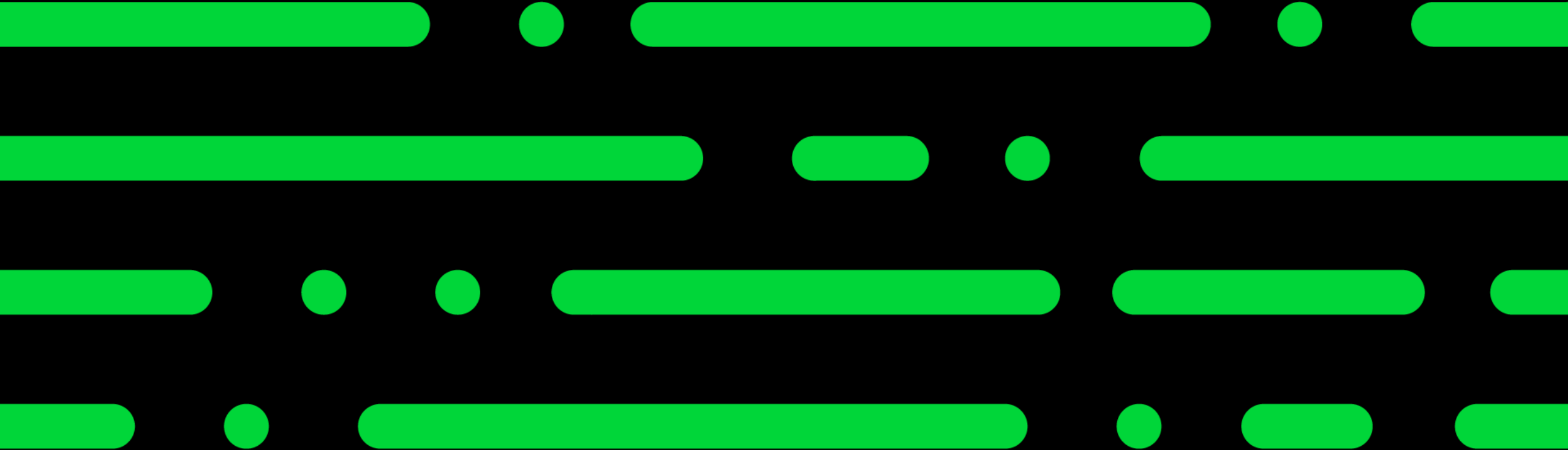
- Node.js 18 supported to avoid vulnerabilities

Additional Framework features

- Can test fields hidden programmatically
- “HEADLESS” – will/won’t show browser – needs adding to configuration if upgrading.
- New static parameter browserLanguage. Needed for GraphQL queries and Mutations
- New Parameter allure-pdf to say if you want to attach allure attachments in allure report.



Appendices



Useful Links

Resource	Link
Sage X3 Release notes	All V12 release notes
Prerequisites information for V12	Prerequisites overview
Technical online help	Technical help
Microsoft Graph API Help & tools	Microsoft Graph APIs - Microsoft learn
SQL Connection Encryption	ODBC DSN and connection string - ODBC Driver for SQL Server Microsoft Learn Using connection string keywords - SQL Server Native Client Microsoft Learn

Don't forget to sign up for [COEX New Features Highlights](#)

Presentation in	Date	CET time	Duration (hours)	Session ID
	Thursday, May 23 rd	9 am	2	118890
	Thursday, May 23 rd	4 pm	2	118891
	Tuesday, May 28 th	10 am	2	118892
	Thursday, June 6 th	9h30 am	2	118893

Thank you!

