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)

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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

Sage

# 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.
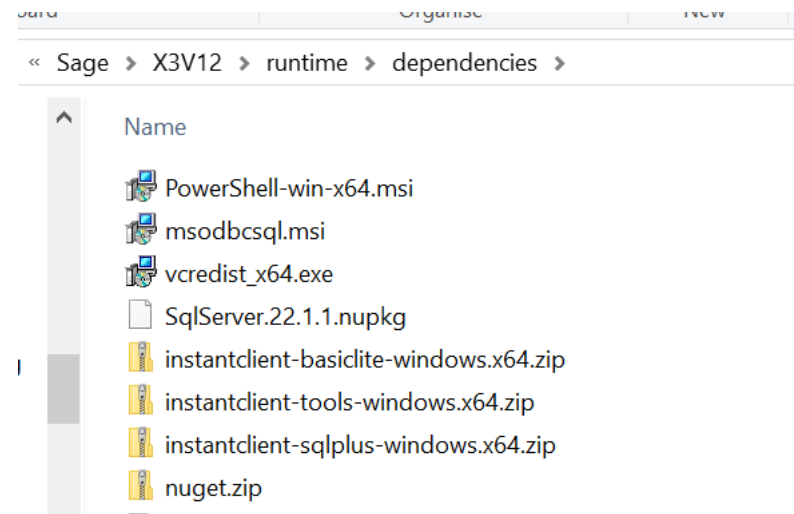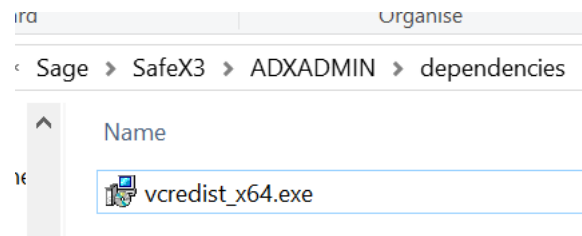
Improved pre-requisite checks in Installers

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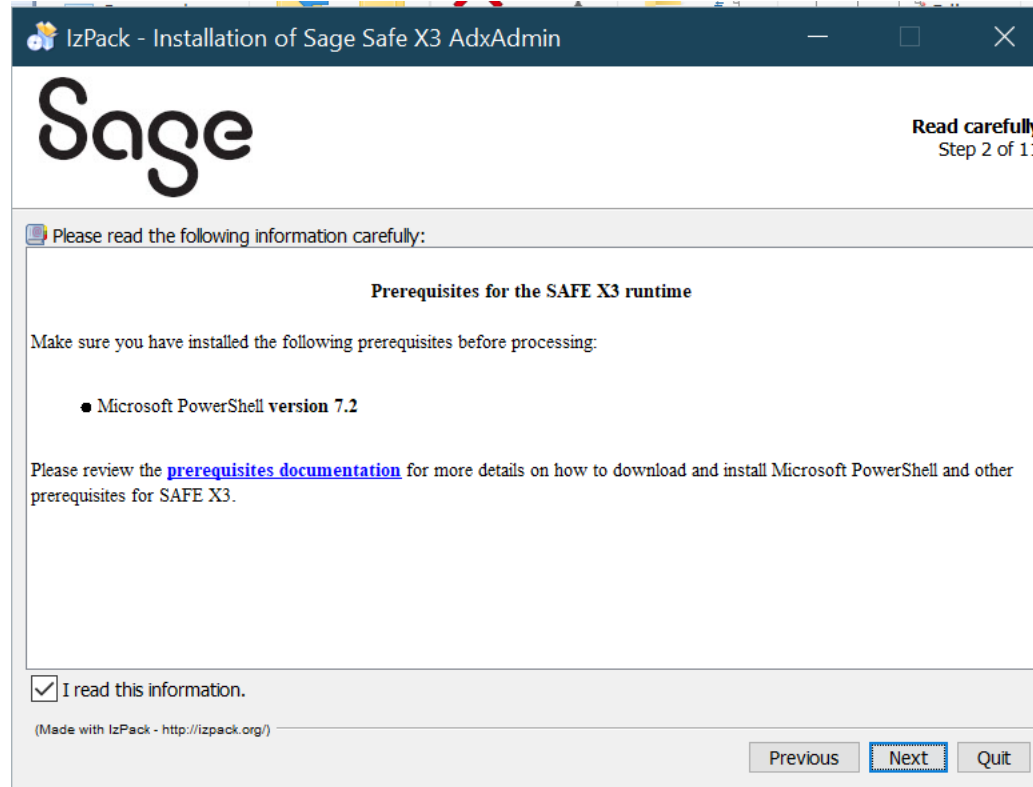
Improved error-messaging

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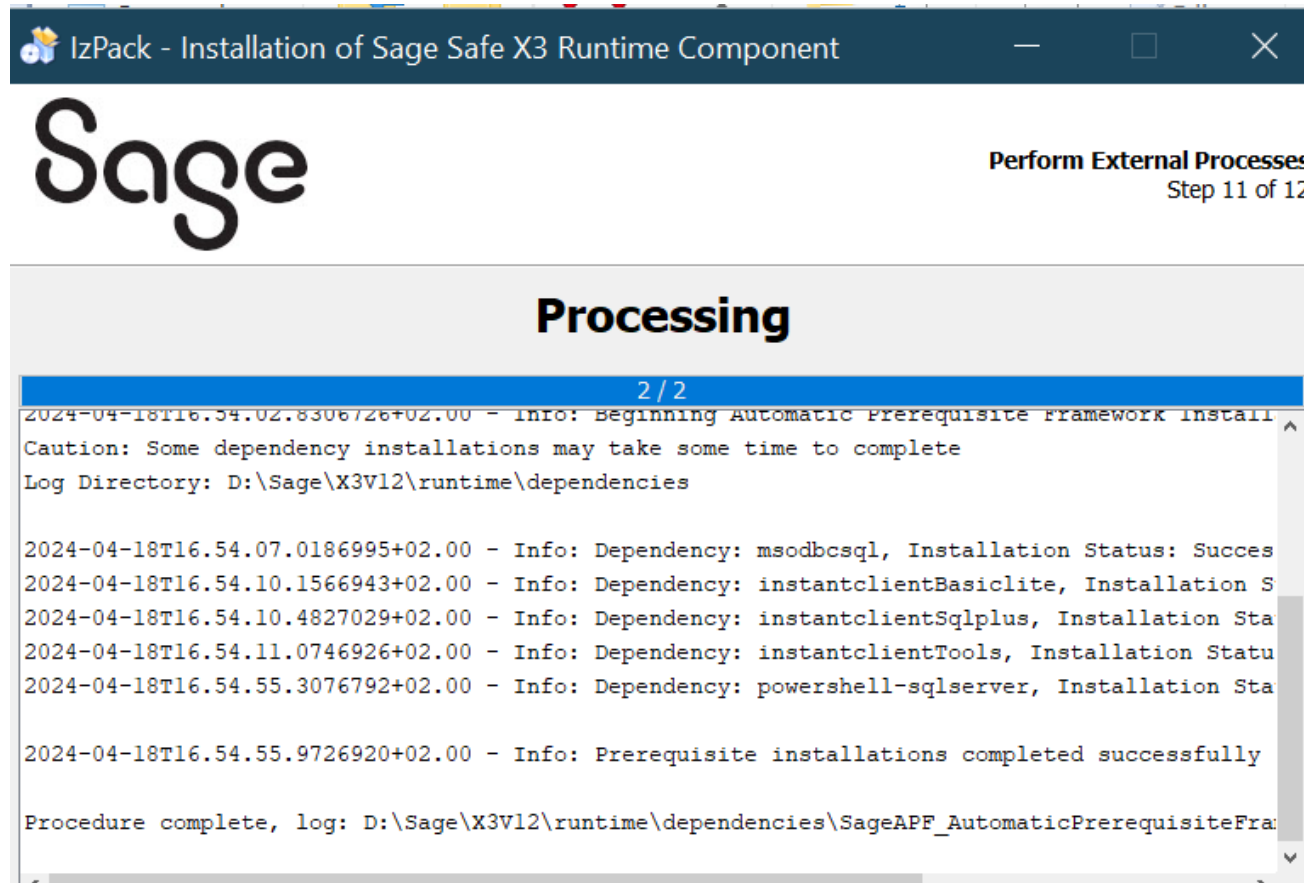
For example:
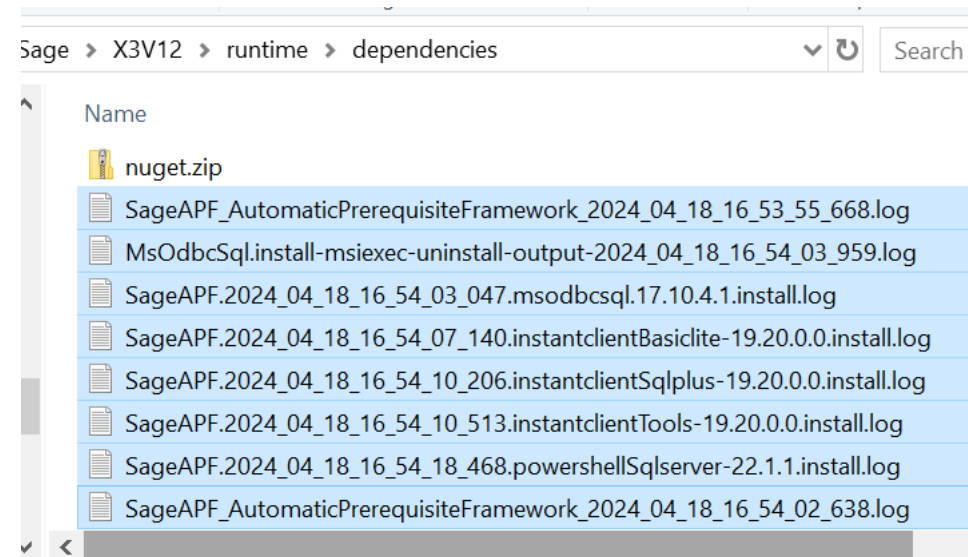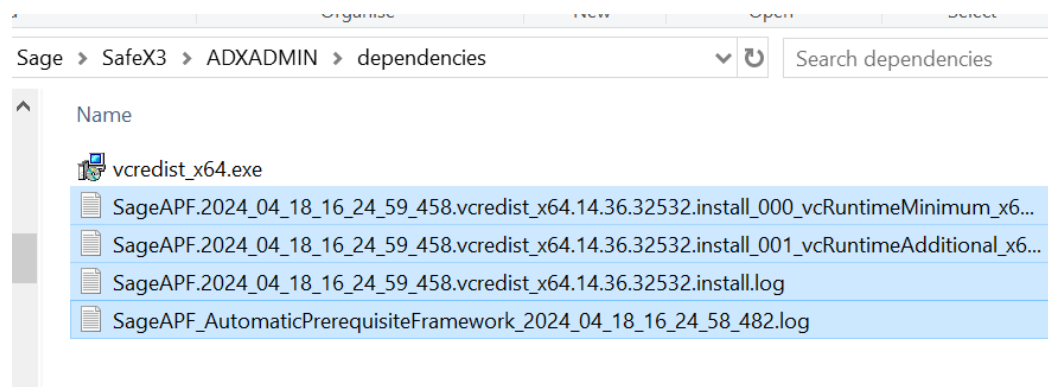
It is planned to roll SageAPF out to other components in future Releases.

Improved error-messaging

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

For example:

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.
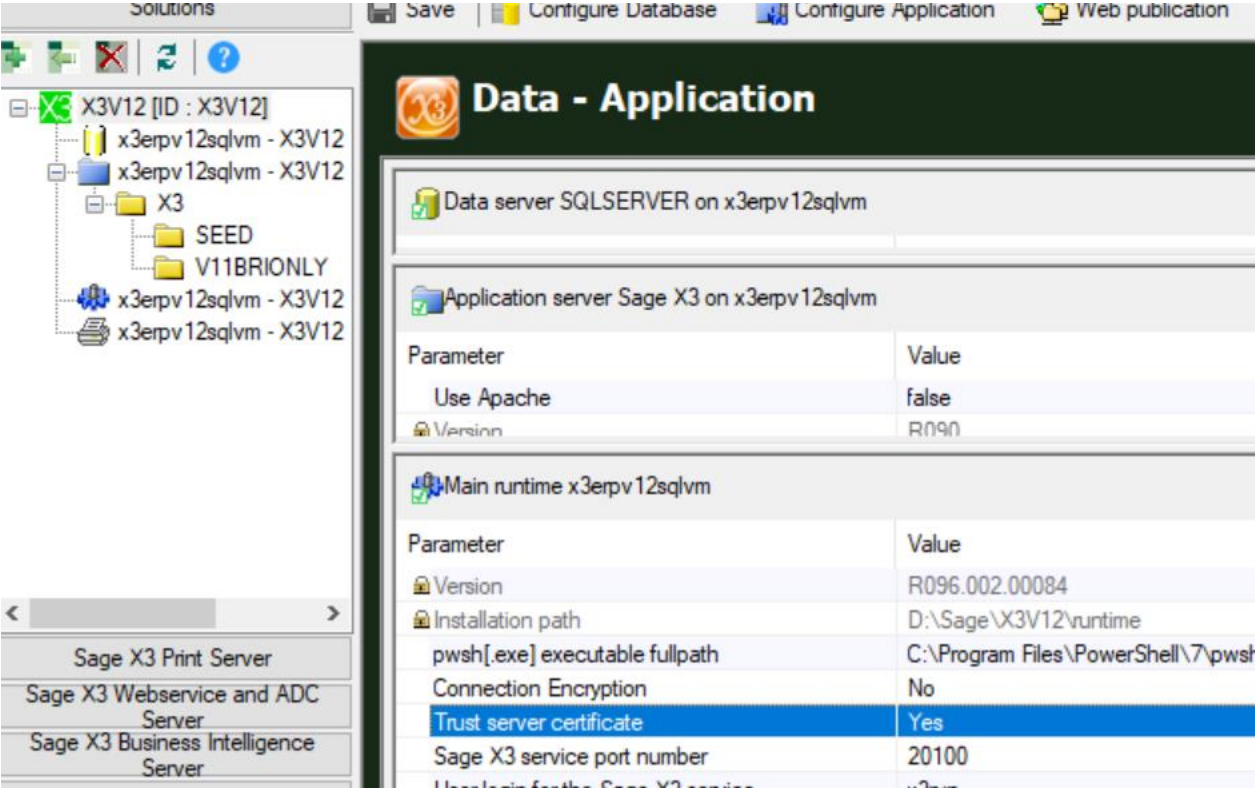
2024 R1 introduces this feature for X3 Services.

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".

Testing Xtrem Installation

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

<mark>Using "invoke-webrequest" to test/verify the installation is no-longer required, as of 2024 R1.</mark>

Additional Functions for 2024 R1

Additional options and tables were introduced in 2023 R2 to support the Beta Programme for Xtensibilty, 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.
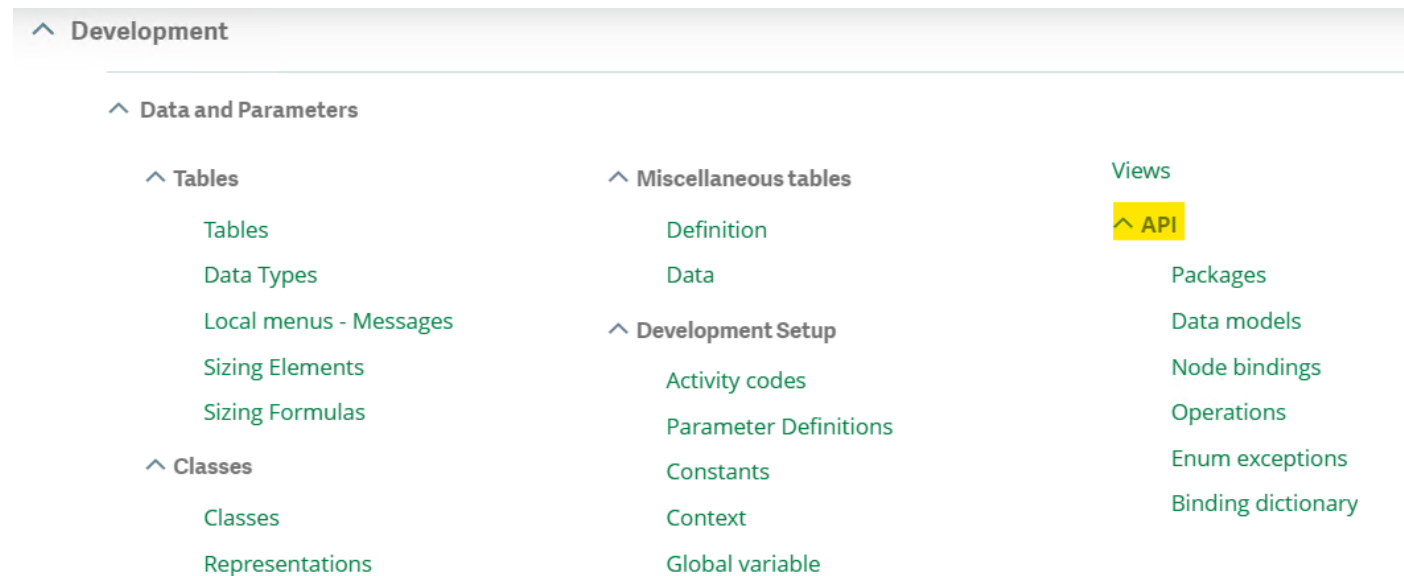
In addition, new columns in existing tables are accessible via the Development, Data and Parameters, Tables, Tables option.

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.

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)
JSOPTE			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
```

Results | Messages

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
JSOPTE	PJM_PTE_CREATE	TimeEntryLine
JSOPTE	PJM_PTE_DELETE	TimeEntryLine
JSOPTE	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 wi
# Both this file and nodelocal.js must be kept saf
# exports.config = {
#    [...]
#    etna: {
#       security: {
#          clientId: "create-your-own-client-id-uuid"
#          secret: "change-to-use-a-strong-secret-for
#       }
#    }
#    [...]
# };
syracuse:
    clientId: 1afbe5c54c8b4a0dbb55a19750b016ca
    secret: roJzZ9l7X4#3!KBgdNAer$c6mdqaMzbo
```

All > Administration > Administration > Settings

Settings

AUTHENTI...

Account lock duration (minutes)

Send email alert to

10

X3 Services

X3 Services client ID   X3 Services secret key   Token lifetime (seconds)

Value   *Value*   130

Removal of Syracuse/Xtrem dependency

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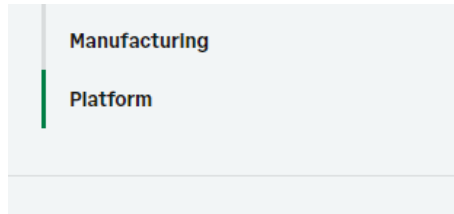
As mentioned, you should install the version of X3 Services which comes with the particular Release – i.e. there is still a dependency between the Release and X3 Services, even if the Syracuse dependency has been removed..

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

Callback URL for Xtrem

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

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

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.

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

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

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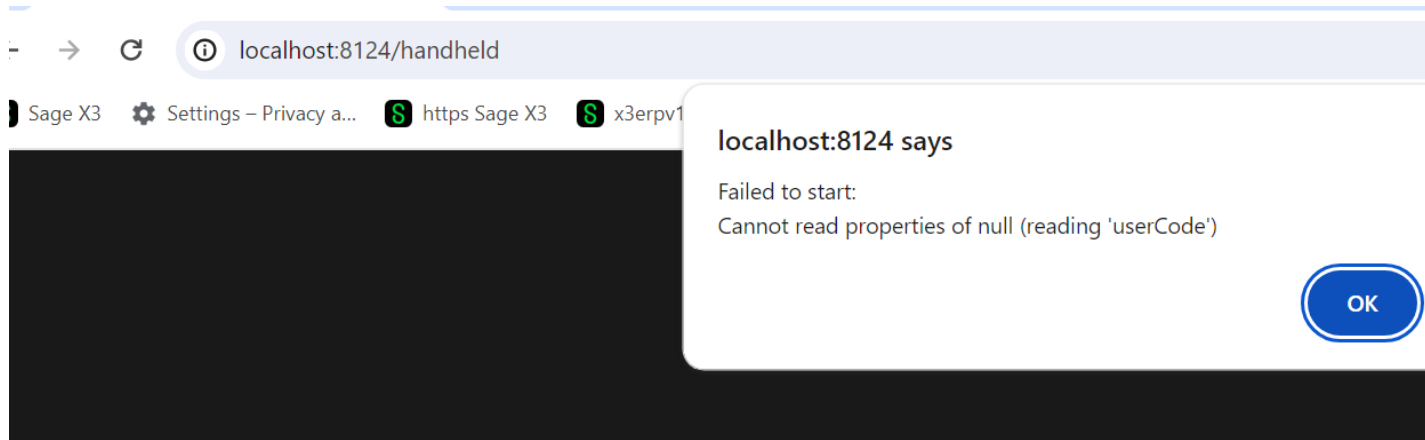
For example, I set up "ADC" in Admin Users to be able to log into SEED and LIVE Endpoints and set up the Folder "ADC" User in both Folders – if I'd failed to do this for one folder, the above error would be displayed.

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
8384 | 001054 | 13:48:25.949 | INFO  | xtrem-cli-main/cli    | proxy request for SEED
```

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\n...
node.exe	660	Running	SYSTEM	00	244,288 K	D:\Sage\SafeX3\x3-services-41.0.30-win\n...
node.exe	8384	Running	SYSTEM	00	177,008 K	D:\Sage\SafeX3\x3-services-41.0.30-win\n...
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 | 09:49:19.110 | 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: 7962.333ms
```

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
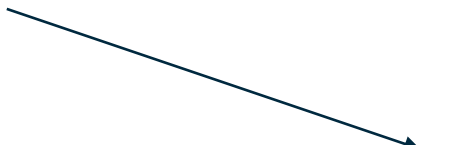
Open short keys dialog

Open settings dialog

Prettify query

Merge fragments into query

Copy query

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:

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
           }
          }
         }
        }
       }
      }
     }
    }
   }
}
```

```
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
```

esults 🖻 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

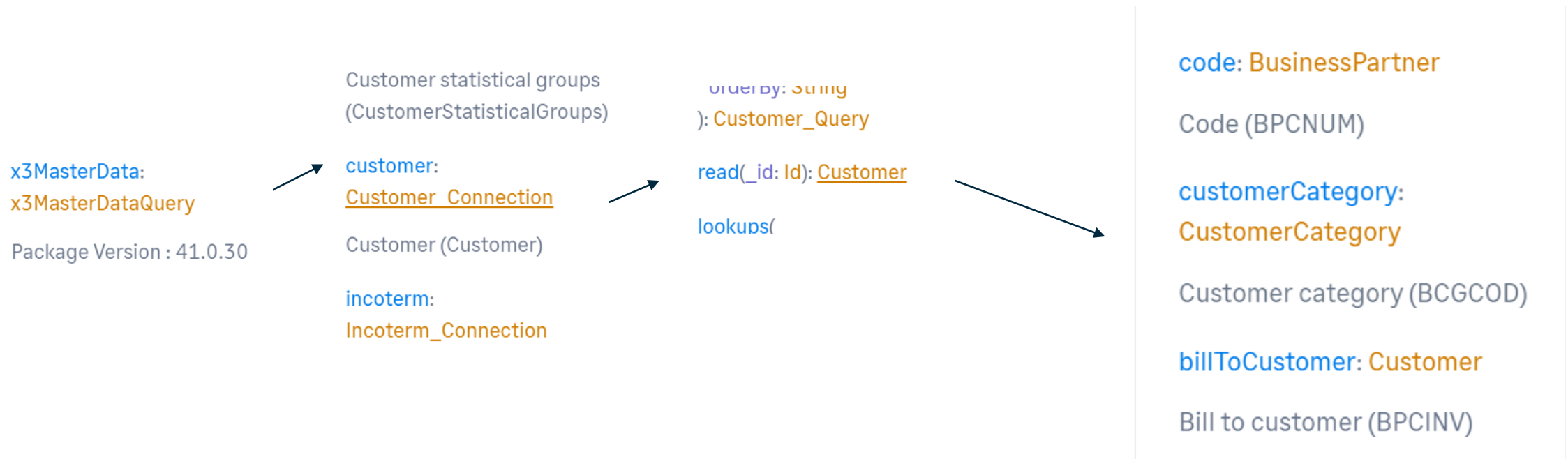Note that this "companyNames" actually refers to the "Trade Name 1" and "Trade Name 2", BPRNAM_0 & BPRNAM_1, rather than the BPCNAM_0 in previous Releases.

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.

x3MasterData:
x3MasterDataQuery

Package Version : 41.0.30

Customer statistical groups
(CustomerStatisticalGroups)

customer:
Customer_Connection

Customer (Customer)

incoterm:
Incoterm_Connection

orderBy: String

): Customer_Query

read(_id: Id): Customer

lookups(

code: BusinessPartner

Code (BPCNUM)

customerCategory:
CustomerCategory

Customer category (BCGCOD)

billToCustomer: Customer

Bill to customer (BPCINV)

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.
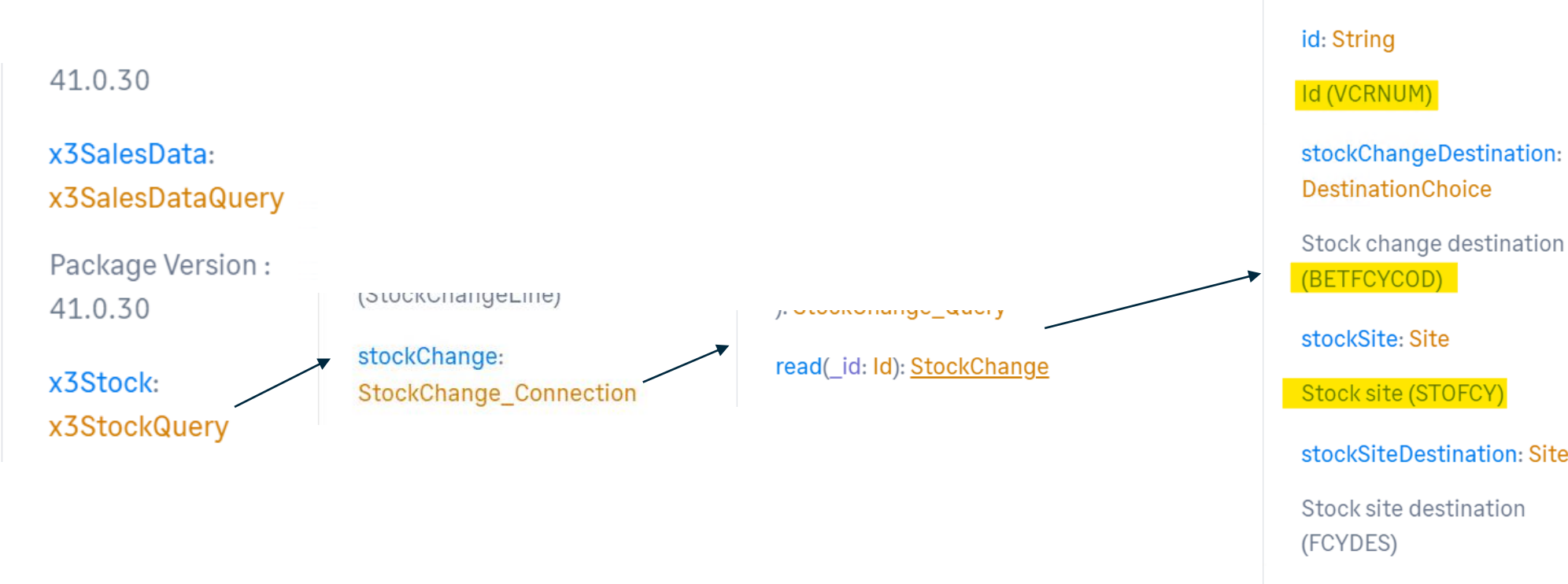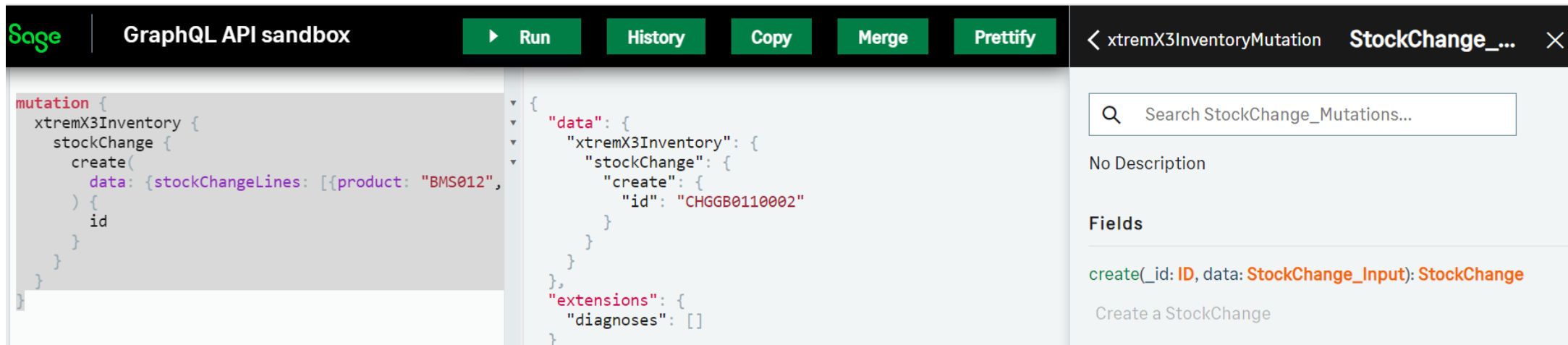
Sandbox UI and Naming Conventions

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:

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.

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):

X3 UI Improvements

Sage

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.
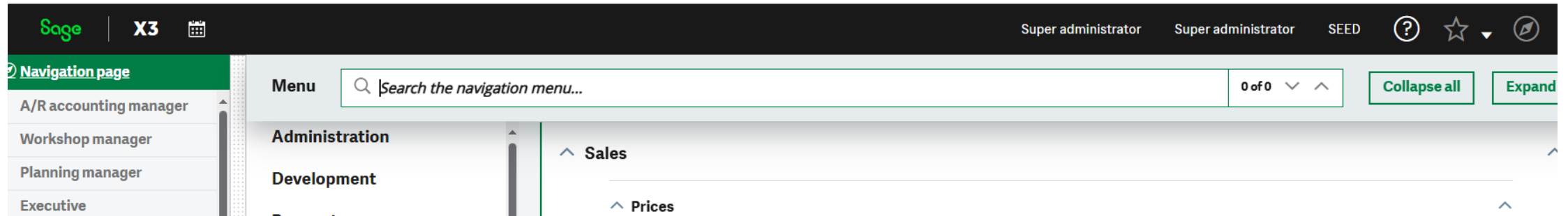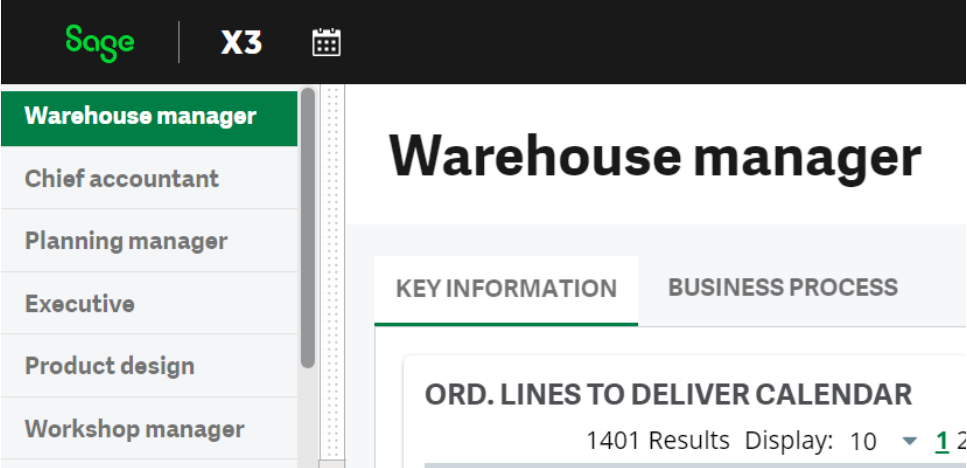

By contrast, when a Landing Page is selected, the right-hand "Compass" is active.
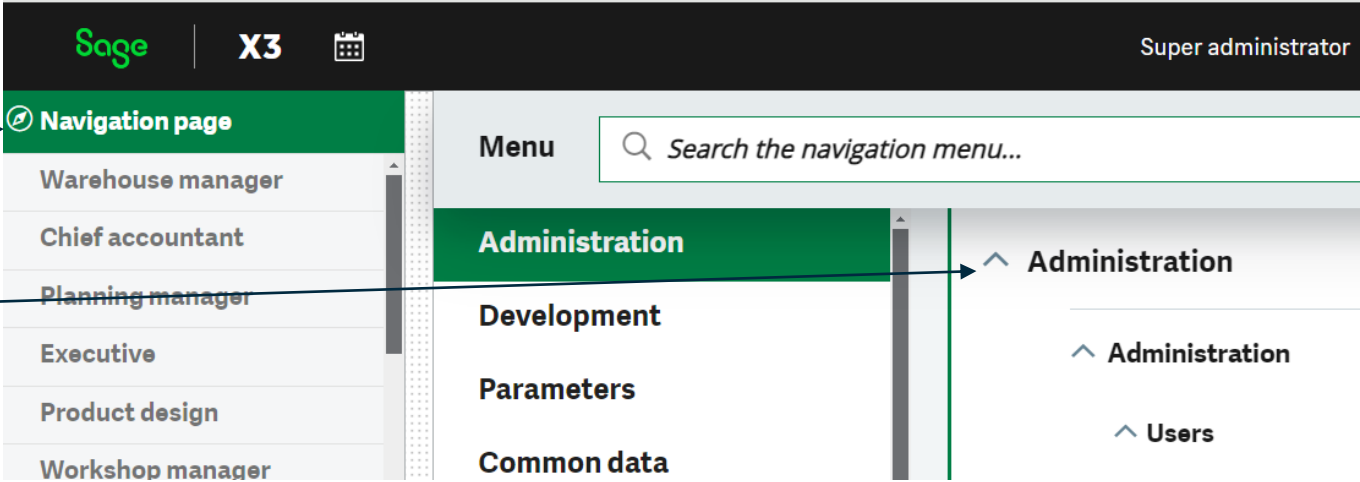
Navigation Page as home page by default

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.
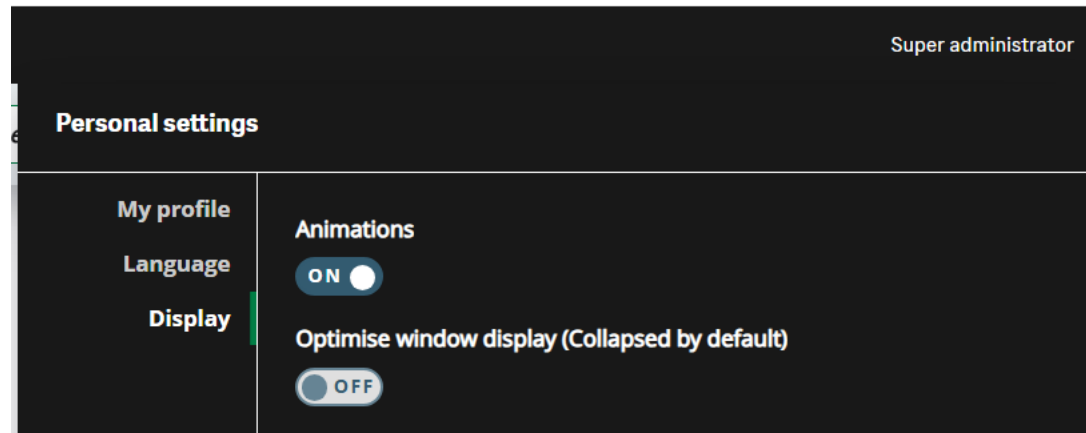
UI Performance

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.
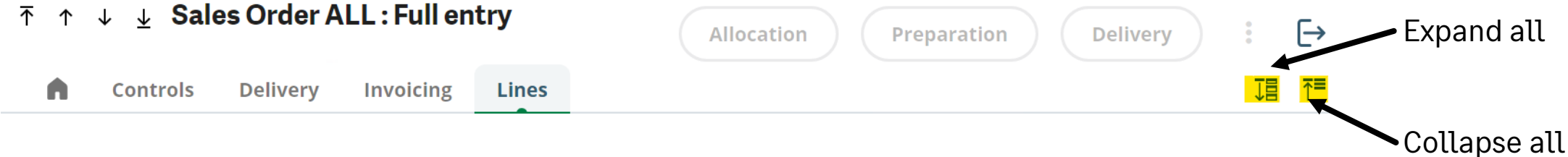
UI Performance

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.

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
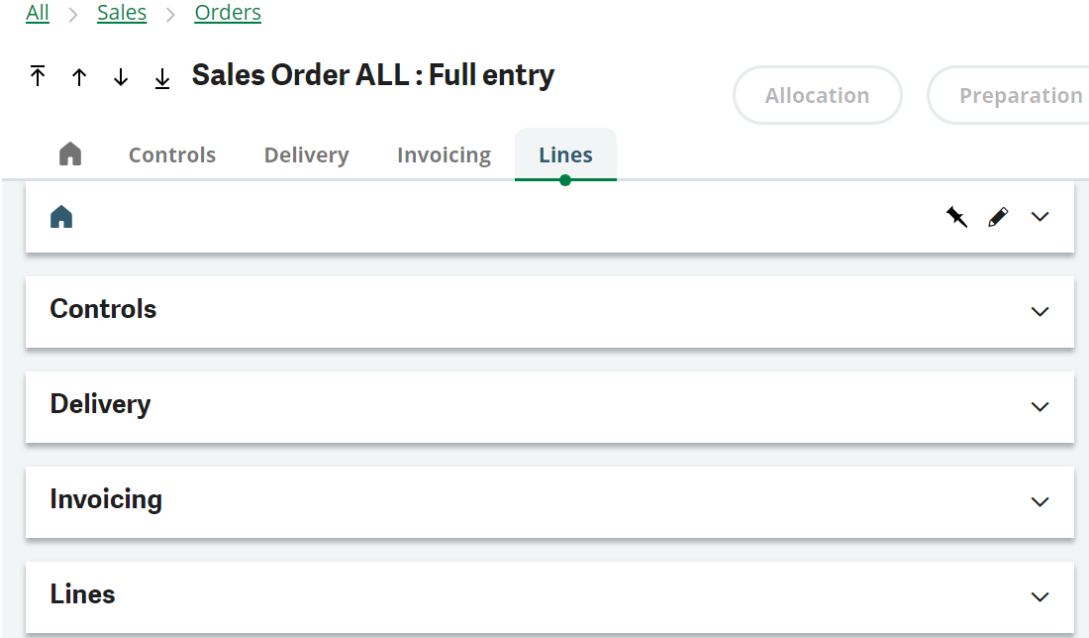
Syracuse Copyright and Credits updated

Improved the information in the "Credits" section.

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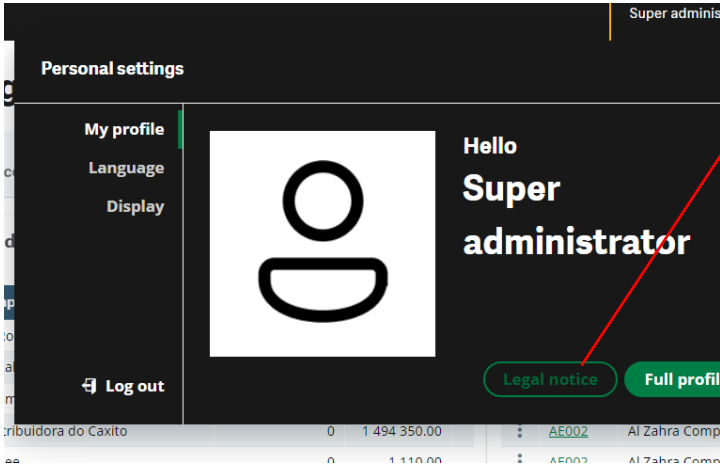
The Framework can be used to customise/extend the standard GraphQL APIs to meet your additional needs.

The Extensibilty 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
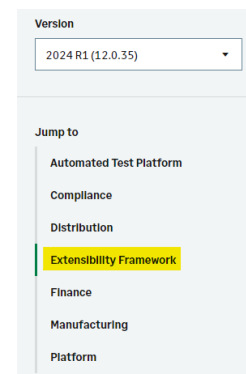
Extensibility Framework (X3 Builder)

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.
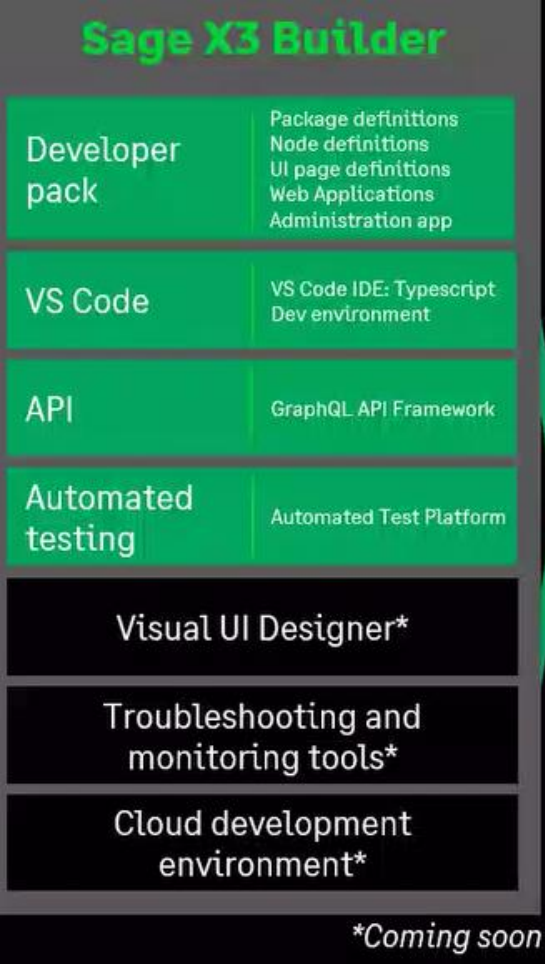
Security Improvements

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.
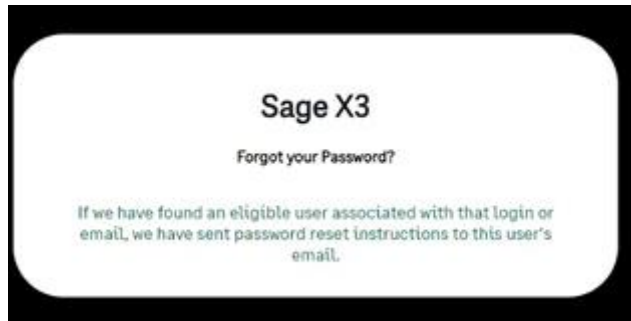
Page 55

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

Enhancements around "Brute Force" attacks

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

Enhancements around "Brute Force" attacks

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

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:

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

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"
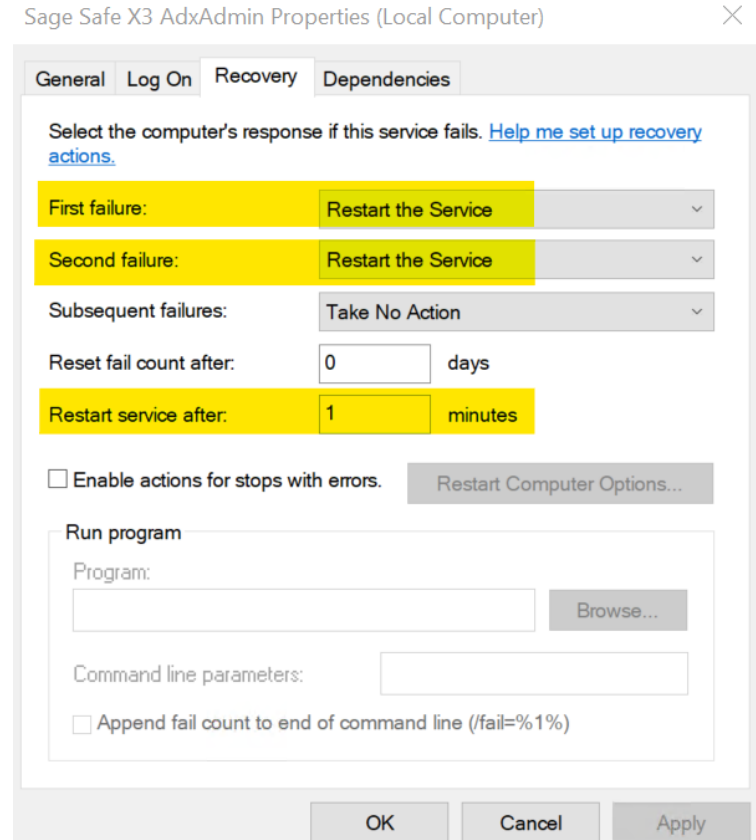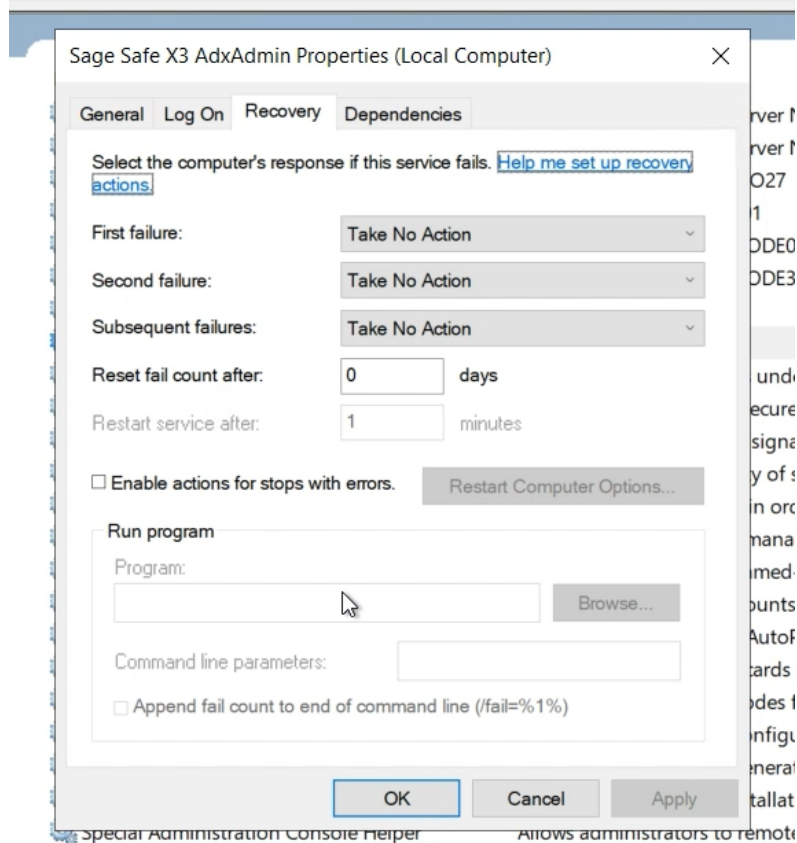
Data Clean and Control

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-syncronise and update the X3 BP with that data.
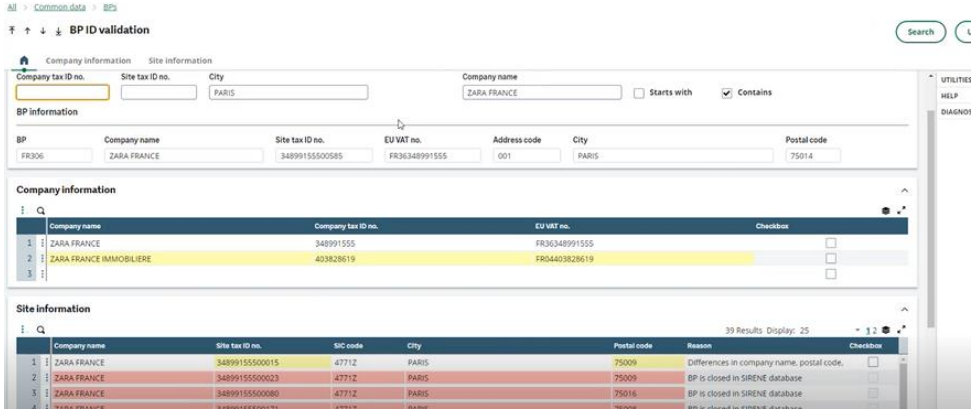
Data Clean and Control (DCC)

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 syncronised with the external Database
- Data Clean and Control – Build lists of BPs which can be associated with specific X3 Users.
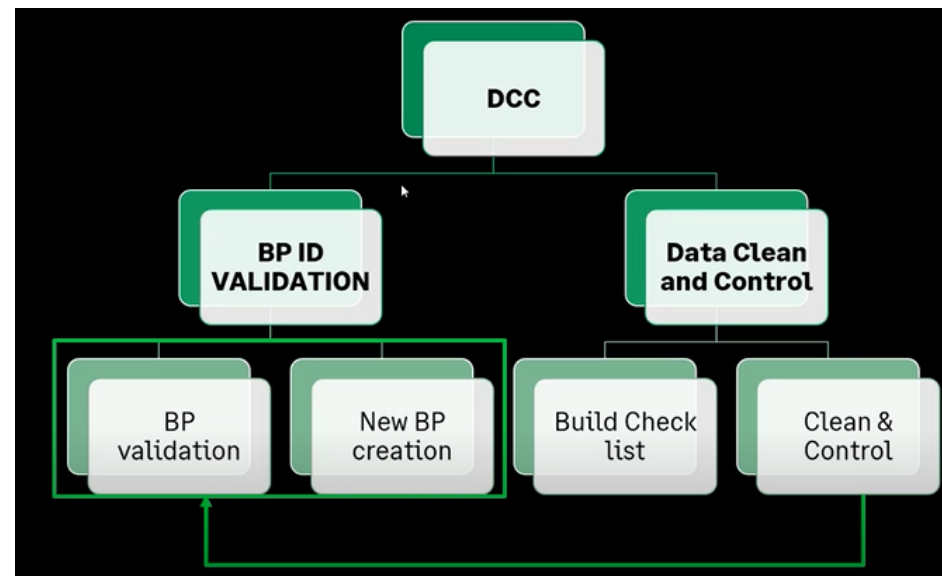
ATP Improvements

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

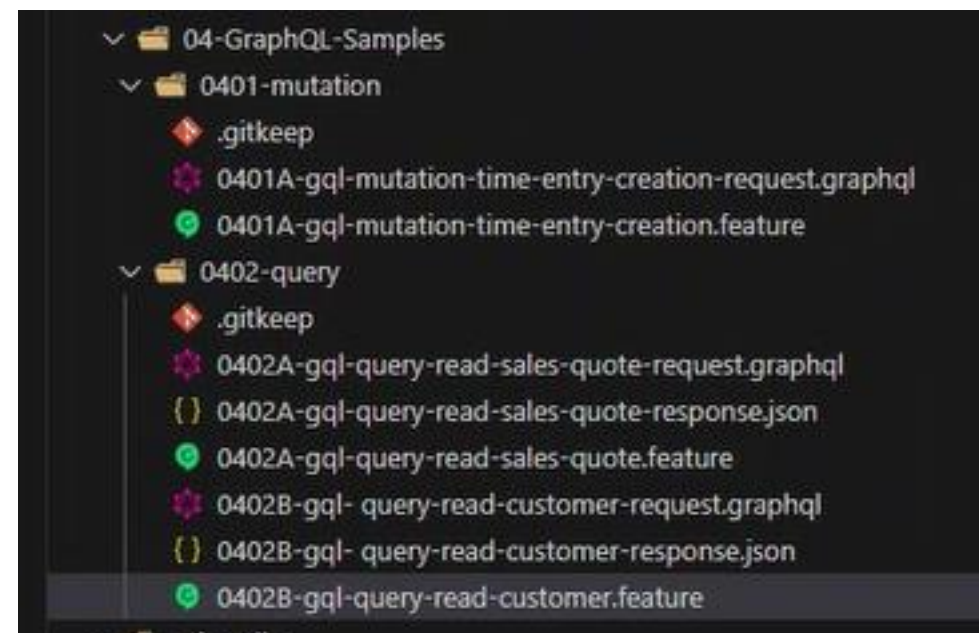Additional features in ATP for GraphQL

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

Evolution of ATP
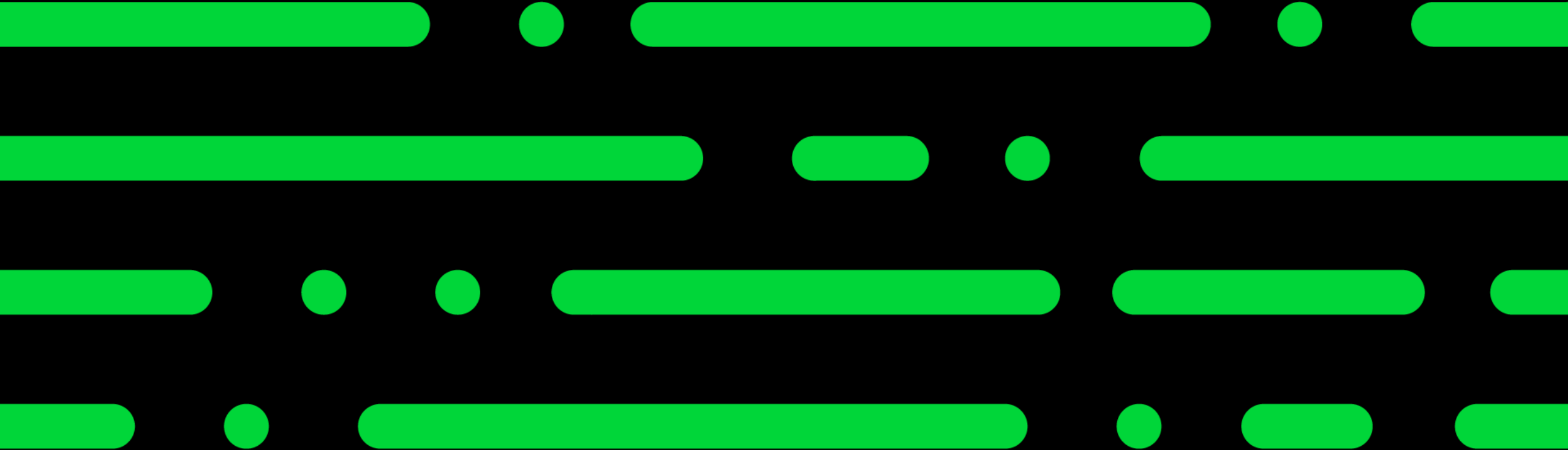
- Node.js 18 supported to avoid vulnerabilities

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 23rd	9 am	2	118890
🇬🇧	Thursday, May 23rd	4 pm	2	118891
🇫🇷	Tuesday, May 28th	10 am	2	118892
🇪🇸	Thursday, June 6th	9h30 am	2	118893

Thank you!