

Automated regression testing Leapwork



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Agenda

- Review the importance of automated regression testing
- Discuss the Leapwork solution
- Demo an end-to-end automated regression testing scenario
- Q&A

Automated regression testing



Regression testing

Essential in a cloud world



Why?

To ensure the solution still performs as expected after a change and that it does so in a preproduction environment, test environment, or development environment.

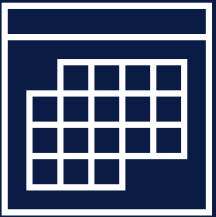
Who?

This test type is done by testers, developers, and end users.



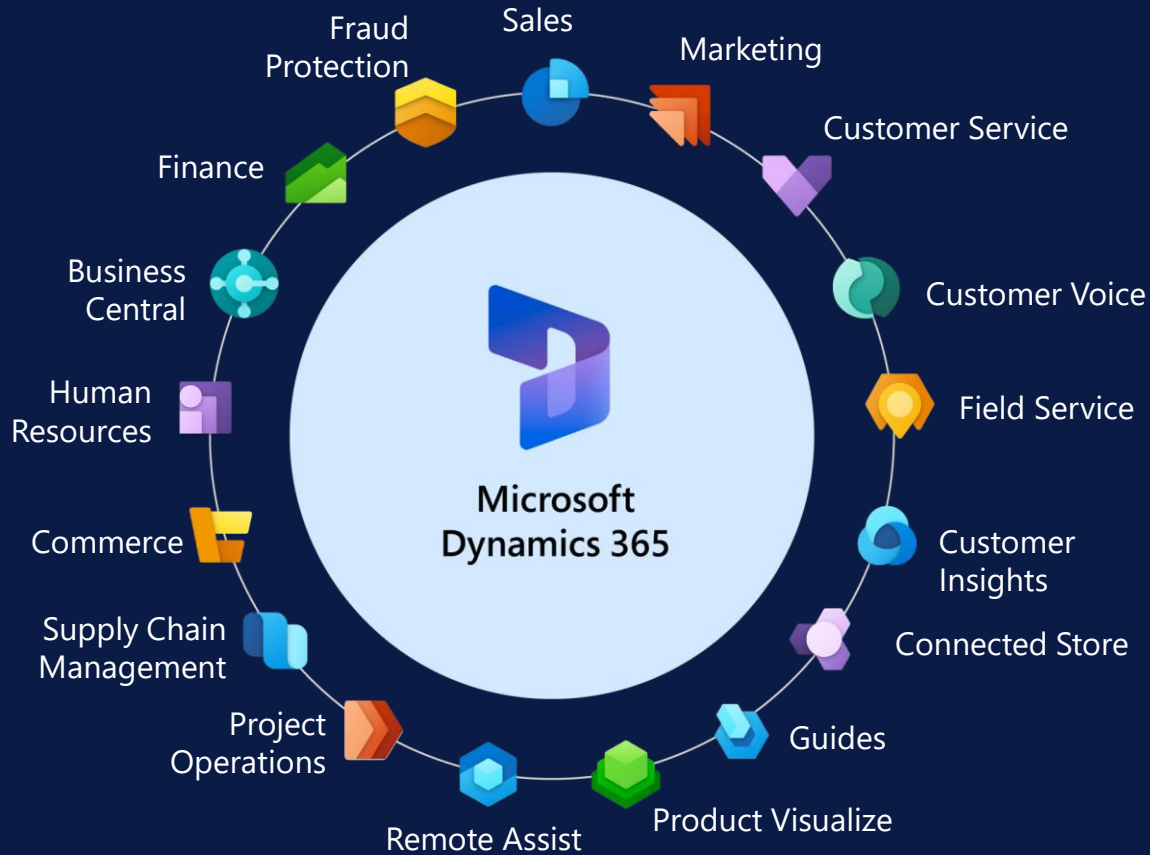
When?

A regression test should be conducted whenever you have changes in the code, or any configuration or new solution pattern that can impact different processes.



Automation is key

Why automation of testing in Microsoft environments matters



Accelerated release cycles

Automation of regression testing enables companies to keep up with Dynamics 365's high-paced update cadence by significantly reducing the time required to test new releases. It allows for quick and reliable verification of system functionality, ensuring a smooth transition to the latest updates.

Increased testing coverage

Automation helps improve testing coverage by executing a comprehensive suite of test cases quickly and efficiently. With each update, Dynamics 365 introduces new features and enhancements that need to be thoroughly tested. Automation ensures a wider range of test scenarios are covered across products, reducing the risk of undiscovered issues.

Time and Cost efficiency

By automating regression testing, customers can save significant time and resources. Manual regression testing can be time-consuming, repetitive, and prone to human errors. Today, 85% of regression testing is still manual¹. Automation eliminates these challenges, allowing testing teams to focus on more critical tasks while reducing overall testing costs.

Early bug detection

Automated regression testing facilitates early detection of bugs and issues that may arise due to the implementation of new updates. By running regression tests consistently, companies can identify and address issues promptly, minimizing the impact on business operations and end-users.

FastTrack Guidance

Strategy for choosing the right tooling

- Define a testing scope for regression testing
 - Identify testing objectives
 - Map the test scope with the project scope
- Find the right balance: 80% automation / 20% manual
- Identify the right tool, consider:
 - Goals of the automation testing
 - Catalog of test scenarios
 - The range of products in scope for testing
 - Team experience and background: test professionals, experienced testers, developers, end users
 - Ease of use
 - Maintenance and scalability
 - Integrations
 - Total cost of ownership



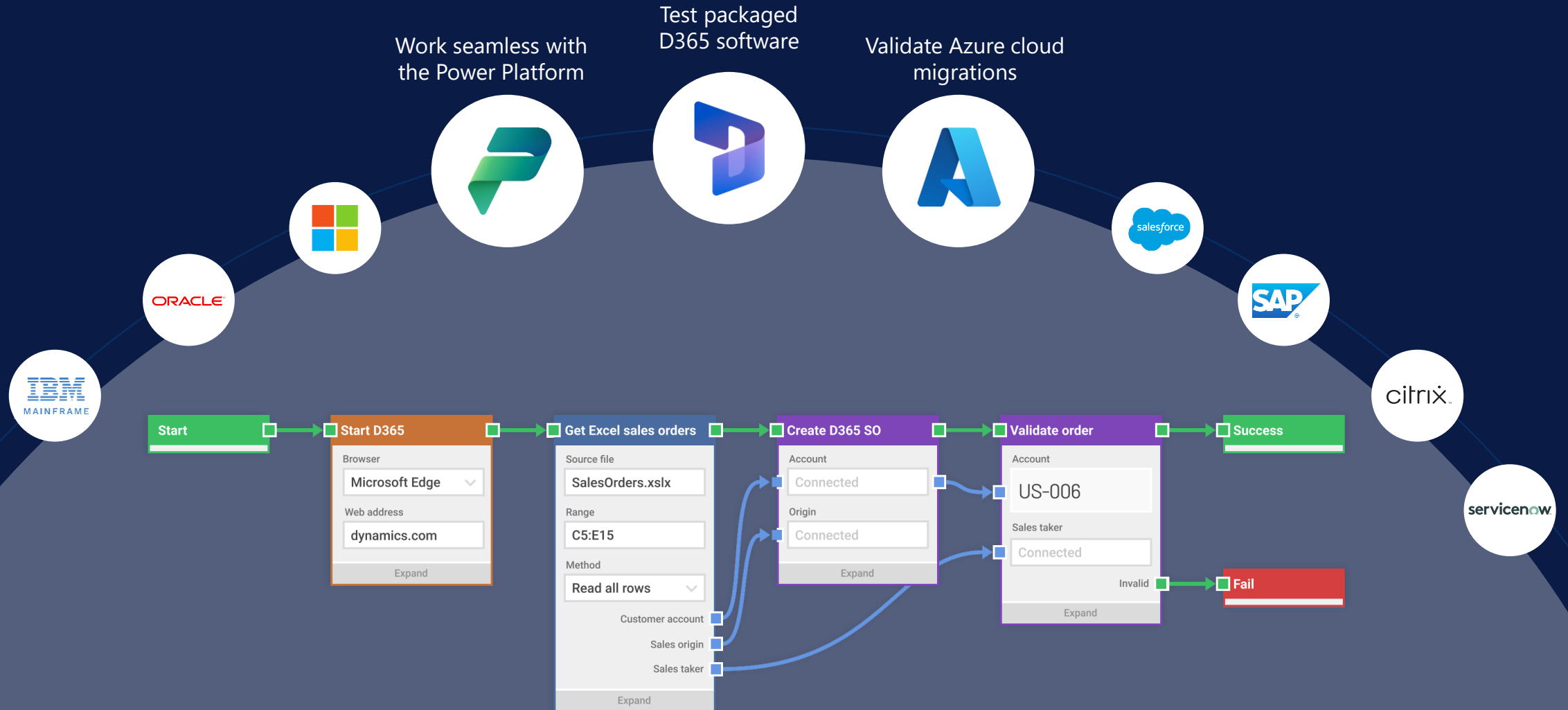
Available at: <https://aka.ms/d365implementationguide>
and [Dynamics 365 implementation guidance | Microsoft Learn](#)

Leapwork



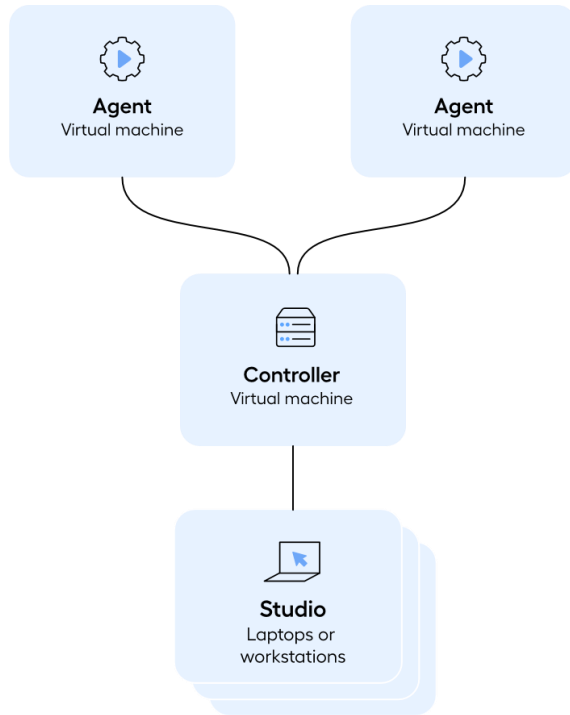
Support for a wide range of platforms

Solving testing challenges across products



Architecture & integration

Leapwork components



Agent – Providing automation capacity

- One agent runs one automation flow at a time
- Parallel execution requires parallel agents



Controller – Server, management and repository

- All assets are stored on the controller side
- Videos and screenshots on the file system
- Other assets are in the controller database

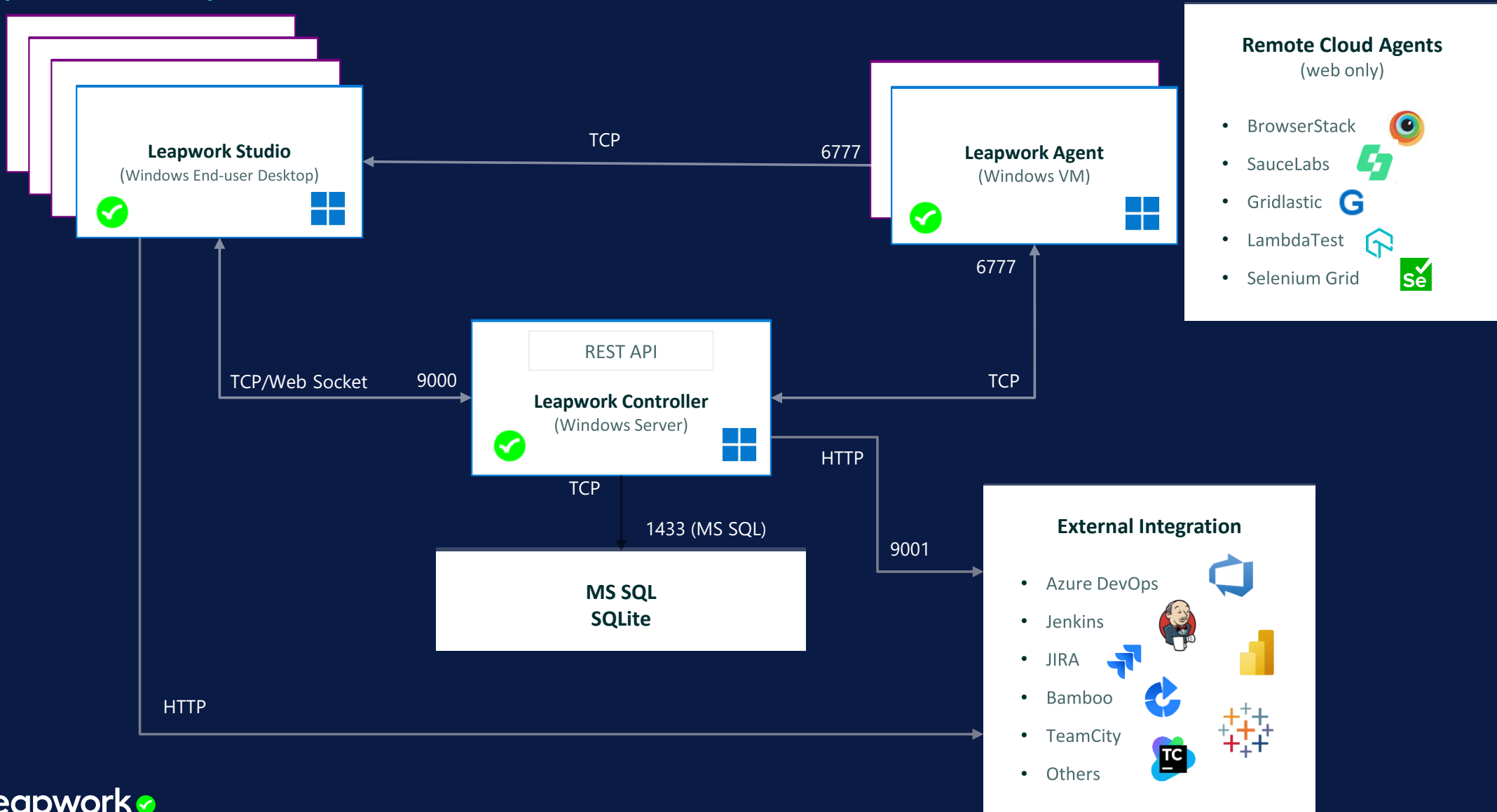


Studio – The user's workplace

- Controller UI
- Authoring, editing and troubleshooting
- Reporting

Architecture & integration

Leapwork component architecture



Architecture & integration

REST API

Wide range of APIs available

- Supports retrieving schedules, runs, flows, items.
- Supports triggering schedules, runs, flows.

REST APIs are hosted on the controller

- By default using port 9001
- `http://{controllerMachine}:{controllerAPIPort}/help/index`

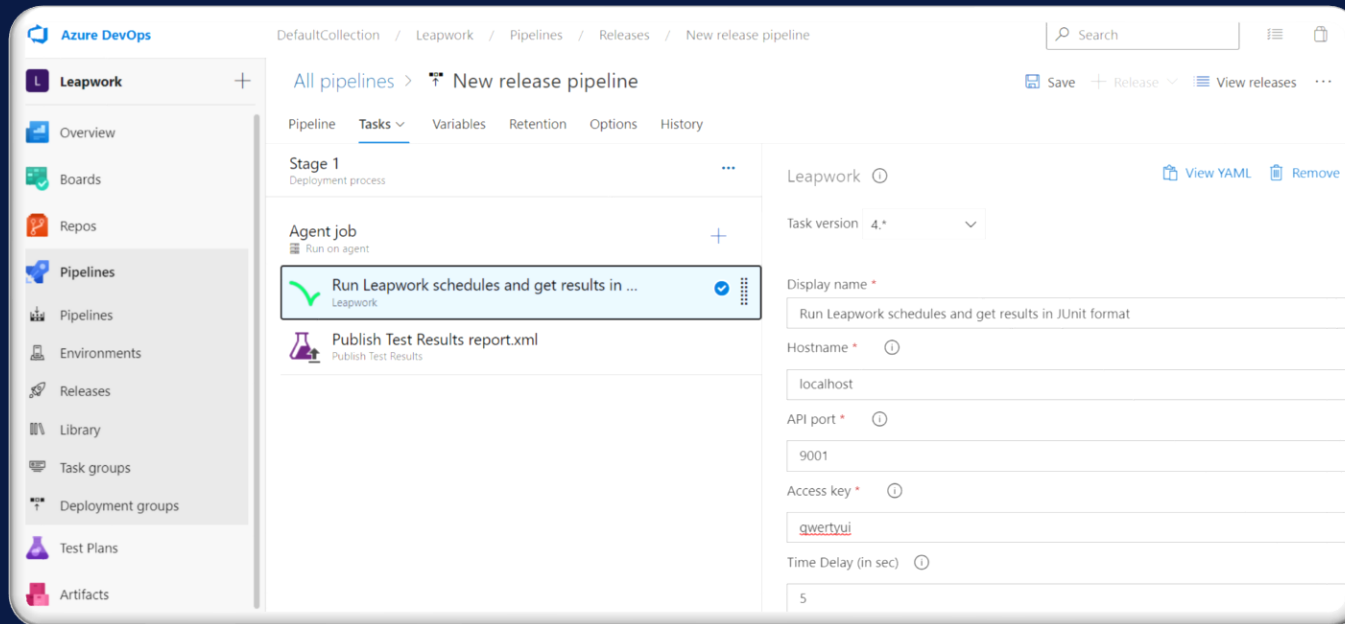
Authentication

- Uses Access Keys. Access keys can be fetched from within the Leapwork Studio.
- **Studio > Settings > API Access Key > Add Key**

Integrations			Show/Hide	List Operations	Expand Operations
GET	/api/v4/schedules	Get All Schedules			
GET	/api/v4/run/{runid}	Get Run by Id			
GET	/api/v4/run/{runid}/status	Get Run Status by Run Id			
GET	/api/v4/schedules/hierarchy	Get Schedules Hierarchy			
GET	/api/v4/runitems/{runitemid}	Get Run Item by Id			
GET	/api/v4/run/{runid}/runitemids	Get Run Item Ids by Run Id			
GET	/api/v4/schedules/{scheduleid}	Get Schedule by Id			
GET	/api/v4/runitems/{runitemid}/video	Get Run Item Video			
GET	/api/v4/flows/{flowid}/runitems/all	Get all run ids by flow id			
GET	/api/v4/flows/{flowid}/runitems/last	Get last run id by flow id			
GET	/api/v4/schedules/{scheduleid}/status	Get Schedule Run Status			
GET	/api/v4/runitems/{runitemid}/subtitles	Get Run Item Video Subtitles			
GET	/api/v4/runitems/{runitemid}/keyframes/{offset}	Get Run Item Keyframes			
GET	/api/v4/schedules/{scheduleid}/runids/{filterBy}	Get Run Ids by Schedule Id			
GET	/api/v4/runitems/{runitemid}/screenshot/{screenshotid}	Get Run Item Screenshot By Screenshotid			
PUT	/api/v4/run/{runid}/stop	Stop Schedule by Run Id			
PUT	/api/v4/run/{runid}/reRunOnAgents	Re-Run on Agents			
PUT	/api/v4/run/{runid}/reRun/{agentid}	Re-Run			
PUT	/api/v4/schedules/{scheduleid}/stop	Stop Schedule by Schedule Id			
PUT	/api/v4/schedules/{scheduleid}/runNow	Run Schedule Now			
PUT	/api/v4/flows/{flowid}/agent/{agentid}	Run Flow by Id			

Architecture and integration

Integration with Azure DevOps pipelines



Include regression testing in your existing pipelines

- DevOps tasks available through the marketplace
- PowerShell based integration through the REST API.

Implement an automated quality gate

- Code shipped through pipelines can be regression tested
- Stop a deployment upon failing tests indicating regression
- Automatically create bug tracking work items for follow up

Test reporting

- Generate test result reports automatically

Security

Security overview



Deployment

Own infrastructure only – No access for Leapwork



Access management

Onboard user management or via AD/LDAP

Access via API is managed using API keys

Traffic via API is default non-encrypted, but using own certificate is supported.



Encryption

All data is encrypted in flight (TLS 1.2) and at rest:

- MS SQL/SQL Service: Default non-encrypted (Except secrets). Encryption per local policy
- Onboard SQLite: AES256



Automation management

Full audit log onboard

Major-minor versioning with full restore capability

Workflow management onboard

Published automation versions protected

Security

Role based access control

Administrator



- Created during installation
- Full access to all platform settings
- Can self service access
- CRUD on flows
- Can restore flow versions

Contributor



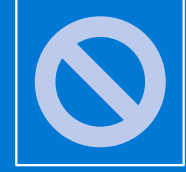
- Limited settings access
- CRUD on flows
- Can see flow versions

Reader



- Read only access to flows

No Access



Demo

Leapwork recording experience



Leapwork Enterprise Edition 2023.1.71 - Trial

✓

Flows

New

Filters

🔍

Sample flows

6

D365 demo flows

8

Production tests

0

🔗

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⚙️

📷

▶️

D365 contacts * x

Local (Display 1)

Run

Cancel

Save

↶

↷

🔍

🔍

80%

▼

Status:

Draft

Unassigned

 Version 0.3 ...

Start

Action

No action

Connected to localhost controller. Authorized by admin [Administrator]

61°F

Cloudy

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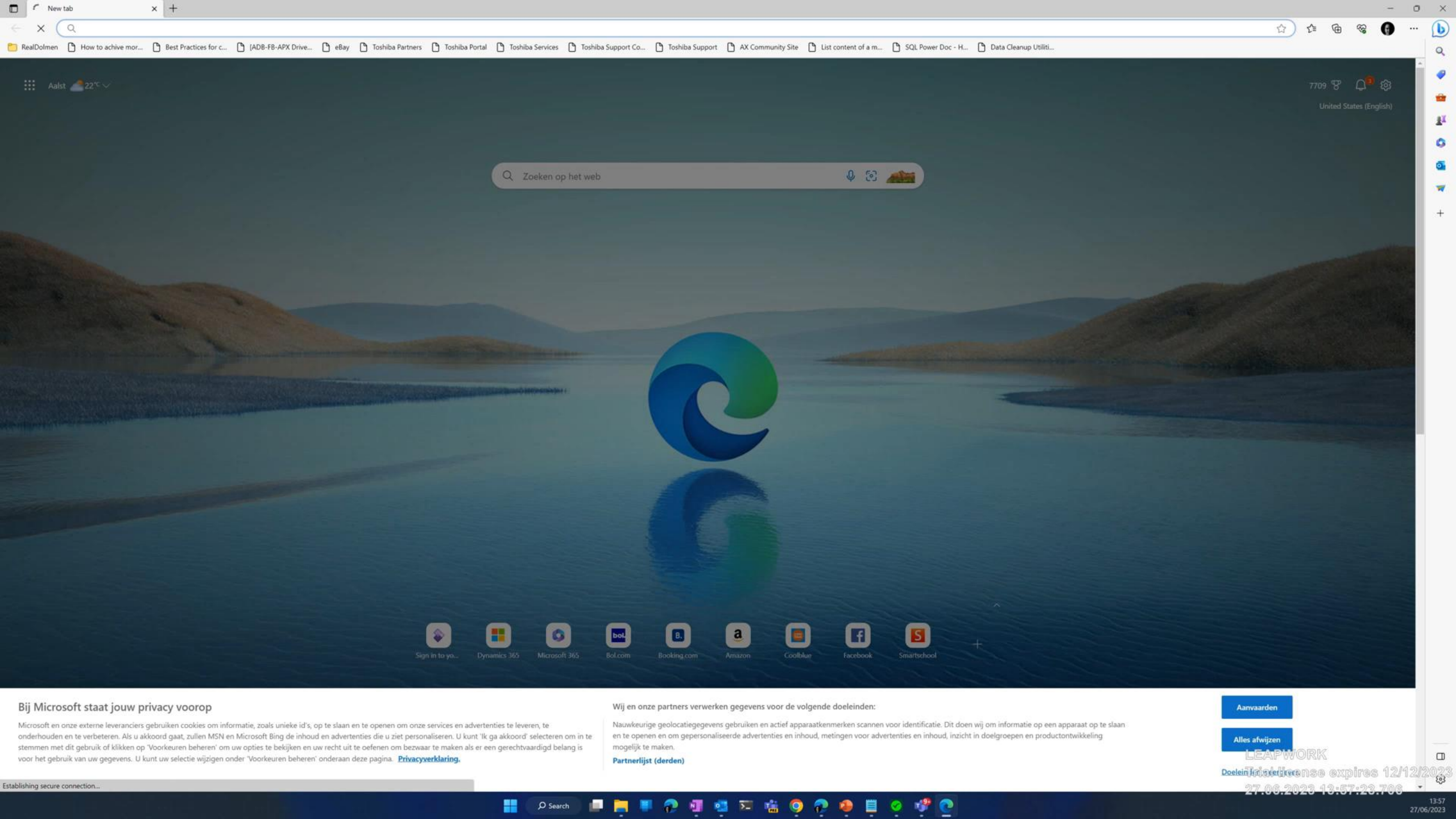
leapwork ✓

Demo

Cross product recording - Order to cash

- Dynamics 365 FO - Create customer
- Dynamics 365 CE - Create sales order in Customer Engagement
- Dynamics 365 FO - Invoice sales order





Aalst 22°C

7709
United States (English)

Zoeken op het web

- Sign in to yo...
- Dynamics 365
- Microsoft 365
- Bol.com
- Booking.com
- Amazon
- Coolblue
- Facebook
- SmartSchool

Bij Microsoft staat jouw privacy voorop

Microsoft en onze externe leveranciers gebruiken cookies om informatie, zoals unieke id's, op te slaan en te openen om onze services en advertenties te leveren, te onderhouden en te verbeteren. Als u akkoord gaat, zullen MSN en Microsoft Bing de inhoud en advertenties die u ziet personaliseren. U kunt 'Ik ga akkoord' selecteren om in te stemmen met dit gebruik of klikken op 'Voorkeuren beheren' om uw opties te bekijken en uw recht uit te oefenen om bezwaar te maken als er een gerechtvaardigd belang is voor het gebruik van uw gegevens. U kunt uw selectie wijzigen onder 'Voorkeuren beheren' onderaan deze pagina. [Privacyverklaring](#).

Wij en onze partners verwerken gegevens voor de volgende doeleinden:

Nauwkeurige geolocatiegegevens gebruiken en actief apparaatkenmerken scannen voor identificatie. Dit doen wij om informatie op een apparaat op te slaan en te openen en om gepersonaliseerde advertenties en inhoud, metingen voor advertenties en inhoud, inzicht in doelgroepen en productontwikkeling mogelijk te maken.

[Partnerlijst \(derden\)](#)

- Aanvaarden
- Alles afwijzen

LEAPWORK
License expires 12/12/2023
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Next steps



References

Leapwork documentation, links, ...

- [Testing strategy | Microsoft Learn](#)
- [Testing strategy TechTalk](#)
- [Leapwork](#)
- [Dynamics 365 Regression Testing: How to Achieve Efficient Quality Assurance \(leapwork.com\)](#)
- Reach out: <https://aka.ms/leapworkleads>



QUESTIONS

Let's stay connected!

- FastTrack LinkedIn
 - <https://www.linkedin.com/company/fasttrackdynamics365/>
- Dynamics 365 Community YouTube page
 - <https://www.youtube.com/@MSD365Community/>
- Subscribe for upcoming TechTalk notification
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Dankie Faleminderit **Shukran** Chnorakaloutioun Hvala Blagodaria
Děkuji **Tak** Dank u Tänan Kiitos **Merci** Danke Ευχαριστώ A dank
Mahalo ἰτι. **Dhanyavād** Köszönöm Takk Terima kasih **Grazie** Grazzi

Thank you!

감사합니다 Paldies Choukrane Ačiū Благодарам ありがとうございます
谢谢 Баярлалаа **Dziękuję** Obrigado Mulțumesc **Спасибо** Ngiyabonga
Ďakujem **Tack** Nandri Kop khun Teşekkür ederim Дякую Хвала Diolch

