



OpenEdge 12.8

OE12.8 LTS

- Prace rozpoczęły się od początku 2020
- Większość nowych funkcji została już sprawdzona w produkcji
 - LTS = Stabilność!
- Aktualizacja z OpenEdge 12.2 jest relatywnie nieskomplikowana (*Compile-And-Go*), oczywiście z testowaniem

OpenEdge 12 Strategic Themes

Deliver on the Promise of the Platform

Ease of Use

Compatibility

Integration

Performance

Security

Reliability

Harness the Value of Cloud

Continuous Deployment

Scalable

Manageable

Trusted

Do more with OpenEdge

OOABL

Data Masking

Real-time Data Feed

Continuous Integration

OpenEdge 12 Feature Summary

12.0 Mar 2019	12.1 Sep 2019	12.2 Apr 2020	12.3 Oct 2020	12.4 Jul 2021	12.5 Feb 2022	12.6 Sep 2022	12.7 May 2023	12.8 Jan 2024
<p>OpenEdge 12.0</p> <ul style="list-style-type: none"> Multi-threaded DB Server AI streaming Replication Server-side JOINS – For Each Server-side ABL Profiling PASOE OAuth2 & SAML, and Docker container support 	<p>OpenEdge 12.1</p> <ul style="list-style-type: none"> Modify DB params, non-structural schema online Extend/mark variable-length ai, bi and Extents as fixed Server-side JOINS – dynamic queries 	<p>OpenEdge 12.2</p> <ul style="list-style-type: none"> Modify Triggers, more DB params online Auto DB reconnect on primary failure Server-side JOINS – FORWARD-ONLY dynamic queries NO-LOCK Enhanced ABL Profiler Search for string in MEMPTR variable OpenEdge DevOps Framework 	<p>OpenEdge 12.3</p> <ul style="list-style-type: none"> Online BI space management, defrag of MT & TP tables, app schema changes Server-side JOINS – static queries NO-LOCK Methods as callbacks, new VAR statement 	<p>OpenEdge 12.4</p> <ul style="list-style-type: none"> Online Field Drop, Table Truncate PASOE deferred logging trace file Default Area assignment, extend methods as callbacks OE Command Center (OECC): PASOE management 	<p>OpenEdge 12.5</p> <ul style="list-style-type: none"> Index Fix speed, DB backup compression, online truncated LOB Move OOABL List Collections & Override a Property, Elvis Operator PDSOE new indexing of dependencies Kafka producer & consumer support 	<p>OpenEdge 12.6</p> <ul style="list-style-type: none"> Truncate DB storage area online & Index Fix improvements HSM & JWE support OOABL SortedSet Collections OECC clone PASOE instance, OpenTelemetry metrics for DB & PASOE Pro2 improved auto-migration from V5 	<p>OpenEdge 12.7</p> <ul style="list-style-type: none"> DB remove storage area online, online Index Check multi-threading OOABL HashMap Collections PDSOE Type Hierarchy view Signed r-code .NET 6 support on Windows TLS 1.3 	<p>OpenEdge 12.8</p> <ul style="list-style-type: none"> DB configuration persistence & faster Index Check and online backup Dynamic Data Masking Traceability via OpenTelemetry .NET 6 support on Linux WebClient MSI Installer Updated PROMSGS

Kilka najważniejszych funkcji OpenEdge 12.8

- Kafka
- OpenEdge Command Center
 - OpenTelemetry
- Dynamic Data Masking
- Inne kluczowe funkcje
- Kilka słów o migracji

Kafka



Apache Kafka is an open-source distributed **event streaming** platform used by thousands of companies for high-performance data pipelines, streaming analytics, data integration, and mission-critical applications.

<https://kafka.apache.org/>

Wybrane zastosowania



Messaging

Kafka może działać jako zamiennik brokerów komunikatów, takich jak **SonicMQ**



Log Aggregation

Scentralizowane przechowywanie i przetwarzanie logów w formie strumienia komunikatów.



Data Processing

Transmisja danych z niewielkim opóźnieniem. Przydatne dla danych finansowych, logistyki itp.



Activity Tracking

Oryginalne zastosowanie Kafki. Kliknięcia, rejestracje, polubienia, zamówienia, preferencje itp.

Kafka Event Streaming



Zapis strumienia zdarzeń



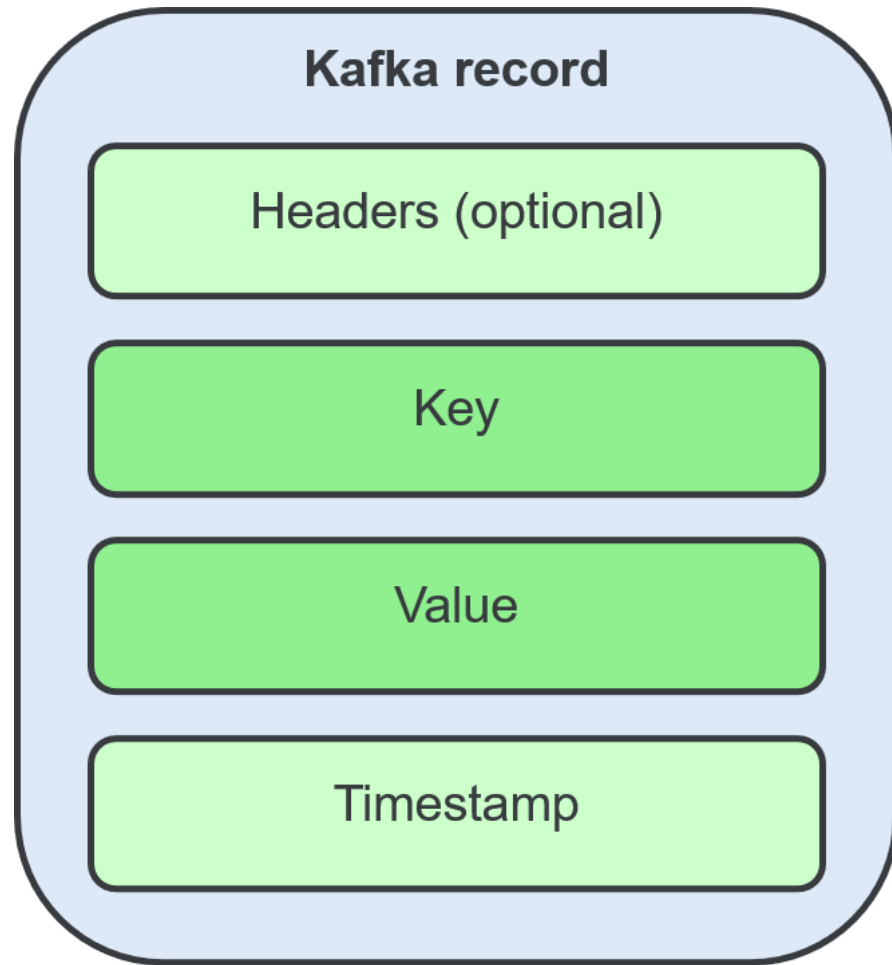
Odczyt strumienia zdarzeń



Przechowywanie strumienia zdarzeń



Przetwarzanie strumienia zdarzeń



Zdarzenia w Apache® Kafka® są nazywane rekordami lub komunikatami.

Pojęcia

Record – wysłane dane/komunikat.

Producer – aplikacja kliencka zapisująca zdarzenia do Kafki.

Consumer – aplikacja odczytująca i przetwarzająca zdarzenia z Kafki

Topic – wirtualny „folder” z danymi

Partition – Dane topicu są rozłożone na pewną liczbę brokerów

Kafka for OpenEdge

- Pobrać i zainstalować bibliotekę Apache Kafka C/C++, **librdkafka**.
- Dodanie bibliotek do PROPATH
- \$DLC/tty/r
- \$DLC/tty/r
- Napisać kod

```
...
var ProducerBuilder pb.
var RecordBuilder rb.
...
pb = ProducerBuilder:Create("progress-kafka").
pb:SetProducerOption(KafkaProducerConfig:BootstrapServers,
    "localhost:9092").
pb:SetProducerOption("debug", "topic, msg").
pb:SetProducerOption("log_level", "7").
...
rb = theProducer:RecordBuilder.
rb:SetTopicName(theTopic).
rb:SetBody(messageText).
theRecord = rb:Build().
theResponse = theProducer:Send(theRecord).
```



OpenEdge Command Center OpenTelemetry

OpenEdge Command Center

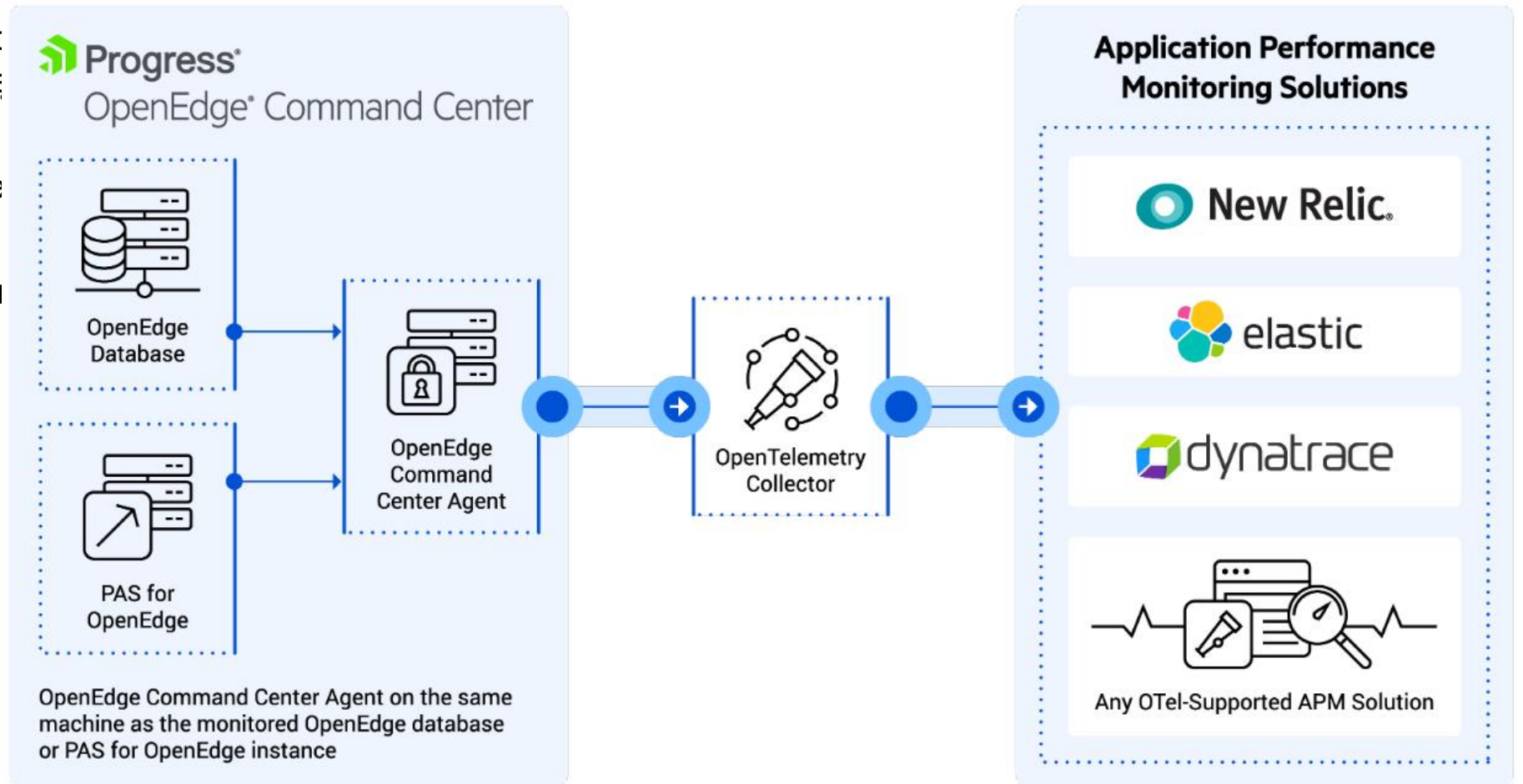
The screenshot displays the OpenEdge Command Center interface, divided into three main panels:

- ABL Applications:** A table listing various applications. The 'NAME' column header is highlighted with an orange box. The table includes columns for NAME, PASOE INSTANCE, and AGENT NAME.
- oeapas1 Web Applications:** A detailed view of the 'oeapas1' application, showing a 'ROOT' service with a count of 1 and a path of '/'. It also lists URI and Secure URI options.
- oeapas1 Services:** A detailed view of the '_oepingService' service, showing its URI, Secure URI, Service Version (v12.5.0), Service Descriptor, and Service Location.

NAME	PASOE INSTANCE	AGENT NAME
oeabl	testprod	WINDOWSSR
oeabl124 v12.5.0 (2021-10-27)	testservice	centos8-x64-f
oeabltest v12.5.0 (2021-10-27)	testservice	centos8-x64-f
oeablwin	testprod	WINDOWSSR
oeauthserver	oeauthserver	uxdevaix54
oeapas1 v12.5.0 (2021-10-27)	oeapas1	centos8-x64-f
pasX1	pasX1	WINDOWSSR
testpas v12.2.4 (2021-01-20)	testpas	WINDOWSSR
TestPAS123 v12.5.0 (2021-10-27)	TestPAS123	centos8-x64-f
testprod	testprod	WINDOWSSR
testservice v12.5.0 (2021-10-27)	testservice	centos8-x64-f

OpenTelemetry (OTel)

- Standart gromadzenia i przetwarzania danych telemetrycznych do narzędzi, umożliwiając możliwość obserwacji
- Monitorowanie wszytkie na aplikację.
- Obsługa danych telemetrycznych
 - Logi
 - Metryki
 - Tracery



OEEC: OpenEdge Database / PASOE Performance Monitoring Metrics

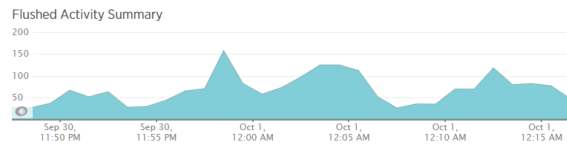
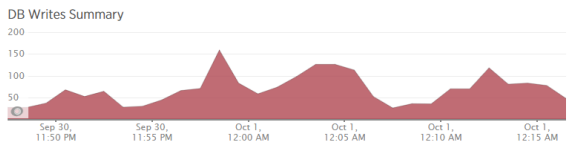
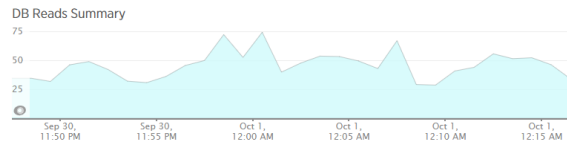
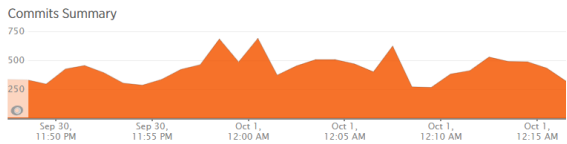
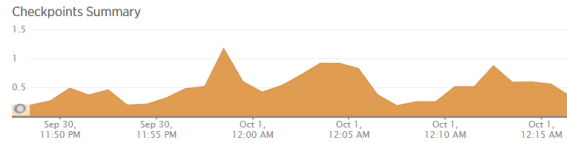
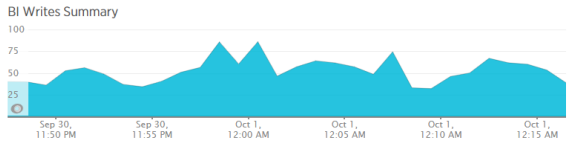
Metrics	Description
Commits	The number of transactions all users have committed.
Undos	The number of transactions rolled back.
Record Updates	The number of records updated.
Record Reads	The number of records read.
Record Creates	The number of records created.
Record Deletes	The number of records deleted.
DB Writes	The number of database blocks written to disk.
DB Reads	The number of database blocks read.
BI Writes	The number of Before-Image (BI) blocks written to disk.
BI Reads	The number of BI blocks read.
AI Writes	The number of After-Image (AI) blocks written to disk.
Record Waits	The number of times users have waited to access a locked record.
Checkpoints	The number of checkpoints that have been performed.
Bufs Flushed	The number of database buffers that have been flushed to disk because they were not written by the time the checkpoint ended.
Rec Lock Waits	The percentage of record accesses that resulted in a record lock wait. A record lock wait occurs when the database engine must wait to access a locked record.
BI Buf Waits	The percentage of BI buffer waits. A BI buffer wait occurs when the database engine must wait to access a BI buffer.
AI Buf Waits	The percentage of AI buffer waits. An AI buffer wait occurs when the database engine must wait to access an AI buffer.
Writes by APW	The percentage of database blocks written to disk by the Asynchronous Page Writer (APW).
Writes by BIW	The percentage of BI blocks written to disk by the Before-Image Writer (BIW).
Writes by AIW	The percentage of AI blocks written to disk by the After-Image Writer (AIW).
Buffer Hits	The percentage of buffer hits for both the primary and alternate buffer pools. A buffer hit occurs when the database engine locates a record in the buffer pool and does not have to read the record from the disk.
Primary Hits	The percentage of buffer hits for the primary buffer pool.
Alternate Hits	The percentage of buffer hits for the alternate buffer pool.

Metrics Type	Metrics	Description
REST transport	expressionErrors	The number of expression errors.
	failedRequests	The number of failed requests.
	successfulRunRequests	The number of requests for which response was received successfully.
	successfulRequests	The number of requests successfully sent to the PAS for OpenEdge.
	connectRequests	The number of connection requests.
	statusRequests	The number of status type requests.
	Requests	The total number of requests.
	successfulConnectRequests	The number of successful connection requests.
	serviceUnavailableRequests	The number of requests for which services were not available.
	runRequests	The number of run requests.
SOAP transport	urlNotFoundErrors	The number of errors because of incorrectly supplied URLs.
	activeRequests	The number of requests that are in the active state.
	wSDLRequests	The number of WSDL requests.
	successfulSoapRequests	The number of successful SOAP requests to the PAS for OpenEdge instance.
	soapRequests	The total number of SOAP requests.
	methodNotAllowedErrors	The number of errors caused because the requested method is not authorized.
	httpRequestErrors	The number of HTTP requests that resulted in errors.
APSV transport	httpRequests	The total number of HTTP requests to the PAS for OpenEdge instance.
	soapProcessorErrors	The number of SOAP processor errors.
	forbiddenErrors	The number of requests that failed with the 403 error code.
	disconnectErrors	The number of disconnect errors to the PAS for OpenEdge instance.
WEB transport	connectErrors	The number of connection errors.
	disconnectRequests	The number of disconnect requests to the PAS for OpenEdge instance.
	sessionRequests	The number of session requests to the PAS for OpenEdge instance.
	sessionErrors	The number of session errors.
	headRequests	The number of HEAD requests to the PAS for OpenEdge instance.
	traceRequests	The number of TRACE requests to the PAS for OpenEdge instance.
	optionsRequests	The number of OPTIONS requests to the PAS for OpenEdge instance.
	patchRequests	The number of PATCH requests to the PAS for OpenEdge instance.
	getRequests	The number of GET requests to the PAS for OpenEdge instance.
	servletRequests	The number of SERVLET requests to the PAS for OpenEdge instance.
	deleteRequests	The number of DELETE requests to the PAS for OpenEdge instance.
	putRequests	The number of PUT requests to the PAS for OpenEdge instance.
	postRequests	The number of POST requests to the PAS for OpenEdge instance.
successfulServletRequests	The number of successful SERVLET requests to the PAS for OpenEdge instance.	
headErrors	The number of HEAD requests that resulted in errors.	
traceErrors	The number of TRACE requests that resulted in errors.	
optionsErrors	The number of OPTIONS requests that resulted in errors.	
patchErrors	The number of PATCH requests that resulted in errors.	
getErrors	The number of GET requests that resulted in errors.	
deleteErrors	The number of DELETE requests that resulted in errors.	
putErrors	The number of PUT requests that resulted in errors.	
postErrors	The number of POST requests that resulted in errors.	
ablRuntimeErrors	The number of ABL runtime errors.	
ablConnectErrors	The number of ABL connections errors.	
failedServletRequests	The number of SERVLET requests that resulted in errors.	

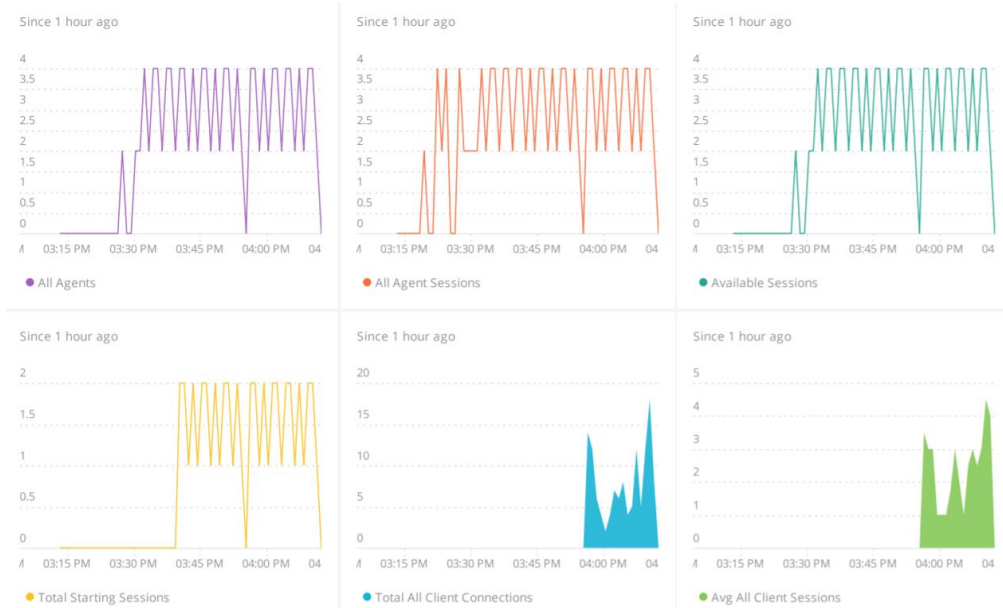
Przykład – New Relic APM Tool Monitoring



OpenTelemetry Metrics for OpenEdge Database



OpenTelemetry Metrics for PAS for OpenEdge



Otel i klient ABL

Parametr sesji **-otelconfig** [plik.json]

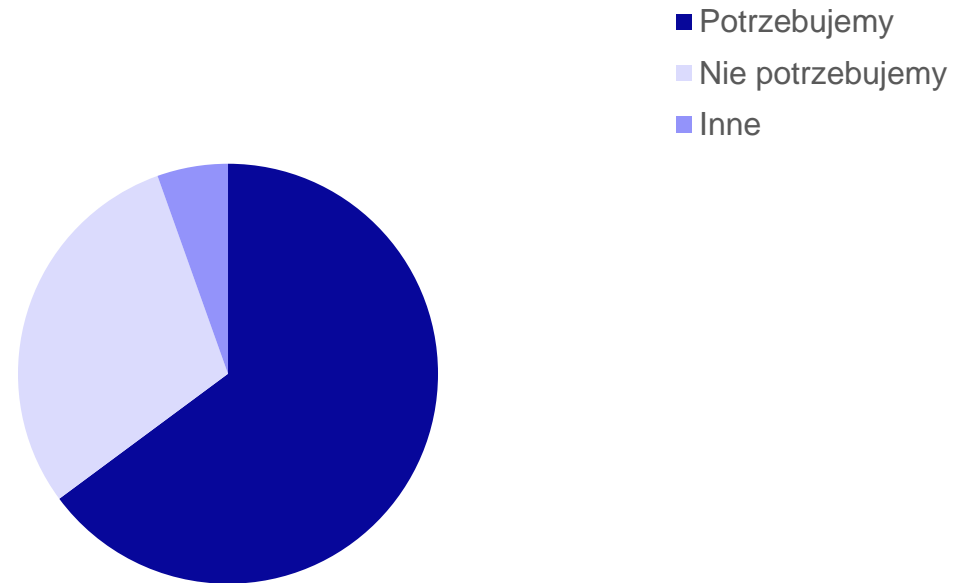
```
"OpenTelemetryConfiguration": {  
  "exporters": {  
    "otlp": {  
      "grpc": [  
        {  
          "endpoint": "http://localhost:4317",  
          "span_processor": "batch",  
        }  
      ]  
    }  
  },  
},  
"OpenEdgeTelemetryConfiguration": {  
  "trace_procedures": "Customer*.p",  
  "trace_classes": "*",  
  "trace_abl_transactions": true,  
  "trace_requires_parent": true,  
  "trace_request_start": true  
}
```

Dynamic Data Masking

Dynamic Data Masking

- Maskowanie wrażliwych danych wyświetlanych w aplikacji
- Uprawnienia użytkownika zdefiniowane przez administratora
 - Konfigurowalne wzorce maskowania
- Służy do zapewnienia zgodności z narzuconymi wymaganiami i zachowania konkurencyjności

Zapotrzebowanie na Dynamic Data Masking



Dynamic Data Masking

- Włączenie funkcji w bazie danych
 - `proutil ... enableddm`
 - `proutil ... activateddm`
- Program OOP ABL z wykorzystaniem `IDataAdminService`

```
USING OpenEdge.DataAdmin.*.  
  
VAR DataAdminService oDAS. VAR IRole oRole.  
VAR LOGICAL lResult.  
  
ASSIGN oDAS = NEW DataAdminService(LDBNAME("DICTDB")).  
  
oRole = oDAS:NewRole("TestUser").  
oRole:Description = "A Test User".  
// This role will be used for DDM  
oRole:IsDDM = true.  
lResult = oDAS:CreateRole(oRole).  
  
DELETE OBJECT oDAS.
```

Wybrane kluczowe funkcje

Hardware Security Module (HSM)

Stosowany gdy klucze kryptograficzne wymagają najwyższego poziomu ochrony

Moduły HSM to wyspecjalizowane urządzenia, które bezpiecznie przechowują i wykorzystują klucze kryptograficzne

- Sprzęt odporny na manipulacje
- Przechowuje i chroni klucze oraz udostępnia je autoryzowanym użytkownikom
- Klucze nie muszą być ładowane do pamięci serwera z aplikacją webową
- Obsługa HSM z TDE

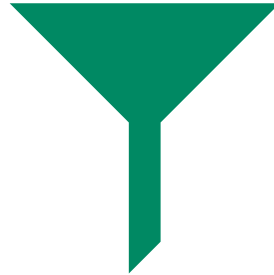


Kolekcje wbudowane w OOP ABL



List

OE 12.5



Sorted Set

OE 12.6



HashMap

OE 12.7

ABL

- Ochrona skompilowanego kodu ABL – Signed Archive Library

- PROPACK

- PROSIGN

- Nowa instrukcja VAR

- Skrócona notacja (+=, -=, *=, /=)

- „Elvis” operator ?:

- retVal = Handle?:method1():?method2()

- // (co to jest ?)

```
/* zmienne w jednej instrukcji */
VAR CHAR s1, s2, s3, s4.

/* deklaracje z przypisaniem wartości */
VAR INT a = 50, b = 20, x = a + b, y = a - b, z = x - y.

/* zmienna obiektowa */
VAR mypackage.subdir.myclass myobj1.

/* deklaracje z przypisaniem funkcji lub klasy */
VAR DATETIME dtm = DATETIME(TODAY, MTIME).
VAR INTEGER x = myFunction().
VAR INTEGER y = classMethod(output v).

/* macierz rozmiar 3*/
VAR INT[3] Mac1 = [100, 200, 300].
/* macierz nieokreślona */
VAR INT[] Mac2.

VAR INT[2] w = [123, a + b].
VAR INT[3] x = [funct( ), 123, a + b].
VAR INT[ ] Y = [123, a + b].
VAR INT[ ] z = [funct( ), 123, a + b].
```


PASOE

- OEMANAGER

```
[echo] TCMAN Shortcuts:
[echo]
[echo] oemanager query - Use TCMAN to query the PAS instance
[echo]
[echo] oemanager startup - Use TCMAN to start the PAS instance
[echo] [OPTIONAL] timeout=300 - Time (seconds) to wait for a proper
[echo]
[echo] oemanager shutdown - Use TCMAN to stop the PAS instance
[echo] [OPTIONAL] timeout=300 - Time (seconds) to wait for a proper
[echo]
[echo]
[echo] Support Tools:
[echo]
[echo] oemanager inventory - Bundle useful PAS instance files (as .zip) for support tickets
[echo]
[echo]
[echo] Status/Info:
[echo]
[echo] oemanager status - [RO] Obtain MSAgent/connection status information for an ABL App
[echo] [OPTIONAL] basemem=819200 - Minimum memory threshold (bytes) to
[echo]
[echo] oemanager stacks - [RO] Obtain stack information for all MSAgents for an ABL App
[echo]
[echo] oemanager flush - [RO] Flush the available deferred log buffer to agent log file
[echo]
[echo] oemanager locks - [RO] Display database users and their table locks related to an
[echo] This utilizes a single DBConnection; edit the 'locks' task in k
[echo] Note: Only provides session data if using self-service DB connection
[echo] [REQUIRED] pf=[PF_NAME] - PF file to use for database connection
[echo]
```

Przeładowanie tabel online

- PROUTIL TABLEREORG = dump + load
- Poprawia współczynnik fragmentacji i rozrzucenia (*scatter*) dla tabeli
- Dla obszarów Typu II
- Od OE 12.8 także dla indexów nie unikalnych

```
Proenv 12.7 (64 bit)
proenv>PROUTIL t -C TABLEREORG pub.Customer nosmartscan restrict GT 1000 and LT 1500 useindex CustNum
OpenEdge Release 12.7 as of Fri Apr 21 08:42:13 EDT 2023
Blocks on record free chain: 60 (20196)
Commit total - trans: 1, recs 100, last rowid: 2160, partition: 0 trid: 68 (20064)
Commit total - trans: 2, recs 200, last rowid: 2274, partition: 0 trid: 69 (20064)
Commit total - trans: 3, recs 300, last rowid: 2642, partition: 0 trid: 70 (20064)
Commit total - trans: 4, recs 400, last rowid: 2758, partition: 0 trid: 71 (20064)
Commit total - trans: 5, recs 427, last rowid: 2789, partition: 0 trid: 72 (20064)
Total records processed: 427. (20060)
Table reorganization operation reorg completed successfully. (20043)
```

Inne działania online

- PROUTIL TABLEMOVE TRUNCATE
- PROUTIL TRUNCATE AREA
- PROSTRCT REMOVEONLINE
- Duża liczba modyfikowanych parametrów online
 - PROMON → R&D → Administrative Functions → Adjust Startup Parameters
 - VST_dbParams
 - PROUTIL INCREASETO
 - Generowanie aktualnych ustawień do pliku .pf:
 - **PROMON -> R&D -> 4. Administrative Functions -> 17. Generate parameter file**

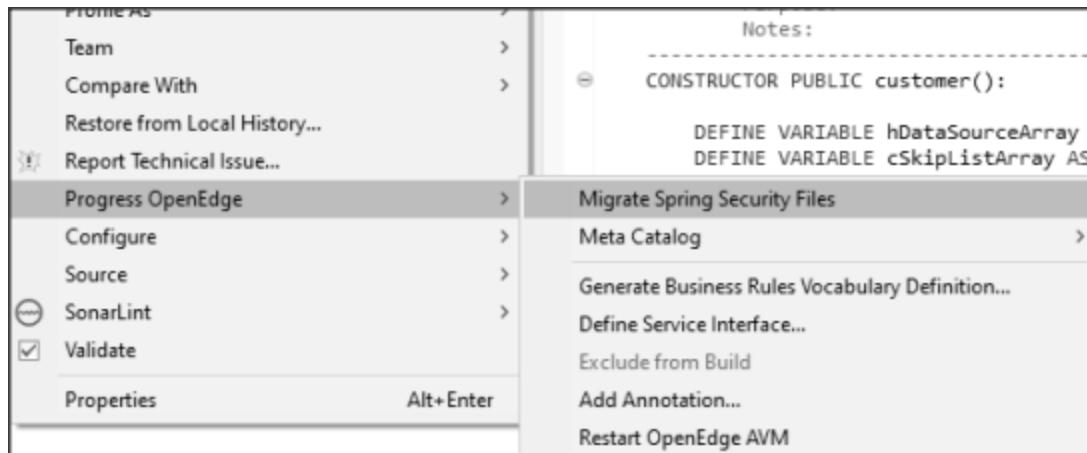
Ponadto...

- Spring Security 6.1.4
- Tomcat 10.1.15.
- .NET 6 (nowy typ projektu w Dev. Studio)

Kilka słów o migracji

OE 12.2 -> OE 12.8

- Baza danych:
 - `proutil ... truncate bi`
 - `proutil ... updatevst`
- PASOE
 - Aktualizacja Spring Security w Developer's Studio



Więcej informacji

- Progress OpenEdge
 - <https://www.progress.com/openedge/whats-new>
- Dokumentacja
 - <https://docs.progress.com/bundle/openedge-whats-new/page/Whats-New-in-OpenEdge-12.8.html>
- Blog Progress OpenEdge
 - <https://blog-progress.pl>

