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Responsiv Cloud Data Platform

RA000TE-PD

Product Description



Responsiv Cloud Data Platform

Responsiv Cloud Data Platform (RC-DP) is used to store information in relational tables or JSON, XML, Custom structured records. The database is compatible with Oracle PL-SQL and supports distributed transactions using the XA protocol to assure data safety. Connections to the database server can be encrypted, and multiple databases can be created in the single server instance.

This product description describes the key features, functions, and capabilities of the product or service. It is not intended to fully document the product or to provide support.

Audience

This description is for architects and technical specialists to give a high-level, brief description of the product or service. It is intended to be used to inform users of the broad functions and scope of capability. Refer to linked product documentation for details. Responsiv reserve the right to change the specification at any time and without notice.

Obligations

This document is not an offer or contract. Neither Responsiv nor you have any obligations or liability to the other unless our authorised representatives enter into a separate definitive written agreement. Terms included in this document are not binding unless they are included in such a written agreement.

Observations and recommendations in this document are based on our opinions, experience, and knowledge of the product. Responsiv makes no representation as to accuracy or fitness for purpose.

Underlying Software

This description is for a Responsiv product that is implemented using a combination of capabilities delivered by pre-existing products. References to those products and their documentation are required to improve understanding of the capabilities that are available and how to access them using the available tooling. Responsiv makes no claim that our product provides all documented features. If a feature is of particular interest, please seek clarification with Responsiv.

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<https://www.apache.org/licenses/LICENSE-2.0>

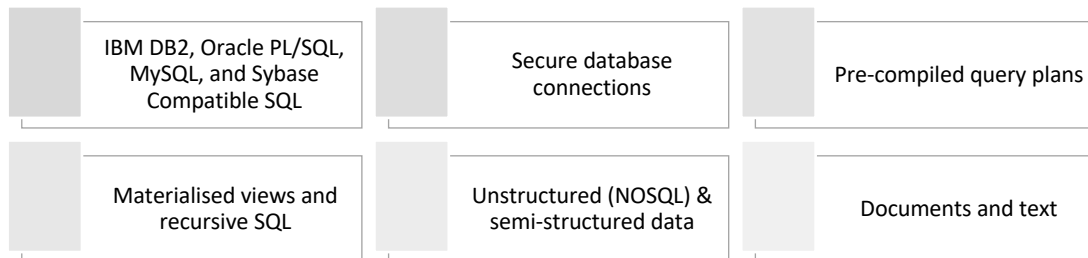
<https://opensource.org/license/mit/>

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Service Overview

Responsiv Cloud Data Platform (RC-DP) is used to store information in relational tables or JSON, XML, Custom structured records. The database is compatible with Oracle PL-SQL and supports distributed transactions using the XA protocol to assure data safety. Connections to the database server can be encrypted, and multiple databases can be created in the single server instance.



The service includes a database that stores user data in a structured format. This database can be accessed and modelled according to the user's requirements through the service's console. The service's console allows users to create tables, load data into the tables, and query the data loaded by the user.

<https://www.ibm.com/docs/en/db2/11.5?topic=new-1154>

IBM DB2, Oracle PL/SQL, MySQL, and Sybase Compatible SQL

Responsiv Cloud Data Platform provides features that enable applications that were written for an Oracle database to use a Db2 database without having to be rewritten.

The platform also provides optional features that simplify the task of migrating applications from other relational database products such as Sybase and MySQL.

<https://www.ibm.com/docs/en/db2/11.5?topic=features-db2-compatibility-vector-registry-variable>

<https://www.ibm.com/docs/en/db2/11.5?topic=support-sql-routines>

Secure Database Connections

This Cloud Platform is protected by the Responsiv Cloud Security Service RA002CN and can be further protected using DB2 native encryption, which allows encryption of the database, database backups, or both. Database backups can be encrypted regardless of whether the database itself is encrypted. Trust Interceptors can be configured to protect API access to services. The service also supports standard API protective protocols, including OAuth2, OpenID, and JWT.

Pre-compiled Query Plans

ODBC calls can be captured and profiled for future use. This creates a static query plan that improves latency and overall performance by avoiding the work normally associated with ODBC calls.

<https://www.ibm.com/docs/en/db2/11.5?topic=transactions-preparing-executing-sql>

<https://www.ibm.com/docs/en/db2/11.5?topic=odbc-cli-versus>

<https://www.ibm.com/docs/en/db2/11.5?topic=odbc-driver-managers>

Materialised Views and Recursive SQL

A hierarchical query is a form of recursive query that retrieves a hierarchy, such as a bill of materials, from relational data.

A 'CONNECT BY' clause is used to define the join conditions between parent and child elements. Connect-by recursion uses the same subquery for the seed (START WITH clause) and the recursive step (CONNECT BY clause). This combination provides a concise method of representing recursions such as bills-of-material, reports-to-chains, or email threads.

<https://www.ibm.com/docs/en/db2/11.5?topic=oracle-hierarchical-queries>

Unstructured (NOSQL), Semi-structured, Spatial, Document, and Text Data

XML and JSON documents can be stored in relational tables and their fields indexed and accessed directly. Db2® provides support for the XQuery language. This feature is very useful for document management solutions. Text fields can also be independently indexed and searched (on request).

<https://www.ibm.com/docs/en/db2/11.5?topic=functions-json-table>

<https://www.ibm.com/docs/en/db2/11.5?topic=purexml-xquery-reference>

Accessing the Service

The service is hosted in Responsiv Cloud datacentres located in the UK, and is accessible over the public Internet or using optional dedicated MPLS¹ connections.

Refer to Cloud Service Terms and Conditions for information about hosting providers.

<https://responsiv.co.uk/wp-content/uploads/2023/09/TC-RL0002O-Aug2023-Terms-and-Conditions-for-use-of-Responsiv-Cloud-v3-0.pdf>

Recommendation: An optional service preparation package can be purchased to help you set up connections, share certificates for security, and mentor staff on the use of this platform (See Optional Services).

Public Connections

Public Connections are used by customers and users that are accessing the platform from the public, untrusted, Internet. Most Responsiv Cloud Platforms do not allow public access.

Responsiv Cloud Platforms may be accessed from the public Internet by routing the connection through your own firewalls and intrusion detection arrangements. This ensures that we see the connection as originating from an internal network, and responsibility for its protection is with your security defences.

The only platform that allows direct access to the public Internet is the Responsiv Cloud API Platform.

Service Monitoring

The platform provides monitoring data using the SNMP protocol, which can be provided by request. The Responsiv MIB file is used to configure any SNMP compatible service monitoring platform.

User Connections

User Connections are used by staff and others to access the platform from your internal (semi-trusted) networks. User connections are tunnelled over encrypted, mutually authenticated virtual private networks (VPN), or transport layer security (TLS) connections. These connections are explicitly allowed through our firewalls from a named set of Internet Protocol (IP) addresses.

Responsiv Cloud Security Service intercepts all user traffic. Depending on how the service is configured, the user will be challenged for a security token, then for a username and password. The username and password is checked against the identity store, which can be local to the cloud or external in your own control.

Recommendation: To reduce the management overheads of setting up new users, and the risk that they remain after the user no longer needs them, Responsiv recommends configuring external identity storage and/or federated trust.

Data Connections

Data Connections are used by systems inside your private network to connect to and from the cloud platform using specific protocols. Connections are tunnelled over encrypted, mutually authenticated virtual private networks (VPN), or transport layer security (TLS) connections. These connections are explicitly allowed through our firewalls from a named set of Internet Protocol (IP) addresses.

<https://www.ibm.com/docs/en/db2/11.5?topic=overviews-data-server-clients>

<https://www.ibm.com/docs/en/db2/11.5?topic=clients-data-server-client-features>

Administrative Connections

Administrative Connections are used by our administrators and by the Responsiv Cloud Console to allow administration of the platform, including patching and upgrades. These connections are not directly accessible to customers or from public internet connections.

<https://www.ibm.com/docs/en/db2/11.5?topic=administration-db2-data-servers>

Customer Place Connections

Each Responsiv Cloud customer is assigned their own "Customer Place".

This is a walled garden network environment that is private and secure and may span multiple physical locations. Customer Places are protected by state-of-the-art firewalls, governance, and management practices.

¹ See optional services

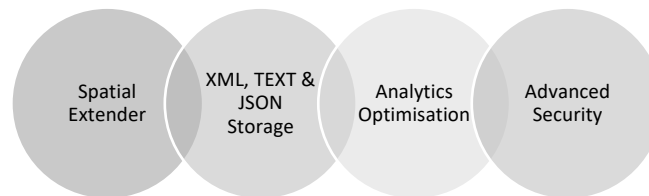
Responsiv Cloud Platforms are deployed or attached to the Customer's Place, creating a secure region of capabilities that can be connected. Responsiv Cloud Security Service is attached to each platform and to the Customer Place.

Platforms and Services deployed to the same Customer Place can be connected or clustered to deliver reliable and available business solutions. Platforms and Services deployed in separate Customer Places cannot be directly connected.

Features

Responsiv Cloud Data Platform (RC-DP) supports fine-grained authorisation policies and combinations of access control mechanisms.

Responsiv Cloud Data Platform delivers state of the art data handling facilities alongside securing and reliability. Graphical tooling and low-code configuration help address backlogs and improve consistency, supportability, and reduce developer learning time.



Spatial Extender

The platform provides r-tree indexing and other features to support spatial datatypes. Applications can ask whether one shape is inside another, whether lines cross, and about shape proximities.

<https://www.ibm.com/docs/en/db2/11.5?topic=data-db2-spatial-extender>

<https://www.ibm.com/docs/en/db2/11.5?topic=data-db2-spatial-analytics>

<https://www.ibm.com/docs/en/db2/11.5?topic=extender-supported-coordinate-systems>

XML, TEXT, and JSON Storage

XML and JSON documents can be stored in relational tables and their fields indexed and accessed directly. Db2® provides support for the XQuery language. This feature is very useful for document management solutions. Text fields can also be independently indexed and searched (on request).

<https://www.ibm.com/docs/en/db2/11.5?topic=functions-json-table>

<https://www.ibm.com/docs/en/db2/11.5?topic=purexml-xquery-reference>

Analytics Optimisation

DB2 column-organized tables store data with column organization for vector processing of column data. Using this table format with star schema data marts significantly improves storage, query performance, and ease of use through simplified design and tuning. To create a column-organized table, you can specify the ORGANIZE BY COLUMN clause on the CREATE TABLE statement.

If the workload is entirely an analytic or OLAP workload, the recommended approach is to put as many tables as possible into column-organized format. If the workload is transactional in nature, traditional row-organized tables with index access are more suitable. Support for column-organized tables is available in specific system and database configurations. For more information, see Restrictions, limitations, and unsupported database configurations for column-organized tables. Parallel processing must be enabled to access and query column-organized tables.

<https://www.ibm.com/docs/en/db2/11.5?topic=organization-column-organized-tables>

<https://www.ibm.com/docs/en/db2/11.5?topic=organization-enabling-parallel-processing-column-organized-tables>

<https://www.ibm.com/docs/en/db2/11.5?topic=to-restrictions-limitations-unsupported-database-configurations-column-organized-tables>

Advanced Security - API and User Interface Protection

This Cloud Platform is protected by the Responsiv Cloud Security Service RA002CN, where API protections and user permissions are configured. Trust Interceptors can be configured to protect API access to services. The service also supports standard API protective protocols, including OAuth2, OpenID, JWT.

With DB2 native encryption, you can encrypt your database, your database backups, or both. Database backups can be encrypted regardless of whether the database itself is encrypted.

<https://www.ibm.com/docs/en/db2/11.5?topic=encryption-encrypted-backups>

<https://www.ibm.com/docs/en/db2/11.5?topic=encryption-encrypted-database-creation>

<https://www.ibm.com/docs/en/db2/11.5?topic=dne-configuring-native-encryption-in-hadr-environment>

<https://www.ibm.com/docs/en/db2/11.5?topic=security-plug-ins>

Responsiv Cloud Security Service (RA002CN)

Responsiv Cloud Security Service is described in "RA002CN Responsiv Cloud Security Service". It provides attribute-based access control (ABAC), which uses information about the subject rather than predefined roles to determine authorisation. Role-based access control (RBAC), which uses predesignated roles to determine access to resources. User-based access control (UBAC), which assigns permissions to individual users, and Context and Time-based access control (CBAC).

Responsiv Cloud Platforms

Responsiv Cloud Platforms is a term used to include all platforms provided by Responsiv from one or more of our cloud hosting locations, including Azure, IBM Cloud, and AWS. Responsiv Cloud Platforms are integrated with the Responsiv Cloud Security Service for role based, federated security, and many can be clustered to deliver a datacenter as a service.

See website for details <https://responsiv.co.uk/?s=Responsiv%20Cloud>

Optional Services

Optional services are available to extend the capabilities or capacity of Responsiv Cloud Platforms and other products.

RL000NE Responsiv Consulting (Service Preparation)

Short duration consulting engagement to help new customers to (1) securely connect to Responsiv Cloud, and to get started with the Responsiv Cloud Service, or (2) to establish a managed service.

Migrating critical business process infrastructure is impactful to operations and must be done in a way to minimise unnecessary risks and unforeseen costs. Moving to Azure requires planning and preparation.

RA00C82 Responsiv Cloud Custom Service

Responsiv cloud custom platforms are applications developed by Responsiv to your exacting specifications, and delivered as a service. The capital cost of development is reduced by including some of the cost in the first three years of subscription. All the benefits of SaaS with a custom solution.

Project based remote development services to support existing projects with experience and skills, or to deliver a defined outcome. Services are charged by the hour and rounded to a full number of days per week, making this a very efficient way to develop solutions and to reduce your backlog.

Use this product to

- Develop custom processes and integrations
- Migrate from legacy technologies that have become too expensive or are no longer properly supported
- Support your move to cloud.
- Mentor your team

RA002EH Responsiv Cloud Security Identity Store Expansion

Additional identity stores can be used to separate groups of users, for example customers, suppliers, and staff. The identity store includes an entitlement for a maximum number of registered users. Additional expansions can be used to add users to an existing store or to create a new store.

RA001RD Responsiv Cloud Connect Service

Create private, dedicated network connections between your systems (Private DC, AWS, Azure) and the Responsiv Cloud. Improve security, reliability, and performance.

Remove the need for VPN and reduce the cost of data egress from Azure and other super-scale clouds. Establish connections from your existing WAN network, such as a multiprotocol label switching (MPLS) VPN, provided by a network service provider. A one-time connection applies.

RA002BM Responsiv Cloud Backup Service

Responsiv Cloud Backup Service (RC-BS) uses backup agents on the cloud platform to backup user and data on a weekly rotation. The service performs a full back up each week, followed by incremental backups each day. Data is sent to a "backup repository" to be available if requested. Each backup is stored for thirty (30) days or until the available backup storage is exhausted.

The service includes up to 6 recoveries per year. This service protects against software and hardware failure, and logical corruptions while making data available for recovery. This service may be customised to allow selected databases to be recovered to a point in time.

RA001WI Responsiv Cloud Integration Platform

Organisations that require advanced integration without process automation should consider using the Responsiv Cloud Integration Platform.

RT00094 Responsiv Assist Flex Support

Responsiv Cloud Data Platform is a supported and fully managed platform. Support can be extended to "float" across all the applications you deploy to the platform. The result is that we will handle problems with the platform and work with you to recover, repair, or work around problems in your applications.

Annual agreement that allows customers to make service requests asking for help with development, designs, problem resolution, and other mentoring and support subjects. You may request support with recovering from an incident, however this service does not offer and is not strictly suitable for incident response.

Developer and Administrator Tooling

Responsiv Cloud Data Platform Service provides low-code, graphical, and SQL options to describe your database and database applications.

The Responsiv Cloud Data Platform includes a wide range of tools to accelerate development of robust database schemas, constraints, and data security options.

Tools are available to help collect, format or analyse diagnostic data. Db2 Connect provides diagnostic tools to troubleshoot problems. You can also use the tools and diagnostic files provided with the operating system. When you encounter a problem, you can use troubleshooting information in the form of diagnostic data, including dump files, trap files, error logs, notification files, and alert logs, which are found in the path specified by the diagnostic data directory path.

<https://www.ibm.com/docs/en/db2/11.5?topic=techniques-troubleshooting-tools>

<https://www.ibm.com/docs/en/db2/11.5?topic=tdcs-collecting-data>

Migration

IBM® Db2 Migration Service is a tool used to migrate data between Db2 databases. Once configured, Migrations can be triggered using a browser or a command line client. Db2 Migration Service supports several transfer scenarios.

Performance and Tuning

The Responsiv Cloud Data Platform provides command line and graphical tooling to provide information about how the database is operating, and to influence its performance and resilience.

<https://www.ibm.com/docs/en/db2/11.5?topic=fundamentals-performance-tuning>

Responsiv Cloud Console Service

The service is configured using the Responsiv Cloud Console, which also provides access to the Responsiv Cloud Security Service to configure security arrangements and add local users (administrators).

Supported Protocols

Responsiv Cloud Data Platform supports several different methods of connectivity, including those listed below.

SQL, PL/SQL, MySQL

Structured Query Language is supported in different dialects, including PL/SQL (Oracle), DB2 SQL, and MySQL. The SQL connection can be encrypted.

https://www.ibm.com/docs/en/search/T-SQL?scope=SSEPGG_11.5.0&intitle=true

<https://www.ibm.com/docs/en/db2/11.5?topic=plsql-sql-statements>

<https://www.sqlines.com/sqldata/sybase-to-db2>

JDBC, ODBC

The service can be accessed as a JDBC or ODBC service using the appropriate protocol.

HTTP(S)

The database tooling can be accessed over HTTP. DB2 table functions can be used to access web services.

Table Functions

The database supports table-functions that allow new protocols to be integrated with the database in a way that allows them to look like tables. For example, IBM MQ can be integrated in this manner.

Service Management

Responsiv manages this service, including active health monitoring, patching, upgrades, and general maintenance. The service is available 7x24.

Service Preparation

This service is prepared by configuring the Identity Store to manage users locally, or to attach to an external identity store to allow customers to retail control and management of their users. Federated trust can be configured at this point. To properly configure this service the following steps are followed.

- Plan
 - **Select Security Pattern** that you prefer to use. Note that combinations are perfectly reasonable and can be added later. One or more of Attribute-based access control (ABAC), Role-based access control (RBAC), User-based access control (UBAC), Context and Time-based access control (CBAC).
 - **Document** attributes, roles, contexts, and the authorisation that will be associated with those things. For example, the role "ADMIN" will have these authorisations.
 - **Decide** whether to implement local, SSO, or federated trust. For SSO implementations the subset of identities that are in-scope for the Responsiv Cloud Services should be marked to allow filtering.
- Execute
 - Configure the service to connect to external identity store for SSO.
 - Configure a federated trust association to remove the authentication challenge.
 - Configure users as members of groups with roles etc.
 - Describe authorisation policies and use the service to test them.

Service Level Agreement

This service is supported by Responsiv from our UK offices.

The service includes product/platform support only and is triggered by automated monitoring built into the platform or manually accessed from our website. <https://responsiv.co.uk/support-hub/support/>.

The service level agreement (SLA) for Responsiv Cloud services (RL000F6 Responsiv Support Services Addendum v1.0) can be found here: <https://responsiv.co.uk/wp-content/uploads/2023/11/TC-RL000F6-Aug2023-Responsiv-Support-Services-Addendum-v1-0.pdf>.

The SLA defines support available for the platform including support hours of availability, response times, severity level, Service Down definition, the claim process and other support information. Responsiv provides the Customer with the following availability service level agreement (SLA). Responsiv will apply the highest applicable compensation based on the cumulative availability of the Cloud Service as shown in the table below.

Upgrade and Patching Schedule

We expect to perform a single upgrade annually and to install security and critical patches efficiently as they become available. Patches are categorised as follows:

- Security – Patch specifically or including for a security flaw or weakness.
- Critical – Patch will be required to be applied before support attempts to resolve a problem.
- Optional – Specific function bug resolution. Optional depending on use cases.

Continuous Improvement

Responsiv does not commit to future development or support beyond our contractual obligations. Responsiv Cloud Platforms and Responsiv Cloud Services are continually developed and maintained.

New features may be provided as optional expansions to the base platform or may be installed as standard.

Format and Charging Measures

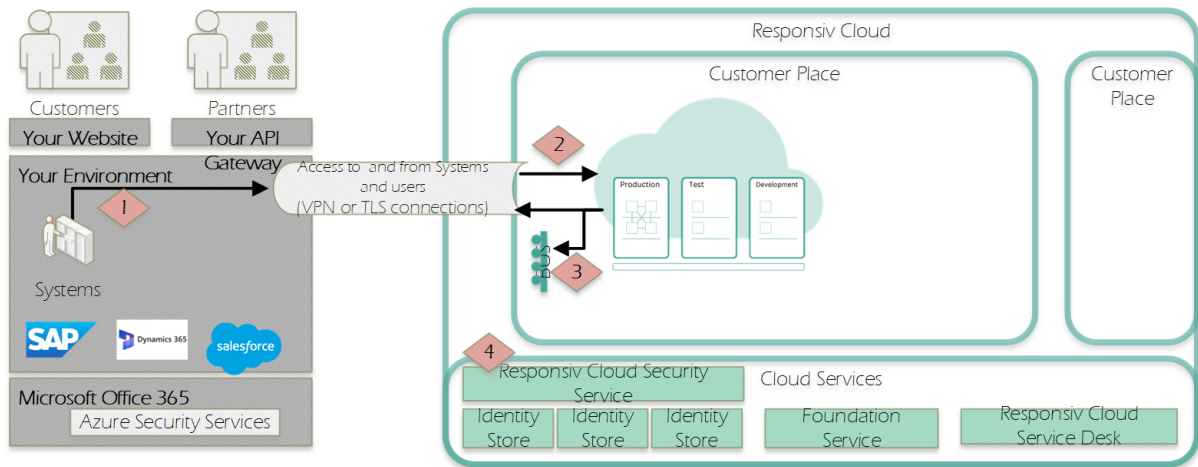
This product is available in the following formats:

- Software as a Service (SaaS) product that is bundled with each Responsiv Cloud Platform
- Individually as a Responsiv Cloud Service

This product supports charging by instance, registered users, and duration. Entitlements use a combination of charging measures that are appropriate to the intended purpose.

Architecture

The Responsiv Cloud Data Platform is a cloud platform that can be connected to enterprise systems, allowing it to store data and make data available through services and APIs.



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Figure 1; Illustrative overview of Responsiv Cloud Platforms

[1] User Interface

Users access business processes directly through screens described as part of the process, or from client applications and websites using REST APIs. Users can start, contribute, Stop, and catalogue processes that they own or are somehow connected.

[2] Data Services

The data platform can be accessed using SQL terminals, embedded SQL over ODBC and JDBC, or using webservice linked to tables and stored procedures.

[3] API Hosting and Connections to other Clouds

The data platform is a database that supports webservice definitions that can be promoted to other platforms, for example exposed as APIs.

[4] Cloud Services

The platform benefits from cloud services for security, management, monitoring, and service desk.

Artificial Intelligence (AI) and other extended functionality can be made available in a secure and managed way through the Responsiv Cloud Services.

Platform Structure

Responsiv Cloud Data Platform is structured in three environments to allow independent upgrades and use.

Production

The production environment is configured with a resilient, two-member database cluster.

Development and Test Environments

Two independent environments that are available to allow user testing to continue independently of production operations and without interfering with development. Developed applications are typically promoted to user test and on to production.

Capacity

Responsiv Cloud Platform entitlements are made available based on a single measure (primary metric) to simplify purchasing and comparison with other cloud platform providers. Primary metrics used by Responsiv to size our Responsiv Cloud Platforms include concurrent or named users, rule executions per hour, transactions per hour, and volume of data. The primary metric is used to determine resource allocations for other measures to provide Customer with reasonable capacity to operate typical, reasonably efficient workloads, and dispersed usage profiles.

Specific workloads and peak usage profiles may cause the intermittently poor performance. Customer programming practices, for example high memory use, highly compute intensive work, or high latency API calls, may cause timeouts, memory exhaustion, or other instabilities. Responsiv make available expansion packs that can be used to add resources to Responsiv Cloud Platforms to reduce or avoid these problems. Responsiv Consulting provide subject matter experts to help you develop or refactor your applications to improve efficiency and reduce resource demand.

Organisations can use the platform to blend information, process, and users to provide a 360-degree view of work.

Many of our customers appreciate that the benefits of process Data and enterprise integration are critical to their sustainable business success. This is especially important when staff retention, and skills availability is problematic. Mundane work that requires high accuracy or immediate execution can especially benefit from automation.

Location

Responsiv hosts Responsiv Cloud Platforms on dedicated cloud platforms located in secure data centres located in the UK. We recognise that some organisations that have large data volumes and for whom data movement optimisation is important.

Responsiv offer Responsiv Cloud Data Platform as described in this description and located on Azure in a UK datacentre.

All Responsiv Cloud Platforms are actively maintained, monitored, and supported.

Access to expert resources who know your infrastructure, with options to efficiently access specialists for short periods of less than a day, or task for defined fixed price enhancements.

Related Products

This Responsiv Cloud Platform contains capabilities that are closely related to the following products and services.

IBM products, including support and subscription part numbers are listed here to help existing IBM customers to understand what this platform contains. Not all products listed are required to deploy these services.

- D03FVZX IBM Db2 Advanced Edition Cartridge for IBM Cloud Pak for Data Virtual Processor Core License + SW Subscription & Support 12 Months
- D233TLL IBM Db2 Standard Edition AU Option for Non-Production Environments Authorized User License + SW Subscription & Support 12 Months
- D233MLL IBM Db2 Advanced Edition VPC Option Virtual Processor Core License + SW Subscription & Support 12 Months
- D233PLL IBM Db2 Advanced Edition AU Option for Non-Production Environments Authorized User License + SW Subscription & Support 12 Months
- D233RLL IBM Db2 Standard Edition VPC Option Virtual Processor Core License + SW Subscription & Support 12 Months
- E0Q5ULL IBM Db2 Advanced Edition VPC Option Virtual Processor Core Annual SW Subscription & Support Renewal 12 Months
- E0Q5VLL IBM Db2 Advanced Edition AU Option for Non-Production Environments Authorized User Annual SW Subscription & Support Renewal 12 Months
- E0Q5WLL IBM Db2 Standard Edition VPC Option Virtual Processor Core Annual SW Subscription & Support Renewal 12 Months
- E0Q5XLL IBM Db2 Standard Edition AU Option for Non-Production Environments Authorized User Annual SW Subscription & Support Renewal 12 Months
- D03FXZX IBM Db2 Advanced Edition Cartridge for IBM Cloud Pak for Data Virtual Processor Core SW Subscription & Support Reinstatement 12 Months
- D233ULL IBM Db2 Standard Edition AU Option for Non-Production Environments Authorized User SW Subscription & Support Reinstatement 12 Months
- D233NLL IBM Db2 Advanced Edition VPC Option Virtual Processor Core SW Subscription & Support Reinstatement 12 Months
- D233QLL IBM Db2 Advanced Edition AU Option for Non-Production Environments Authorized User SW Subscription & Support Reinstatement 12 Months
- D233SLL IBM Db2 Standard Edition VPC Option Virtual Processor Core SW Subscription & Support Reinstatement 12 Months