

BMC Service Desk Express

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EXECUTIVE SUMMARY

The BMC Service Desk Express solution provides the central hub for IT management, by recording and tracking company IT users, resources and assets and their associated incidents, problems, and changes. To allow BMC Service Desk Express to serve as this central repository, the BMC Service Desk Express Integration Engine provides thorough and robust integration with other applications and reference data stores in the organization. The Integration Engine is provided at no additional cost, and leverages existing investments in other applications through integration of these tools into a coordinated infrastructure management environment. Through Web Services, the Integration Engine enables new application development through standards-based, configurable interfaces. Web Services technology allows service-oriented enterprise application integration while maintaining the flexibility and configurability inherent in BMC Service Desk Express. While other service desk solutions perform integration through additional cost, custom-code architectures, BMC Service Desk Express Integration Engine provides a simple, wizard-based approach to creating integrations that are preserved across version upgrades of the product.

“The SDE Integration Engine is excellent in terms of its features and its ability to generate Incidents. Our staff at CareFirst have been very happy with it. We run 4 different Integration Packages on a daily basis. We have also used it for one time imports from other systems. It is a very user friendly and robust tool.”

*Denise McCoy
Lead Service Coordinator
CareFirst BlueCross BlueShield*

BACKGROUND: BMC SERVICE DESK EXPRESS ARCHITECTURE

BMC Service Desk Express is primarily a database-oriented application, and provides a rich Web-based user interface of forms and associated navigation to interact with the underlying data store. The forms and other components of the application, however, do not directly read and write the data store; BMC Service Desk Express provides a powerful business logic layer through which database operations are managed. BMC Service Desk Express's Metadata service is the heart of this layer and is the gateway between application processes and the database.



The Metadata service can be viewed as a collection of "modules." Each module is a logical abstraction that represents one type of data record stored in the solution. The "client" module, for example, would record all the relevant attributes of an IT user in the organization: name, address and location, e-mail address, phone numbers, and more. The Metadata service presents to higher-level application components this logical view, while translating the abstract representation to a physical schema for data storage.

More than simply providing an abstraction for a database schema, the Metadata service also provides the application-level services to create and modify records within each module. By managing the database operations, complex and customized business logic can be applied to record operations. For example, when registering an incident, the Metadata service can ensure that notifications and other rule-based data changes are applied as the data is saved to the underlying data store.

Standard business logic exists in many BMC Service Desk Express modules; a typical implementation also utilizes custom business logic in the form of "business rules." In BMC Service Desk Express, a business rule is a set of conditions and resulting actions associated with a module. Business rules are immediately processed (client-side business rules) or queued (server-side business rules).

A successful integration with BMC Service Desk Express must include the full utilization of the Metadata service. While many tools are available to read and write the underlying database, BMC Service Desk Express Integration Engine alone embraces this architecture and maintains the same logic and rule processing for integrated applications as exists with the standard BMC Service Desk Express application.

BMC SERVICE DESK EXPRESS INTEGRATION ENGINE ARCHITECTURE

BMC Service Desk Express Integration Engine is comprised of two primary components: the Console, used during design of integration packages, and the Engine, which at run-time processes and executes configured packages.

A package in the Integration Engine is composed of one or more steps with each step containing the definitions of a source, a target, and a mapping between the resulting columns of a source and target. These sources and targets are constructed with Integration Engine Adapters. Included with BMC Service Desk Express Integration Engine are standard technology adapters to communicate with a variety of data sources:

- » BMC Service Desk Express
- » Databases (ODBC)
- » Directories (LDAP/ADSI)
- » Network management tools (SNMP)
- » Web-based applications (XML)
- » Text files (CSV)

Also available with BMC Service Desk Express Integration Engine are specific application adapters for use with leading industry products:

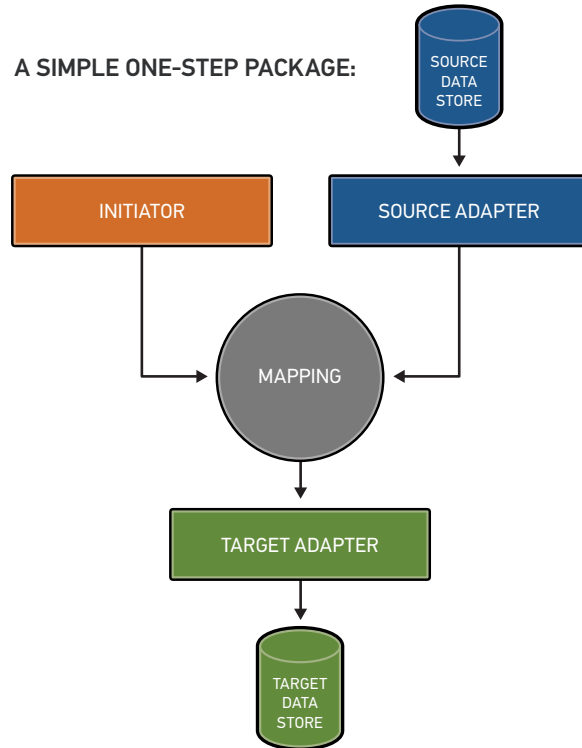
- » Microsoft management tools (Operations Manager)
- » Microsoft Project Server

Standard, pre-defined integration packages using these various adapters are provided with BMC Service Desk Express Integration Engine; these standard integrations allow connection of BMC Service Desk Express to other BMC applications (BMC Configuration Manager Express and BMC Performance Manager Express).

At runtime, each package in the Integration Engine is launched by an Initiator. A package initiator can include:

- » Schedule (time interval or specific times/dates)
- » Receipt of SNMP event
- » Receipt of XML data
- » File creation in a monitored directory

Mapping of data from the source to the target is configured in the Integration Engine Console. The implementer can create the mapping using simple point and click from individual columns in the adapters. Also provided is an advanced scripting engine to allow for complex transformations and modifications of the data. The scripting engine is based on Microsoft VBScript technology.



ADVANTAGES OF BMC SERVICE DESK EXPRESS INTEGRATION ENGINE

Use of the Integration Engine for construction of application integration holds significant advantages over other alternatives (notably direct database access and custom programming).

» **Absolute adherence to BMC Service Desk Express Metadata**

Through BMC Service Desk Express Metadata services, integrations built with the Integration Engine hide the underlying complexity of the database schema, presenting a consistent logical view of the database model, but at the same time ensures conformance with custom-defined business logic in BMC Service Desk Express. A custom application directly accessing the data store must properly manage data relationships among multiple physical tables. For example, creating an incident record in the product requires selection of a user and a category. A package deployed with the Integration Engine need only specify the ID values for the user and category; proper lookup of the actual artificial foreign key relationships is performed automatically. A custom application bypassing BMC Service Desk Express's Metadata service must interpret these relationships and keys independently, requiring significant development time and expertise.

» **No programming skills required**

Creating a complex data integration with BMC Service Desk Express Integration Engine does not require knowledge of programming languages and development skills. Integrations are built point-and-click in a simple and straight-forward Web-based designer. Wherever necessary, the Integration Engine generates program code for the user. This generated code (both for standard packages and Web Services) can be inspected and edited by an advanced user for maximum control and flexibility.

» **Broad range of standard adapters**

By including standard technology adapters for many typical data providers, BMC Service Desk Express Integration Engine comes out of the box ready to work with virtually any existing application. Basic ODBC and text-file adapters are provided; advanced adapters to interact with LDAP, SNMP, and XML data sources are also included. The powerful XML adapter can work with arbitrary XML data as if it were a simple collection of rows and columns.

» **Real-time interaction**

Several of the adapters in BMC Service Desk Express Integration Engine also may be used as initiators. These initiators serve two purposes in a package: they launch a package and provide the initial set of data used in the package. The SNMP and XML initiators both behave in this manner. Receipt of SNMP or XML data can immediately trigger the execution of an integration package without any arbitrary delay for polling a source system. The "File Watcher" initiator also provides this real-time capability: it can be configured to look for new or changed files in a monitored folder, using that event to launch a package dynamically.

» **Web Services support**

BMC Service Desk Express Integration Engine can generate and publish standards-based Web Services for any module in BMC Service Desk Express. A service created with the Integration Engine is easily customizable during configuration and publishing. Other environments require users to write and understand complex programming languages to utilize Web Services. With the Integration Engine, creating a service is a simple administrator-level task accomplished in minutes, not hours or days.

To explore these advantages in detail, we can consider three real-world integration scenarios using BMC Service Desk Express Integration Engine.

SCENARIO 1: BRINGING REFERENCE DATA TO BMC SERVICE DESK EXPRESS

One principal integration requirement in a typical BMC Service Desk Express implementation is to create customer data from an external authoritative directory. Many organizations utilize a directory, external to BMC Service Desk Express, to maintain lists of users and basic information about each user (name, e-mail address, telephone numbers, et al). Keeping BMC Service Desk Express's own client data synchronized with this external authoritative directory is a natural use of the Integration Engine environment.

Consider the case of ABC Company. ABC maintains an Active Directory system to allow users access to IT systems. The Active Directory implementation contains full details about each user in the organization. Not wanting to have to separately maintain two sets of user data (one in Active Directory, the other in BMC Service Desk Express), ABC creates an integration package to bridge these two systems together.

In ABC's integration package, the ADSI adapter is used to create a source connection to the Active Directory information store. By configuring the adapter in the Integration Engine console, ABC can choose which Active Directory users are to be created as BMC Service Desk Express clients and which Active Directory attributes should be included in the data available for mapping. ABC then configures the target adapter for the Clients module, and creates the appropriate column mapping from the Active Directory source to the target. Finally, a schedule-based initiator is chosen to launch this scenario hourly, keeping BMC Service Desk Express data synchronized with the master directory.

Since the adapter in the Integration Engine uses BMC Service Desk Express Metadata, custom business logic in the BMC Service Desk Express Clients module can be triggered whenever the package runs. For example, ABC has configured a business rule that sends a notification to a new client advising the client of the URL and login information for the self-service help desk. This rule runs whenever a new client record is created in the BMC Service Desk Express system. Records created by the adapter trigger execution of this rule, just as if they were entered from a BMC Service Desk Express form.

SCENARIO 2: REAL-TIME INTEGRATION

In the Active Directory scenario, the integration package is scheduled to run on a periodic basis. For some integration scenarios, scheduled intervals produce unacceptable delays. To construct dynamic integrations with some classes of external applications, real-time integration is essential.

ABC Company has created an Intranet portal; to simplify end-user access, a form on the Intranet site allows the submission of a new incident directly from the portal, without requiring the user to access the self-service help desk. To allow this interaction, ABC creates an integration package based on the BMC Service Desk Express Integration Engine XML initiator/adapter.

The XML initiator in BMC Service Desk Express Integration Engine allows an external application to post formatted XML data to a URL managed by the Integration Engine. When data is posted to the URL, the Integration Engine launches the configured package immediately, in real-time. The formatted XML data is processed by the Integration Engine and "flattened" to a structure that resembles a typical row-and-column data source. This ability to process arbitrary XML-formatted data allows configuration of BMC Service Desk Express Integration Engine packages to numerous external applications.

In the package, ABC configures the target adapter for the Incident module, and creates a mapping between the columns from the XML source data and the Incident module. At runtime, when the Intranet portal posts the form data entered by the end-user to the BMC Service Desk Express Integration Engine, the package immediately executes and creates the corresponding incident record in BMC Service Desk Express.

Much like the Active Directory scenario, since the adapter utilizes BMC Service Desk Express Metadata, standard and custom business logic associated with the Incident module is triggered for any record created using this package.

SCENARIO 3: PUBLISHING BMC SERVICE DESK EXPRESS MODULES WITH WEB SERVICES

Another powerful feature provided by BMC Service Desk Express Integration Engine is the ability to create industry-standard XML Web Services that interact with BMC Service Desk Express modules. Web Services published by the Integration Engine are analogous to single-step packages that work with one chosen module. A published service can either create/update information in the module, or can retrieve records from the module. The Web Service publishing feature in the Integration Engine enables a broad class of integration scenarios with external or custom applications that support Web Services.

BMC Service Desk Express Integration Engine Web Services support WSDL (Web Service Description Language) and many interoperability standards. Authentication and security are provided in a variety of configurable methods, including standards-based WS-Security.

Integration Engine Web Services are defined in the Console; parameters for a service (information provided by the external application when the service is invoked) are custom configurable and the values supplied can be used in mapping to the BMC Service Desk Express module (for create/update services) or in creating a filter (for retrieve services).

ABC Company wants to augment their Intranet portal to include a list of Incidents associated with the currently logged-in end-user. To do this, ABC creates a Web Service based on the Incident module. The service is configured with one parameter: the BMC Service Desk Express client identifier. Based on this client ID, the service returns all open Incident records to the caller of the service.

When an end-user accesses the ABC Intranet site, the ABC portal calls the Web Service supplying the user ID as the parameter value. The returned incident data is then processed and displayed in HTML format by the ABC portal.

CONCLUSION

BMC Service Desk Express Integration Engine connects the BMC Service Desk Express environment to other IT systems and solutions. The Integration Engine enables scheduled, real-time and Web Service interaction, and utilizes the standard BMC Service Desk Express business logic systems. By providing this rich and robust integration capability, BMC Service Desk Express can be the central hub for IT systems management activity.

“The BMC Service Desk Express implementation of Web Services is clean and intuitive. Our developers were able to use the generated WSDL’s in a variety of client technologies including .NET, Silverlight, InfoPath and FLEX without modification or customization. We could immediately use them in our applications and the discovery and consuming worked just as we would expect with well written web services.”

*Neil Otto
Solution Manger
Meritide, Inc.*

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