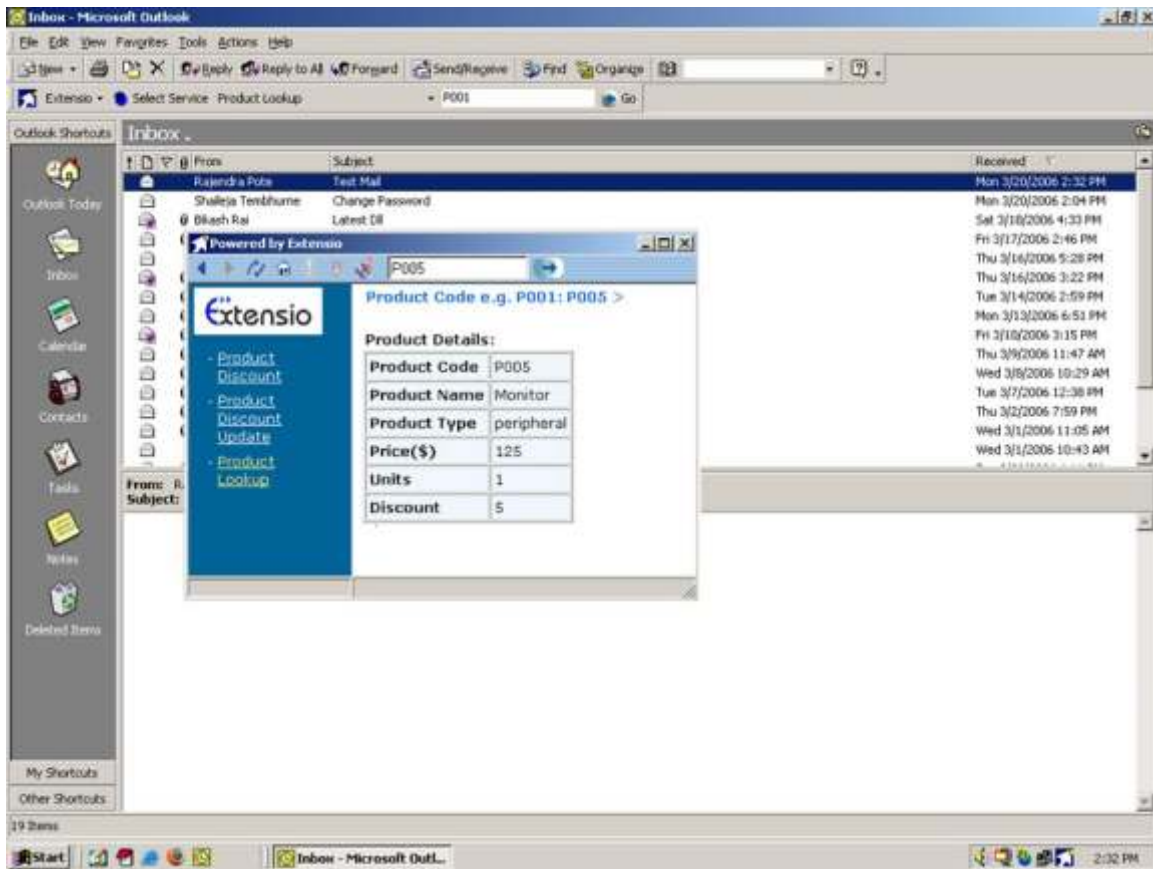


Extensio Extender for Microsoft® Outlook:

Deployment Paper

This document provides an overview of how the Outlook based Information Channel is implemented with Extensio Information Suite of products. It describes the key features and benefits offered by the Extensio Information Integration platform. It also includes details on the required hardware and software and the development process.



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1. Overview of Extensio Extender for Microsoft® Outlook

Microsoft Outlook is one of the most widely used office productivity tools in the world. It is natural for business users to access and update enterprise information from Outlook as they perform daily operations such as communicating with other team members and collaborating with colleagues. However, due to Outlook being a stand-alone application, with no connectivity to enterprise data stores, business users have to deal with multiple screen switches and change of context as they go around looking for information, while on their Outlook screens.

Extensio connects Outlook with enterprise data stores, helping business users to access and interact with enterprise data on their Outlook screens, in a secure manner. The Extensio Extender for Outlook enables business users to maintain their context as they go about doing their daily tasks, by providing them contextual, relevant and real time information, right on their Outlook screens. Its point-and-click interface requires almost no new learning by the business users.

The Extensio Extender for Outlook was created keeping in mind the need to provide seamless access to enterprise data stores on existing Outlook implementations, without any upgrades. Now, any organization can access relevant information from multiple back-end sources right from their existing versions of Outlook and greatly improve productivity of business users

The key business benefits of the Extensio Extender for Outlook include:

- Secure, real time visibility into enterprise data on Outlook interfaces

- Query and Update multiple data sources within Outlook

- Works on Outlook 2000+, requires no upgrades

- Increased user productivity

2. Feature Overview of Extensio Extender for Microsoft Outlook

The Extensio Information Server connects to the various back-end enterprise applications and provides the logic to access, manipulate, and process the data. Once the result data is available, it can then be sent to multiple front-end devices such as Outlook, mobile devices, Desktop, and applications through their corresponding Extenders.

The Extensio Extender for Microsoft Outlook provides connectivity to enterprise data sources in the following manner:

- Installs a toolbar within Outlook that hosts information services

- Authenticated users get a list of authorized services on their Extensio Outlook toolbar.

- Users choose the information service of their choice and provide inputs using the Extensio Outlook Query Window.

- The Extensio Information Server processes the user request and the response is displayed to the user on the Extensio eWindow, a floating interface on the Outlook screen.

- Alternatively, users can Alt-Click on the input word as it appears on the e-mail, and invoke the

information service request.

Users can also update back-end stores using Update Information Services.

Extensio Extender for Outlook works on existing versions of Outlook 2000+, and requires no upgrades.

2.1 Access enterprise data using Extensio Service Toolbar

User can access data from the enterprise sources directly within Outlook by using the Extensio Service Toolbar. The Extensio Service Toolbar hosts Extensio data-services that are delivered to authorized users. Extensio data-services are designed using Extensio Studio, and are deployed on the Extensio Information Server.

To use an information service, the user chooses the information service from the toolbar. The Extensio Service Window displays the service properties and its schema to the user. The user can now provide the inputs for the information service and select 'Query' to perform a information service request. The request is sent to the Extensio Information Server over XML/HTTP, and in turn passed on to the specified back-end data sources, stored in the information service property. The request is processed and sent back from the Extensio Information Server on XML/HTTP. The XML response is then interpreted and published by the Extensio Outlook Extender on floating window, called the eWindow.

2.2 Alt-Click on Input Word

User can access data from the enterprise sources directly within Outlook by using the alternative Alt-Click based usage model.

In this usage model, users choose the information service of their choice from the Extensio Outlook toolbar, and Alt-click on the input word (text representation of the input on Outlook screen) to initiate the data request. The request is sent to the Extensio Information Server over XML/HTTP, and in turn passed on to the specified back-end data sources, stored in the information service property. The request is processed and sent back from the Extensio Information Server on XML/HTTP. The XML response is then interpreted and published by the Extensio Outlook Extender on floating window, called the eWindow.

2.3 Update back-end data from Outlook

The Extensio Extender for Outlook allows user to insert new records, and update or delete existing records from the Outlook screen.

Users choose the Update type of information services from the Extensio toolbar and get its schema in the Extensio Service Window. Users populate the field values on the Update interface in the Extensio Service Window and submit the update request. The Update request is sent to the Extensio Information Server over XML/HTTP, and in turn passed on to the Extensio Update Engine. The update engine processes the request based on the update rules specified in the information service property. The update request is processed and its status is sent back from the Extensio Information Server on XML/HTTP. The XML response is then interpreted and published by the Extensio Outlook Extender on floating window, called the eWindow.

2.3 Single Install, with automatic updates on the Services Toolbar

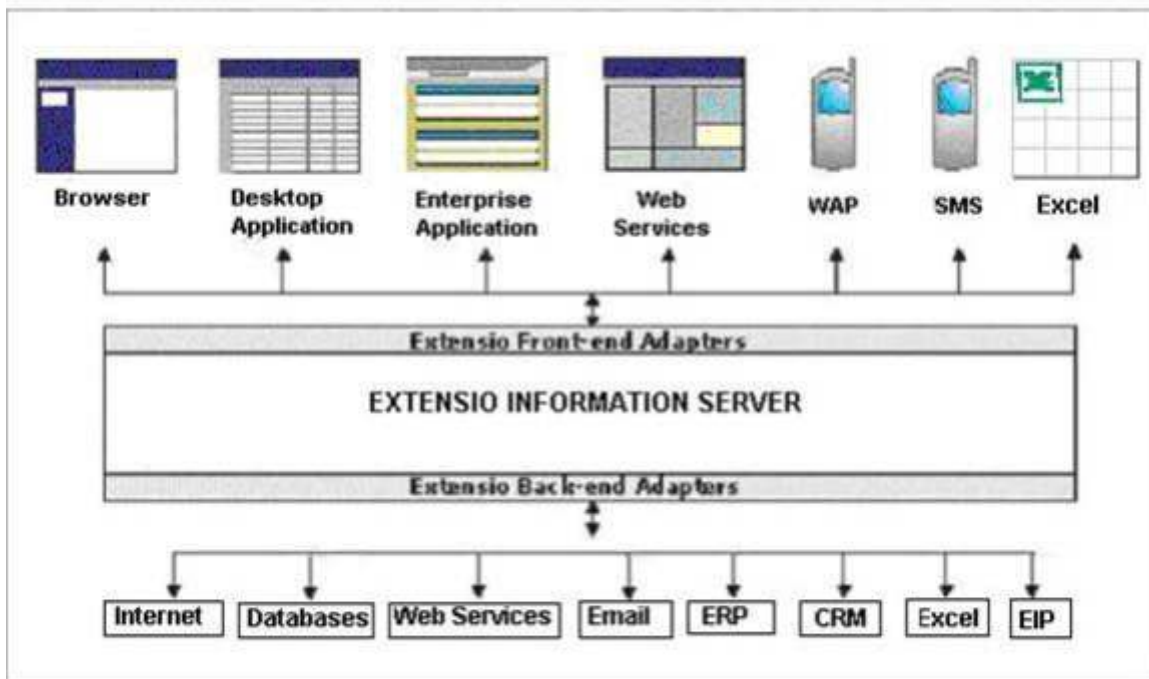
The Extensio Extender for Outlook is a Outlook Add-in that installs with a single download from the user.

When data services get added on the Extensio Information Server, they are published automatically on the Extensio Service toolbar and become available to end-users. Schema changes, if any, also get reflected on the User desktops with no additional downloads.

3. Extensio Software Components

Before the process for building the Outlook data-services is described, it is important to understand the overall architecture of the Extensio Information Server and its components.

The Extensio Information Suite consists of the following software components as laid out in the following architecture diagram:



Extensio Information Server: The Extensio Information Server is a J2EE based information integration engine that implements a rule based mechanism to query, update and join disparate information elements from multiple data stores and present it as a unified information layer.

Extensio Studio: The Extensio Studio is a browser-based development tool that enables developers to build and deploy information services from back-end data repositories. With its build-once-deploy-many features, services can be combined and reused by different services and Extensio extenders.

Extensio Console: The Extensio Console is a browser based administrator tool that enables administrators to tune and manage the Extensio deployment within the enterprise. With configurable parameters such as connections, time-outs and detailed audit logs, administrators can manage the load on the back-end data repositories created by Extensio, and ensure optimum performance.

Extensio User Manager: The Extensio User Manager is a browser-based tool to configure users, user groups and their service authorizations for the Extensio services. For existing LDAP installations, administrators can choose to use LDAP based authentication and authorization.

Extensio Technology Adapters: Extensio provides many technology adapters for standard interfaces such as JDBC/ODBC, HTTP, SOAP, XML, LDAP, and flat files. It supports a variety of databases including Oracle, IBM, Microsoft and mySQL.

Extensio Application Adapters: Extensio provides adapters to widely used applications such as SAP, JD Edwards, IBM WebSphere Portal Server, Microsoft Exchange, and Microsoft Outlook.

Extensio Middleware Adapters: Extensio connects to leading EAI products such as WebMethods and IBM MQ Series to leverage existing application integration deployments.

Extensio Extenders: Extensio delivers its information elements with its front-end Extenders including Outlook, Excel, SMS, J2ME, PDA, Desktop, Portal, WAP and E-mail.

4. Building and Deploying Extensio Data Services for Outlook

The Extensio Service Developers use the Extensio Studio to develop Outlook services that pull data from the customer's back-end application and databases. Once the services are developed and tested using Extensio Studio's point-and-click mechanism, the administrator publishes the services in the registry (eToolbar), and then finally uses the Extensio User Manager to assign specific access rights to the users.

Based upon the complexity of the service, it may take from a few hours to a day to build and test the service. Alternately, if you already have Extensio services running for some other front-end such as SMS or desktop, you can very easily extend the same services for the Outlook front-end without much extra effort.

This section explains how to build a simple data-service for Outlook. The example taken to explain the process of building a service is of a Database service. It extracts the basic information for a customer from a sample database "ExtSample" which is included as part of the Extensio Information Suite.

The service building steps can be broken up into the following broad steps:

1. Define a new data-service for Outlook.
2. Provide the business logic to get information from selected back-end applications
3. Test the business logic
4. Design the presentation of this information to the end-user
5. Test the complete service
6. Publish the service
7. Specify appropriate access controls for who can access this service

4.1 Define a New Data-service for Outlook

The service typically acts on zero or more selected “keywords” such as a Customer ID, Customer name, or a Product ID as shown in the screenshot of the Extensio Studio. Once the basic template is defined, the studio developer fills in the other steps required for the service.

Note that there can be multiple Extensio services defined on the same keyword.

Basic Properties		Edit
Invocation Type	User_Input	
Service Summary	Basic Information of Customer	

Request Process			Import	Add
Request Process ID	Adapter	Options		
requestprocess1	JDBCAdapter	Edit Test Delete		

Processing Options		Add
Filter	No filter has been added.	
Custom Process	No Custome Process has been added.	

Presentation Options				Add
Desktop Layout				
Section ID	Request Process/Filter ID	Options		
winsection1	requestprocess1	Edit Delete		
Excel Layout				
Section ID	Request Process/Filter ID	Options		
excelsection1	requestprocess1	Edit Delete		

Figure: Defining a New Outlook data-service

4.2 Build the Request Process

From the request process section, the developer first selects the back-end adapter used such as database, portal, SOAP, ERP, or CRM applications.

The developer then selects the specific resource such as a given database that has to be accessed for this data-service.

The developer then writes an appropriate query (e.g. SQL query for database operations) required to extract the required information from the back-end resource in the adapter specific panel. For example, to extract data about a customer from a database, the developer could provide the following SQL:

```
select * from customer where cust_id = '@{Input[cust_id]}'
```

You may drag the string `{Input[cust_id]}` from the 'Available parameters' column. This gets replaced at runtime with the input value from the user. For example, if the service is invoked on the word 'C001', the query invoked at runtime is

*select * from CUSTOMER where cust_id = 'C001'*

In addition to the input data being available, the developer can use the caller profile and other information about the caller in servicing this request.

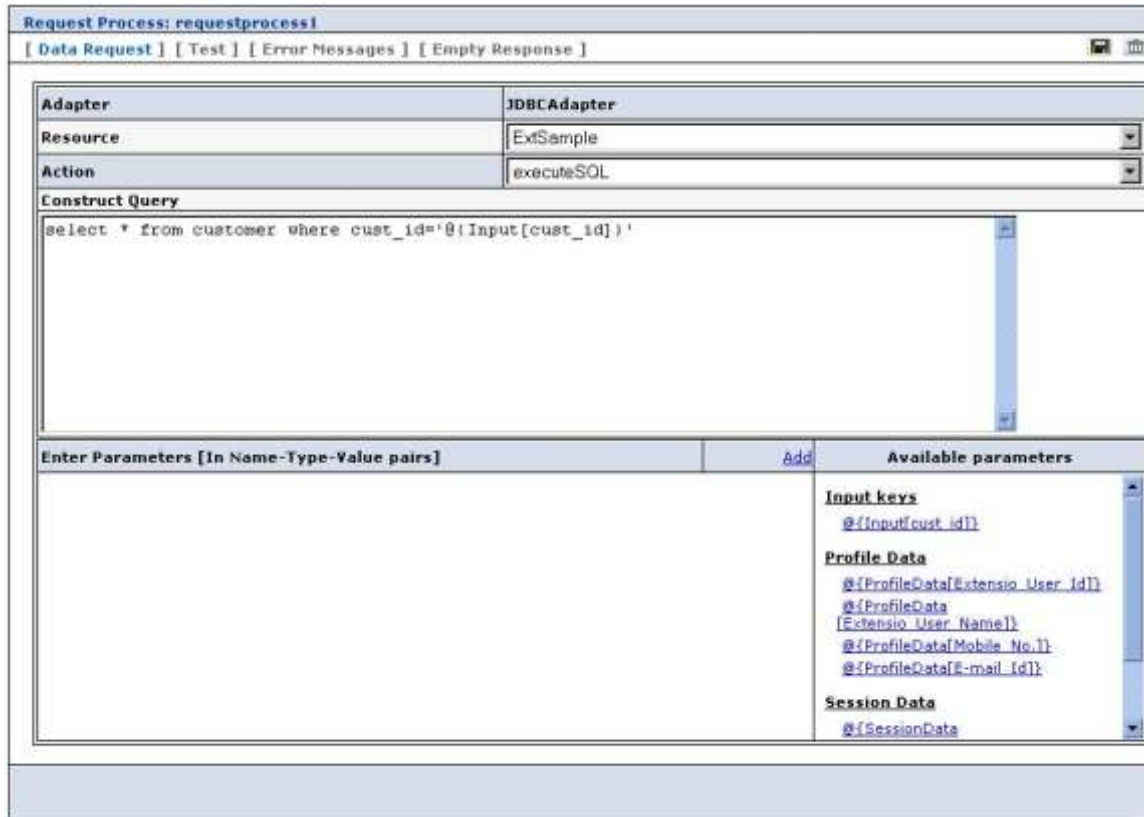


Figure: Configuring Request Process

In addition to pointing-and-clicking adapter specific actions, the developer can also write custom code in Java or Javascript if required for any specific processing. Certain adapters provide some custom filtering tools as well such as HTML or XML filtering.

4.3 Test the Request Process

The developer then tests the newly created request process with the **Test** link using test data, such as providing the customer ID 'C001'. The result is as shown below:



Figure: Test Newly Created Request Process

4.4 Define the Presentation Layout for Outlook

After testing the Request Process, the developer configures the presentation for the service. The default layout contains the output of the request process arranged in two rows. The first row contains the names of the columns, and the second row contains the names of columns in curly braces to indicate that they will be replaced at run time by actual values. The formatting options can be used to change the font size/color as required.

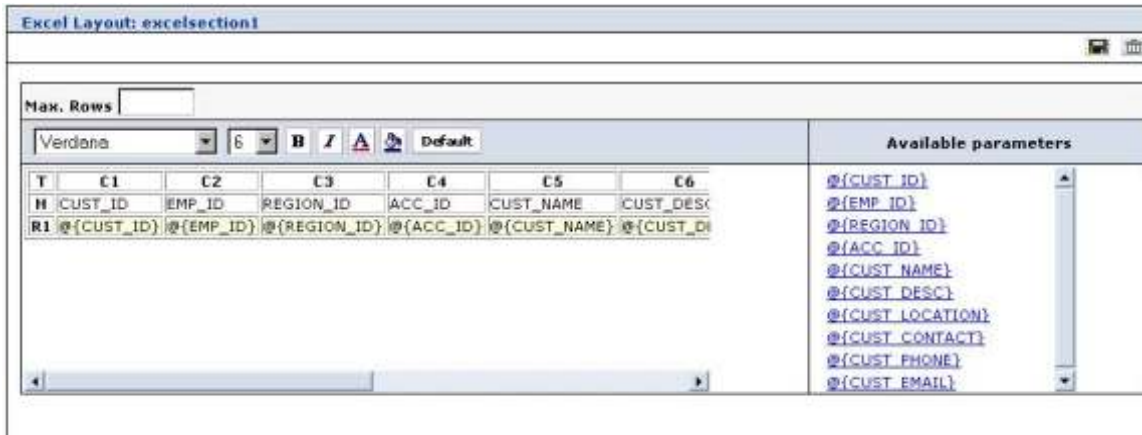


Figure: Presentation Layout for Outlook Service

4.5 Test the Complete Data-service

After the request process has been built and tested, and the presentation layout done, the developer typically does a full testing including authorization checks. When the developer selects the username and the input data for complete testing, the Studio displays the complete processing including the intermediate results. In addition to showing the final XML result for Outlook, it displays the presentation of service. The following figure shows the result for **demo** as user and 'C001' as the input text.



Figure: Test Newly Created Outlook Layout

4.6 Deploy the Service on the Extensio eToolbar

Once the services have been built and tested, they are deployed using the Extensio eToolbar. This is done using the **eToolbar** tab within the Extensio Studio where there are specific toolbars for different front-ends such as Outlook, and desktop as shown below.

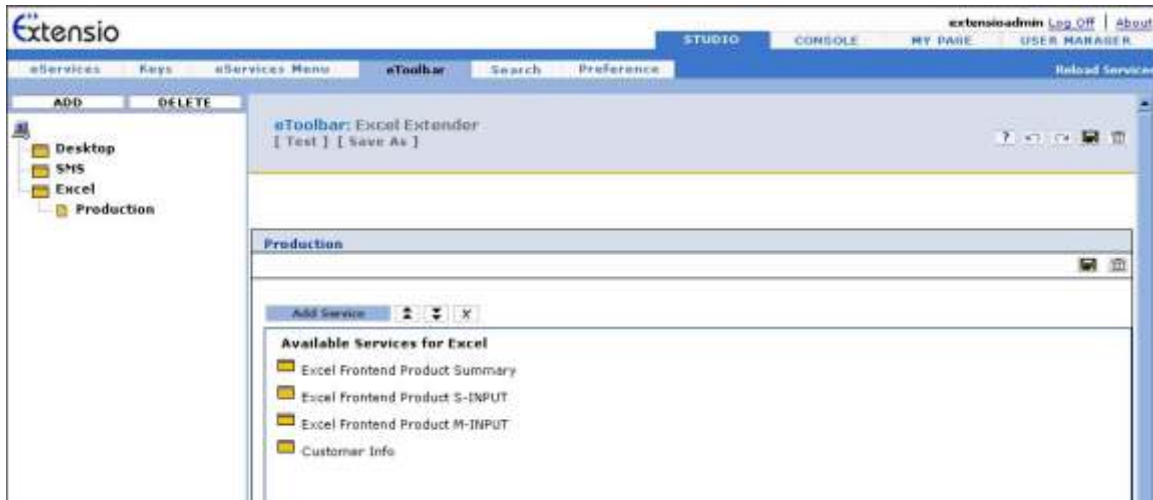


Figure: Deploy Service on eToolbar

Clicking on the **Reload Services** re-initializes the services and reflects changes on the Server. The new eService is now ready for use. If the user logs in and has been given appropriate permissions using the Extensio User Manager, the user will now see the Service List with the newly added service in Outlook.

4.7 Assign Authorization Rights

The Extensio User Manager is used to assign the appropriate access rights (read, write, notify) to specific users or groups. By default, all access rights are turned off.

5. Using the New Data-service

To access the new data service from the Outlook Worksheet, the user can go to “Query” button in the Extensio Toolbar inside Outlook, select that service from “Service List”, provide input value of P001 in the input box and choose “Query”, and follow the steps.

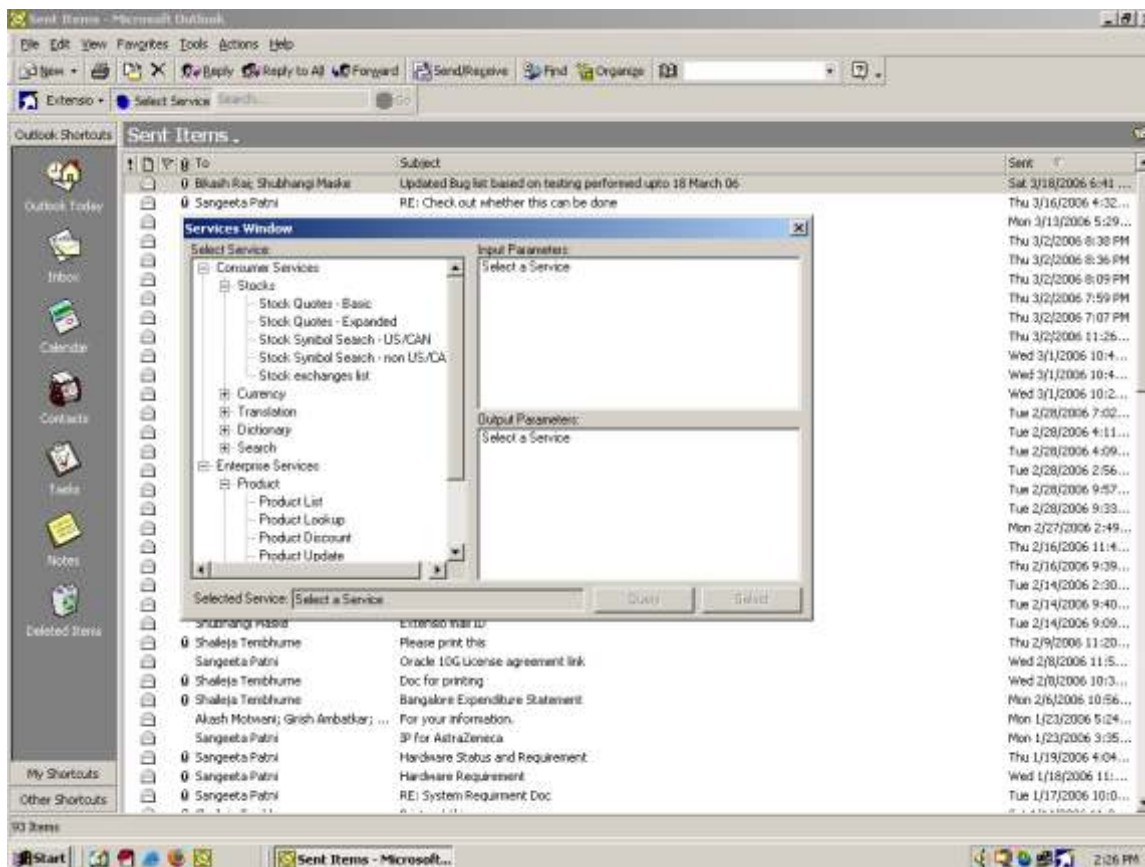


Figure: Outlook Screen with Extensio Toolbar and Service Window

Once this is done, the user would see the result of the data-service on Outlook screen as shown in the following figure:

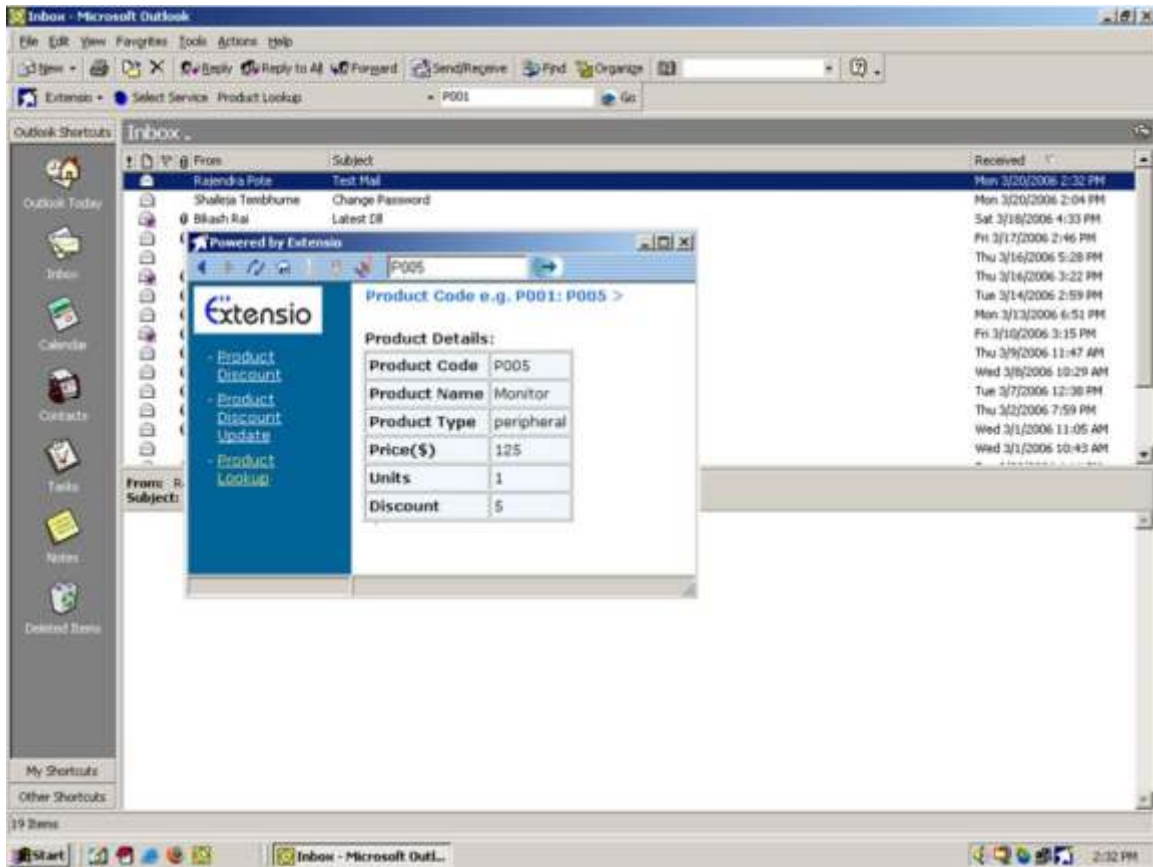


Figure: Outlook Screen with Extensio Data

6. Update Back-end Applications from Outlook

This section explains how to update data in the back-end application or database right from within Outlook.

To configure an Update service, first the lookup form is designed for a regular lookup service as explained before. The developer then selects the fields that can be updated, along with the required form controls and validations on the form. The user then updates the form and sends it back to the server, which then invokes the validation logic on the provided data, and then updates the back-end applications using the Update Record.

The configuration for Update Request is similar to that of request process configuration. Depending on the data source that needs to be updated, select the relevant adapter. For update request, the adapters currently supported by Extensio server are “HTTP Adapter” and “JDBC Adapter”. Configure the query and the error messages for it. The panel below shows the use of “JDBCAdapter” for the update request.

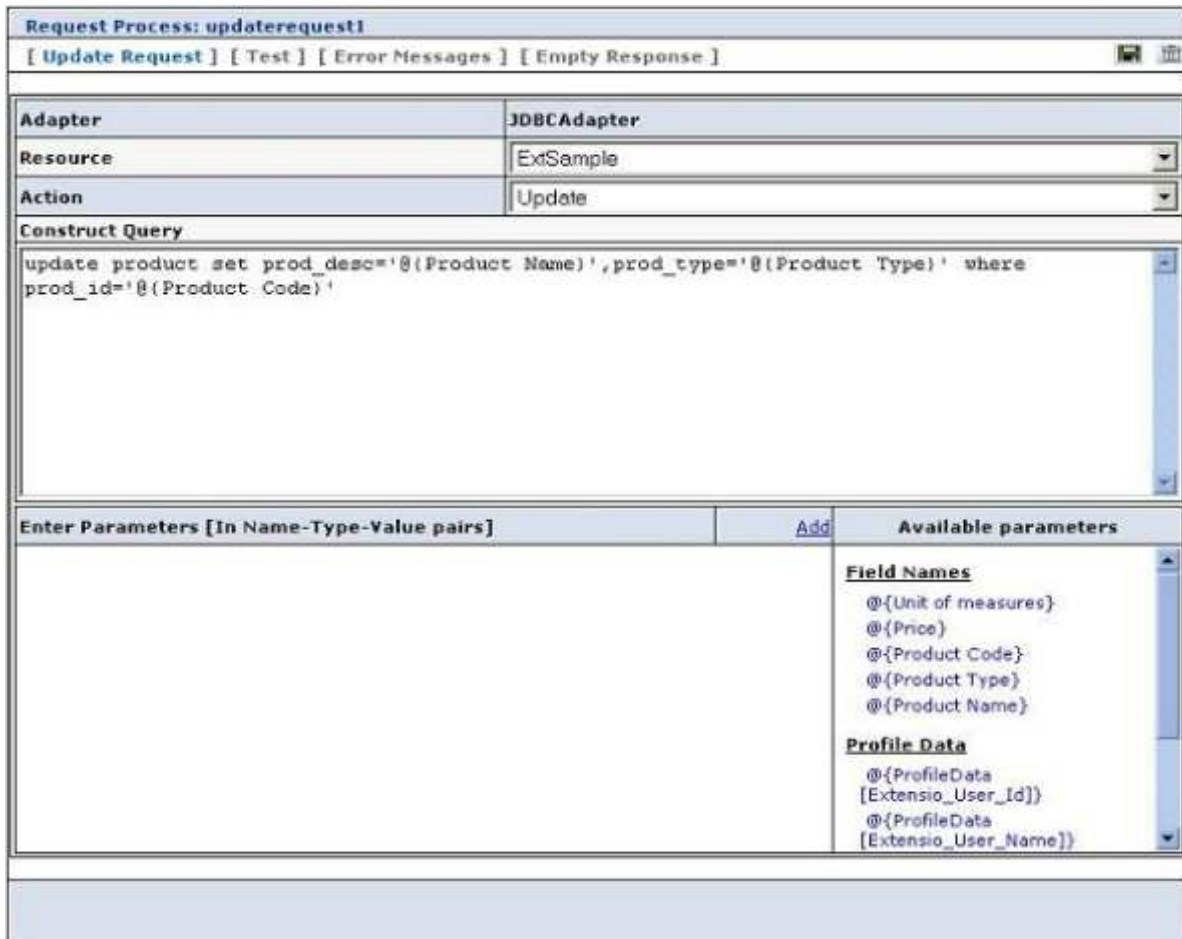


Figure: Update Request Panel with JDBCAdapter

7. Extensio User Management

Before the user can access any Extensio data-services, the user has to authenticate against the LDAP directory such as Microsoft Active Directory or with the hashed password kept with the Extensio Information Server.

The Extensio User Manager is used to add, delete, or modify existing users and groups. All access permissions can be assigned on both user and group level. In addition, the back-end applications can also enforce application specific authorizations.

The Extensio User Manager also keeps detailed audit logs for who accessed which services, and at what time.

8. Software/Hardware Dependencies

8.1 Software Infrastructure for Extensio Information Server

The software dependencies are minimal for Extensio deployment. Open-source software can typically be used for all components, but if the customer has other commercial supported version of software, Extensio can work with those components also. Extensio supports the following:

Web servers such as Apache and Microsoft IIS

Java Application Servers or Java Servlet Containers such as JBOSS, IBM Web Application Server, Oracle 9iAS/10g, Tomcat

Databases such as Oracle 8i, 9i, IBM DB2, Microsoft MS SQL, MySQL

Directory Servers from Microsoft, IBM, Sun, and openLDAP

Operating systems such as Solaris, Linux, and Windows

8.2 Software Supported for the Extensio Extender

Operating System: Windows 9x, Windows NT, Windows 2000, Windows ME, Windows XP, Windows 2003

Microsoft Outlook: Outlook 2000, Outlook 2002, Outlook XP, Outlook 2003

8.3 Hardware Required

For Extensio Information Server: a server class machine with Pentium 3 or 4, 512 MB RAM, 40 GB disk, Windows 2000, or Linux/Solaris OS.

For user machines where Extensio Extender for Microsoft® Outlook will be installed: CPU speed of Pentium 233MHz or higher with 64 MB RAM is sufficient.

9. Key Features of the Extensio Extender for Microsoft® Outlook

The Extensio Outlook technology provides a fully flexible Outlook add-in that allows the user to continue to Outlook but automate the data collection process. The Extensio Information Server allows centralizing of all the business logic, access mechanisms, error control, and authorization such that modifications, if any, are done at only one place. The Extensio Studio enables very quick deployment in days and weeks.

Some of the key end-user specific distinctions include:

Easy to access data-service in Outlook: Extensio provides a facility to access data services from multiple resources directly in Outlook. Thus, the user need not learn any new application to get the data inside Outlook. This increases productivity.

Easy to update: Extensio allow users to update the back-end data through Outlook. This means that they do not have to learn any new application just to update the data.

Single interface to multiple data stores: In the Extensio Outlook Extender, users can access and interact

with data-services that has information elements from multiple resources on the same eWindow. This ensures that users do not worry about the source of the data, but focus on the content of the data.

Single install, along with flexibility to add new services as and when required, with no additional downloads.

Some of the key IT specific distinctions include:

Support for both open source and commercial software infrastructure including database, operating system, and application server.

Connect to a large variety of back-end ERP, CRM, portals, web services, databases, and EAI buses. Extensio can also build custom adapters for your applications.

Standards based and Extensibility: Extensio supports the latest standards in XML Web services, JDBC, JMS, SQL 92, HTTP/HTTPS, J2EE and other standards.

Speed of Deployment: Depending upon the back-end complexity, and the complexity of the service, a proof-of-concept demo can be built in less than a week, and in most cases, the customer can go live within a month.

Professional services: Extensio Professional Services team has the experience of developing Extensio information services for many customers, and they can use that same experience for building your services as well.

10. Summary

The Extensio Extender for Microsoft Outlook provides a robust, scalable, secure, and enterprise-grade Outlook information channel for business users. The solution is quick-to-deploy, standards compliant, and extensible for the future needs of the enterprise. Its intuitive user administration makes it a very easy system to manage.

For any other questions, please contact your Extensio Sales Representative or send email to support@extensio.com.

