ActiveDocs

DOCUMENT AUTOMATION SOFTWARE

SMARTER INTEGRATION
FREEING IT AND PUTTING BUSINESS BACK IN THE DRIVING SEAT

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Abstract: Deploying Document Automation products in Automated Mode with Short Requests gives business users and SMEs the opportunity to take on configuration and maintenance of document production solutions, and frees IT resources from routine involvement.

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1 Introduction

This white paper discusses different approaches for supplying data to document automation products in Automated Mode deployments, how this affects maintainability of document generation solutions, and the ability of organizations to respond rapidly to changes in the business environment and internal requirements.

2 What is Automated Mode?

Document automation products work in one or both of two modes: **User-driven**, and **Automated**.

User-driven Mode typically provides a desktop- or web-hosted questionnaire or interview that allows a human user to select or provide information to build single documents or document sets.

Automated Mode typically provides web services that allow other software systems to submit document generation requests for single documents, document sets, or batches of hundreds or thousands of documents.

An enterprise deployment may use one or both modes. **Dual Mode** may use both modes independently, including User-driven for testing when the primary deployment uses Automated. **Hybrid Mode** typically supports handling of exceptions, for example missing data, in Automated Mode by invoking User-driven questionnaires.

A successful implementation in any mode will acquire some or all of its document-building data from existing data systems in all but the most trivial of use cases.

Requests from other systems may result from:

- user actions such as clicking a suitably programmed button in a line-of-business system
- automated triggers in other systems, such as overdue payments in Accounts Receivable
- scheduled events such as end of month billing or annual renewals

The other system is the “calling application” which typically uses an “orchestration layer” to generate, send, and monitor document generation requests and to integrate with the document automation product generally e.g. managing authentication.

The orchestration layer may be a custom-developed application, a commercial off-the-shelf integration product like Mulesoft or BizTalk, or another Business Process Management (BPM) or Workflow tool.

3 Document Generation in Automated Mode

Generating documents in Automated Mode requires the orchestration layer to construct and send a request to the document automation system.

The request must contain sufficient data to enable generation of valid documents. There is no user to make selections or provide manual data entry in 'real time'.

There are two basic types of request: "Long" and "Short". Both may include job control parameters such as credentials. The real differences lie in the data.

3.1 Long Requests

Long requests typically contain all of the data required to generate a document.

Use of long requests can keep things simple in the document automation product, which just consumes the supplied data. There is no requirement to design for, or get access to, data from other sources.

However, it requires the design of the orchestration layer to align precisely with every design detail, and every nuance of data usage, in the Templates and other elements it invokes in the document automation product.

This presents challenges, particularly with regard to agility and responsiveness. It makes changes to the overall solution time-consuming and complicated due to the necessary co-ordination of design changes and timing of deployments.

Compounding this is the typical need for separate teams – IT for the orchestration layer and business teams and other subject matter experts on the document automation side, assuming a fit-for-purpose product that facilitates maintenance by such users.

For example, a small change such as adding the customer's phone number to the document requires a change to the template design and additional coding or configuration in the orchestration layer. Deploying one without the other creates risks. In some scenarios, these risks may escalate to threaten the organization's reputation or its very existence.

3.2 Short Requests

Short requests typically contain the minimum amount of 'key' data required to access the full data set required for document generation.

The document automation product uses the key data – typically a single field such as a case reference, employee ID, or customer number – to acquire from one or more external systems the larger data set required for document generation.

Short requests may contain additional data, giving the calling application the ability to override specific data elements if needed.

Use of short requests just adds a data linkage requirement to the Templates and/or other elements used in the solution. Fit-for-purpose document automation products compatible with the use of short requests should easily enable this.

IT teams assist with initial design and setup of the orchestration layer, and thereafter only if the key data requirements change. Such changes are rare in practice, as key data elements tend to keep their key status.

All other maintenance – up to and including adjusting for new case management or HR or CRM systems – is entirely a function of the document automation product and is as independent of IT as the organization wants it to be.

Contrasting with the Long Request example, adding the customer's phone number to the document requires only a change to the template design. Deployment requires no co-ordination. Eliminating the co-ordination factor eliminates the associated risks in most scenarios.

3.3 Comparison of Short and Long Requests

Table 1 below contrasts the key aspect of Short and Long Requests.

TABLE 1: DATA CONFIGURATION FOR SHORT VS LONG REQUESTS

	Short Requests	Long Requests
Data Requirement	Minimum amount of key data	All of the data for document production
Additional Data Sources	Automatically accessed using the key data	Not available
Orchestration Layer	Does not need to be changed once the solution has been deployed	Requires changes when any aspect of document generation – other than static template content – changes
Maintenance	Carried out in the document automation prouduct – typically by business users and SMEs	Carried out in the orchestration layer – typically by IT

4 Business Benefits of Short Requests

Many document automation products claim to reduce reliance on IT for routine changes and maintenance of document production solutions. In reality, IT is only free of the burden of maintenance of Automated Mode document production if the solution uses Short Requests.

Without Short Requests, most aspects of routine maintenance remain with IT even after implementation of the solution. It is arguable that a fit-for-purpose document automation product is also necessary to help reduce IT involvement.

Table 2 below illustrates aspects of Automated Mode deployments that may change and require maintenance after implementation, contrasting Business and IT involvement with solutions integrated via Short and Long Requests.

TABLE 2: BUSINESS BENEFITS OF SHORT REQUESTS AT A GLANCE

	Solution deployed with **Short Requests**		Solution deployed with **Long Requests**	
	Who needs to be involved			
Solution maintenance area	**Business**	**IT**	**Business**	**IT**
Initial Implementation and Setup	●	●	●	●
New data source addition	●		●	●
New field creation	●		●	●
Modification of existing field (name change, type change etc.)	●		●	●
Definition/change of output document format	●		●	●
Approval workflow selection rules	●		●	●
Delivery workflow selection rules	●		●	●
Template selection rules	●		●	●
Rule definition	●		●	Solution-dependent
Template content	●		●	
Data field insertion into templates	●		●	

Extensive IT involvement with Long Request deployments is due to the large amount of business logic and field mapping required in, and coded or configured into, the orchestration layer.

Beyond simplification of the orchestration layer and reduction of reliance on IT, Short Request deployments offer further benefits including:

- Potential dual-mode use of templates provides an opportunity to reduce maintenance effort.
- Naming conventions and other design details can align with the needs of the individual teams without affecting other teams, e.g. business users can devise and maintain their own field naming conventions independently of naming conventions preferred by IT for database fields.
- Ease of use, setup, and change, of any number of data connections in any template.
- Minimal or zero co-ordination with IT teams, impact from IT development-release cycles, and impact on IT itself.
- Agile and responsive implementation of changes in any area of the solution.

5 Solution architecture with Short and Long Requests

The diagrams below show examples of the high-level architecture of automated document production solutions with and without Short Requests. The diagrams do not show additional functionality used in many deployments such as return or retrieval of documents to the orchestration layer and/or calling application, data source updates, etc.

5.1 Components explained

Component	Description
	*Orchestration Layer* Usually custom-coded or utilizing software like Mulesoft, BizTalk, or a BPM/Workflow product.
	*Data Sources* One or many data sources, which might include XML, database connections, web service data sourcing and others.
	*Document Automation Product* Generates document output based on Short or Long Requests.

5.2 Architecture with Short Requests

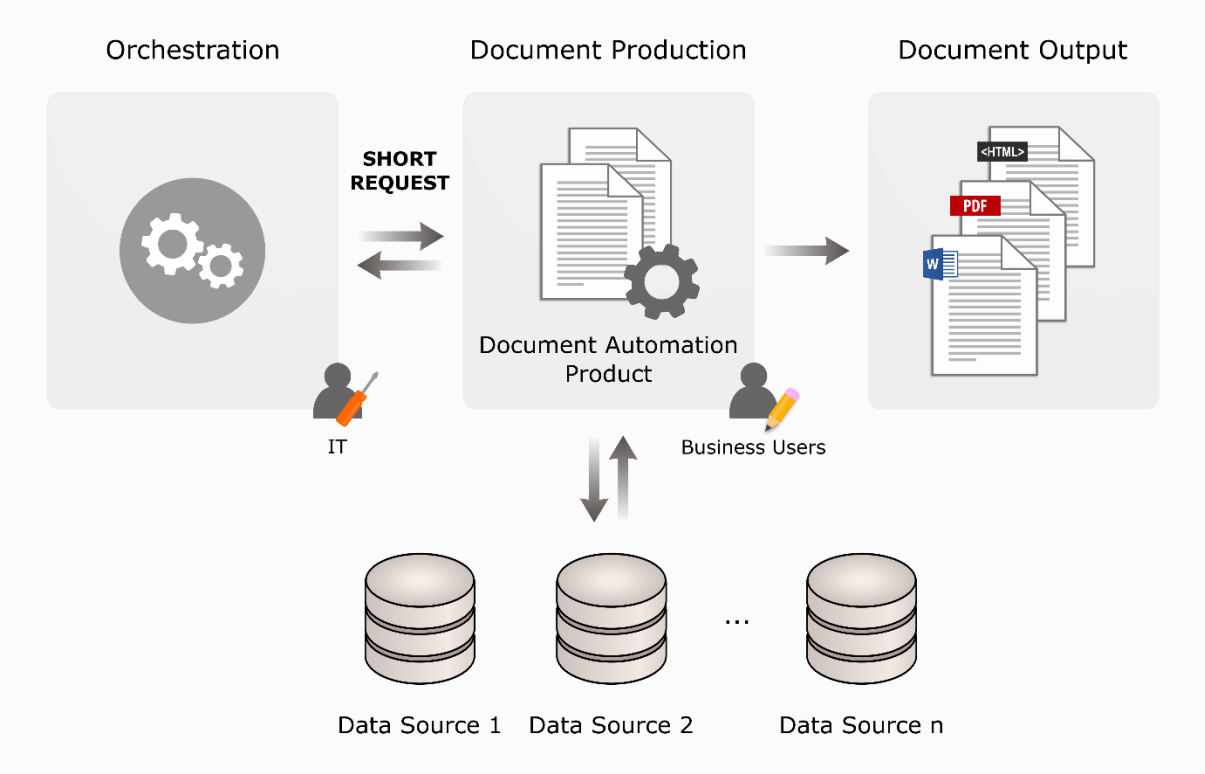

FIGURE 1: EXAMPLE DOCUMENT PRODUCTION SOLUTION UTILISING SHORT REQUESTS

In a Short Request deployment, the document automation product encapsulates, and provides the tools for design and maintenance of, the data source connectivity and abstraction. All business rules related to post-generation document handling and workflow can also be part of the document automation product.

Fit-for-purpose products facilitate design and maintenance by business users and other Subject Matter Experts (SMEs) of everything from data source connectivity to Templates and workflows through intuitive user interfaces.

5.3 Architecture with Long Requests

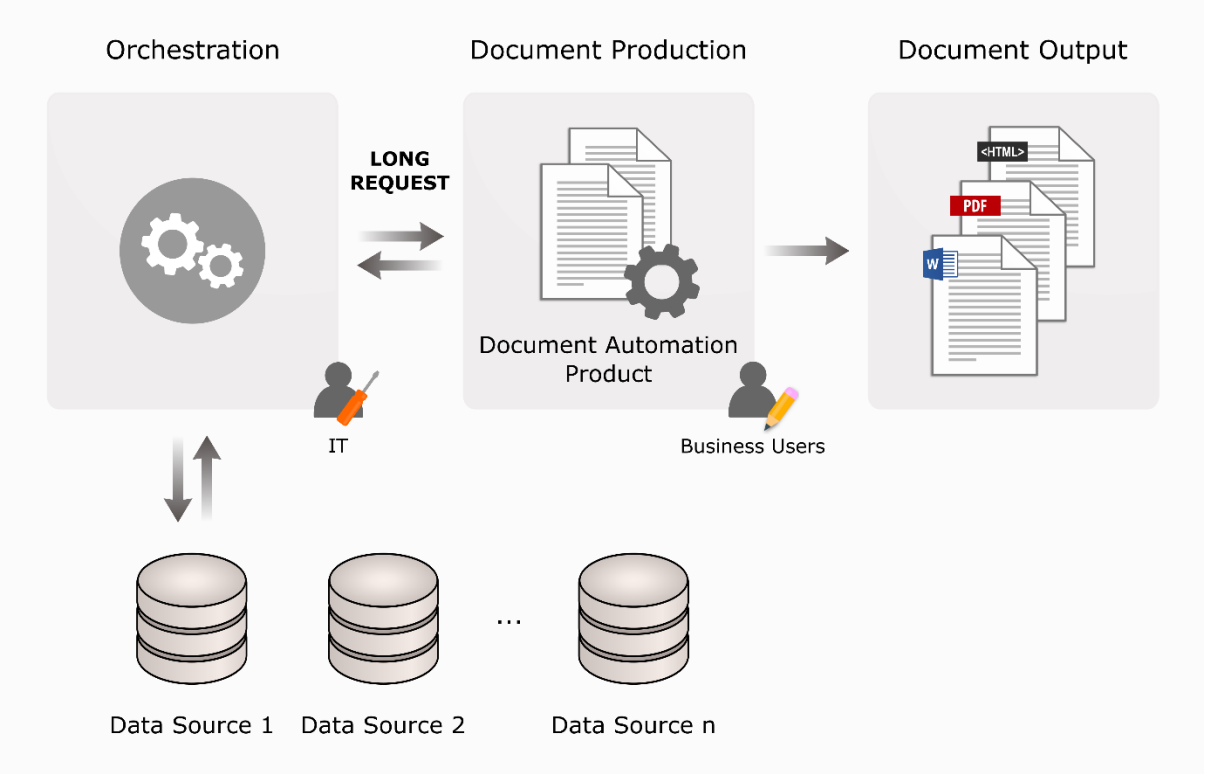

FIGURE 2: EXAMPLE DOCUMENT PRODUCTION SOLUTION UTILIZING LONG REQUESTS

In a Long Request deployment, the orchestration layer contains and encodes field mapping (between external systems and the document automation product), field population rules and logic, and all other logic that is not explicit content rules in the document automation product.

The nature of the orchestration layer requires IT expertise for design and maintenance. Its complete detachment from the design and data requirements of templates and other artefacts in the document automation product creates the need for intensive co-ordination of IT and other teams to make and deploy changes.

6 Technical Benefits of Short Requests

	Short Requests		Long Requests
✔	Orchestration layer fully abstracted from any data-driven logic. Business users define Template selection rules, document workflows, approvals, and delivery parameters, using built-in features of the Document Automation product.	X	Orchestration layer needs to contain all data-driven logic that does not directly relate to document content – Template selection rules, document workflows, approvals, and delivery parameters.
✔	Orchestration layer does not need to know any field names other than 'key' data. As noted, the nature of the key data does not typically change.	X	Orchestration layer needs to be aware of all field names, in data sources and in templates, and must embody both their mapping and their translation into the request format.
✔	Template Designers simply use built-in features of the Document Automation product to add new fields and change existing fields. These typically do not affect key data and require no changes to the orchestration layer.	X	To ensure integrity of new or modified fields in a template, the orchestration layer requires at least a review by qualified personnel. It is most likely to require code or configuration changes and associated development-release cycle management.
✔	Template Designers simply use built-in features of the Document Automation product to link templates to additional data sources and select relevant fields for use. No changes to the orchestration layer are required.	X	The orchestration layer must manage all connection strings, authentication, and connectivity to all data sources, and selection/generation of relevant fields and other parameters.
✔	High responsiveness. Frees IT time and avoids dependency on IT development cycles for implementation of any changes to the deployed solution.	X	Low responsiveness in all cases where change goes beyond internal adjustments to templates, due to dependence on IT resources and development-release cycles. Impacts on IT.
✔	Requires no consistency of naming or mapping between data sources, the orchestration layer, and the templates, other than for the seldom-changed key data.	X	Error-prone effort required in the orchestration layer and/or the templates to ensure consistency of naming and/or mapping between data sources and templates.

7 Short Request support in Document Automation Products

To utilize Short Requests in Automated Mode, a document automation product must support the following:

- Design tools purpose-built for business users and other SMEs to design, create, maintain, and test templates and other elements – including data links and reusable content – for building documents, and to configure workflows including approval and delivery.
- Design for use of multiple data sources and the filters and business rules that define how they relate to each other and for their correct selection in document generation at 'run time'.
- Design for relationships between templates and other elements and workflow and the rules that govern those relationships – e.g. rules-based selection of templates.
- Reliable and robust implementation and use of all design aspects at run-time.
- No requirement for change in the orchestration layer unless the 'key' data changes.

8 ActiveDocs and Short Requests

ActiveDocs is a document automation product that supports both Short and Long Requests. Its Short Request capabilities cover all areas mentioned in this white paper and enable business users to take full control of as much or as little of the implementation and maintenance as required.

ActiveDocs includes feature-rich Design Tools that mesh seamlessly with all modes of deployment, purpose-built for business users and other SMEs.

8.1 ActiveDocs in Dual Mode

ActiveDocs fully supports dual-mode use of templates, creating opportunities to have fewer templates and less maintenance effort. Template behavior and output documents are identical regardless of the mode, enabling faster development with efficient testing, consistent use across Automated and User-driven modes, and seamless operation in Hybrid mode.

8.2 ActiveDocs in Hybrid Mode

Hybrid mode combines Automated and User-driven Modes in deployments where document generation uses Automated Mode until specific exceptions arise. If, for example, particular data is missing then a user can complete the document generation in User-driven mode, adjusting the data or making decisions within defined parameters.

9 Conclusion

Deploying best-practice document automation solutions to utilize Automated Mode with Short Requests and fit-for-purpose document automation products, gives business users and SMEs the opportunity to take on design and maintenance of most of the process, and frees IT resources from routine involvement.

Otherwise, Automated Mode deployments mean that business users and other SMEs can only manage the internal content of templates without IT involvement. Responsiveness is limited and multi-team effort and co-ordination are unavoidable.

In practical terms, best-practice deployments provide the business with the opportunity to manage almost 100% of the process from template design to document delivery, regardless of the mode used. Responsiveness is maximized, effort and risk minimized.