Product description

Smart forms for e-government & e-business
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Overview

With AFORMSOLUTION (AFS), online dialogs for data collection (forms) are easily created and efficiently managed. AFS forms are available for PCs, mobile devices and as printed forms. The AFS WebAdmin allows the creation and management, the AFS Formserver the presentation of forms. Additional modules complete the AFORMSOLUTION product suite:

- The AFS Application Frontend (APF) accepts application data and allows manual processing, as well as the automatic transfer to specialized systems using the APF Relay.
- The AFS Formcollection links individual forms to form solutions. In this way services are bundled according to the customers living conditions or professional competence.
- The AFS Automated Formtest checks the permanent availability of the forms.

Form creation

AFS forms are created from basic components such as fields, blocks, validations, dynamics, and logic blocks. There are many ready-to-use building blocks, which can be individually extended.

Form creation using the AFS WebAdmin is simple and user-friendly. Validations, calculations, dynamic behaviour and interfaces to specialized systems, can be implemented by persons without programming knowledge.

The resulting AFS forms are certified accessible according to WCAG 2.0 at the level AA (Access for all), meet the requirements of the Austrian style guide for e-forms and meet essential Swiss eCH eGovernment standards. AFS supports country-specific signature and identification technologies such as SuisseID, the Austrian Citizen Card, the mobile phone signature, lisign and illog.

Large form collections can be uniformly structured and therefore implemented cost-effectively. The AFS building block principle leads to a maintenance-friendly and future-proof form stock.

Form operation

AFS may be operated by the licensee or by aforms2web. AFS forms are multitenant and are also suitable for cloud operation.

AFS is based on Java technology on the server side and can therefore be installed on popular open-source or commercial platforms. AFS forms can be integrated into existing Internet sites and portals. On the user side, AFS forms can be used with common devices and browsers without additional extensions.

The AFS Automated Formtest supports the monitoring and simplifies updates to new Product versions.
Basic concepts

Specialized & integrated

Modern software solutions are often a combination of specialized individual components. In contrast to the monolithic “all-rounder” of past days, specialized systems are focused on their purpose and by use of service-oriented architecture (SOA) combined to overall solutions.

The main goal of AFS is structured data collection. With AFS, online dialogs can be realized optimally. AFS offers interfaces to all individual components relevant to data collection.

Test and business logic of existing software solutions is easily integrated into AFS forms. The integration of form and downstream system prevents the duplication of code.

Integration in CMS systems, Portals, Applications

AFS forms can be embedded in Internet sites (CMS systems) as well as portals and web applications. The integration is based on SOA technology.

Block-based

The effectiveness of AFS is based on the building block principle. A rich pool of reusable form elements and logic modules can be supplemented with own components. Forms and form components are grouped into form collections to support structuring (e.g. by department).
Form components can be provided centrally, versioned and exchanged between form collections.

**Forms without programming skills**

Form creation with AFS is simple and user-friendly. Validations, calculations, dynamic behaviour and interfaces to third-party systems can be implemented by persons without programming knowledge.

**Single (XML-) Source**

Forms defined with AFS are stored centrally in a XML repository and are automatically available for PCs, mobile devices and as a printing form. In addition, form data can also be submitted via a web service interface (machine-machine communication).

Technical and organizational metadata is stored with the forms. Thus, the form stock documentation can be managed in AFS only.

**Accessible**

AFS-generated online forms are WCAG-certified, accessible in Tier AA through "Access for all" Swiss Foundation for Accessible Technology Use (www.access-for-all.ch). The embedded AJAX components are ARIA compliant. The accessibility check is carried out by independent experts.aforms2web supports form designer in creating accessible online forms.

**Platform independent**

AFS is based on JAVA technology on the server side and can therefore be run on common open source or commercial platforms.

On the client side, AFS forms can be used with common browsers on desktop and mobile devices without additional extensions.

**Multitenant & multilingual**

AFS forms are multitenant. Forms can be offered by different organizations in their own layout and with specific data (e.g. selection lists). Thus, form templates for cities of a state have to be created only once.

AFS also supports multilingual forms. For this purpose, a form is created in a standard language (English) and translated on the basis of exportable translation files or directly in the AFS WebAdmin user interface.
## Standard compliant

### Look & Feel
AFS forms are centrally defined and uniformly generated according to national standards. The use of the forms is simple and follows the requirements of the e-government model country Austria.

### Style guides
The generator can be adapted to the style guides specified by the customer.

### Data structures
AFS is delivered with pre-built form elements (fields, blocks). These data structures (e.g. person, address) correspond to national requirements. Their use guarantees the standard conformity of the acquired data.

## Secure

### Sensitive Data
Data protection, data security, traceability as well as comprehensive support for national identification and signature technologies are fundamental prerequisites for the success of AFS. Sensitive data is recorded and displayed frequently using AFS forms.

### Annual audits
The annual audits of our customers also guarantee a high security level for critical areas of applications.

## Product design to customer requirements

### Annual Update
AFS is continuously developed according to customer requirements. New AFS versions are provided once a year as part of the all-in maintenance.

### Coordination
aforms2web coordinates the design and financing of product extensions between customers and countries.
Features

In the following overview graphic, the functions and properties are sorted according to topic groups in the form progression. You will find the detailed descriptions under the specified chapter numbers.

1. **Input page, control page, confirmation page**

The use of AFS forms is always carried out in three steps - data input, control of the data collected and confirmation of the submission.

First, the user fills the required form fields on input pages. He is supported by form validation, dynamics and logic.

The saving and printing of the acquired data can already be enabled at this time. This allows the user to interrupt the form session or complete the application as a printed form.

After data acquisition, the control page is shown to the user. At this point the user can check all recorded data and - depending on the configuration of the form - print the application and send it by post or electronically. An applicant’s signature and e-payment may be provided for electronic submissions.

Applications are sent to the AFS Application Frontend or a third-party solution.

Finally, the confirmation page with all transmitted data and receipt signature is displayed. The sent application can be printed and saved.

As an alternative to the confirmation page, a generated print document can be displayed directly. In combination with the AFS e-payment interface, citizen-friendly services are offered. For example, request, payment and receipt of a fishing license or parking permit can be completed in one step.
2 Form navigation & progress indicator

A navigation bar and progress indicator can be added optionally to AFS forms. It is possible to combine one or more form pages into one logical step. The bar is also used to navigate to certain pages in the form (page navigation).

The appearance of the progress indicator can be customized with CSS.

The form navigation can be activated and configured individually for each form. Forms with form navigation are still accessible.

3 Validation – Errors & warnings

The entered form data is checked on server side. For validation, simple input and field value checks as well as dependency and backend checks can be defined.

Errors and non-plausible entries are displayed on the top of the screen as well as directly at the field. AFS provides automatic texts for all error and warning states, which can be supplemented or overwritten with specific hints.

The danger of a session termination due to timeout is displayed as a warning, if the user is inactive for too long. In general, AFS sessions can be configured to remain active when the browser window is still open. In the case of an e-payment transaction, the session can be extended until receipt of the payment confirmation.

The configuration of validations, errors and warnings is done with help of configurable extenders. These are described in chapter 5. Form logic.
Form dynamics

The flow of AFS forms can be configured dynamically. There are different dynamics depending on user input, user role, or data from the backend systems:

- Displaying form pages, blocks and fields
- Disabling individual input fields
- Showing appropriate form completion
- Selecting the correct print document
- Sending e-mails
- Activating e-payment
- Enabling an electronic signature
- Triggering many other form flows and functions

The configuration of form dynamics is carried out with configurable extenders. These are described in the following chapter 5. Form logic.

Form logic

Form logic like validation, calculation, interfaces to third-party systems and form dynamics can be implemented by persons without programming knowledge. A large number of included configurable extenders allows form logic to be easily included (see Appendix: Extender list).

The following functions can be implemented with extenders:

Validation
See 3. Validations - Errors & warnings

Dynamic flow
See 4. Form dynamics

Attachment management
See 9. Attachment management

Identification
See 10. Identification

Prefilling of fields
Fields in AFS forms can be prefilled. For this, freely definable "default values" and input requests (e.g. "Please select ...") are available. Inputs that have already been entered can also be transferred to the following fields.

In addition to generated field values such as Unique IDs, data from specialized systems can be used too. See 11. Connection of backend systems.

The prefilling can be defined context- and client-specific. Prefilled fields are rewritable or disabled depending on their configuration.

Calculations
All numeric and calendar form inputs can be used for calculations. For this purpose, fields are defined as source and target variables and linked in mathematical formulas using SpEL (Spring Expression Language). SpEL allows arithmetic (e.g., plus / minus), relational (e.g., greater / smaller), logical (e.g. and / or), conditional (Ternary or Elvis) as well as regular expressions. The calculations and evaluations are triggered via button or automatically (AJAX).

Date and time functions
In AFS forms, there is an accessible "date picker" available for date inputs. On server side, the current system date and time can be used for comparisons. Date and time functions allow for different checks, such as calculating a time difference (e.g. input to system date / time) or timeliness (e.g. date / time in the future?). Inputs can be used for calculations and can be split into seconds, minutes, hour, day, month and year.

Generate print documents
See 12. Document generation
Sending e-mails and documents

E-mails can be generated at any time during form progression. Therefore it is possible to send e-mails for validation of the entered e-mail address before the application is finalized. Sent e-mails can also contain (encrypted) application data and attachments. By adding form fields to the e-mail, personalized and context-specific messages can be configured. The e-mail can be sent dynamically (depending on user input). AFS supports the connection of several mail servers.

Communication with AFS Application Frontend (APF)

A group of extenders is used to communicate with the AFS Application Frontend. On the one hand, they enable the storing and loading of application data in the APF to use content of already submitted applications for prefills and comparisons in the current form. On the other hand, these extenders provide write and read functions for metadata. Metadata store additional information such as processing or approval status for an application.

In addition, it is possible to edit applications directly in the APF using extenders (e.g. complete an application).

External references

AFS forms can reference inputs from other forms and use them for validation and flow control (like external references in MS Excel).

Scripting extender

For professionals, the configuration of an extender is often only the second best way to reach the goal. People with programming skills can achieve the same results faster with few code lines.

AFS offers the possibility to program form logic with Groovy scripts. In contrast to existing extenders, the developer is completely free in the design of business logic. Unlike the programming of additional JAVA classes for AFS, the form server does not need to be recompiled and delivered.

The scripting extender allows the definition of input and output fields, the definition of variables, the script input or the reference to an external script file as well as access to the entire form object.

Form layout & interactivity

The layout of AFS forms follows the recommendations of the Austrian e-government style guides. All form components can be configured individually via CSS parameters. The selection fields are available as drop down, radio, checkbox and switch lists. The arrangement of labels and context-sensitive help can be adapted as required. Dynamic block headings and HTML fields provide a wide range of form design.

AJAX

The AFS AJAX technology provides enhanced interactivity. The use of AJAX allows field values calculations and validations, fading in and out of dependent form components, auto-complete lists as well as the prefilling of other fields immediately after entering values.

The use of AJAX in the form is optional. The accessibility of AFS forms remains unaltered. The implementation is ARIA-compliant.

Repetitions & tables

AFS offers repeatable form elements for the acquisition of a number of similar records, such as persons in a household or booking lines for an expense report. AFS form pages and blocks can be dynamically added and deleted. A particularly structured form of displaying repeatable elements are tables.

In the table view, repeated blocks are displayed in rows of the table. The field labels become column headings. Table rows can be added and deleted dynamically. Contents can be pre-defined or filled out.
AFS table content can also be calculated automatically and even imported from CSV files. This function is particularly suitable for importing mass data that is already available in electronic form to the user. AFS tables have a paging mechanism in order to display even large amounts of data.

Table content can be sorted and filtered according to their own criteria. It is possible to apply several filter and sorting rules.

The number of columns that can be displayed in the browser window is limited. As a result, AFS tables provide the ability to always display important fields and show additional details when needed. For this purpose, a selection is made which fields of the underlying block are already shown in the table row and which fields are only visible in opened mode.

Help & wizards

AFS forms can be designed user-friendly by offering online help on field, block and form level. Manually entered text, specially designed help pages or links to content management systems can be used as source for help texts.

The inclusion of fill-in assistants (so-called wizards) is also possible. The user is supported when entering and selecting form data.

Attachment management

AFS forms can contain fields for the upload of attachments. The uploaded files can be limited in size (kByte), extensions (.pdf,.jpg) and MIME types (type of file, e.g. PDF document, JPEG image).

PDF and image formats can be displayed directly after their upload in the form. Other formats will be provided as links.

For PDF attachments, the number of pages can also be determined. Electronic signatures on the attachment can be checked. A virus check is executed as well.
Identification

An AFS form can be used by anonymous or identified users. The identification request (none, optional, mandatory) is defined per form. If the identity of the user is known, data is prefilled and specific sending options are enabled (e.g. sending without signature).

AFS forms can accept identification information from different national systems, such as Bürgerkarte (AT), Mobile Signature (Handysignatur - AT), Portalverbundprotokoll (AT), Unternehmensserviceportal (AT), SuisseID (CH) and lisign / ilog (FL). Furthermore, connections to international standards such as SAML 2.0, Windows Authentication or Basic Authentication are available.

For applications with low safety requirements, AFS uses a MTAN method and e-mail confirmation to provide low-level "identification" mechanisms.

Connection to back-end systems

AFS forms can use shared functions of back-end systems and be filled with data from back-end systems. Various technologies are:

- SQL: Direct query of relational databases with SQL statements (e.g. value-lists)
- LDAP and Active Directory: Direct query of directory services (e.g. for user rights and organizational structures)
- APF: Direct query of AFS Application Frontend (e.g. for access to submitted application data, see 5. Form logic)
- Web service (SOAP): Direct use of SOAP Web services (e.g. to call up business logic in the back-end system)

Web services include the following specific back-end accesses:

- SAML: Query of personal register data (e.g. central registers, attributes authority)
- Structural data: Query of structural information (e.g. municipalities, schools, civil status)

Mapping

The queried back-end information can easily be assigned to AFS fields using mapping tables.

Form to back-end

The application data recorded in AFS can be written to back-end systems. Various technologies are available for the connection:

- SQL: Direct writing to relational databases with SQL statements (e.g. Direct attachment form -> back-end system)
- APF: Saving applications to the AFS Application Frontend
- APF: Write status information and metadata (e.g. for transaction processing, see 5. Form logic)
- Web service (SOAP): Direct use of SOAP web services (e.g. For writing application data in back-end systems)

Document generation

Each online form, defined with AFS, is immediately available as a PDF print form. The function for displaying the print version of the form can already be placed next to the online version's link, on each input page, the control page, or only on the confirmation page of the online form.

The application data entered in the online form is included in the print document. The following types of print documents are available:
A - Simple application print

The form is printed as a clearly structured PDF document. Text blocks can be added to the printouts. For example, signing blocks, notes, or contract terms.

B – Print form for manual filling

The form is generated as a print form according to ÖNORM A1021. These print formats can be used for manual data acquisition, or for printout of online recorded inputs. Print forms can also be expanded dynamically by text modules.

C - Manually designed PDF documents

If a generated print form (from A, B) does not meet the technical requirements, manually designed PDF documents can be used. AFS checks whether all form fields of the online application are also shown in the PDF form. The data entered in the online form is transferred to the PDF document.

D - Connection of document generators

To generate template-based printouts (e.g. MS Word, MS Excel), document generators from other manufacturers can also be connected using web services.

Other AFS features for PDF print documents are

- Addition of bar codes, QR codes and Aztec codes
- Dynamic addition of watermark (requires AFS flattener)
- Integration of images uploaded as attachments
- Enclosing PDF documents that have been uploaded as attachments
- Creation of signed PDF documents according to the PAdES standard

QR-Codes
Watermarks
Images
Signed PDF

Open with double-click
Including attachments
Storage in portals

13 (Intermediate) storage of form data & mailing

The local (intermediate) storage of application data can be done via direct download or mail. The application data can be encrypted with a personal password before saving.

Local data storage is executed as a HTML link file. This allows to open the previously used form including the prefilled data and attachments by double-clicking.

In addition to local storage, form data can also be stored in surrounding web applications and portals if these provide a corresponding web service interface.
14 Changelog

Through the use of a changelog form adjustments are comprehensible. This feature is particularly useful for forms that display prefilled register data that can be customized by the applicant.

The generation of a changelog is easily activated. The changelog will be displayed on the control page.

<table>
<thead>
<tr>
<th>Änderungsprotokoll</th>
<th>Neu</th>
<th>Alt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amtliche Adresse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strasse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teststrasse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Werdenbergstrasse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hausnummer</td>
<td>21</td>
<td>25</td>
</tr>
<tr>
<td>PLZ</td>
<td>1018</td>
<td>5470</td>
</tr>
</tbody>
</table>

13 Submissions

There are different types of submissions for AFS forms. Depending on technical requirements or legal requirements, applications may be submitted with or without signature. The type of submission is set for each form and can be combined or easily modified.

- **Combienable submissions**
- **Dual sending**
- **Signature technologies**
- **No identification needed**

It is possible to send applications directly without signature. In this case, a check of the mail address or the telephone number can be activated.

If a signature is required, it can be applied by hand to the printout (see 12. Printing documents) and can be additional sent as electronic version. With this "dual sending" procedure it is possible to further process the application data electronically.

Each AFS form can be signed electronically. Different national systems such as Bürgerkate (AT), Mobile Signature (Handysignatur - AT), SuisseID (CH) and lisign (FL) are supported.

If the applicant is identified at the time of submission (see 10. Identification), it can be configured that no e-mail, MTAN confirmation or electronic signature is required. In this case, the application is sent directly.

16 E-payment

In many administrative procedures it is possible to calculate the costs and charges directly. E-payment allows payment directly in the application process. In this way, especially user-friendly e-government services can be offered.

AFS supports the integration of well-known e-payment providers such as AdminPay, BillingOnline (both PostFinance), PayUnity (SIX Payment Services), QPay (Wirecard) and SaferPay (SIX Payment Services). AFS ensures that the submission is only made after the payment has been confirmed.

17 Applicant’s signature

AFS supports all Bürgerkartenumgebungen available in Austria, (BKU), local BKU, online BKU and mobile BKU (Handysignatur - mobile phone signature).

AFS supports identification with lisign / Iliog and application signature with lisign, as well as the identification of applicants and the application signature with SuisseID.

18 Receipt signature

AFS confirms the successful submission with a server-side signature. It is applied both to the application data (XML) as well as to the PDF print document. The receipt signature allows the applicant and the administration to record the time and content of the application.
The receipt signature is created with the signature components MOA (modules for online applications), which are provided by the Federal Chancellery of Austria as open source software. Alternatively, other signature components can also be connected.

19 Follow-up form

When confirming the receipt of the application, the AFS Formserver can offer further forms. These follow-up forms can be used to record customer satisfaction or to offer further relevant forms.

Follow-up forms contain the data already collected from the previously sent request and can be directly related to the entry number.

20 Bundle multiple forms into Formcollections

The AFS Formcollection bundles forms according to living conditions (e.g. relocation, birth of a child) or subject areas (e.g. forms of construction, tax forms).

The area-specific boundaries (responsibility for the processing of applications) is preserved. AFS-Formcollection are ideal for the implementation of help services. The customer is asked about his / her request before the appropriate forms are displayed.
The Formcollection can dynamically change forms according to customer input, display forms, repeat forms, specify the order of filling out forms, or bundle multiple forms into one application.

### Application interface for application data
Application data can also be accepted via web service. The online form is not displayed (application interface). This allows the connection of third-party applications that either have their own input interfaces (special applications) or framework applications that manage pre-filled AFS forms and implement their own submission logic.

#### Transform
Optional transformation of an input file in the specific format of the third application by means of XSL into the “AFS EAntrag format” before further processing.

#### Completion
Override the application data from the input XML with optional values (list of field references and values).

#### Check (internal)
Verification of the input file according to the configured validation and dynamics of the online form (simulation of the input).

#### Check (external)
Optional validation of the input file by an external validator. Through the access to historical application data in the AFS Application Frontend, value developments (e.g. sales trends) can also be used for plausibility checks.

#### Send
Optional acceptance of the application and confirmation by applying a receipt signature.

#### Output
Optional return of the signed application as
- XML (EAntrag)
- HTML-file with embedded XML-Data
- PDF print form
to third applications including receipt signature.
Integration into portals and web applications

AFS forms can be easily integrated into portals and web applications. They are displayed in a separate browser window or directly in the portal or application page.

The link to the AFS form can have different preferences via URL-Parameters. For example, form layout, identity and role of the user or the form language. The parameters are protected against tampering using the Hash Message Authentication Code (HMAC).

Specific "go-back" pages after successful submission or termination of the form are also defined by URL parameters. Special functions such as "read-only mode", test mode "filling without consequences", the direct display as a PDF printing form and prefilling with XML data can also be accessed via parameters.

National portal systems

AFS Formserver und AFS WebAdmin support the Austrian Portalverbindungsprotokoll (PVP) and the Unternehmensserviceportalprotokoll (USP). The portal attributes can be used to prefill form fields.
Application processing and interface

**AFS Application Frontend - Web application for application processing**

**Input signature**

The AFS Application Frontend (APF) manages incoming applications. The APF seals the applications with receipt signature, informs the responsible processing department and visualises the applications. Internal forms for application processing (see processing forms) can be called from the APF and the processing data assigned to the requests (see Metadata for applications). Inquiries regarding applications can also be submitted with the APF. The questions / answers are assigned to the application (see Communication form). Other programs can use APF web services to access and accept applications. The APF logs all application accesses.

The APF offers an extended search (including application data and meta information) to manage large number of applications.

**User management**

The APF provides multi-tiered user management. The authentication is optionally carried out with user name / password, portal, Windows authentication with access to ActiveDirectory and LDAP.

Different mailboxes can be assigned to each user. Incoming applications are transferred to these mailboxes according to distribution rules. The APF enables a clear separation between different areas of the organization (area demarcation).

**Workflow**

The APF can also be used to create simple form-driven workflows. For this purpose, Processing forms and Communication forms are available.
Processing forms (PF)

Not every process justifies the development of specialized systems. If the application numbers are too small or the professional requirements are often adapted, the investment in specialized software is not worthwhile.

An alternative is to provide forms for the internal processing of applications. These so-called Processing forms can be configured with AFS for each application. Activation is triggered in the AFS Application Frontend (APF) with the button “process”. PF display the application data compressed and unchangeable and record the processing data (e.g. decisions) of the administrator in additional input elements. Using metadata, PF can save the input (see metadata for requests).

A frequent use for PF is the generation of documents (e.g. decrees) from templates. These are filled with application data ready to use by the official (see 12. Document generation).

For the purpose of protection against misuse of Processing forms, AFS forms can be restricted that they are available always, not at all, only internally / externally or only from AFS Application Frontend.

Communication forms

With Communication forms it is possible to define a structured inquiry form for each application type. The inquiry is initiated by the official in the APF. The customer is requested by e-mail to open the linked inquiry form. In the form, the queries or additional requests entered by the processing department are displayed and the replies and uploads of the applicant are recorded via secure connection of the online form. Questions and answers are saved to the respective application.

Metadata for applications

The AFS Formserver, AFS Application Frontend, portals, and web applications can be used to store additional information and files when processing applications.

These metadata are written, searched, and read through web service interfaces of AFS forms or third-party applications.

APF Relay – Application transfer interface

The Application Frontend provides comprehensive web services for specialized systems for the transfer of applications. The use of these interfaces requires a corresponding extension in the specialized system. If this is not (economically) possible, the APF Relay can help.

The APF Relay is a component of the APF with which applications can be read from the APF in a standardized manner and passed to specific application interfaces. An already existing interface of the system is supported individually. There is no need to adapt the specialist system.

Application transfers with the APF relay are fault-tolerant and logged.
Maintenance and operation

### Reliability

**Clustering**

AFS supports clustering via databases. This means that when an application server crashes (Tomcat or JBoss), the forms can be edited further because another server takes over the session. For this purpose, all session information is stored in a database and assigned a virtual ID for each session. If the server crashes, another server can retrieve the session from the database.

**Cascading mail server**

AFS supports the connection of several mail servers.

**User roles for form designer**

The AFS WebAdmin has a group and user administration, which allows to assign to each form designer only the forms and functionalities necessary for their particular task.

### Preview & deployment

The finished forms is available immediately in the AFS-WebAdmin and then transferred to the review or productive environment (deploying).

### Staging

**Various operating environments**

AFS forms are configured once in the AFS WebAdmin for various operating environments (e.g. development, review, productive). Web service accesses, databases and form parameters can be set according to the current operating environment (staging).

AFS forms can be converted into various operating environments (deploying) without additional alteration.

In addition, it is possible to control whether a form is available. There is a special user role to determine who is allowed the form to productive environment.

### Form server synchronization

The AFS Formserver can take over the forms of another form server during operation. This means that form designers can easily transfer forms from testing to production environment.

### AFS Automated Formtest

**Periodically check**

The AFS Automated Formtest (AUTT) is used to periodically check form availability. All systems involved in the respective service (form, mail, backend, application processing, identification & signature as well as payment) are tested for correct behaviour.

**Check development**

Even when the form is developed further, the system ensures that, in addition to the expansion, the basic functionality are still available.

The creation of test cases with AUTT is possible for users without programming knowledge by simply defining new test data records (storing form data).
Session monitoring & logging

For operational support, a display of active sessions of all operational form servers is provided. This function supports administrators in case of shutdown of form servers for maintenance work.

A comprehensive log function as well as an error database enable a professional operation of the form system.

Statistics

AFS provides comprehensive statistics for analysing the forms. The user behaviour is logged anonymously from the simple performance check (calls vs. crashes) to the detailed recording of the form usage (navigation, errors, help calls, etc.). The statistics function is the key to continuous improvement of forms.

Training and coaching

We design online forms based on AFORMSOLUTION (AFS). For clients who choose to implement forms themselves, we offer AFS training courses.

Our AFS entry-level and advanced courses in combination with our coaching offerings enable organizers to produce electronic forms in just a few days.

In practice, projects are also implemented in which the initial implementation is carried out by aforms2web and the form stock is then transferred to the client’s maintenance responsibility (insourcing).

AFORMSOLUTION (AFS) can be expanded by JAVA software developers and linked to backend systems. aforms2web offers such individual adjustments. For clients with their own JAVA software development competence, there is the possibility to develop extensions themselves. This requires knowledge of the interfaces and basic principles of the AFS concepts.

We offer a catalog of technical training courses on AFS, which we assemble according to the experience and needs of the developers to a tailor-made training program.
Licensing / all-in maintenance

The AFS license model is based on the number of form users who can be reached. No additional costs arise due to increased transaction, form or CPU number.

Please contact us to make an offer tailored to your needs.

AFS customers usually prefer our all-in maintenance to get upgrades to new AFS versions in addition to the standard maintenance (hotline, fault rectification and fixing).

With all-in maintenance, the AFS license remains always up-to-date. With this, customers benefit from the community concept: product extensions commissioned by other AFS customers will be made available in the next version at no additional cost.

AFS Community

The community of AFS customers meets several times a year to present current projects with AFS and to coordinate the cooperative further development. AFS customers exchange form components, forms or complete form collections with one another and thus benefit from each other.

System requirements

**Processor architecture**
- x86-64
- x86-32

**Server operating systems**
- Suse Linux Enterprise
- Windows Server 2008/2012/2016
- Ubuntu 12.04 LTS
- Red Hat 6.5

**Databases**
- MS-SQL 2005/2008/2012/2016
- Oracle 10g/11g
- Postgres 9.1/9.4

**Web server**
- Apache 2.4
- Apache 2.2
- IIS (Server 2008/2012)

**Web container**
- J2SE 8.0
- Tomcat 7.0.x/8.0.x
- Jboss EAP 6.4

**Browser**

**Desktop form use**
- Firefox
- Chrome
- IE 11
- IE 10
- Safari
- Opera

**Mobile form use**
- Chrome
- Safari
- Firefox

**Form creation**
- Firefox
- Chrome
- IE 9/10/11

**MOA SS/SP/ID**
Open source software for server signature, signature verification & identification
- v 1.5.1 or higher current ID 3.0.2 and SP/SS 2.0.3

**Citizen signature**
- Handysignatur (mobile signature)
- A-Sign Client
- MOCCA v 1.3.x

All AFS components can run on both physical and virtual servers.
Products with AFS interface

Standardized interfaces exist for the following products. Further can be integrated project-specific.

Acta Nova

Acta Nova (https://www.rubicon.eu/web/en/products/acta-nova/) offers the solution to your business case processing needs in the form of document and workflow management. Acta Nova enables you to map your business cases both comprehensibly and comprehensively in a modern web-based application. Workflow management ensures that every business case in Acta Nova always demonstrably reaches the correct recipient. All phases of a business case, from initial data capture to closure and archiving, are comprehensively available.

Document Partner

Document Partner (http://www.rubicon.eu/web/produkte/document-partner) integrates itself seamlessly into your system landscape and automatically creates relevant, personalized documents. Document Partner sends them via mail or text message, makes them available on a web portal and prints them at the workplace or million times over the printing line. It controls your automatic enveloping and helps you to save money with intelligent postage optimization.

dox42 – document generator

With dox42 (http://www.dox42.com), you can automate document creation based on your existing Word templates. With dox42 you integrate form data, as well as data from other systems into your results documents. Generate documents automatically from the AFS online form solution as PDF, MS-Word or Open-Office. This makes it easy to implement self-service scenarios and automatically distribute documents via e-mail.

GENTICS content management platform - portal solution

The GENTICS content management platform, a product of the APA-IT division Gentics Software (https://www.gentics.com), is the complete solution for your online presence. With these tools, you author and publish content, organize editorial workflows, and manage different publications. Interfaces such as newsletter and social media integration, special solutions for multimedia storytelling and web analytics cover important functions in online marketing. AFS online forms can be easily integrated into the portal solution of our partner.

MOA – server signature und signature check

The modules for online applications (MOA) (https://joinup.ec.europa.eu/solution/moa-id) serve as a tool with which PKI aspects of e-government applications can be created efficiently and safely. The first MOAs that have been developed enable signature verification (SP), signature creation (SS), as well as the identification and authentication (ID) of persons.

MOA was created on behalf of the Federal Chancellery of Austria and the Austrian Ministry of Finance under the open-source license of the Apache Foundation in version 2.0. The distribution of the modules as well as the associated source code are thus freely available to all users.

MOCCA - Signature software

MOCCA (https://joinup.ec.europa.eu/solution/mocca) is a signature software developed by the E-Government Innovation Center (EGiZ) of Graz University of Technology and the Federal Chancellery of Austria. MOCCA is licensed under Apache license 2.0 and thus freely available to all users. Using this program and an activated signature card, the user can sign applications online.

MOCCA has been extended to include signature components from Liechtenstein (lisign) and Switzerland (SuisseID).

PrimeSign - Electronic browser signature

PrimeSign (https://www.prime-sign.com) is the online alternative to traditional electronic signature software. PrimeSign means online signing of electronic documents without additional software, simply by means of a browser. This allows your form-users to easily sign inserts.

TOPAX Bau

TOPAX Bau (http://www.gemdat.ch/produkte.html) is the standard service for planning applications electronically between citizens and administration. A web application is available to citizens, planners and architects, where they can create, manage and submit any number of planning applications to different municipalities. TOPAX construction allows the construction company to complete the complete digital work of its construction project up to the completed building.
## Appendix: Extender list

### Form level extender

<table>
<thead>
<tr>
<th>Extender Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set flow dynamically</td>
<td>Individual fields, whole blocks or pages can be hidden either in the form itself or on the control and confirmation page.</td>
</tr>
<tr>
<td>Prefilling from APF</td>
<td>The extender offers the possibility to fill a form with the data of an application in the Application Frontend.</td>
</tr>
<tr>
<td>Cancel form prematurely</td>
<td>An existing form page can be defined as an end page. Optionally, buttons that would be displayed on this page are hidden.</td>
</tr>
<tr>
<td>Custom error messages</td>
<td>With this extender, it is possible to define custom error messages for different fields.</td>
</tr>
<tr>
<td>Block headings</td>
<td>The layout of a form can be changed if the form is already in operation. This makes it possible to flexibly use the form for various purposes.</td>
</tr>
<tr>
<td>Change filenames of uploads</td>
<td>With this extender it is possible to set the file name of the generated XML, XSL and PDF files in the Application Frontend.</td>
</tr>
<tr>
<td>External References</td>
<td>There may be dependencies between forms. Data can be transferred from one form to one or more other forms.</td>
</tr>
<tr>
<td>Map from rep. blocks</td>
<td>The extender allows you to map values from repeatable blocks to other blocks. You can specify from which repetition the value is mapped.</td>
</tr>
<tr>
<td>Define metadata</td>
<td>This extender defines which form fields are stored as metadata of a form.</td>
</tr>
<tr>
<td>Load fields from APF metadata</td>
<td>The extender offers the possibility to read out field values stored as metadata for an application and to write them to the form.</td>
</tr>
<tr>
<td>Write APF metadata</td>
<td>The extender offers the possibility to save field values of a form to a request in the Application Frontend as a metadata.</td>
</tr>
<tr>
<td>Execute Groovy script</td>
<td>This extender executes Groovy script and allows for so many functionalities, which would otherwise have to be programmed by a custom extender written in Java.</td>
</tr>
<tr>
<td>Read LDAP data</td>
<td>With the extender, a directory server can store object-related data, e.g. personal data are read out and transferred into form fields.</td>
</tr>
<tr>
<td>Generate e-mail</td>
<td>The extender allows sending e-mails to a specific page. Condition can be defined and user inputs can be included in the e-mail content.</td>
</tr>
<tr>
<td>Add new form</td>
<td>This makes it possible to create a new instance of a form on the confirmation page and to load certain blocks with the data from the sent form.</td>
</tr>
</tbody>
</table>
The extender is used to create a QR code (or similar 2D and 1D codes) from form data. The generated QR code is written into a file field in the form.

The extender allows the prefilling of forms with context-relevant data and thus represents a significant improvement in usability for the user.

The TAN extender sends a message (usually randomly generated number) to a given mobile phone number or email address with a configurable content.

With this extender, the form title can be adapted for the display in the APF (e.g. supplementing the form name with the values from fields such as name and family name).

This allows you to create a workflow between multiple forms. Form data can be forwarded to different forms and edited.

This extender offers the possibility to determine the page number of an uploaded PDF file.

A changelog is created as PDF, which shows the differences between the initial state of the form and the data when it enters the control page.

The IP address of the applicant can optionally be written into a hidden field. The compliance with the data protection requirements of the respective country applies.

With this extender, several print PDF can be assigned to the form, which can be addressed according to a selection or input.

With this extender, PDF document properties can be defined as and which form components should be displayed when creating an empty forms.

With this extender, PDF files can be signed. Both the position and the text / logo of the signature can be determined.

**Block level extender**

With this extender, attachments and the selected type of transmission can be checked.

This extender can be used to define fields that are not copied during a copy operation in the block.

This extender serves to fill an HTML field in a table with different values.

The minimum and maximum number of repetitions of a block can be controlled, the total number of repetitions determined and numbered correctly.
<table>
<thead>
<tr>
<th>Field level extender</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Specific validations</strong></td>
<td>With this extender personal data, passport number, social security numbers or license plates can be verified.</td>
</tr>
<tr>
<td><strong>Certain input requirements</strong></td>
<td>As soon as a field from a group of fields is filled, the remaining fields of the group are also mandatory fields.</td>
</tr>
<tr>
<td><strong>Calculate date/time</strong></td>
<td>Seconds, minutes, hours, days, weeks, months, and years can be counted or subtracted from a selected date field.</td>
</tr>
<tr>
<td><strong>Split date/time</strong></td>
<td>This extender splits the second, minute, hour, day, month and year of a data field into integer or string fields.</td>
</tr>
<tr>
<td><strong>Dynamic mandatory field</strong></td>
<td>With this extender, fields can be dynamically enabled or disabled as mandatory fields while filling the form. This is controlled by dependencies.</td>
</tr>
<tr>
<td><strong>Delete fields</strong></td>
<td>This extender deletes the contents of an input field when a certain condition is met.</td>
</tr>
<tr>
<td><strong>Fill fields from database</strong></td>
<td>Database queries are used to fill fields.</td>
</tr>
<tr>
<td><strong>Set guiding texts dynamically</strong></td>
<td>With this extender, it is possible to dynamically change the guiding text. For example, in a repeated block with a counter for better identification.</td>
</tr>
<tr>
<td><strong>Set password</strong></td>
<td>This extender provides an input field with an encrypted password.</td>
</tr>
<tr>
<td><strong>Select/assign master data</strong></td>
<td>This extender fills fields with master data.</td>
</tr>
<tr>
<td><strong>Select/assign structure data</strong></td>
<td>This extender can be used to transfer data from a database to map fields. This extender is easy to use (no SQL required).</td>
</tr>
<tr>
<td><strong>Insert system date</strong></td>
<td>With this extender, a date field can be pre-filled with the current system date.</td>
</tr>
<tr>
<td><strong>Create unique ID</strong></td>
<td>This extender allows you to create random unique IDs of different types.</td>
</tr>
<tr>
<td><strong>Calculate values</strong></td>
<td>Using this extender, it is possible to perform calculations and to transfer the result into a field.</td>
</tr>
<tr>
<td><strong>Transfer values dynamically</strong></td>
<td>This extender allows you to write new values into fields or to transfer values from existing fields.</td>
</tr>
<tr>
<td><strong>Collect values in lists</strong></td>
<td>This extender collects multiple inputs from a repeatable block and displays them in summary form (drop down menu).</td>
</tr>
<tr>
<td><strong>Pre-set values</strong></td>
<td>This extender sets field values once after initializing the form.</td>
</tr>
<tr>
<td><strong>Check IBAN/BIC</strong></td>
<td>The extender checks whether an IBAN or a BIC is valid and if both are entered, and also checks whether these contain the same country code.</td>
</tr>
</tbody>
</table>
Appendix: References

Provincial Governments
- Burgenland
- Carinthia
- Upper Austria
- Salzburg
- Styria

Ministries
- Austrian Federal Chancellery
- Austrian Federal Ministry of Education, Science and Research
- Austrian Federal Ministry of Finance

Cities & Municipalities
- Eisenstadt, Graz, Innsbruck, Klagenfurt, St. Pölten, Vienna
- As well as 100 more cities and municipalities

Other Organizations
- Agency for Health and Food Safety
- Chamber of Labour Carinthia
- Federal Monuments Authority Austria
- E-Control Austria
- Medical University of Innsbruck
- Medical University of Vienna
- Austrian Patent Office
- RTR-GmbH
- All Social Security Organizations
- SVC
- Federal Aid for Students
- University of Linz

Business
- Energie Allianz Austria
- Kufgem GmbH
- Illwerke VKW
- VAV Insurance

Switzerland & Liechtenstein
- Canton of Glarus
- Canton of Obwalden
- ILZ - Obwalden & Nidwalden
- Canton of Schaffhausen
- KSD - Schaffhausen
- Canton of Schwyz
- Canton of Solothurn
- Canton of Zug
- City of St. Gallen
- City of Winterthur
- Municipality Ebikon
- National Administration of Liechtenstein
- Financial market supervisory authority

Germany
- Saxony
- Maïß Publishing
- Tjfbg gGmbH
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