

# Digital Signature Build Dictionary Specification



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# The Digital Signature Build Properties Dictionary Specification

## 1.1 Introduction

This specification describes the *build properties dictionary* of the signature dictionary defined in the PDF Reference. The dictionary is only present in signed signature fields, and its contents are implementation-specific by design. The dictionary can be used to store audit information that is specific to the software application that was used to create the signature.

Typical uses for the build properties dictionary are:

- Auditing the signature event by examining the software components and their versions that were used to create the signature.
- Detecting and identifying signatures created with development (pre-release) software.
- Allowing detection of signatures that may have been created with what is later found to be flawed software. A hypothetical example would be to identify signatures created with Acrobat® 7.0.7 which does not verify byte range digests correctly.

Build information has been provided in signature dictionaries since Acrobat 4.0. The information was provided by the value of the **R** (an integer number representing the version of the signature handler) and **ADBE\_Build** attributes. The **ADBE\_Build** attribute was insufficient because it is a string with a value that does not have a specified format and it therefore is not machine readable. Hence, the build properties dictionary was added in Acrobat 6.0 to provide more useful information, and use of the **ADBE\_Build** and **R** attributes were deprecated.

***Note:** Prior to Acrobat 8.0, signature build dictionaries could be used to specify that a later software component is required to validate a signature. This capability was removed in Acrobat 8.0.*

### 1.1.1 Interoperability

Versions of Acrobat prior to Acrobat 6.0 will ignore the build properties dictionary. Acrobat 8.0 and later will ignore version-forcing information that may be present in the build properties dictionary.

### 1.1.2 Note to Implementators

All information in the build properties dictionary is optional. Your PDF signing software implementation should only populate the build properties dictionary with correct information, else you should not add information to this dictionary. For example, if you are writing a signature handler, you should not have a **Filter** entry in the build properties dictionary with the **Name** entry set to **Adobe.PPKLite**. The **Name** value should be unique to your software implementation.

### 1.1.3 References

*PDF Reference, fifth edition, Adobe Portable Document Format, Version 1.7*, Adobe Systems Incorporated

*PDF/SigQ Specification, Version 1.0*, Adobe Systems Incorporated  
(publication forthcoming)

## 2.1 Build Properties Dictionary

The build properties dictionary and all of its contents are required to be direct objects (for more information, see “Content Streams” in the *PDF Reference*). The use of a build properties dictionary is optional but highly recommended.

The build properties dictionary may contain a build data dictionary entry for each unique software module used to create the signature. The software modules involved in the signing process will vary depending on the viewing application. All signing implementations should include at least a **Filter** entry in the build properties dictionary.

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**TABLE 2.1 Entries in the build properties dictionary that are used by Adobe Acrobat**

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Key	Type	Value
Filter	dictionary	(Optional; PDF 1.5) A build data dictionary (Table 2.2) for the signature handler that was used to create the parent signature. This entry is optional but highly recommended for all signatures.

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<b>PubSec</b>	dictionary	<i>(Optional; PDF 1.5)</i> A build data dictionary ( <a href="#">Table 2.2</a> ) for the PubSec software module that was used to create the parent signature.
<b>App</b>	dictionary	<i>(Optional; PDF 1.5)</i> A build data dictionary ( <a href="#">Table 2.2</a> ) for the PDF/SigQ Conformance Checker that was used to create the parent signature.
<b>SigQ</b>	dictionary	<i>(Optional; PDF 1.7)</i> A build data dictionary ( <a href="#">Table 2.2</a> ) for the PDF/SigQ Specification and Conformance Checker that was used to create the parent signature. This entry is present only if the document conforms to the version of the PDF/SigQ specification indicated by the upper 16 bits of the <b>R</b> entry in this dictionary.

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### 2.1.1 Build Data Dictionary

The build data dictionary contains information from the signature handler or software module that was used to create the signature. Not all entries are relevant for all entries in the build properties dictionary.

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**TABLE 2.2 Common entries in build data dictionaries**

<b>Key</b>	<b>Type</b>	<b>Value</b>
<b>Name</b>	name	<i>(Optional; PDF 1.5)</i> The name of the software module used to create the signature. When used as an entry in the data dictionary of the <b>Filter</b> attribute ( <a href="#">Table 2.1</a> ), the value is the name of the signature handler. The value is normally equal to the value of the <b>Filter</b> attribute in the signature dictionary.
<b>Date</b>	string	<i>(Optional; PDF 1.5)</i> The software module build date. This string is normally produced by the compiler that is used to compile the software, for example using the Date and Time preprocessor flags. As such, this not likely to be in PDF Date format.
<b>R</b>	number	<i>(Optional; PDF 1.5)</i> The software module revision number. It is important that signature handlers and other software modules specify a unique value for <b>R</b> for every publicly available build of the software. If the module or handler is ever found to have been defective, for signatures where the value of <b>PreRelease</b> is <b>false</b> , the value of this attribute is likely to be the only way to detect that the signature was

created with the defective release. A sample value might be 0x00020014, for software module version 2, sub-build 0x14. Various software modules may use this entry differently.

When present in the SigQ build data dictionary, the upper 16 bits of this value indicate the version of the PDF/SigQ Specification to which the viewing application's PDF/SigQ Conformance Checker was written, and the lower 16 bits indicate the implementation version for the Conformance Checker.

<b>PreRelease</b>	boolean	<i>(Optional; PDF 1.5)</i> A flag that can be used by the signature handler or software module to indicate that this signature was created with unreleased software. If <b>true</b> , this signature was created with pre-release or otherwise unreleased software. The default value is <b>false</b> .
<b>OS</b>	array	<i>(Optional; PDF 1.5)</i> Indicates the operating system, such as Win98. Currently there is no specific string format defined for the value of this attribute.
<b>NonFontNoWarn</b>	boolean	<i>(Optional; PDF 1.5)</i> If there is a <b>Legal</b> dictionary in the catalog of the PDF file, and the <b>NonEmbeddedFonts</b> attribute (which specifies the number of fonts not embedded) in that dictionary has a non-zero value, and the viewing application has a preference set to suppress the display of the warning about fonts not being embedded, then the value of this attribute will be set to <b>true</b> (meaning that no warning need be displayed).
<b>TrustedMode</b>	boolean	<i>(Optional; PDF 1.5)</i> If the value is <b>true</b> , the application was in trusted mode when signing took place. The default value is <b>false</b> . A viewing application is in trusted mode when only reviewed code is executing, where reviewed code is code that does not affect the rendering of PDF files in ways that are not covered by the PDF Reference.
<b>V</b>	number	<i>(Optional; PDF 1.5; Deprecated for PDF 1.7)</i> Indicates the minimum version number of the software required to process the signature. (This attribute introduced behavior that was not consistent with the PDF 1.7 requirement of being independent of software implementation. Use of this attribute is now deprecated.

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**TABLE 2.3 Additional entries in the build data dictionary when used as the App dictionary in a build properties dictionary (Table 2.1)**

Key	Type	Value
REx	text	( <i>Optional; PDF 1.6</i> ) A text string indicating the version of the application implementation, as described by the <b>Name</b> attribute in this dictionary. When set by Adobe Acrobat, this entry is in the format: major.minor.micro (for example 7.0.7).

**TABLE 2.4 Additional entries in the build data dictionary when used as the SigQ dictionary in a build properties dictionary (Table 2.1)**

Key	Type	Value
Preview	boolean	( <i>Optional; PDF 1.7</i> ) Indicates whether the document was viewed using the signature preview mode when signed. If the viewing application does not support a signature preview mode that conforms to the PDF/SigQ specification, this attribute should not be set or set to <b>false</b> . The default value is <b>false</b> .

*Note: Acrobat does not use all values in the build data dictionary for all entries in the build properties dictionary. Table 2.5 shows the implementation details.*

**TABLE 2.5 Entries in build data dictionaries for Acrobat 6.0, 7.0, and 8.0**

Name	Properties Used
Filter	Name (extracted from handler; for example, <b>Adobe.PPKLite</b> or <b>Adobe.PPKMS</b> ), Date, R, PreRelease.
PubSec	Date, R, PreRelease, NonEFontNoWarn

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<b>App</b>	<b>Name</b> (one of <b>Adobe.Reader</b> or <b>Adobe.Pro</b> , or <b>Adobe.Standard</b> ), <b>R</b> , <b>OS</b> , <b>TrustedMode</b> , or <b>REx</b> (added in Acrobat 7.0.5).
<b>SigQ</b>	<b>R</b> , <b>Preview</b> (added in Acrobat 8.0)

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## 2.1.2 Example of a build properties dictionary

### Example 2.1

```
/Prop_Build
  <<
    /Filter
      <<
        /Name /Adobe.PPKLite
        /Date (Sep 27 2006 00:11:15)
        /R 131101
        /PreRelease true
      >>
    /PubSec
      <<
        /Date (Sep 27 2006 00:05:54)
        /R 13102
        /NonEFontNoWarn true
        /PreRelease true
      >>
  /App
    <<
      /Name /Exchange-Pro
      /R 524288
```



```
/REx (8.0.0)
/TrustedMode true
/OS [/Win]
/Name /Adobe.Reader
/TrustedMode false
/R 63454
>>
/SigQ
<<
/R 65536
/Preview true
>>
>>
```