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# Version 1.0

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**For Web Services on Devices**

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455	Figure 37 - GetJobHistoryResponse Elements.....	89
456		

## 457 **1. Overview and Scope**

458 This service definition is compliant with the Devices Profile for Web Services [DEVICE].

459 This service-type enables the following functions:

- 460
  - Scanning

461 This service template does not address:

- 462
  - Printing

- 463
  - Copying

- 464
  - Faxing

- 465
  - Inbound

- 466
  - Outbound

- 467
  - Multi-function Devices

## 468 2. Device Service Modeling Definitions

### 469 2.1. Device Service-Class

470 This Web Service for Devices (WSD) type maps to the WSDL “porttype” element. This combines operations, events and  
471 properties into a functional unit. A device service-class that is compliant with this template is identified with the following  
472 target namespace: “<http://schemas.microsoft.com/windows/2006/08/wdp/scan>”.

### 473 2.2. Terminology

474 This section defines terms that are used throughout this specification. These terms are always capitalized in order to  
475 indicate that they have the meaning defined in this section.

#### 476 2.2.1. Conformance Terminology

477 The following terms have special meaning relating to conformance and so are always indicated in all capital letters:

- 478 a) **MUST** - This word, or the term "REQUIRED", mean that the definition is an absolute requirement of the  
479 specification.
- 480 b) **MUST NOT** - This phrase means that the definition is an absolute prohibition of the specification.
- 481 c) **SHOULD** - This word, or the adjective "RECOMMENDED", mean that there may exist valid reasons in particular  
482 circumstances to ignore a particular item, but the full implications must be understood and carefully weighed  
483 before choosing a different course.
- 484 d) **SHOULD NOT** - This phrase, or the phrase "NOT RECOMMENDED" mean that there may exist valid reasons in  
485 particular circumstances when the particular behavior is acceptable or even useful, but the full implications should  
486 be understood and the case carefully weighed before implementing any behavior described with this label.
- 487 e) **MAY** - This word, or the adjective "OPTIONAL", mean that an item is truly optional. One vendor may choose to  
488 include the item because a particular marketplace requires it or because the vendor feels that it enhances the  
489 product while another vendor may omit the same item. An implementation which does not include a particular  
490 option **MUST** be prepared to interoperate with another implementation which does include the option, though  
491 perhaps with reduced functionality. An implementation which does include a particular option **MUST** be prepared  
492 to interoperate with another implementation which does not include the option

#### 493 2.2.2. Other terminology

494 This document uses the terminology defined in the Devices Profile for Web Services [DEVICE], such as: operation, device  
495 description, and argument. This sub-section defines the following additional terms that are capitalized in order to indicate  
496 their specific meaning as defined in this section.

- 497 a) **Control Point (CP)** - the entity that initiates requests to the Scanner on behalf of the end user.
- 498 b) **Scan Service (or Scanner)** - the [DEVICE] entity that accepts operations from a CP (clients), returns responses  
499 including image data, and sends events.

#### 500 2.2.3. Notation: use of quotation marks

501 Throughout this document, single quotes (‘’) are used around literal string and integer values in running text, but not in  
502 Tables. The single quotes are not part of the values. Double quotes (“”) are used around words in running text to indicate  
503 special English meanings. Element names, arguments names, and operation names are not quoted.

## 504 2.3. References

505 This section lists the references that this document refers to and the tag inside square brackets that is used for each such  
506 reference:

- 507 [DEVICE] – J. Schlimmer, et al, “Devices Profile for Web Services”, February 2006.  
508 (See <http://specs.xmlsoap.org/ws/2006/02/devprof/devicesprofile.pdf/>.)

- 509 [MTOM] - N. Mendelsohn, et al, "SOAP Message Transmission Optimization Mechanism," January 2005.  
510 (See <http://www.w3.org/TR/2005/REC-soap12-mtom-20050125/>.)
- 511 [ADDRESS] - D. Box, et al, "Web Services Addressing (WS-Addressing)," August 2004.  
512 (See <http://www.w3.org/Submission/2004/SUBM-ws-addressing-20040810/>.)
- 513 [DISCOVERY] - J. Beatty, et al, "Web Services Dynamic Discovery (WS-Discovery)," April 2005.  
514 (See <http://schemas.xmlsoap.org/ws/2005/04/discovery>.)
- 515 [WSDL] - E. Christensen, et al, "Web Services Description Language (WSDL) 1.1," March 2001.  
516 (See <http://www.w3.org/TR/2001/NOTE-wsdl-20010315>.)
- 517 [WSDL Binding for SOAP 1.2] - K. Ballinger, et al, "WSDL Binding for SOAP 1.2," April 2002.  
518 (See <http://groups.yahoo.com/group/soapbuilders/files/soap12WSDL.htm>.)
- 519 [EVENTING] - L. Cabrera, et al, "Web Services Eventing (WS-Eventing)," August 2004. (See  
520 <http://msdn.microsoft.com/ws/2004/08/ws-eventing/>.)
- 521 [PNPX] – C. Brodeur, "PnP-X: Plug and Play Extensions for Windows", July 2006.  
522 (See <http://www.microsoft.com/whdc/Rally/pnpx-spec.mspx>.)
- 523 [HTTP] - R. Fielding, et al, "Hypertext Transfer Protocol -- HTTP/1.1," June 1999. (See  
524 <http://www.ietf.org/rfc/rfc2616.txt>.)
- 525 [URI] - T. Berners-Lee, et al, "Uniform Resource Identifiers (URI): Generic Syntax," January 2005.  
526 (See <ftp://ftp.rfc-editor.org/in-notes/rfc3986.txt>.)

## 527 2.4. Purpose

- 528 The purpose of this document is to describe the operational model for network connected scanning devices. The Devices  
529 Profile for Web Services [DEVICE] defines a peer-to-peer network connectivity model allowing intelligent applications to  
530 discover and make use of network resident devices. This document describes how Scanners would operate in this  
531 environment. This document focuses on the device control model that will be supported by scanning devices.
- 532 The scanning model described in this document focuses on walk-up scanning, where scanning is initiated by users at a  
533 device. Devices that support this model are typically connected directly to a network and reside in a central location.  
534 Scanning in this model is focused primarily on capturing a document and delivering it to a destination client or an  
535 application.
- 536 This document describes how to accomplish walk-up scanning in small (home or workgroup) environments. Scanning in  
537 the home is primarily driven from the PC although the user experience is very much a walk-up model. Although the  
538 scanning model, as described, focuses on walk-up scanning it should be noted it is not limited to walk-up. The model  
539 provides a framework in which all network scanning can be modeled.
- 540 This document outlines the functional components of Scanning services and describes their interactions with CLIENTs.

## 541 3. Scanning Functional Model

- 542 Operation of a device is modeled as a conversation between a Control Point (CP) and a Service exposed by a device. The  
543 operation of scanning can be described as a combination of distinct functions. The design of the Scanner Functional Model  
544 exposes these functions as distinct services and allows for different Control Points to control each function. In many  
545 instances, a single CLIENT will be responsible for the complete set of interactions with the scanner device – but by  
546 logically separating the CLIENTs we provide a foundation to support the many different Scanner usage patterns.
- 547 The scanning process consists of three logical functions:
- 548 • Job Setup
  - 549 • Job Execution
  - 550 • Data Transfer

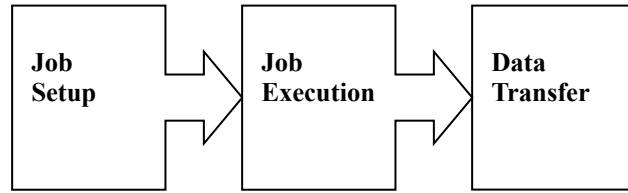


Figure 1 – Scan Workflow

The Scanner Model defines a Scan Ticket as the means by which Job Elements are communicated down the line of functions. At Job Setup the Scan Ticket is created based on user selections. At Job Execution a specific scan ticket is submitted to the Scan Service by a CLIENT. During Job Execution the Scan Ticket is used by the device to determine the appropriate settings to use during the scan. After the Job Execution has completed, the Scan Ticket may be used to generate a log containing the actual scanning parameters used during execution as well as additional information.

## 3.1. Theory of Operation

### 3.1.1. Summary

Scanning breaks into three logical sets of interactions:

- **Job Setup:** The creation of a scan ticket based on user scanning preferences.
- **Job Execution:** The physical scan and generation of data. A scan ticket generated in the Job Setup function is used to define the parameters of the Job Execution. Job Execution ends when the original document has been scanned and all of the scanned data is transferred to an external destination or internal storage.
- **Data Transfer:** The movement of data from the scanner's buffer to a destination. Data transfer is contained within the job execution function but may be asynchronous to the physical scan. A scanner will always push data to a destination as the response to an operation.

Each of the above sets of operations represents a series of interactions between a service component provided by a scanner and a CLIENT.

### 3.1.2. Function Descriptions

This section describes the primary interactions that occur during each logical phase of the Scanning process.

#### 3.1.2.1. Job Setup

The Job Setup function is provided by a CLIENT. The CLIENT providing Job Setup interacts with a Scan Service to determine the capabilities of the device. The CLIENT provides an interface to allow users to choose scanning options such as color mode, resolution, etc. based on the capabilities of the device. The CLIENT then creates a scan ticket that specifies scanning parameters chosen by the user. The scan ticket will be used during Job Execution (See Section 3.1.2.2).

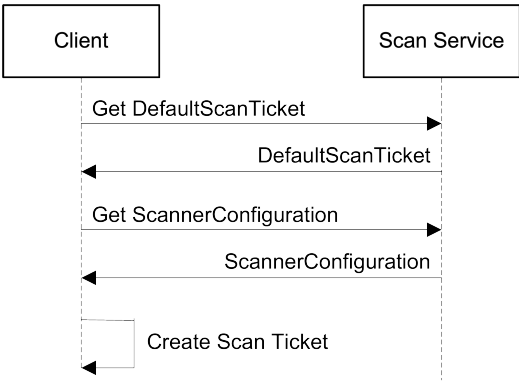


Figure 2 – Client Job Setup

3.1.2.2. Job Execution

Two different methods of Job Execution are supported:

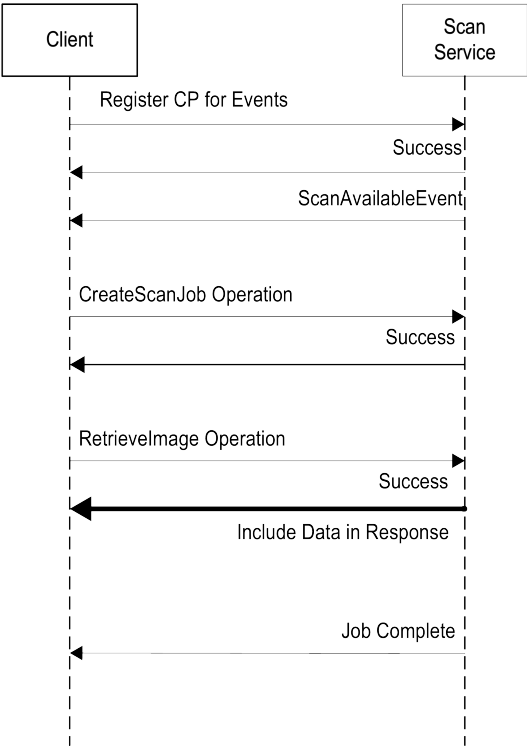
- **Device Initiated:** A device can initiate execution as the result of a user interacting directly with the device.
- **CLIENT Initiated:** A CLIENT can initiate Job Execution by sending a request<sup>2</sup> to the scan device.

If a CLIENT is initiating the execution of a job, it may subscribe for events of interest beforehand. If a device will initiate the execution, a client must register the intended destination of the scanned document.

3.1.2.3. Data Transfer

- **Response Mode:** The CLIENT starts a scan based on a **ScanAvailableEvent** notification from the device. The CLIENT sends down a **CreateScanJob** operation with the requested scan parameters (ScanTicket) and the device processes the scan. The data from the scan is sent back to the CLIENT as a part of the response to the **RetrieveImage** operation(s).

<sup>2</sup> See the **CreateScanJob** operation defined in the Scan Service Specification



**Figure 3 – Response Mode Data Transfer**

The Data Transfer phase ends when all of the data has been successfully transferred or an unrecoverable error occurs.

### 3.2. Job Concurrency

It is possible that multiple jobs may exist at the same time. A scan for one job may be complete with data still transferring while another job is activated. The number of jobs transferring data is limited to the capacity of device resources.

The following diagram illustrates the number of allowable concurrent jobs during the Job Functions. Shown in the diagram are jobs X, Y and Z. Jobs X and Y must have completed scanning but may still be transferring data when job Z is activated. In order for another job to be activated, job Z must reach the completion of the physical scan. The Buffered Data Transfer portion of the diagram illustrates that multiple data transfers can be occurring at the same time.



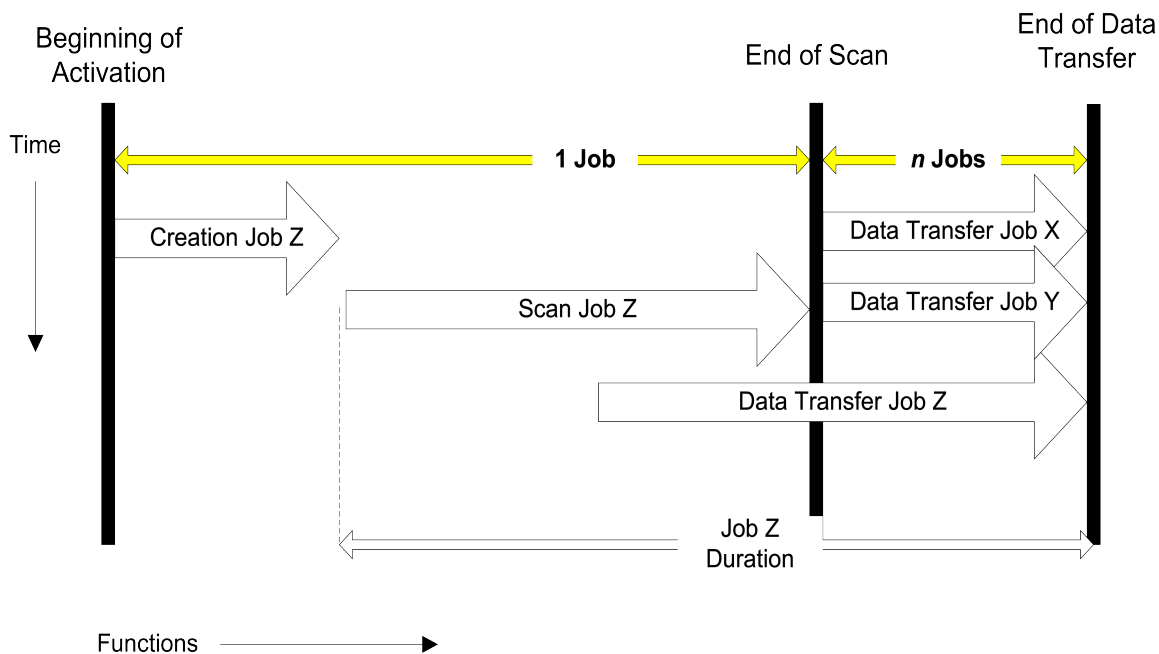


Figure 4 – Job Concurrency Example

### 3.3. Usage Scenarios

#### 3.3.1. Scan to Workstation, Device Initiated

- Device Notification of waiting scan (event)
- CLIENT Initiated Execution, Response-based Data Transfer – Figure 3

A user wants to scan a document to his workstation. The user places their media on the platen/in the ADF. The user scrolls through the destinations on the scanner front panel. When the correct destination is found the user presses the SCAN button on the device. The scanner sends a **ScanAvailableEvent** to the specified destination (only). The CLIENT submits a **CreateScanJob** operation to the scanner using settings preconfigured by the user and then retrieves the data as part of the response to one or more **RetrieveImage** operations.

#### 3.3.2. Scan to Workstation, Client Initiated

- CLIENT Job Setup – Figure 2
- CLIENT Initiated Execution, Response-based Data Transfer – Figure 3

A user wants to scan a document to his workstation. The UI displayed on or near the scanner is hosted by a CLIENT external to the scanner. The user selects scan settings using the UI. The user places the document on the platen/in the feeder and presses the Start button on the UI. The external CLIENT submits a **CreateScanJob** operation to the scanner and then retrieves the data as part of the response to one or more **RetrieveImage** operations.

### 3.4. Service Summary

#### 3.4.1. Jobs

The Scan service's main task is to accept scan jobs from clients, queue them up (if the scanner is capable of handling more than one job at a time), scan them, and transfer the output data. A job is identified by an integer, the *JobId*, which is allocated by the device. The *JobId* is returned by the **CreateScanJob** operation.

The set of jobs the scanner has in its queue can be found by using the **GetActiveJobs** command.

#### 3.4.2. Operations

The following operations are defined and MUST be supported by conforming ScannerService implementations:

- 627 ○ **CreateScanJob** – This operation is used to submit a job to the scanner. A scan ticket defining the scanning  
628 parameters is supplied with the request. An allocated *JobId* and the image information are returned in the response.
- 629 ○ **RetrieveImage** – This operation is used to retrieve the image data associated with a previously submitted scan job.  
630 The *JobId* and *JobToken* are supplied with the request. The image data are returned in the response.
- 631 ○ **CancelJob** – This can be used to cancel a job using the *JobId*.
- 632 ○ **ValidateScanTicket** – This can be used to verify the settings in a *ScanTicket* for a future scan operation.
- 633 ○ **GetScannerElements** – This operation can be used to query for scanner elements.
- 634 ○ **GetJobElements** – This operation can be used to query for job elements for a particular job.
- 635 ○ **GetActiveJobs** – This operation can be used to obtain a list of all the currently active Jobs on the scanner and a  
636 subset of each job's elements.
- 637 ○ **GetJobHistory** – This operation can be used to obtain a list of some of the recently completed Jobs on the scanner  
638 and a subset of each job's elements.

### 639 3.4.3. Events

640 Events are defined to inform a CP that a user has asked to scan, to tell about any configurations changes in the scanner and  
641 to tell the status of active and finished jobs. The basic event model is based on Web Service Eventing [EVENT]. When  
642 using events to allow CPs to synchronize access to scanned data with the device output a unique destination for each client  
643 is registered with the scan device. Then when the user requests to scan data to that destination an Event is generated to just  
644 the client associated with the requested destination.

### 645 3.4.4. Security

646 The Devices Profile for Web Services [DEVICE] defines how compliant clients and devices interact in a secure manner.  
647 This specification assumes all clients and scan devices comply with this security model.

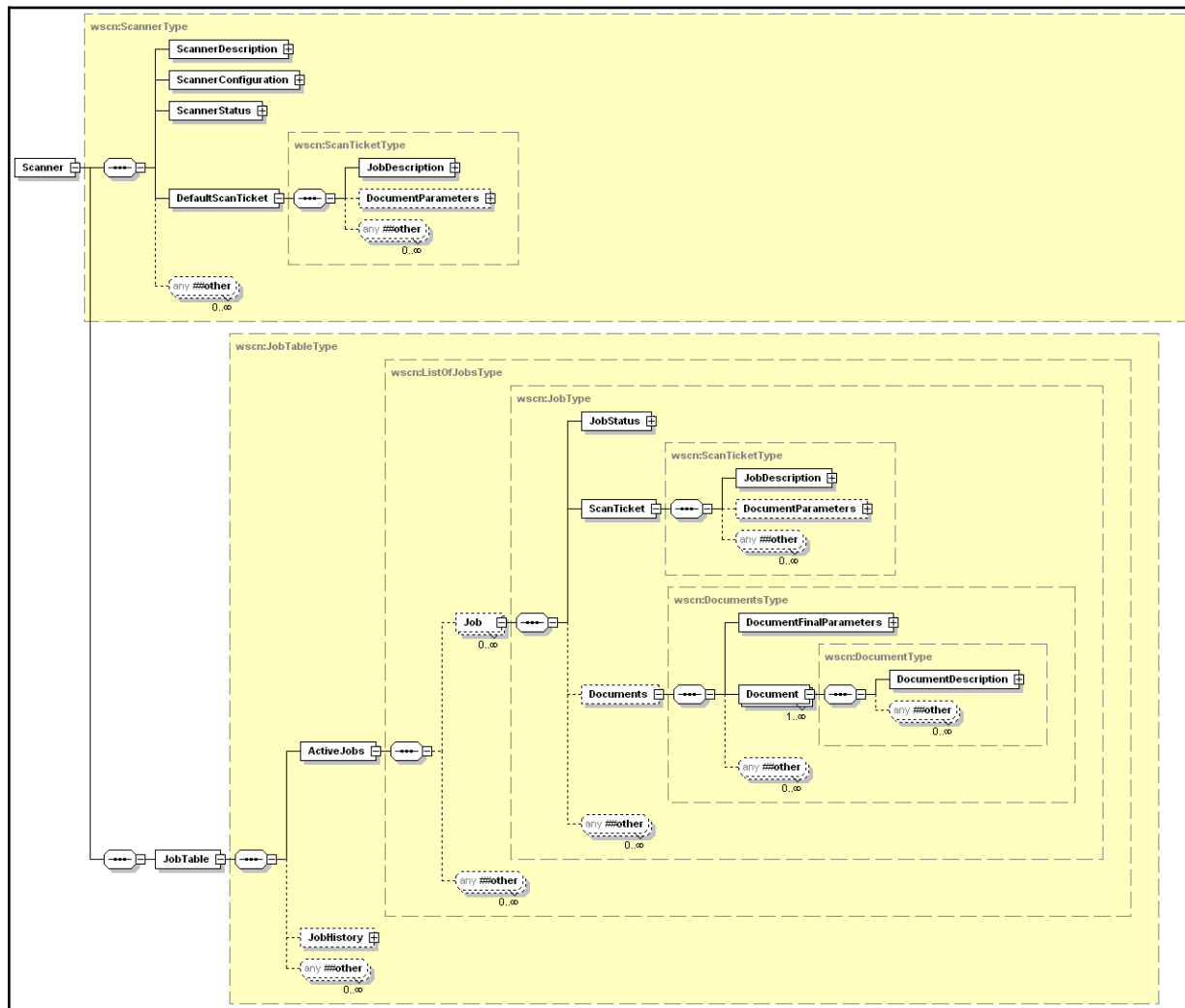
### 648 3.4.5. Localization

649 A WSD Scanner is assumed to be operating within the locale of the user. No other localization mechanism is defined for  
650 the Scan Service. The CP (client) is expected to localize the well-known string values to the locale of its user. The CP  
651 (client) is expected to convert the enum integer values to human readable string values in the locale of the user.

## 652 4. Service Schema

653 A scanner contains zero or more Jobs. A Job contains processing instructions and one or more output Documents.

654 The Scanner, Job, and Document elements are grouped together into logical elements. These element groups collect similar  
655 elements together. *ScannerDescription* elements for Scanners contain descriptive information that is static per device or  
656 administratively set by a CP. "Description" elements for Jobs and Documents contain descriptive information that is  
657 administratively set or supplied by a CP during job submission. The *ScannerConfiguration* elements contain information  
658 that describes the current physical configuration of the scanner and its options and also all the allowed values for the  
659 various *DocumentParameters* elements. The Scanner and Job "Status" elements contain information primarily controlled  
660 by automata. These can be indirectly affected by a CP through operations such as **CancelJob**. The *DocumentParameters*  
661 elements specify features that are applied to the Documents in the Job (e.g. *Rotation*). Finally the *DefaultScanTicket*  
662 element provides the default values for all the elements used in Job creation. Figure 5 below illustrates the relationships  
663 between these elements. The member elements of Scanners, Jobs, and Documents are detailed in the following sections.



### Figure 5 – Scanner Model

## 4.1. The Scanner's Elements

667 This section defines the elements that comprise the WSD Scanner Service.

Figure 6 shows the *ScannerDescription* elements for the Scanner. Figure 7 and Figure 8 show the *ScannerConfiguration* elements for the Scanner. Figure 9 shows the *ScannerStatus* elements for the Scanner. Figure 16 shows the *ScanTicket* elements which define the *DefaultScanTicket* for the scanner.

## 4.2. The ScannerDescription Elements

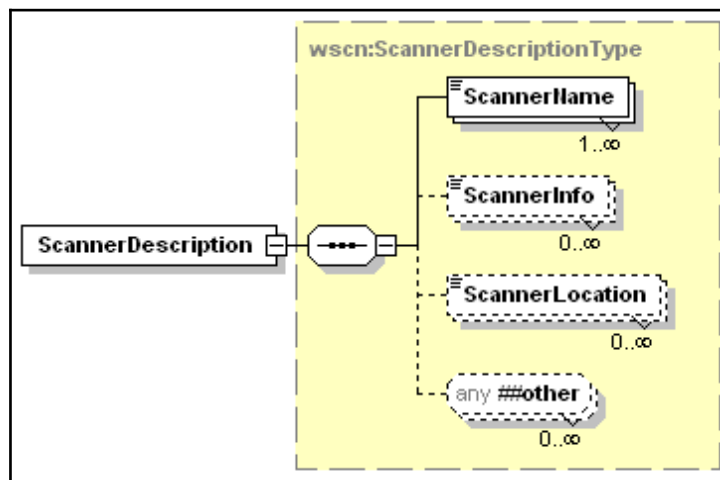


Figure 6 - ScannerDescription Elements

All of the Scanner elements contained within the *ScannerDescription* element are described in detail in the following sections.

### 4.2.1. ScannerName

This element indicates the administratively assigned user-friendly name of the scanner. How the value for this element is configured is implementation-specific, e.g., local console, Presentation Service (web access). If the Device Service has only one hosted service, then the Device's <friendlyName> and *ScannerName* are recommended to have the same value. However, if the Device contains several hosted services, the *ScannerName* identifies the scanner. A scan device can return multiple version of this element to allow support for multiple localized languages by using the xml:lang attribute.

Allowed Values: any character string

### 4.2.2. ScannerInfo

This element is the descriptive information about this Scanner (example: "Out of courtesy for others, please scan only small (1-5 page) jobs at this scanner"). How the value for this element is configured is implementation-specific, e.g., local console, Presentation Service (web access). A scan device can return multiple version of this element to allow support for multiple localized languages by using the xml:lang attribute.

Allowed Values: any character string

### 4.2.3. ScannerLocation

This element indicates the administratively assigned location of the device (for example, "Building 1"). How the value for this element is configured is implementation-specific, e.g., local console, Presentation Service (web access). A scan device can return multiple version of this element to allow support for multiple localized languages by using the xml:lang attribute.

Allowed Values: any character string

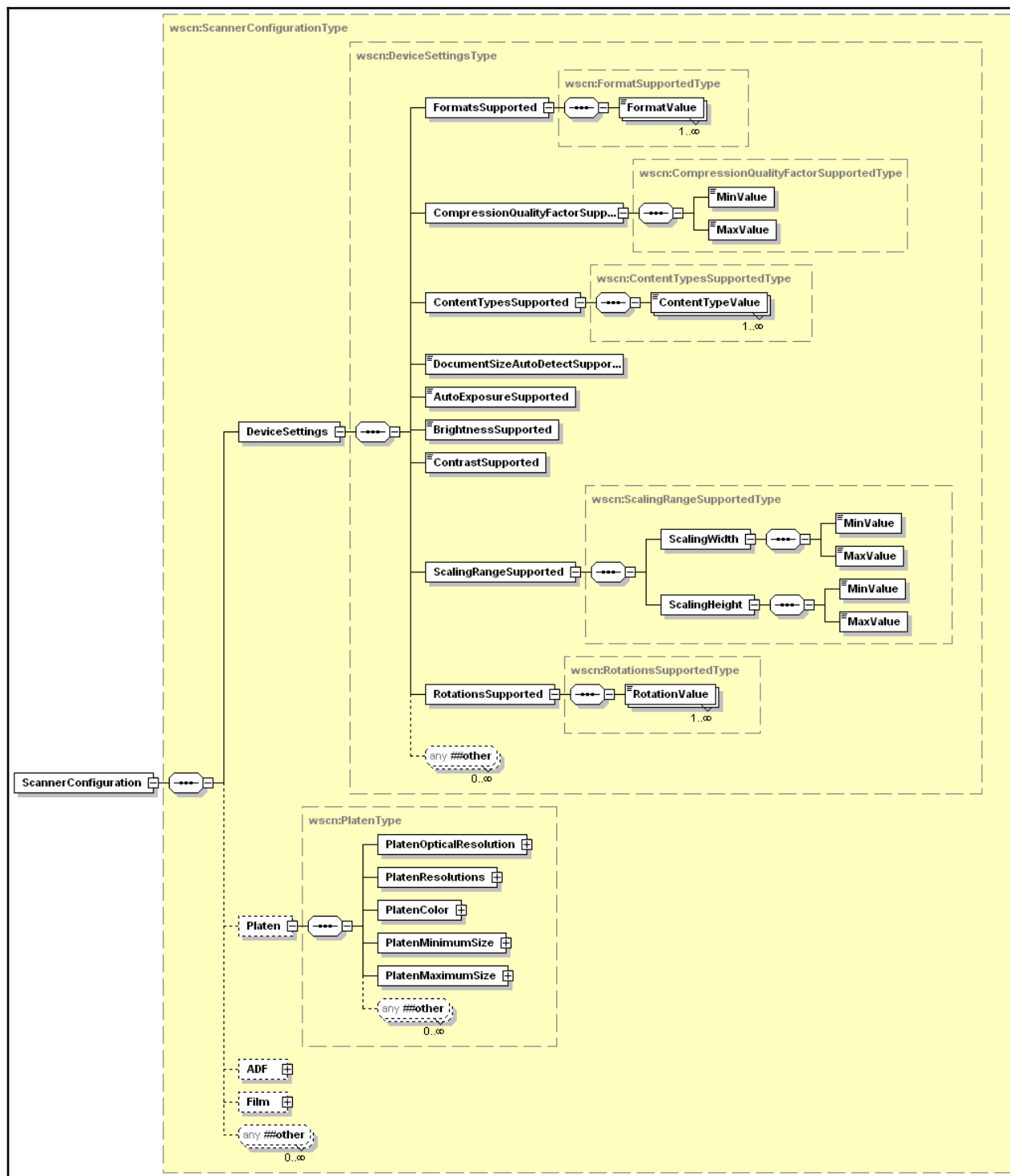
694 **4.3. The ScannerConfiguration Elements**

Figure 7 – ScannerConfiguration Elements – Part 1

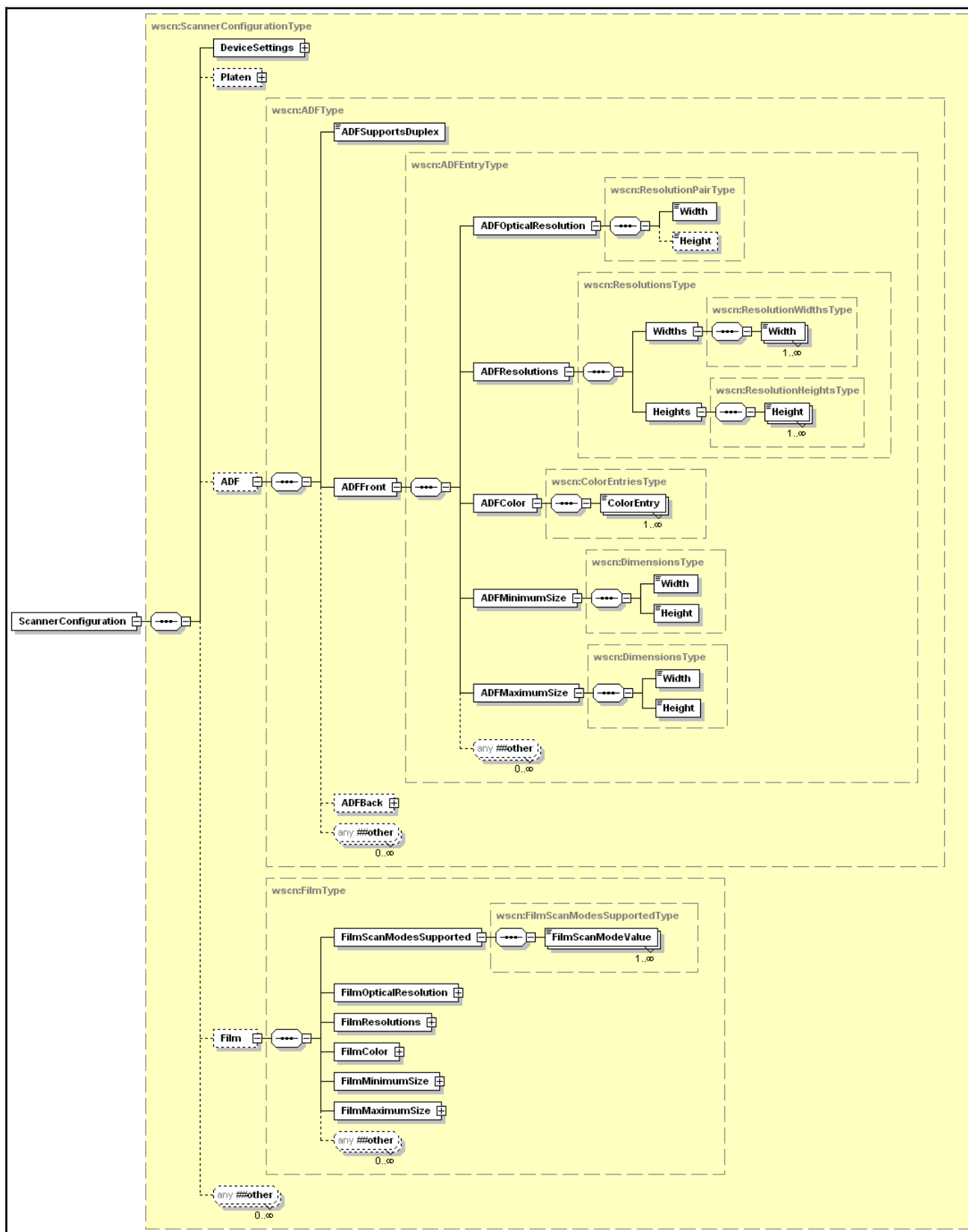


Figure 8 – ScannerConfiguration Elements – Part 2

All of the Scanner elements contained within the *ScannerConfiguration* element are described in detail in the following sections.

### 701 4.3.1. DeviceSettings

702 This section describes the basic capabilities of the device as a whole. This section contains the supported values for many of  
 703 the imaging options settable in the *ScanTicket* for a scan operation. A CP can use the values returned in this section to  
 704 create valid *ScanTicket* elements.

#### 705 4.3.1.1. FormatsSupported

706 This element is a collection of keywords that describe the *Document* file formats supported by the scanner. Each file format  
 707 describes a combination of file type and compression type.

##### 708 4.3.1.1.1. FormatValue

709 This element indicates a single supported file format/compression type value.

710 Values:

711 **dib** – Windows Device Independent Bitmap  
 712 **exif** – Exchangeable Image File Format Version 2.x  
 713 **jbig** – ISO/IEC 11544:1993 Standard - Coded representation of picture and audio information -- Progressive bi-level  
 714 image compression  
 715 **jfif** – JPEG File Interchange Format 1.x  
 716 **jpeg2k** – JPEG 2000 standards based file format and compression  
 717 **pdf-a** – PDF/A format: Standard based on ISO/CD 19005-1  
 718 **png** – Portable Networks Graphics (PNG) format. This format only supports PNG compression type  
 719 **tiff-single-uncompressed** – single page TIFF file with no compression type  
 720 **tiff-single-g4** – single page TIFF file with g4 compression type  
 721 **tiff-single-g3mh** – single page TIFF file with g3mh compression type  
 722 **tiff-single-jpeg-tn2** – single page TIFF file with jpeg compression type as described in Technical Note 2.  
 723 **tiff-multi-uncompressed** – multiple page TIFF file with no compression type  
 724 **tiff-multi-g4** – multiple page TIFF file with g4 compression type  
 725 **tiff-multi-g3mh** – multiple page TIFF file with g3mh compression type  
 726 **tiff-multi-jpeg-tn2** – multiple page TIFF file with jpeg compression type as described in Technical Note 2.  
 727 **xps** – XML Paper Specification

728 Vendors MAY extend the allowed values for this element

729 Vendors MAY subset the allowed values for this element

#### 730 4.3.1.2. CompressionQualityFactorSupported

731 This element is an integer value used by any lossy compression type to determine the amount of acceptable image loss. The  
 732 higher the requested fidelity the larger the resulting file size. A value of 100 means the device should use the least amount  
 733 of compression it supports to produce the highest image quality. Currently JPEG compression is the only supported lossy  
 734 compression type.

##### 735 4.3.1.2.1. MinValue

736 This element indicates the minimum *CompressionQualityFactor* value supported by the scan device.

737 Values: 0 – 100

##### 738 4.3.1.2.2. MaxValue

739 This element indicates the maximum *CompressionQualityFactor* value supported by the scan device.

740 Values: 0 – 100

#### 741 4.3.1.3. ContentTypesSupported

742 This element is a collection of keywords that describe the different document content types supported by the scanner. Each  
 743 *ContentType* describes the main characteristics of the original document.

##### 744 4.3.1.3.1. ContentTypeValue

745 This element indicates a single supported *ContentType* value

746 Values:

747 **Auto:** The device will automatically detect the original type

748 **Text:** The original is mainly composed of distinct text that contrasts strongly with the background.

749 **Photo:** The original is mainly composed of photographic images, where shades change gradually and edges are not  
750 distinct.

751 **Halftone:** The original is mainly composed of halftoned images.

752 **Mixed:** A multipage document with characteristics of more than one specific *ContentType*.

753 Vendors MAY extend the allowed values for this element

754 Vendors MAY subset the allowed values for this element

#### 755 **4.3.1.4. DocumentSizeAutoDetectSupported**

756 This element specifies whether the device can detect the size of the original media.

757 Values: 0, 1, true, false

#### 758 **4.3.1.5. AutoExposureSupported**

759 This element specifies whether the device supports automatic adjustment of the various Exposure settings.

760 Values: 0, 1, true, false

#### 761 **4.3.1.6. BrightnessSupported**

762 This element specifies whether the device supports user control of the scan brightness setting.

763 Values: 0, 1, true, false

#### 764 **4.3.1.7. ContrastSupported**

765 This element specifies whether the device supports user control of the scan contrast setting.

766 Values: 0, 1, true, false

#### 767 **4.3.1.8. ScalingRangeSupported**

768 This section describes the range of values this scan device supports for scaling the output document. A value of 100  
769 specifies that no adjustments are made to the scanned image.

##### 770 **4.3.1.8.1. ScalingWidth**

771 This element contains the minimum and maximum allowable values for scaling the width of the output document.

###### 772 **4.3.1.8.1.1. MinValue**

773 This element indicates the minimum *ScalingWidth* value supported by the scan device.

774 Values: 1 – 1000

###### 775 **4.3.1.8.1.2. MaxValue**

776 This element indicates the maximum *ScalingWidth* value supported by the scan device.

777 Values: 1 – 1000

##### 778 **4.3.1.8.2. ScalingHeight**

779 This element contains the minimum and maximum allowable values for scaling the height of the output document.

###### 780 **4.3.1.8.2.1. MinValue**

781 This element indicates the minimum *ScalingHeight* value supported by the scan device.

782 Values: 1 – 1000



**783 4.3.1.8.2.2. MaxValue**

784 This element indicates the maximum *ScalingHeight* value supported by the scan device.

785 Values: 1 – 1000

**786 4.3.1.9. RotationsSupported**

787 This element is a collection of keywords that describe the values supported by the scanner for rotation of each image of a  
788 scanned document. All requested *Rotation* values are applied to the scan data after acquisition and will be applied in the  
789 clockwise direction.

**790 4.3.1.9.1. RotationValue**

791 This element indicates a single supported *Rotation* value that tells the scanner the amount to rotate each image of a scanned  
792 document.

793 Values:

794 0  
795 90  
796 180  
797 270

798 All WSD Scanners MUST support the 0 element value.

799 Vendors MAY subset the allowed values for this element

800 Vendors MAY extend the allowed values for this element

**801 4.3.2. Platen**

802 This element describes the capabilities of the flatbed scanning platen available on the scanner.

**803 4.3.2.1. PlatenOpticalResolution**

804 This element describes the maximum optical resolution at which the *Platen* is capable of scanning.

805 Resolution is specified in pixels per inch.

**806 4.3.2.1.1. Width**

807 This element indicates the maximum optical resolution the platen supports in the fast scan direction for this WidthxHeight  
808 pair.

809 Values: 1 – 2147483647

**810 4.3.2.1.2. Height**

811 This element indicates the maximum optical resolution the platen supports in the slow scan direction for this WidthxHeight  
812 pair.

813 Values: 1 – 2147483647

**814 4.3.2.2. PlatenResolutions**

815 This element is a collection that describes the resolutions at which the *Platen* is capable of scanning. *Width* and *Height*  
816 values are independent and most devices will support them being paired in any combination for a *ScanTicket*

817 Resolutions are specified in pixels per inch.

**818 4.3.2.2.1. Widths**

819 This element describes a list of *Width*(s) that the scanner is capable of scanning images.

**820 4.3.2.2.1.1. Width**

821 This element indicates a resolution the *Platen* supports in the fast scan direction.

822 Values: 1 – 2147483647

## 823 4.3.2.2.2. Heights

824 This element describes a list of *Height(s)* that the scanner is capable of scanning images.

## 825 4.3.2.2.2.1. Height

826 This element indicates a resolution the *Platen* supports in the slow scan direction.

827 Values: 1 – 2147483647

## 828 4.3.2.3. PlatenColor

829 This element is a collection of keywords that describe the *ColorProcessing* capabilities of the platen. The *PlatenColor*  
 830 section contains the information needed to determine what type of color processing/acquisition the flatbed platen supports.  
 831 The amount of information needed to describe each pixel depends on the specific *ColorEntry* keyword. Black and White  
 832 images require only 1 bit per pixel whereas Grayscale and color images require significantly more information, the exact  
 833 amount of information is driven by the color space and the technical capabilities of the scan device.

834 Another important aspect of the returned scan data is the Photometric Interpretation of the aquired data. All image data  
 835 returned is required to be black on white, where black is represented by 0 and white is represented by 1.

## 836 4.3.2.3.1. ColorEntry

837 This element describes a single color processing mode supported by the *Platen*. Each keyword describes the data  
 838 type/encoding, bit depth, and bits per channel. The table below illustrates how the keywords map to the color processing  
 839 properties.

ColorEntry Keyword	Pixel Bit Depth	Bits Per Channel
BlackandWhite1	1	1
Grayscale4	4	{4}
Grayscale8	8	{8}
Grayscale16	16	{16}
RGB24	24	{8,8,8}
RGB48	48	{16,16,16}
RGBa32	32	{8,8,8,8}
RGBa64	64	{16,16,16,16}

840 Table 1 – Color Processing Elements

841 Values:

842 **BlackAndWhite1** – Black and White images, 1 bit per pixel and a single channel843 **Grayscale4** – Grayscale images, 4 bits per pixel and a single channel844 **Grayscale8** – Grayscale images, 8 bits per pixel and a single channel845 **Grayscale16** – Grayscale images, 16 bits per pixel and a single channel846 **RGB24** – RGB encoded color images, 24 bits per pixel divided between 3 channels of 8 bits each847 **RGB48** – RGB encoded color images, 48 bits per pixel divided between 3 channels of 16 bits each848 **RGBa32** – RGB encoded color images with an alpha channel, 32 bits per pixel divided between 4 channels of 8 bits  
849 each850 **RGBa64** – RGB encoded color images with an alpha channel, 64 bits per pixel divided between 4 channels of 16 bits  
851 each

852 Vendors MAY extend the allowed values for this element

853 Vendors MAY subset the allowed values for this element

**854 4.3.2.4. PlatenMinimumSize**

855 This element specifies the smallest size original that can be scanned on the *Platen*. All media dimensions are measured in  
856 1/1000<sup>th</sup> of an inch.

**857 4.3.2.4.1. Width**

858 This element indicates the minimum size of media the *Platen* supports in the fast scan direction.

859 Values: 1 – 2147483647

**860 4.3.2.4.2. Height**

861 This element indicates the minimum size of media the *Platen* supports in the slow scan direction.

862 Values: 1 – 2147483647

**863 4.3.2.5. PlatenMaximumSize**

864 This element specifies the largest size original that can be scanned on the *Platen*. This element is made up of a pair of  
865 elements that describe the maximum media size. All media dimensions are measured in 1/1000<sup>th</sup> of an inch.

**866 4.3.2.5.1. Width**

867 This element indicates the maximum size of media the *Platen* supports in the fast scan direction.

868 Values: 1 – 2147483647

**869 4.3.2.5.2. Height**

870 This element indicates the maximum size of media the *Platen* supports in the slow scan direction.

871 Values: 1 – 2147483647

**872 4.3.3. ADF**

873 This element describes the capabilities of the Automatic Document Feeder (ADF) attached to the scanner.

**874 4.3.3.1. ADFSUPPORTSDUPLEX**

875 This element specifies whether the attached *ADF* supports scanning both sides of the media.

876 Allowed Values: 0, 1, true, false

**877 4.3.3.2. ADFFront**

878 This section describes the capabilities of the front side of the Automatic Document Feeder attached to the scanner.

**879 4.3.3.2.1. ADFOpticalResolution**

880 This element describes the maximum optical resolution at which the *ADF* Front side is capable of scanning. See Section  
881 4.3.2.1 for a detailed description of this data element.

**882 4.3.3.2.2. ADFResolutions**

883 This element is a collection that describes the resolutions at which the *ADF* Front side is capable of scanning. See Section  
884 4.3.2.2 for a detailed description of this data element.

**885 4.3.3.2.3. ADFColor**

886 This element is a collection of keywords that describe the *ColorProcessing* capabilities of the *ADF* Front side. See Section  
887 4.3.2.2 for a detailed description of this data element.

**888 4.3.3.2.4. ADFMinimumSize**

889 This element specifies the smallest size original that can be scanned with the *ADF* Front side. See Section 4.3.2.4 for a  
890 detailed description of this data element.

**891 4.3.3.2.5. ADFMaximumSize**

892 This element specifies the largest size original that can be scanned with the *ADF* Front side. See Section 4.3.2.5 for a  
 893 detailed description of this data element.

**894 4.3.3.3. ADFBack**

895 This optional element describes the capabilities of the back side of a duplex Automatic Document Feeder attached to the  
 896 scanner. If the scanner has a simplex ADF installed this element will not be present in the *ScannerConfiguration*.

**897 4.3.3.3.1. ADFOpticalResolution**

898 This element describes the maximum optical resolution at which the *ADF* Back side is capable of scanning. See Section  
 899 4.3.2.1 for a detailed description of this data element.

**900 4.3.3.3.2. ADFResolutions**

901 This element is a collection that describes the resolutions at which the *ADF* Back side is capable of scanning. See Section  
 902 4.3.2.2 for a detailed description of this data element.

**903 4.3.3.3.3. ADFColor**

904 This element is a collection of keywords that describe the *ColorProcessing* capabilities of the *ADF* Back side. See Section  
 905 4.3.2.2 for a detailed description of this data element.

**906 4.3.3.3.4. ADFMinimumSize**

907 This element specifies the smallest size original that can be scanned with the *ADF* Back side. See Section 4.3.2.4 for a  
 908 detailed description of this data element.

**909 4.3.3.3.5. ADFMaximumSize**

910 This element specifies the largest size original that can be scanned with the *ADF* Back side. See Section 4.3.2.5 for a  
 911 detailed description of this data element.

**912 4.3.4. Film**

913 This element describes the capabilities of the Film scanning option attached to the scanner.

**914 4.3.4.1. FilmScanModesSupported**

915 This element is a collection of keywords that describe the values supported for film exposure types by the *Film* scanning  
 916 option.

**917 4.3.4.1.1. FilmScanModeValue**

918 This element indicates a single supported *FilmScanMode* value that specifies the exposure type of the film to be scanned.

919 Values:

920 **NotApplicable** – Only valid in a *DefaultScanTicket*. The default scan source is no longer the *Film* option, thus the  
 921 *FilmScanMode* is no longer an applicable value for the *DefaultScanTicket*

922 **ColorSlideFilm** – Film images are in the normal color space captured

923 **ColorNegativeFilm** – Film images are negatives of the normal color space captured.

924 **BlackandWhiteNegativeFilm** – Film images are black and white negatives of the images captured

925 Vendors MAY extend the allowed values for this element

926 Vendors MAY subset the allowed values for this element

**927 4.3.4.2. FilmOpticalResolution**

928 This element describes the maximum optical resolution at which the *Film* scanning option is capable of scanning. See  
 929 Section 4.3.2.1 for a detailed description of this data element.

**930 4.3.4.3. FilmResolutions**

931 This element is a collection that describes the resolutions at which the *Film* scanning option is capable of scanning. See  
932 Section 4.3.2.2 for a detailed description of this data element.

**933 4.3.4.4. FilmColor**

934 This element is a collection of keywords that describe the *ColorProcessing* capabilities of the *Film* scanning option. See  
935 Section 4.3.2.2 for a detailed description of this data element.

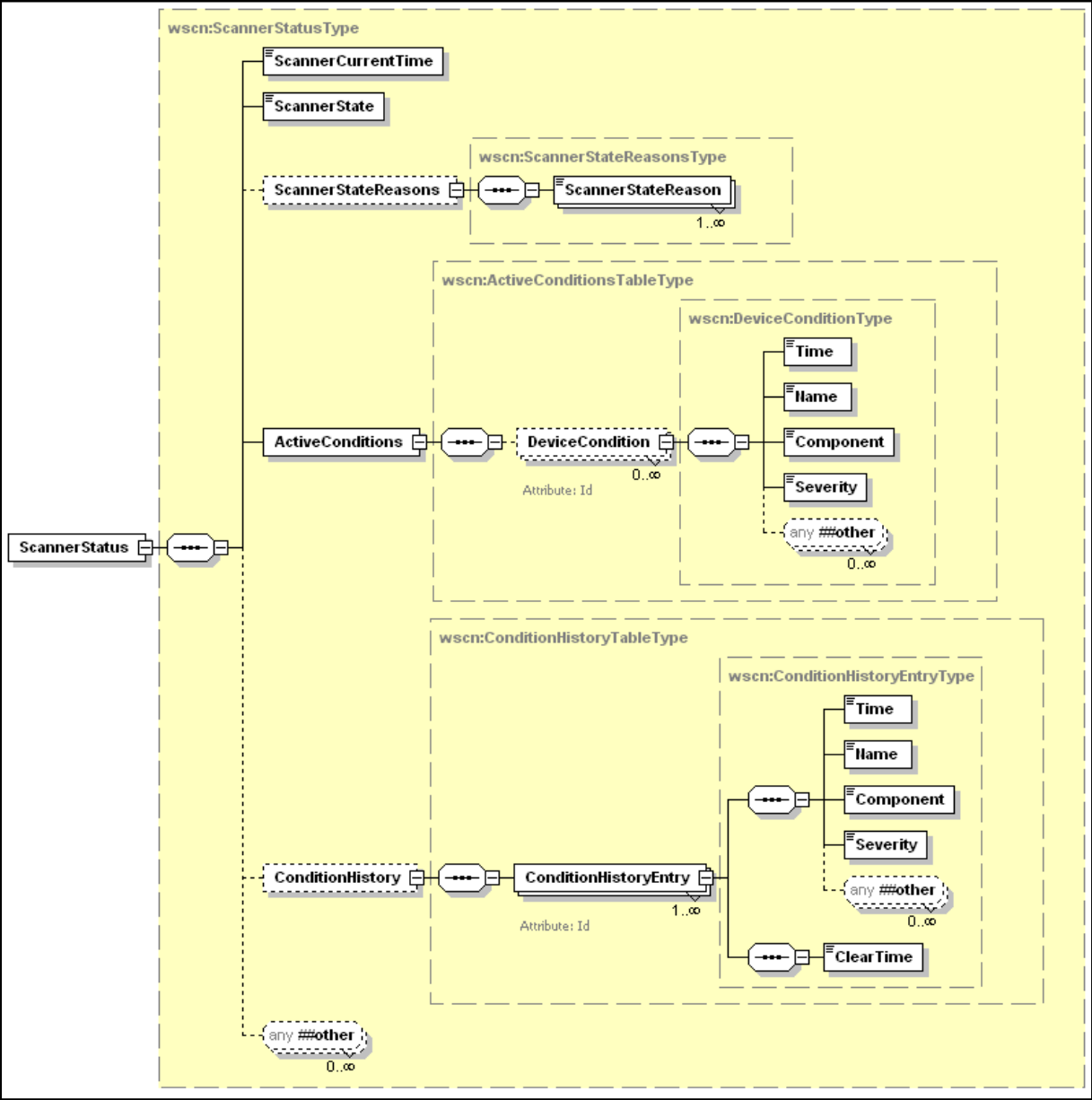
**936 4.3.4.5. FilmMinimumSize**

937 This element specifies the smallest size original that can be scanned with the *Film* scanning option. See Section 4.3.2.4 for  
938 a detailed description of this data element.

**939 4.3.4.6. FilmMaximumSize**

940 This element specifies the largest size original that can be scanned with the *Film* scanning option. See Section 4.3.2.5 for a  
941 detailed description of this data element.

942 4.4. The ScannerStatus Elements



943

944

Figure 9 - ScannerStatus Elements

945 All of the Scanner elements contained within the *ScannerStatus* element are described in detail in the following sections.

946 4.4.1. ScannerCurrentTime

947 This element indicates the current date and time according the scanner’s internal clock. This is not required to be a realtime  
948 clock, it can start at zero (0001-01-01T00:00:00Z) and count up when the device is powered on. All times are based  
949 on the time at startup so duration and relative time can be calculated by reading the *ScannerCurrentTime* and comparing it  
950 to the previous time value.

951 Values: Any valid dateTime value

952 4.4.2. ScannerState

953 This element identifies the current state of scanning portion of the device.

954 Values:

955 **Idle** - Scanner is available and can start processing a new job.  
 956 **Processing** - The scanner is currently processing jobs.  
 957 **Stopped** - No jobs can be processed and intervention is needed.

958 Vendors MAY extend the allowed values for this element  
 959 Vendors MAY subset the allowed values for this element

960  
 961

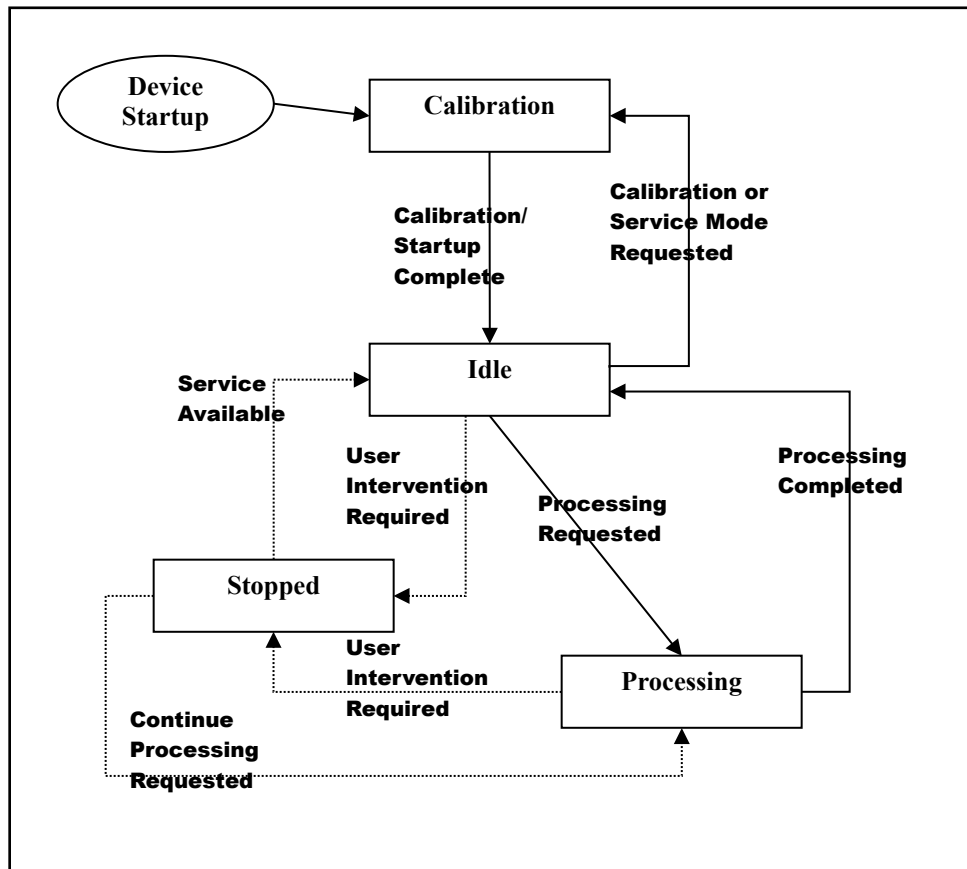


Figure 10 - Scanner State Diagram

#### 964 4.4.3. ScannerStateReasons

965 This element is a collection that describes all of the additional information about why the Scanner is in its current state.

##### 966 4.4.3.1. ScannerStateReason

967 This element indicates a single additional piece of information about why the scanner is in its current state

968 Note: some of these reasons describe state of the scanner that cannot be entered on the basis of the currently defined WSD  
 969 operations set. For example the scanner can be *Paused*; there is no *PauseScanner* operation. The reason these states are  
 970 presented is because some other protocol (or console action) can have caused the scanner to enter that state.

971 Values:

972 **AttentionRequired** - User intervention is required before the device can continue.  
 973 **Calibrating** - The scan device is calibrating its internal components in preparation to acquire images  
 974 **CoverOpen** - One or more covers on the device are open.  
 975 **InputTrayEmpty** - The ADF input has no media  
 976 **InterlockOpen**  
 977 **InternalStorageFull**  
 978 **LampError** - The scanner lamp is failing and image acquisition can not proceed  
 979 **LampWarming** - The scanner lamp is warming in preparation to acquire images

980 **MediaJam** – Media is jammed in one of the input options causing image acquisition to fail  
 981 **MultipleFeedError** – The *ADF* option picked more than one piece of media  
 982 **None** - Indicates that there are no current state reasons  
 983 **Paused** - Someone has paused the scanner and the *ScannerState* is *Stopped*. In this state, a scanner will not produce  
 984 Scanned output.

985 Vendors MUST support the values that represent conditions that are detectable in their implementation. Therefore, vendors  
 986 MAY subset allowed values if specific *ScannerStateReasons* are undetectable in their implementation.  
 987 Vendors MAY extend allowed values. However, scanner vendors need to understand the implications of extending this list  
 988 on a CP. The CP usually localizes the *ScannerStateReasons* value (as with other string variable values) to the human  
 989 language of the user. However, such a scanner vendor extension value will not be recognized by the CP. As a Fallback  
 990 presentation, the CP MAY display the value received as is, which should be in English and therefore, might not be  
 991 understandable by the user. Alternatively, the vendor might use the general *ScannerStateReasons* value:  
 992 *AttentionRequired* and then explain the problem on the scanner console which the user would see when they are at  
 993 the scanner.

#### 994 4.4.4. ActiveConditions

995 This element is a collection of detailed descriptions that describe in detail all of the currently active conditions/errors on the  
 996 device. These conditions could vary in severity from *Informational* to *Critical*.

##### 997 4.4.4.1. DeviceCondition

998 This is an element that describes the details about one of the currently active conditions.

###### 999 4.4.4.1.1. Id

1000 This attribute specifies the unique *Id* of the current *DeviceCondition* entry or *ConditionHistoryEntry* entry. This *Id* will be  
 1001 used by the CP to determine if an error condition is new, or has gone away. This *Id* is an integer value and MUST not be re-  
 1002 used over a reasonable duration of time to allow CPs to keep track of individual *DeviceCondition*(s).

1003 REQUIRED attribute.  
 1004 Values: 1 – 2147483647

###### 1005 4.4.4.1.2. Time

1006 This element specifies the time a condition occurred. This time is according to the internal clock of the scanner.  
 1007  
 1008 Values: Any valid *dateTime* value

###### 1009 4.4.4.1.3. Name

1010 This element specifies the name of the current *DeviceCondition* entry. This name describes the type of the current error  
 1011 condition. There are different error names for each component.

1012 Values:

1013 **Calibrating**  
 1014 **CoverOpen**  
 1015 **InputTrayEmpty**  
 1016 **InterlockOpen**  
 1017 **InternalStorageFull**  
 1018 **MediaJam**  
 1019 **LampError**  
 1020 **LampWarming**  
 1021 **MultipleFeedError**

1022 Vendors MAY extend the allowed values for this element.  
 1023 Vendors MAY subset the allowed values for this element

###### 1024 4.4.4.1.4. Component

1025 This element specifies the component that is described by the current *DeviceCondition* entry.



1026 Values:

1027     **ADF**  
 1028     **Film**  
 1029     **MediaPath**  
 1030     **Platen**

1031 Vendors MAY extend the allowed values for this element.

1032 Vendors MAY subset the allowed values for this element

#### 1033 4.4.4.1.5. Severity

1034 This element specifies the level of severity of the current *DeviceCondition* entry. The scanner determines the severity level  
 1035 assigned to error condition.

1036

1037 Values:

1038     **Informational** – This condition is purely for user information and has no noticeable affect on the image  
 1039         acquisition process

1040     **Warning** – This condition is not affecting processing currently, but if not attended to it could become *Critical*

1041     **Critical** – The device can not continue processing until this condition is resolved

1042 Vendors MAY extend the allowed values for this element.

1043 Vendors MAY subset the allowed values for this element

#### 1044 4.4.5. ConditionHistory

1045 This element is a collection of detailed descriptions that describe a set of the most recent conditions/errors on the device.

1046 These conditions could vary in severity from *Informational* to *Critical*.

#### 1047 4.4.5.1. ConditionHistoryEntry

1048 This is an element that describes the details about one of the past conditions.

##### 1049 4.4.5.1.1. Id

1050 This data element is described in Section 4.4.4.1.1

##### 1051 4.4.5.1.2. Time

1052 This data element is described in Section 4.4.4.1.2

##### 1053 4.4.5.1.3. Name

1054 This data element is described in Section 4.4.4.1.3

##### 1055 4.4.5.1.4. Component

1056 This data element is described in Section. 4.4.4.1.4

##### 1057 4.4.5.1.5. Severity

1058 This data element is described in Section 4.4.4.1.5

##### 1059 4.4.5.1.6. ClearTime

1060 This element specifies the time a condition was cleared. This time is according to the internal clock of the scanner.

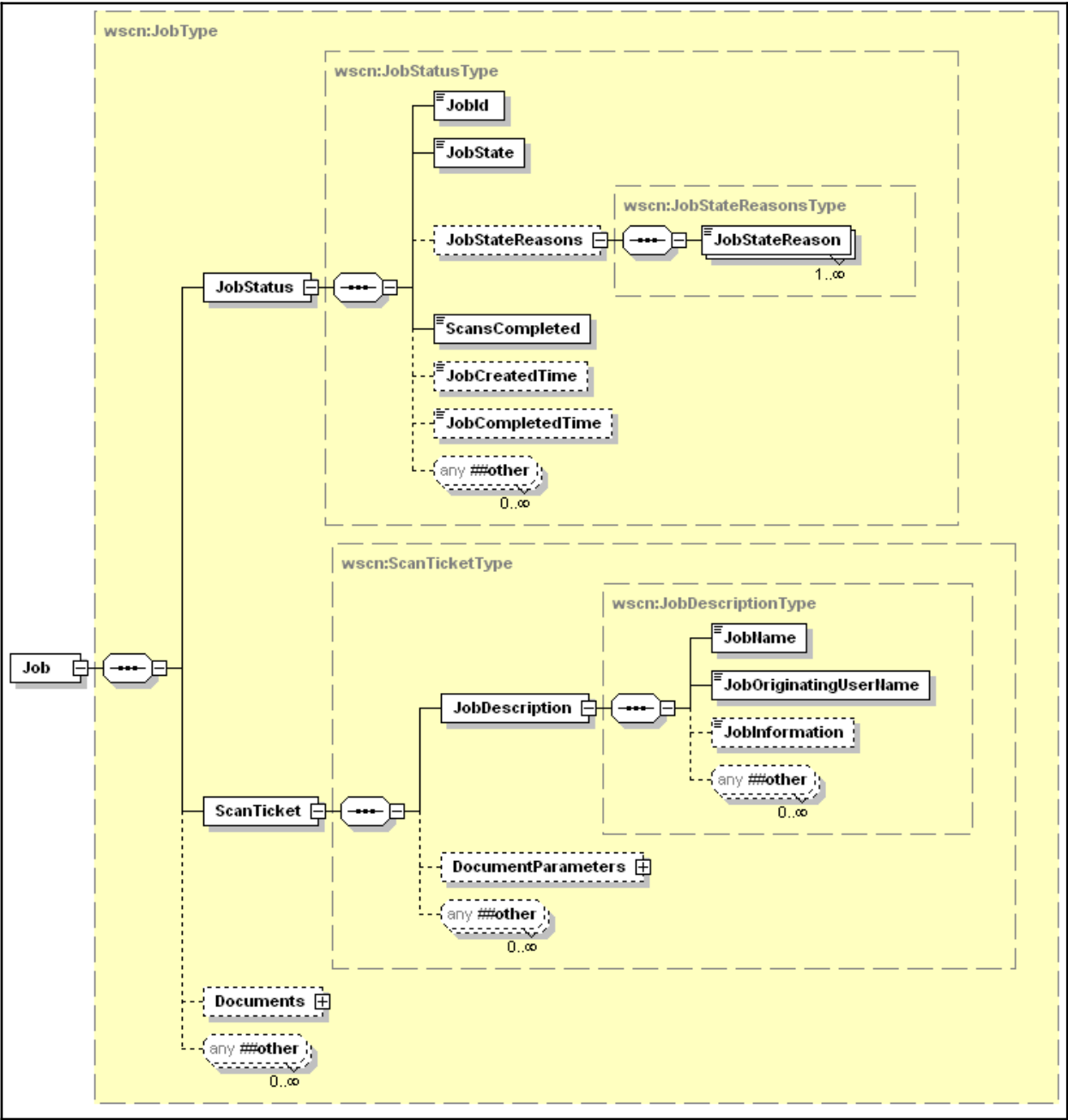
1061

1062 Values: Any valid *dateTime* value

1063 4.5. The Job's Elements

1064 This section defines the elements of the WSD Scan Job object. Figure 11 shows all the elements for the Job and their  
1065 grouping. Jobs may contain one or more Documents. As indicated in the figure below the processing instructions for both  
1066 the Job and the Document are done at the Job level. The Document object is covered in detail in section 4.6.

1067



1068

1069

Figure 11 - Job Elements (Part 1)

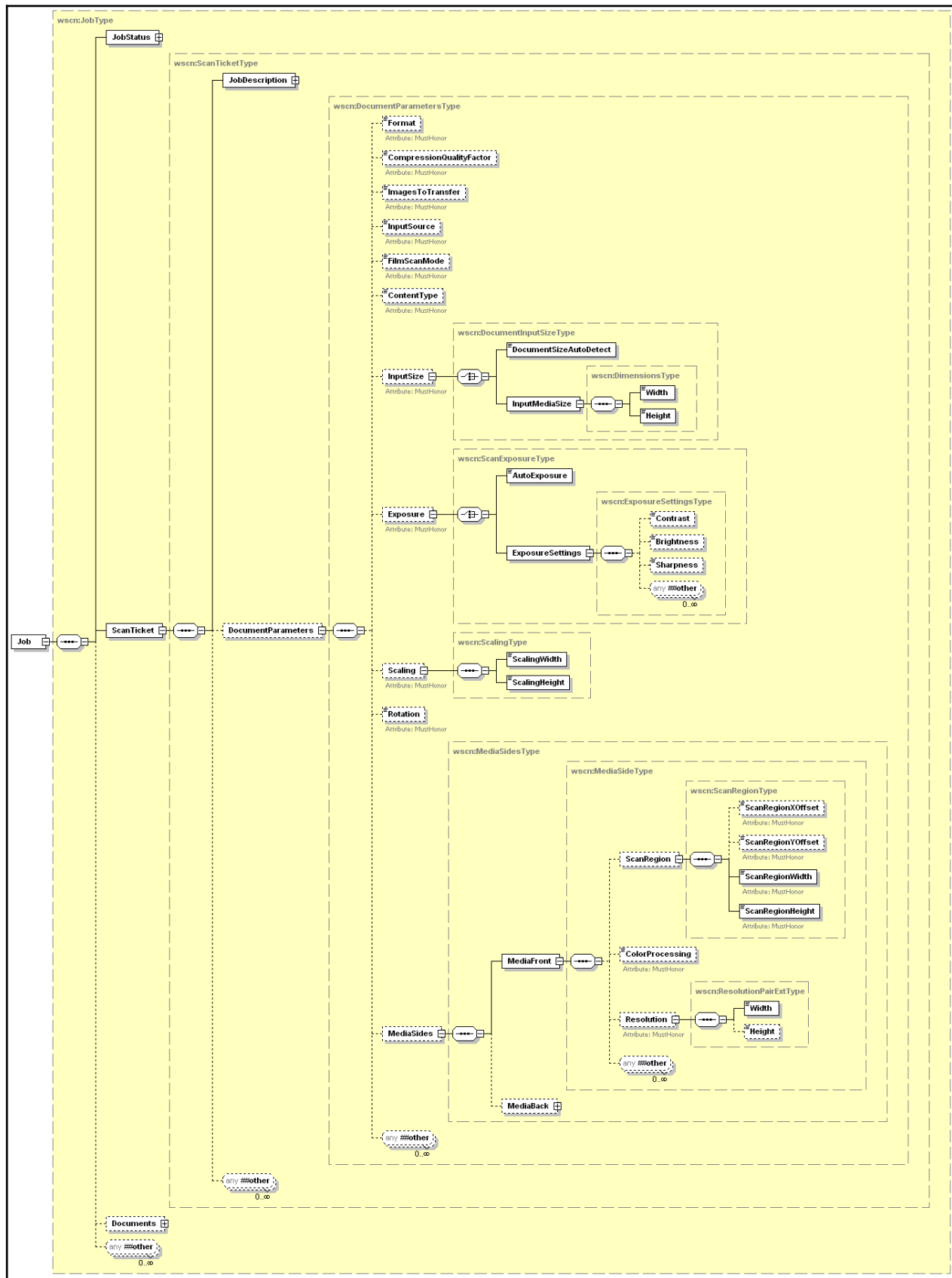


Figure 12 - Job Elements (Part 2)

All of the Scanner elements contained within a scan job are described in detail in the following sections.

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1073 The *DocumentParameters* elements of a Job are populated from corresponding elements explicitly supplied in a Job  
 1074 creation request by a CP. If the CP does not supply a parameter or processing element it indicates that the CP wants the  
 1075 scanner to use its default value. How the scanner's default and allowed values for processing elements are set is  
 1076 implementation-specific, e.g., local console, Presentation Service (web access).

1077 The *JobDescription* elements are populated from corresponding elements supplied in a Job creation request. These values  
 1078 may be changed by the scanner if more reliable information can be obtained. The *JobStatus* elements are maintained by  
 1079 automata. The values may be indirectly affected by a CP operation (e.g. **CancelJob**).

#### 1080 4.5.1. JobStatus

1081 This section describes all of the elements that make up the *JobStatus* type in the scan job.

##### 1082 4.5.1.1. JobId

1083 This element uniquely identifies a Job within a scanner. This number is not globally unique.

1084 Values: 1 – 2147483647

##### 1085 4.5.1.2. JobState

1086 This element specifies the current state of the Job. When contained in the **JobEndStateEvent** or a *JobHistory* entry it  
 1087 represents the completion state of the Job.

1088 Values:

1089 **Aborted** – The Job was aborted by the system.

1090 **Canceled** – The Job was canceled either by a CP using the **CancelJob** operation or by means outside the scope of  
 1091 WSD

1092 **Completed** – The Job is finished processing and all of the image data has been sent to the client.

1093 **Creating** – The Job is being initialized.

1094 **Pending** – The Job has been initialized and is waiting to be processed.

1095 **Pending-Held** – The Job is waiting to be processed but is unavailable for scheduling. This state can only be  
 1096 reached by methods outside the scope of WSD.

1097 **Processing** – The Job data is being digitized, transformed, or transferred.

1098 **Started** – The scan device has begun processing the Job. This is a transient state, and will usually be seen only  
 1099 within a **JobStatusEvent**.

1100 **Terminating** – The Job was canceled either by a CP using the **CancelJob** operation or aborted by means outside  
 1101 the scope of WSD.

1102 Vendors MAY extend the allowed values for this element.

1103 Vendors MAY subset the allowed values for this element.

1104

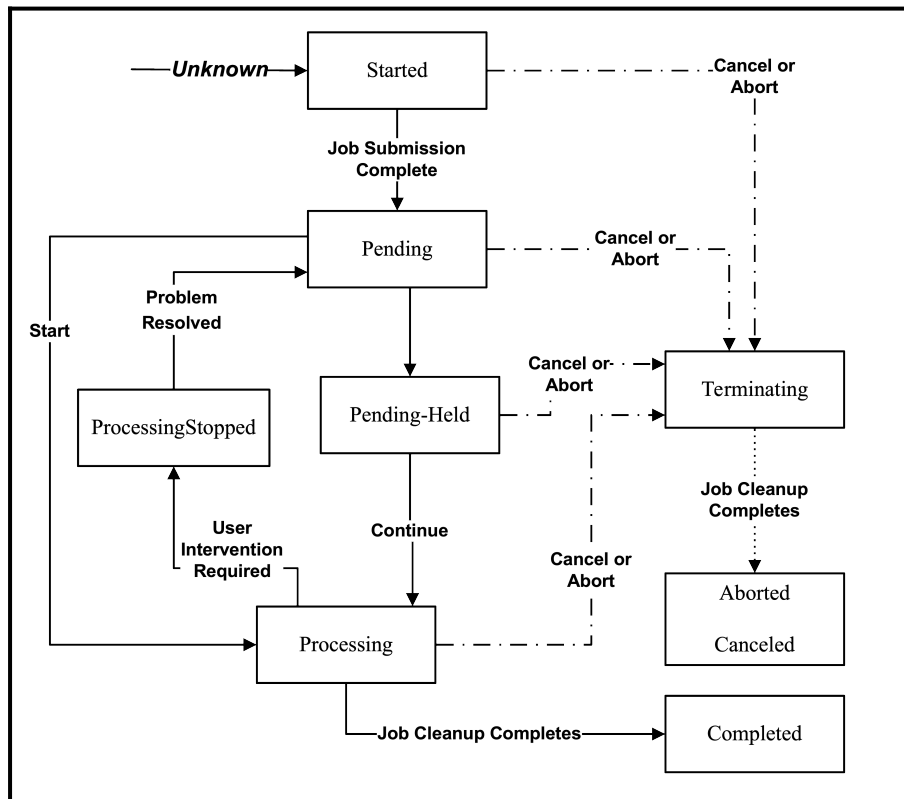


Figure 13 - Job States

#### 4.5.1.3. JobStateReasons

This element is a collection that describes all of the additional information about why the Job is in its current state.

##### 4.5.1.3.1. JobStateReason

This element is a single piece of additional information about why the Job is in its current state

Values:

**InvalidScanTicket** – The Job was rejected because the ScanTicket could not be processed.

**DocumentFormatError** – The requested Document format is not supported by the scan service

**ImageTransferError** – The data transfer of an image in the job failed. If this occurs the job is aborted.

**JobCanceledAtDevice** – The current scan job was canceled at the device front panel

**JobCompletedSuccessfully** – The Job is complete without any warnings or errors

**JobCompletedWithErrors** – The Job completed with at least one error.

**JobCompletedWithWarnings** – The Job completed with at least one warning. The Job data is expected to be successfully transferred. The warning may indicate that alterations to the job ticket occurred in order to process the Job.

**JobScanning** – The scanner is digitizing the Job data.

**JobScanningAndTransferring** – The scanner is digitizing the Job data and data is being transferred to the client.

**JobTimedOut** – The Job completed after no **RetrieveImage** operations followed the **CreateScanJob** operation in a timely fashion.

**JobTransferring** – The Job data is being transferred to the client.

**None** – The Job has no additional information on the Job State.

**ScannerStopped** – The scan device is stopped due to an active condition and the job can not continue until the condition is corrected

Vendors MUST support the values that represent conditions that are detectable in their implementation. Therefore, vendors MAY subset allowed values if specific *JobStateReasons* are undetectable in their implementation.

Vendors MAY extend allowed values. However, scanner vendors need to understand the implications of extending this list on a CP. The CP usually localizes the *JobStateReason* value (as with other string variable values) to the human language of the user. However, such a scanner vendor extension value will not be recognized by the CP. As a Fallback presentation, the CP MAY display the value received as is, which should be in English and therefore, might not be understandable by the user.

#### 1138 4.5.1.4. JobCreatedTime

This element contains the local time when the job was created. Job creation is the point in time where the job is submitted to the system.

Values: Any valid dateTime value

#### 1142 4.5.1.5. JobCompletedTime

This element specifies the scanner time at completion of the scan job. Completion is when all processing has completed, either because of successful completion of scanning and document transfer or because a fatal error was encountered.

Values: Any valid dateTime value

#### 1146 4.5.1.6. ScansCompleted

This element specifies the number of images scanned. A sheet of media may be scanned multiple times. In duplex scanning each side of the sheet is scanned, generating two scans in the *ScansCompleted* count.

(Note: This information may not be known until the scanner has completed processing the Job. The scanner MUST update this element when more exact information is available)

Values: 0 – 2147483647

### 1152 4.5.2. ScanTicket

This section of the schema defines all the information that pertains to the description and processing parameters of the currently identified Job. This is the *ScanTicket* definition that was supplied with the **CreateScanJob** operation which started the Job.

#### 1156 4.5.2.1. JobDescription

This section describes all of the elements that make up the *JobDescription* type in the scan job.

##### 1158 4.5.2.1.1. JobName

This element is the user-friendly name of the job supplied by the CP. It is RECOMMENDED that the CP supply a value to help a user easily distinguish between the jobs that he/she has submitted.

Values: any character string

##### 1162 4.5.2.1.2. JobOriginatingUserName

This element is the name of the user that submitted the job. Either supplied by the CP or by the security infrastructure, if any. It is RECOMMENDED that the CP supply a value to help a user easily distinguish between the jobs that he/she has submitted and jobs that others have submitted.

Values: any character string

##### 1167 4.5.2.1.3. JobInformation

This element describes the intended use of the job. This value is useful if the job ticket used to create this job will be reused.

Values: any character string

#### 1171 4.5.2.2. DocumentParameters

This section describes all of the elements that make up the *DocumentParameters* type in the scan job. These parameters apply to all documents within the current scan job.

**1174 4.5.2.2.1. Format**

1175 This element specifies the document format in which the image data should be rendered. See section 4.3.1.1.1 for a list of  
1176 values.

1177 Vendors MAY extend the allowed values for this element.

1178 Vendors MAY subset the allowed values for this element.

**1179 4.5.2.2.2. CompressionQualityFactor**

1180 This element specifies an integer value used by lossy compression types to determine the amount of acceptable image loss.  
1181 See section 4.3.1.2 for a list of values. If the requested compression type is lossless then this element can be ignored if it is  
1182 specified and the service should use a value of 100.

1183 Values: 0 – 100

1184 Vendors MAY subset the allowed values for this element

**1185 4.5.2.2.3. ImagesToTransfer**

1186 This element tells the scan device how many images to scan for the current job. This is useful if the document feeder could  
1187 contain more pages of media than the current job. A value of 0 means scan as many pages as are currently available for the  
1188 selected *InputSource*. If the *InputSource* is the *Platen* or *Film* then a value of 0 means a single image acquisition. If the  
1189 *InputSource* is the *ADF* or *ADFDuplex* then a value of 0 means acquire images from the feeder until it is empty.

1190 When acquiring images from *ADFDuplex* each side of the media represents a single image. To get both sides of the media  
1191 the *ImagesToTransfer* value needs to be an even value of at least 2, sending an odd value, such as 1, would only acquire the  
1192 front of the last sheet of media and the device should discard any data acquired from the back side of the media.

1193 Values: 0 – 2147483647

**1194 4.5.2.2.4. InputSource**

1195 This element specifies the source of the original document:

1196 Values:

1197 **ADF:** Document being scanned is being delivered by a document feeding device scanning only the front side.

1198 **ADFDuplex:** Document being scanned is being delivered by a document feeding device scanning both sides.

1199 **Film:** Document is to be scanned using the Film scanning option.

1200 **Platen:** Document is to be scanned from the platen

1201 Vendors MAY extend the allowed values for this element.

1202 Vendors MAY subset the allowed values for this element.

**1203 4.5.2.2.5. FilmScanMode**

1204 This element specifies the exposure type of the film to be scanned. This element is only valid if the *InputSource* element is  
1205 set to a value of *Film*. See section 4.3.4.1.1 for a list of values for this element.

**1206 4.5.2.2.6. ContentType**

1207 This element specifies the main characteristics of the original document. See section 4.3.1.3.1 for a list of values for this  
1208 element.

**1209 4.5.2.2.7. InputSize**

1210 This section describes the scan-able media size and how to detect it. This section is defined as a choice entry, which means  
1211 only one of the sub-elements is valid at once. A CP can either ask for auto-size detection or specify a size.

**1212 4.5.2.2.7.1. DocumentSizeAutoDetect**

1213 This element indicates the scanner will do its best to determine the size of the original scan media. When/how this occurs is  
1214 completely device dependent. If this element is specified along with a *ScanRegion* element, the Scan Region will be  
1215 ignored if it falls outside of the media size detected by the device.

1216 Values: 0, 1, true, false

**1217 4.5.2.2.7.2. InputMediaSize**

1218 This element describes the size of the media to be scanned for the current job. This element is made up of a pair of elements  
1219 that describe the Width and Height of the media.

**1220 4.5.2.2.7.2.1. Width**

1221 This element indicates the width of the original media in the fast scan direction.

1222 Values: 1 – 2147483647

**1223 4.5.2.2.7.2.2. Height**

1224 This element indicates the height of the original media in the slow scan direction.

1225 Values: 1 – 2147483647

**1226 4.5.2.2.8. Exposure**

1227 This section indicates whether the scan service should automatically employ image processing techniques to reduce the  
1228 background of the document to a white image or adjust the image processing by the values supplied. This section is defined  
1229 as a choice entry, which means only one of the sub-elements is valid at once. A CP can either ask for auto-exposure  
1230 adjustments or specify specific image processing adjustment values.

**1231 4.5.2.2.8.1. AutoExposure**

1232 This element indicates whether the scan service should automatically employ image processing techniques to reduce the  
1233 background of the document to a white image. When set to 1 or `true` automatic background reduction will be performed  
1234 on the original document.

1235 Values: 0, 1, `true`, `false`

**1236 4.5.2.2.8.2. ExposureSettings**

1237 This element contains individual adjustment values which the scan service should apply to the image data after acquisition.

**1238 4.5.2.2.8.2.1. Contrast**

1239 This element indicates the relative amount to enhance or reduce the contrast of the scanned image. A value of 0 means to  
1240 make no adjustments to the scanned contrast.

1241 Values: -1000 – 1000

1242 All WSD scanners MUST support the all values between and including -1000 and 1000, internally mapping as needed  
1243 these values to the actual brightness/contrast values supported by the device.

1244 Vendors MAY subset the allowed values for this element.

**1245 4.5.2.2.8.2.2. Brightness**

1246 This element indicates the relative amount to enhance or reduce the brightness of the scanned image. A value of 0 means to  
1247 make no adjustments to the scanned brightness.

1248 Values: -1000 – 1000

1249 All WSD scanners MUST support the all values between and including -1000 and 1000, internally mapping as needed  
1250 these values to the actual brightness/contrast values supported by the device.

1251 Vendors MAY subset the allowed values for this element.

**1252 4.5.2.2.8.2.3. Sharpness**

1253 This element indicates the relative amount to enhance or reduce the sharpness of the scanned image. A value of 0 means to  
1254 make no adjustments to the scanned sharpness.

1255 Values: -100 – 100

1256 All WSD scanners MUST support at least the 0 value.

1257 Vendors MAY subset the allowed values for this element.

**1258 4.5.2.2.9. Scaling**



1259 This section specifies the scaling for both the slow and fast scan directions.

1260 Both values must be specified. Isomorphic scaling is accomplished by supplying the same values for both width and  
1261 height.

#### 1262 4.5.2.2.9.1. ScalingWidth

1263 This element indicates the scaling factor to apply in the fast scan direction. A value of 100 specifies that no adjustments are  
1264 made to the scanned image. Scaling is expressed in 1 percent increments.

1265 Values: 1 – 1000

1266 All WSD scanners MUST support at least the 100 value.

1267 Vendors MAY subset the allowed values for this element.

#### 1268 4.5.2.2.9.2. ScalingHeight

1269 This element indicates the scaling factor to apply in the slow scan direction. A value of 100 specifies that no adjustments  
1270 are made to the scanned image. Scaling is expressed in 1 percent increments.

1271 Values: 1 – 1000

1272 All WSD scanners MUST support at least the 100 value.

1273 Vendors MAY subset the allowed values for this element.

#### 1274 4.5.2.2.10. Rotation

1275 This element indicates the amount to rotate each image of a scanned document. See section 4.3.1.9.1 for a list of values for  
1276 this element. All devices must support a value of 0 (no rotation) for this element.

#### 1277 4.5.2.2.11. MediaSides

1278 This element contains the parameters which are unique to each physical side of the media to be scanned. Many duplex  
1279 capable scanners allow setting different scan regions, color processing and resolutions for each physical side of the media to  
1280 be scanned. This element contains separate data for the Front side and Back side of the physical media. Every scan job can  
1281 have parameters for the media front, however parameters for the media back are only valid if the *InputSource* specified  
1282 equals *ADFDuplex*. If *InputSource* is *ADFDuplex* and the *MediaBack* element is missing, any parameters specified in  
1283 *MediaFront* will be applied to the back side scanning as well.

#### 1284 4.5.2.2.11.1. MediaFront

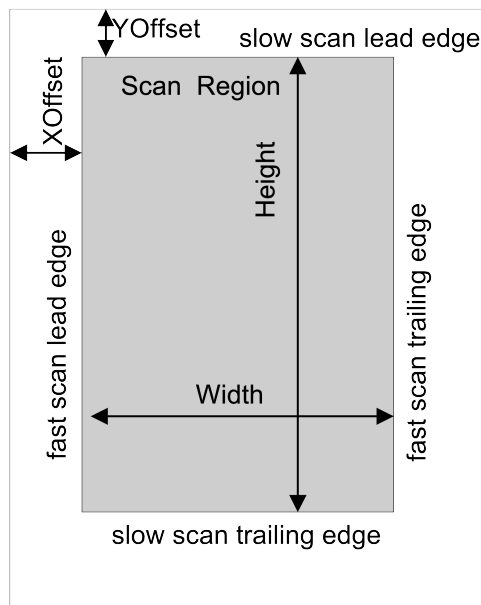
1285 This element contains all of the parameters specific to scanning the Front side of the physical media.

##### 1286 4.5.2.2.11.1.1. ScanRegion

1287 This element specifies the area within the input document boundaries to scan. All *ScanRegion* values are in 1/1000ths of an  
1288 inch.

1289 If *ScanRegion* is not specified, the device should use 0 as the offsets and the width and height of the *InputMediaSize*, if  
1290 given. If *ScanRegion* is not specified and *InputMediaSize* is not specified or cannot be determined by the device, the  
1291 implementation is up to the hardware vendor.

1292 The step size for all *ScanRegion* values is 1/1000<sup>th</sup> of an inch. If the requested scan region would fall completely outside of  
1293 the supported acquisition area of the scanner the scan operation should be rejected. The scanner can also adjust the scan  
1294 region requested if it can't fulfill the exact dimensions. Any changes to the scan region should be reported in the  
1295 *DocumentFinalParameters* elements in the scan job.



1296

1297 *ScanRegionWidth* corresponds to the fast scan direction and *ScanRegionHeight* corresponds to the slow scan direction.

1298 *ScanRegionXOffset* + *ScanRegionWidth* must be equal to or less than *InputSize* width.

1299 *ScanRegionYOffset* + *ScanRegionLength* must be equal to or less than *InputSize* length

#### 1300 4.5.2.2.11.1.1.1. ScanRegionXOffset

1301 This element indicates how far from the fast scan lead edge to begin the scanning for this document. This value must be  
1302 less than the *InputSize* width.

1303 Values: 0 – *InputSize* width

#### 1304 4.5.2.2.11.1.1.2. ScanRegionYOffset

1305 This element indicates how far from the slow scan lead edge to begin the scanning for this document. This value must be  
1306 less than the *InputSize* height.

1307 Values: 0 – *InputSize* height

#### 1308 4.5.2.2.11.1.1.3. ScanRegionWidth

1309 This element indicates how far from the fast scan lead edge plus the *ScanRegionXOffset* to end the scanning for this  
1310 document. This value plus *ScanRegionXOffset* must be less than the *InputSize* width.

1311 Values: 1 – *InputSize* width

#### 1312 4.5.2.2.11.1.1.4. ScanRegionHeight

1313 This element indicates how far from the slow scan lead edge plus the *ScanRegionYOffset* to end the scanning for this  
1314 document. This value plus *ScanRegionYOffset* must be less than the *InputSize* height.

1315 Values: 1 – *InputSize* height

#### 1316 4.5.2.2.11.1.2. ColorProcessing

1317 This element contains the information needed to determine how color should be handled for the scanned image(s). See  
1318 section 4.3.2.3.1 for a detailed description of this data element.

**1319 4.5.2.2.11.1.3. Resolution**

1320 This element specifies the resolution at which to capture the image. This element contains a single WidthxHeight pair that  
1321 describes the desired capture resolution. If the *Height* element is missing, it is assumed this resolution pair (WidthxHeight)  
1322 is a square resolution (i.e. 300x300) based on the *Width*.

1323 Resolution is specified in pixels per inch.

**1324 4.5.2.2.11.1.3.1. Width**

1325 This element indicates the resolution to capture the image in the fast scan direction for this WidthxHeight pair.

**1326 4.5.2.2.11.1.3.2. Height**

1327 This element indicates the resolution to capture the image in the slow scan direction for this WidthxHeight pair.

**1328 4.5.2.2.11.2. MediaBack**

1329 This optional element contains all of the parameters specific to scanning the Back side of the physical media. These  
1330 parameters are only valid when the scanner supports duplex scanning and the current scan job specifies ADFDuplex as the  
1331 input source. See Section 4.5.2.2.11.1 for a detailed description of this data element.

1332 If the current scan job specifies ADFDuplex as the input source and this element is not present, all parameters in the  
1333 *MediaFront* element will be applied to the backside of the duplex scan as well.

**1334 4.6. The Document's Elements**

1335 This section defines the elements of the WSD Document Object. Figure 14 shows all the elements for the Document and  
1336 their grouping. Jobs contain one or more Documents.

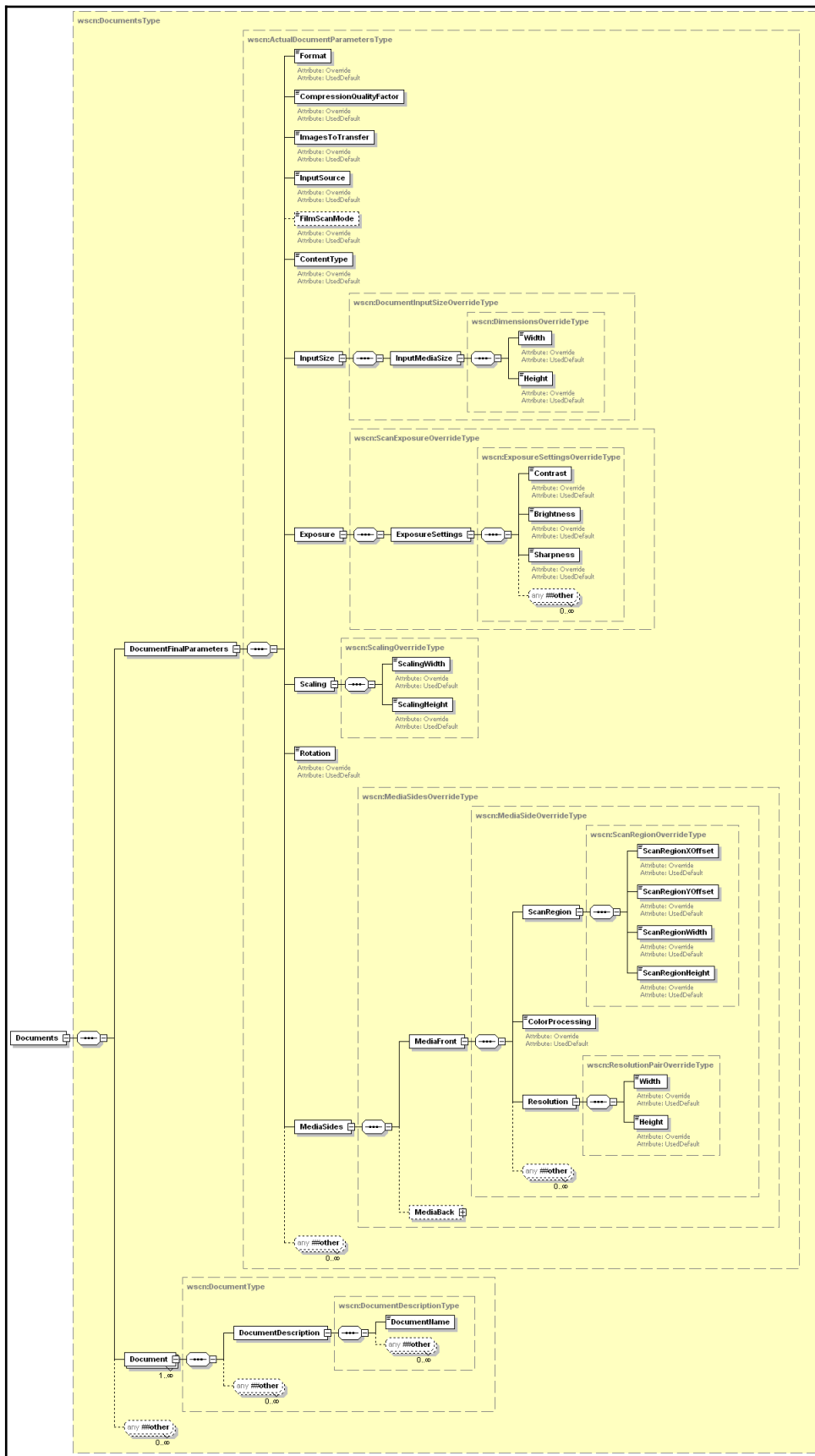


Figure 14 – Documents & Document Elements

1339 All of the Scanner elements contained within a scan document are described in detail in the following sections.

1340 The *DocumentDescription* elements are populated from corresponding elements supplied in a Job creation request. These  
1341 values may be changed by the scanner if more reliable information can be obtained.

#### 1342 4.6.1. Documents

1343 This element contains the actual scan characteristics used during image acquisition and also a collection of all the  
1344 Document elements contained in the scan job.

##### 1345 4.6.1.1. DocumentFinalParameters

1346 This section of the schema contains the actual *DocumentParameters* used by the scan device for image acquisition. These  
1347 values may differ from the values requested in the job *ScanTicket* for any number of reasons. Each parameter is represented  
1348 in this section, and must be filled in once the values are known. Each data element in this section also has two possible  
1349 attributes associated with it. These attributes can be used by the client to determine whether the data value used by the scan  
1350 device was the value sent in the *ScanTicket*, the scan device default value, or an override of the value requested by the  
1351 *ScanTicket*.

##### 1352 4.6.1.1.1. Override

1353 This attribute specifies that the current element was overridden by the scan device when the image data was aquired. The  
1354 value of the element this attribute is associated with is the actual value used by the scan device during image acquisition.

1355 OPTIONAL attribute.  
1356 Values: 0, 1, true, false

##### 1357 4.6.1.1.2. UsedDefault

1358 This attribute specifies that the current element was not specified in the *ScanTicket* and the scan device used the default  
1359 value when the image data was aquired. The value of the element this attribute is associated with is the actual value used by  
1360 the scan device during image acquisition.

1361 OPTIONAL attribute.  
1362 Values: 0, 1, true, false

##### 1363 4.6.1.2. Document

1364 This is an element that describes the details about one of the documents scanned during the current scan job.

##### 1365 4.6.1.2.1. DocumentDescription

1366 This section of the schema defines all the description attributes that pertain to the basic creation information of the currently  
1367 identified Document.

##### 1368 4.6.1.2.1.1. DocumentName

1369 This element specifies the name of the document supplied by the CP. The CP MUST supply a value to be used to store the  
1370 document on the client.

1371 Allowed Values: any character string

#### 1372 4.7. Job Table

1373 This section describes how the Scanner keeps track of all the current and finished jobs submitted to the Scanner service.  
1374 Figure 15 below shows how the *JobTable* fits into the Scanner service. The *JobTable* has two lists of jobs. The first list  
1375 (*ActiveJobs*) holds all the jobs which have not yet completed processing. The state of active jobs could be scanning,  
1376 pending, or stopped. The key is they are not completed yet. The second optional list (*JobHistory*) contains a subset of the  
1377 most recent jobs that have finished processing. These jobs could have scanned, been aborted, or failed for other reasons.  
1378 The maximum number of jobs in this list is dependent upon the device.

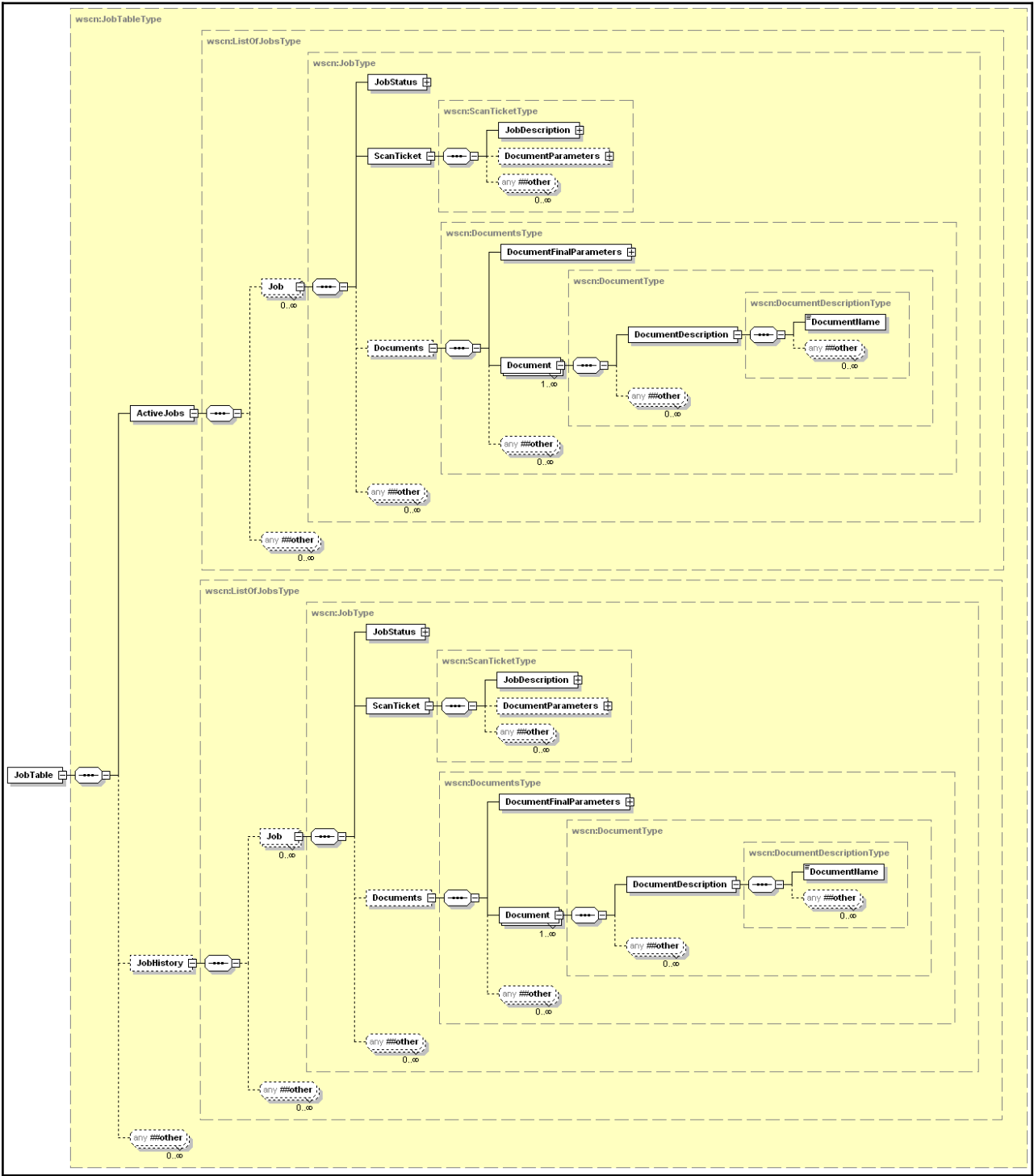


Figure 15 - JobTable Elements

4.8. ScanTicket

The *ScanTicket* is an instance document conforming to a proper subset of the scan job schema supported by the scanner. The *ScanTicket* contains the values that the CP has selected for the scanner settings for the current job. The *ScanTicket* is composed of these subsections:

*JobDescription* – This section of the *ScanTicket* contains general job information.

1386        *DocumentParameters*– This section specifies the image processing functions and their values that will be applied  
1387        against the job/document.

1388        Figure 16 below illustrates the member elements of the *ScanTicket* element. Note that the member elements directly map to  
1389        an instance of a Job and they are exactly what are required to be sent in a Job Creation operation.

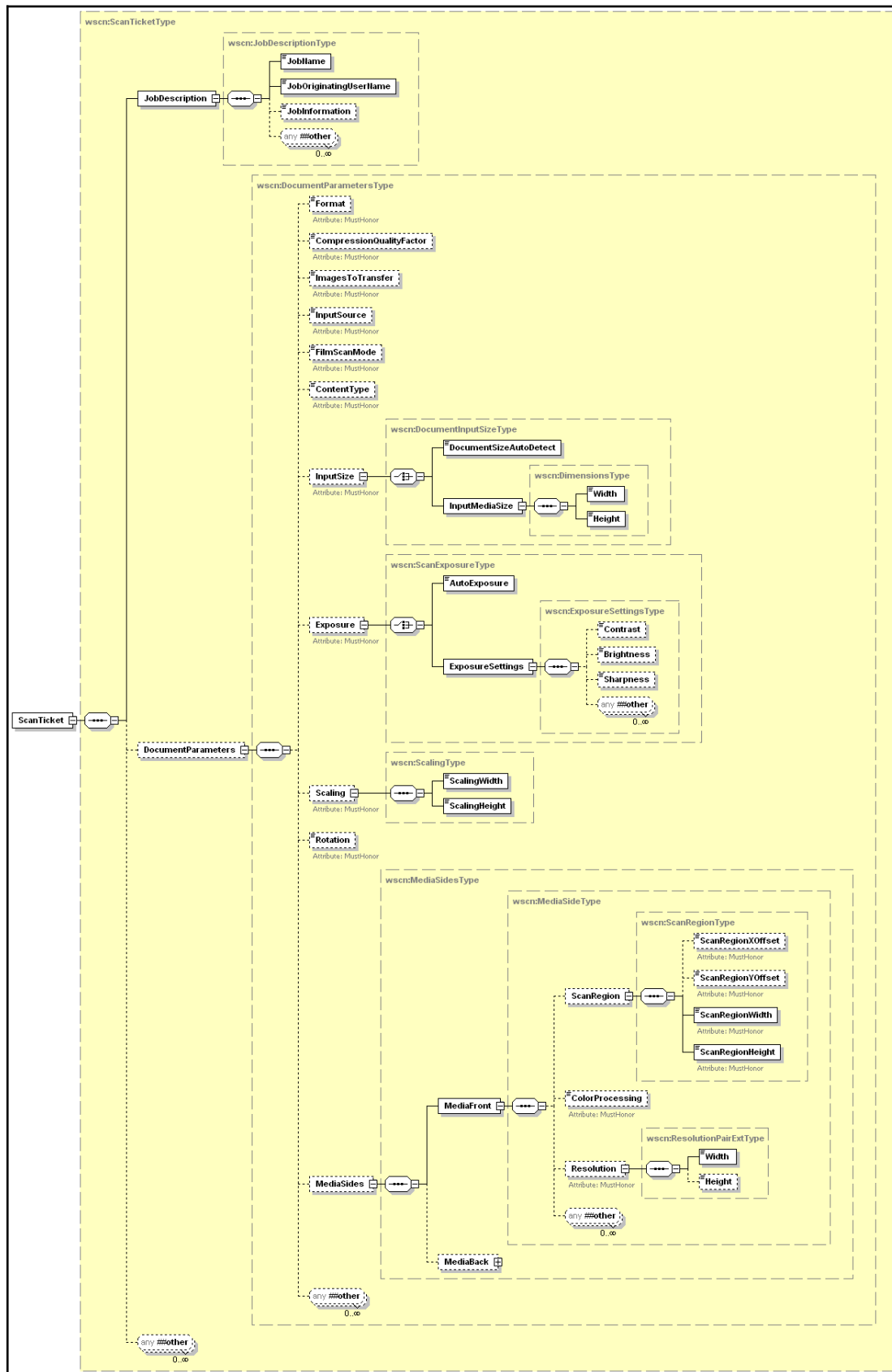


Figure 16 – ScanTicket Elements

1390  
1391



## 1392 4.8.1. Example ScanTicket

```

1393 <wscn:ScanTicket>
1394   <wscn:JobDescription>
1395     <wscn:JobName>ScanJob for Den PC</wscn:JobName>
1396     <wscn:JobOriginatingUserName>Dad</wscn:JobOriginatingUserName>
1397     <wscn:JobInformation>Job created at Front Panel</wscn:JobInformation>
1398   </wscn:JobDescription>
1399   <wscn:DocumentParameters>
1400     <wscn:Format>jfif</wscn:Format>
1401     <wscn:CompressionQualityFactor>35</wscn:CompressionQualityFactor>
1402     <wscn:ImagesToTransfer>1</wscn:ImagesToTransfer>
1403     <wscn:InputSource>Platen</wscn:InputSource>
1404     <wscn:InputSize>
1405       <wscn:DocumentSizeAutoDetect>true</wscn:DocumentSizeAutoDetect>
1406     </wscn:InputSize>
1407     <wscn:Exposure>
1408       <wscn:AutoExposure>true</wscn:AutoExposure>
1409     </wscn:Exposure>
1410     <wscn:MediaSides>
1411       <wscn:MediaFront>
1412         <wscn:ScanRegion>
1413           <wscn:ScanRegionXOffset>250</wscn:ScanRegionXOffset>
1414           <wscn:ScanRegionYOffset>250</wscn:ScanRegionYOffset>
1415           <wscn:ScanRegionWidth>4000</wscn:ScanRegionWidth>
1416           <wscn:ScanRegionHeight>6000</wscn:ScanRegionHeight>
1417         </wscn:ScanRegion>
1418         <wscn:ColorProcessing>RGB24</wscn:ColorProcessing>
1419         <wscn:Resolution>
1420           <wscn:Width>1200</wscn:Width>
1421         </wscn:Resolution>
1422       </wscn:MediaFront>
1423     </wscn:MediaSides>
1424   </wscn:DocumentParameters>
1425 </wscn:ScanTicket>

```

## 1426 4.9. Default Values and Allowed Values for Job Submission

1427 The CP that submits a Scan Job may need to know the possible values and default values for the *DocumentParameters*  
 1428 elements that are included in a Job Creation operation. The Scanner has a *ScannerConfiguration* element and a  
 1429 *DefaultScanTicket* element to allow CPs to retrieve this information. The *DefaultScanTicket* element describes the current  
 1430 set of default values the scan service will apply when a job is created without specifying specific job creation elements. The  
 1431 *ScannerConfiguration* element contains information that will allow the CP to determine all of the allowed values for the  
 1432 Job and Document elements which can be specified to affect the image creation/acquisition process.

### 1433 4.9.1. DefaultScanTicket

1434 The *DefaultScanTicket* element is an instance of a *ScanTicket* element filled in with all the current default values for Job  
 1435 and Document creation. A CP can request the *DefaultScanTicket* and then use it as part of a **CreateScanJob** operation  
 1436 without error. The *DefaultScanTicket* will contain values for all *ScanTicket* options the device supports.

### 1437 4.9.2. Example DefaultScanTicket

```

1438 <wscn:DefaultScanTicket>
1439   <wscn:JobDescription>
1440     <wscn:JobName>Scan Job</wscn:JobName>
1441     <wscn:JobOriginatingUserName></wscn:JobOriginatingUserName>
1442     <wscn:JobInformation>User Selected Scan Job</wscn:JobInformation>
1443   </wscn:JobDescription>
1444   <wscn:DocumentParameters>
1445     <wscn:Format>tiff-multi-uncompressed</wscn:Format>
1446     <wscn:CompressionQualityFactor>100</wscn:CompressionQualityFactor>
1447     <wscn:ImagesToTransfer>0</wscn:ImagesToTransfer>
1448     <wscn:InputSource>Platen</wscn:InputSource>
1449     <wscn:FilmScanMode>NotApplicable</wscn:FilmScanMode>
1450     <wscn:ContentType>Auto</wscn:ContentType>
1451     <wscn:InputSize>
1452       <wscn:InputMediaSize>
1453         <wscn:Width>8500</wscn:Width>
1454         <wscn:Height>11000</wscn:Height>

```

```

1455     </wscn:InputMediaSize>
1456   </wscn:InputSize>
1457   <wscn:Exposure>
1458     <wscn:AutoExposure>true</wscn:AutoExposure>
1459   </wscn:Exposure>
1460   <wscn:Scaling>
1461     <wscn:ScalingWidth>100</wscn:ScalingWidth>
1462     <wscn:ScalingHeight>100</wscn:ScalingHeight>
1463   </wscn:Scaling>
1464   <wscn:Rotation>0</wscn:Rotation>
1465   <wscn:MediaSides>
1466     <wscn:MediaFront>
1467       <wscn:ScanRegion>
1468         <wscn:ScanRegionXOffset>0</wscn:ScanRegionXOffset>
1469         <wscn:ScanRegionYOffset>0</wscn:ScanRegionYOffset>
1470         <wscn:ScanRegionWidth>8500</wscn:ScanRegionWidth>
1471         <wscn:ScanRegionHeight>11000</wscn:ScanRegionHeight>
1472       </wscn:ScanRegion>
1473       <wscn:ColorProcessing>RGB24</wscn:ColorProcessing>
1474       <wscn:Resolution>
1475         <wscn:Width>600</wscn:Width>
1476         <wscn:Height>600</wscn:Height>
1477       </wscn:Resolution>
1478     </wscn:MediaFront>
1479   </wscn:MediaSides>
1480 </wscn:DocumentParameters>
1481 </wscn:DefaultScanTicket>

```

## 1482 5. Eventing

1483 The scanner service will implement eventing as defined by the WS-Eventing [EVENT] specification. The scanner service  
 1484 will be an extension of the WS-Eventing porttype. This will add the operations defined in that spec to the scan service for  
 1485 use in creating and managing Event subscriptions.

### 1486 5.1. Event Model

1487 The eventing model for the scan service serves three main purposes: First is to inform the CP when the Configuration  
 1488 changes on the scan device. This could include changes in the ADF capabilities or changes in storage available, etc. Second  
 1489 is to inform the CP when there is a change in condition of the scan device. Examples: the scanner becomes idle or a  
 1490 document jam occurs. The *ScannerState*, *ScannerStateReasons* and *DeviceCondition* elements provide this information.  
 1491 Third is for job tracking; events inform a CP when a job is submitted, completed or removed from the job queue. The  
 1492 *JobStatus* and **JobEndStateEvent** elements provide this information. **JobEndStateEvent** indicates the final status of each  
 1493 job. It lets control points know whether it completed successfully or was canceled or aborted. *ScansCompleted* in the  
 1494 *JobStatus* is an example of information that updates an interested CP on the number of images scanned for the current job.

### 1495 5.2. ScanAvailableEvent

1496 This event is defined to inform the CP that a scan device for which the CP is subscribed is ready to scan a job. To keep  
 1497 from notifying every CP when a user presses the scan button, the **Subscribe** request will contain one or more destinations  
 1498 described by extensions that the scanner will use to filter down to a single CP per **ScanAvailableEvent** notification. These  
 1499 elements are defined in the scanner service namespace, and then added to the *Subscribe* request body.

#### 1500 5.2.1. Subscribe Extensions

1501 Each of these extended elements is required to be sent in the *Subscribe* element of the [EVENT] **Subscribe** operation. It is  
 1502 important to note that only one *ScanDestinations* extension element should be included in the *Subscribe* element. Any  
 1503 subsequent *ScanDestinations* elements will be ignored. This also implies that only one *DestinationResponses* extension  
 1504 element will be returned in the *SubscribeResponse* element. An example subscribe follows the element definitions.

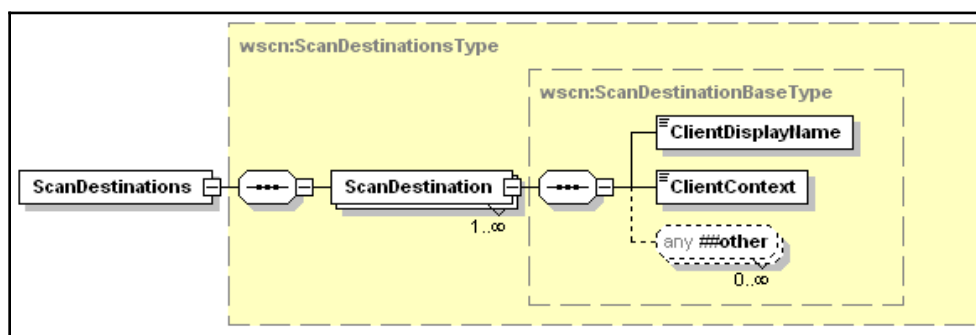


Figure 17 - ScanDestinations Elements

1505

1506

### 1507 5.2.1.1. ScanDestinations

1508 This element is a collection of all the Scan destinations the client wishes to register with the scan device. In most cases  
 1509 there will be a single scan destination, but this allows the client the flexibility to register multiple unique destinations at  
 1510 once.

#### 1511 5.2.1.1.1. ScanDestination

1512 This element is a single scan destination on the CP. The elements that make up this destination registration will be used by  
 1513 the scan device to create appropriate **ScanAvailableEvent**(s) and are described fully below.

##### 1514 5.2.1.1.1.1. ClientDisplayName

1515 This element specifies a string the scanner should display in its user-interface to allow the user to select the requesting  
 1516 client as a scan destination. When the user picks this display name and presses the scan button, the scanner will send a  
 1517 **ScanAvailableEvent** to the endpoint contained in this subscription.

1518 Allowed Values: any character string

##### 1519 5.2.1.1.1.2. ClientContext

1520 This element specifies a client specific string the scanner will send in the **ScanAvailableEvent**. This string will allow the  
 1521 client to associate the **ScanAvailableEvent** with the correct scanner device/service.

1522 Allowed Values: any character string

### 1523 5.2.2. Example ScanAvailableEvent Subscribe

```

1524 <soap:Envelope
1525   xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
1526   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
1527   xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing"
1528   xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
1529   <soap:Header>
1530     <wsa:To>AddressofScannerService</wsa:To>
1531     <wsa:Action>
1532       http://schemas.xmlsoap.org/ws/2004/08/eventing/Subscribe
1533     </wsa:Action>
1534     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
1535   </soap:Header>
1536   <soap:Body>
1537     <wse:Subscribe>
1538       <wse:Delivery>
1539         <wse:NotifyTo>
1540           <wsa:Address>
1541             http://www.example.com/MyEventSink/OnScanAvailableForMe
1542           </wsa:Address>
1543         </wse:NotifyTo>
1544       </wse:Delivery>
1545       <wse:Expires>P0Y0M0DT30H0M0S</wse:Expires>
1546       <wse:Filter Dialect="http://schemas.xmlsoap.org/ws/2006/02/devprof/Action">
1547         http://schemas.microsoft.com/windows/2006/08/wdp/scan/ScanAvailableEvent
1548       </wse:Filter>
1549       <wscn:ScanDestinations>

```

```

1550     <wscn:ScanDestination>
1551       <wscn:ClientDisplayString>Den Computer</wscn:ClientDisplayString>
1552       <wscn:ClientContext>ApplScanID2345</wscn:ClientContext>
1553     </wscn:ScanDestination>
1554   </wscn:ScanDestinations>
1555 </wse:Subscribe>
1556 </soap:Body>
1557 </soap:Envelope>

```

### 1558 5.2.3. SubscribeResponse Extensions

1559 There is also an extended element in the **SubscribeResponse** body. This element helps tie the subscription back to the  
 1560 device that accepted it.

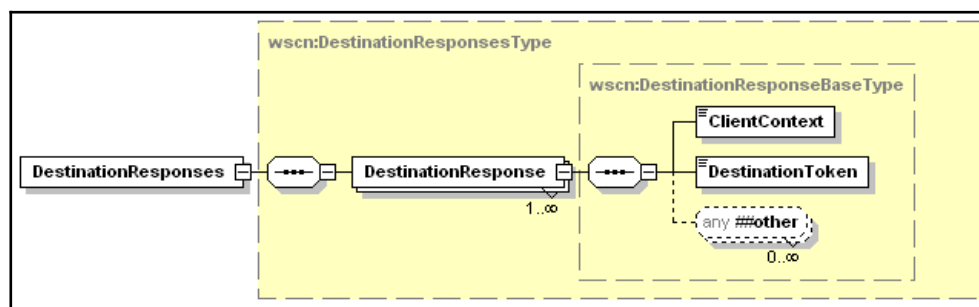


Figure 18 - DestinationResponses Elements

#### 1563 5.2.3.1. DestinationResponses

1564 This element is a collection of all the responses to the scan destination requests. There will be one *DestinationResponse*  
 1565 element for each *ScanDestination* element in the **Subscribe** request.

##### 1566 5.2.3.1.1. DestinationResponse

1567 This element is the response information for a single *ScanDestination* registration. The element contains the *ClientContext*  
 1568 from the *ScanDestination* to identify the response and a *DestinationToken* element for use in all **CreateScanJob** operations  
 1569 from this destination.

##### 1570 5.2.3.1.1.1. ClientContext

1571 This element is a copy of the data sent in a *ScanDestination* element in the **Subscribe** operation. There is a one-to-one  
 1572 match of *ClientContext*(s) between a *ScanDestination* element and a *DestinationResponse* element. See Section 5.2.1.1.1.2  
 1573 for a detailed description of this data element.

##### 1574 5.2.3.1.1.2. DestinationToken

1575 This element specifies a device specific string the scanner will assign to this client destination. When the client sends the  
 1576 **CreateScanJob** operation after a **ScanAvailableEvent** it will include this token. This string will allow the device to double  
 1577 check the correct client is requesting the scan.

1578 Allowed Values: any character string

### 1579 5.2.4. Example ScanAvailableEvent SubscribeResponse

```

1580 <soap:Envelope
1581   xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
1582   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
1583   xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing"
1584   xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan"
1585   soap:encodingStyle='http://www.w3.org/2002/12/soap-encoding' >
1586   <soap:Header>
1587     <wsa:To>http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</wsa:To>
1588     <wsa:Action>
1589       http://schemas.xmlsoap.org/ws/2004/08/eventing/SubscribeResponse
1590     </wsa:Action>
1591     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
1592     <wsa:RelatesTo>uuid:MsgIdOfTheSubscribe</wsa:RelatesTo>
1593   </soap:Header>

```

```

1594 <soap:Body>
1595   <wse:SubscribeResponse>
1596     <wse:SubscriptionManager>
1597       <!-- Elements removed for clarity -->
1598     </wse:SubscriptionManager>
1599     <wse:Expires>P0Y0M0DT30H0M0S</wse:Expires>
1600     <wscn:DestinationResponses>
1601       <wscn:DestinationResponse>
1602         <wscn:ClientContext>App1ScanID2345</wscn:ClientContext>
1603         <wscn:DestinationToken>Client3478</wscn:DestinationToken>
1604       </wscn:DestinationResponse>
1605     </wscn:DestinationResponses>
1606   </wse:SubscribeResponse>
1607 </soap:Body>
1608 </soap:Envelope>

```

## 1609 5.2.5. Event Elements

1610 The body of the **ScanAvailableEvent** consists of information that will allow the CP to determine which scanner to send the  
 1611 **CreateScanJob** operation.

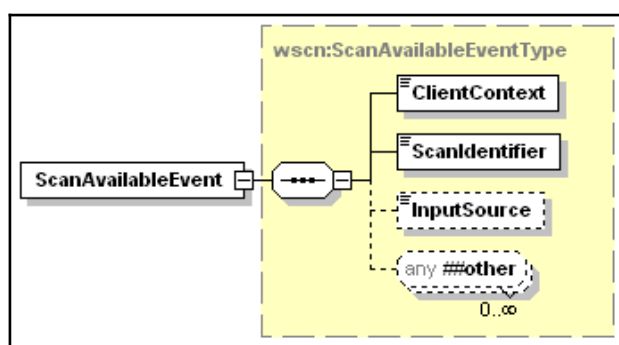


Figure 19 – ScanAvailableEvent Elements

### 1614 5.2.5.1. ClientContext

1615 This element contains a client specific string the scanner received as part of the **ScanAvailableEvent** subscription request..  
 1616 See section 5.2.1.1.1.2 for more details about this element.

### 1617 5.2.5.2. ScanIdentifier

1618 This element specifies a device specific string the scanner sends in the **ScanAvailableEvent**. This identifier will be sent as  
 1619 part of the resulting **CreateScanJob** operation from the client. It allows the scanner to make sure the correct client is  
 1620 requesting the scan after a user has selected the destination. This value should be unique per instance of the  
 1621 **ScanAvailableEvent**.

1622 Allowed Values: any character string

### 1623 5.2.5.3. InputSource

1624 This optional element contains the *InputSource* the user has placed the original images in on the scan device. The scan  
 1625 client should use this value for the *InputSource* element of the *ScanTicket* in the successive **CreateScanJob** operation. See  
 1626 section 4.5.2.2.4 for more details about this element.

## 1627 5.2.6. Example ScanAvailableEvent

```

1628 <soap:Envelope
1629   xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
1630   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
1631   xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing"
1632   xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
1633   <soap:Header>
1634     <wsa:To>AddressofEventSink</wsa:To>
1635     <wsa:Action>
1636       http://schemas.microsoft.com/windows/2006/08/wdp/scan/ScanAvailableEvent
1637     </wsa:Action>
1638     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>

```

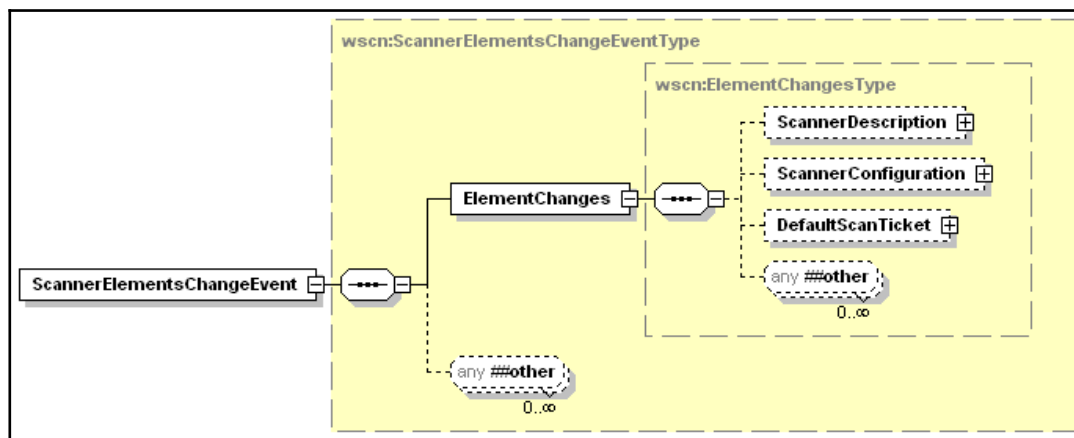
```

1639 </soap:Header>
1640 <soap:Body>
1641   <wscn:ScanAvailableEvent>
1642     <wscn:ClientContext>App1ScanID2345</wscn:ClientContext>
1643     <wscn:ScanIdentifier>AnyUniqueIdentifierSuchAsAGUID</wscn:ScanIdentifier>
1644     <wscn:InputSource>ADF</wscn:InputSource>
1645   </wscn:ScanAvailableEvent>
1646 </soap:Body>
1647 </soap:Envelope>

```

### 1648 5.3. ScannerElementsChangeEvent

1649 This event is defined to inform the CP that something has changed in the *ScannerDescription* element, the  
 1650 *ScannerConfiguration* element, the *DefaultScanTicket* element, or an IHV extension in the Scanner. The body of the  
 1651 **ScannerElementsChangeEvent** consists of the complete XML for the updated element. If an optional element is missing  
 1652 from returned XML the implication is that that element is no longer supported by the scanner service. This could be caused  
 1653 by a removal of a film scan option or a duplex scanning mode. The CP is then responsible for comparing the incoming  
 1654 element against previous data to determine which values have changed.



1655  
1656 **Figure 20 - ScannerElementsChangeEvent Elements**

#### 1657 5.3.1. ElementChanges

1658 The information returned in this data element should be entire element in the Scanner schema which contains changed  
 1659 values. This could be because an ADF was installed, a value changed in the *DefaultScanTicket* or *DeviceSettings*, or an  
 1660 IHV extension has changed value. In each case the complete *ScannerDescription*, *ScannerConfiguration*,  
 1661 *DefaultScanTicket* or IHV extension would be returned in this element.

#### 1662 5.3.2. Example ScannerElementsChangeEvent

1663 In this example the device is reporting updated device configuration due to the installation of a *Film* scanning option.

```

1664 <soap:Envelope
1665   xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
1666   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
1667   xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing"
1668   xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
1669   <soap:Header>
1670     <wsa:To>AddressofEventSink</wsa:To>
1671     <wsa:Action>
1672       http://schemas.microsoft.com/windows/2006/08/wdp/scan/ScannerElementsChangeEvent
1673     </wsa:Action>
1674     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
1675   </soap:Header>
1676   <soap:Body>
1677     <wscn:ScannerElementsChangeEvent>
1678       <wscn:ElementChanges>
1679         <wscn:ScannerConfiguration>
1680           <wscn:DeviceSettings>
1681             <wscn:FormatsSupported>
1682               <wscn:FormatValue>dib</wscn:FormatValue>

```

```

1683         <wscn:FormatValue>exif</wscn:FormatValue>
1684         <wscn:FormatValue>jpeg2k</wscn:FormatValue>
1685         <wscn:FormatValue>pdf-a</wscn:FormatValue>
1686         <wscn:FormatValue>png</wscn:FormatValue>
1687         <wscn:FormatValue>tiff-single-uncompressed</wscn:FormatValue>
1688         <wscn:FormatValue>tiff-single-g4</wscn:FormatValue>
1689         <wscn:FormatValue>tiff-multi-uncompressed</wscn:FormatValue>
1690         <wscn:FormatValue>tiff-multi-g4</wscn:FormatValue>
1691         <wscn:FormatValue>xps</wscn:FormatValue>
1692     </wscn:FormatsSupported>
1693     <wscn:CompressionQualityFactorSupported>
1694         <wscn:MinValue>15</wscn:MinValue>
1695         <wscn:MaxValue>100</wscn:MaxValue>
1696     </wscn:CompressionQualityFactorSupported>
1697     <wscn:ContentTypesSupported>
1698         <wscn:ContentTypeValue>Auto</wscn:ContentTypeValue>
1699         <wscn:ContentTypeValue>Text</wscn:ContentTypeValue>
1700         <wscn:ContentTypeValue>Photo</wscn:ContentTypeValue>
1701         <wscn:ContentTypeValue>Halftone </wscn:ContentTypeValue>
1702         <wscn:ContentTypeValue>Mixed</wscn:ContentTypeValue>
1703     </wscn:ContentTypesSupported>
1704     <wscn:DocumentSizeAutoDetectSupported>
1705         true
1706     </wscn:DocumentSizeAutoDetectSupported>
1707     <wscn:AutoExposureSupported>true</wscn:AutoExposureSupported>
1708     <wscn:BrightnessSupported>true</wscn:BrightnessSupported>
1709     <wscn:ContrastSupported>true</wscn:ContrastSupported>
1710     <wscn:ScalingRangeSupported>
1711         <wscn:ScalingWidth>
1712             <wscn:MinValue>50</wscn:MinValue>
1713             <wscn:MaxValue>500</wscn:MaxValue>
1714         </wscn:ScalingWidth>
1715         <wscn:ScalingHeight>
1716             <wscn:MinValue>50</wscn:MinValue>
1717             <wscn:MaxValue>500</wscn:MaxValue>
1718         </wscn:ScalingHeight>
1719     </wscn:ScalingRangeSupported>
1720     <wscn:RotationsSupported>
1721         <wscn:RotationValue>0</wscn:RotationValue>
1722         <wscn:RotationValue>90</wscn:RotationValue>
1723         <wscn:RotationValue>180</wscn:RotationValue>
1724         <wscn:RotationValue>270</wscn:RotationValue>
1725     </wscn:RotationsSupported>
1726 </wscn:DeviceSettings>
1727 <wscn:Platen>
1728     <wscn:PlatenOpticalResolution>
1729         <wscn:Width>1200</wscn:Width>
1730         <wscn:Height>1200</wscn:Height>
1731     </wscn:PlatenOpticalResolution>
1732     <wscn:PlatenResolutions>
1733         <wscn:Widths>
1734             <wscn:Width>150</wscn:Width>
1735             <wscn:Width>204</wscn:Width>
1736             <wscn:Width>300</wscn:Width>
1737             <wscn:Width>600</wscn:Width>
1738             <wscn:Width>1200</wscn:Width>
1739         </wscn:Widths>
1740         <wscn:Heights>
1741             <wscn:Height>96</wscn:Height>
1742             <wscn:Height>150</wscn:Height>
1743             <wscn:Height>204</wscn:Height>
1744             <wscn:Height>300</wscn:Height>
1745             <wscn:Height>600</wscn:Height>
1746             <wscn:Height>900</wscn:Height>
1747             <wscn:Height>1200</wscn:Height>
1748         </wscn:Heights>
1749     </wscn:PlatenResolutions>
1750     <wscn:PlatenColor>
1751         <wscn:ColorEntry>BlackAndWhite1</wscn:ColorEntry>
1752         <wscn:ColorEntry>Grayscale4</wscn:ColorEntry>
1753         <wscn:ColorEntry>Grayscale8</wscn:ColorEntry>
1754         <wscn:ColorEntry>RGB24</wscn:ColorEntry>
1755         <wscn:ColorEntry>RGB48</wscn:ColorEntry>

```

```

1756         <wscn:ColorEntry>RGBa32</wscn:ColorEntry>
1757         <wscn:ColorEntry>RGBa64</wscn:ColorEntry>
1758     </wscn:PlatenColor>
1759     <wscn:PlatenMinimumSize>
1760         <wscn:Width>250</wscn:Width>
1761         <wscn:Height>250</wscn:Height>
1762     </wscn:PlatenMinimumSize>
1763     <wscn:PlatenMaximumSize>
1764         <wscn:Width>11000</wscn:Width>
1765         <wscn:Height>14000</wscn:Height>
1766     </wscn:PlatenMaximumSize>
1767 </wscn:Platen>
1768 <wscn:ADF>
1769     <wscn:ADFSupportsDuplex>false</wscn:ADFSupportsDuplex>
1770     <wscn:ADFFront>
1771         <wscn:ADFOpticalResolution>
1772             <wscn:Width>600</wscn:Width>
1773             <wscn:Height>600</wscn:Height>
1774         </wscn:ADFOpticalResolution>
1775         <wscn:ADFResolutions>
1776             <wscn:Widths>
1777                 <wscn:Width>150</wscn:Width>
1778                 <wscn:Width>204</wscn:Width>
1779                 <wscn:Width>300</wscn:Width>
1780                 <wscn:Width>600</wscn:Width>
1781             </wscn:Widths>
1782             <wscn:Heights>
1783                 <wscn:Height>96</wscn:Height>
1784                 <wscn:Height>150</wscn:Height>
1785                 <wscn:Height>204</wscn:Height>
1786                 <wscn:Height>300</wscn:Height>
1787                 <wscn:Height>600</wscn:Height>
1788             </wscn:Heights>
1789         </wscn:ADFResolutions>
1790         <wscn:ADFColor>
1791             <wscn:ColorEntry>BlackAndWhite1</wscn:ColorEntry>
1792             <wscn:ColorEntry>Grayscale4</wscn:ColorEntry>
1793             <wscn:ColorEntry>RGB24</wscn:ColorEntry>
1794         </wscn:ADFColor>
1795         <wscn:ADFMinimumSize>
1796             <wscn:Width>4000</wscn:Width>
1797             <wscn:Height>6000</wscn:Height>
1798         </wscn:ADFMinimumSize>
1799         <wscn:ADFMaximumSize>
1800             <wscn:Width>8500</wscn:Width>
1801             <wscn:Height>11000</wscn:Height>
1802         </wscn:ADFMaximumSize>
1803     </wscn:ADFFront>
1804 </wscn:ADF>
1805 <wscn:Film>
1806     <wscn:FilmScanModesSupported>
1807         <wscn:FilmScanModeValue>
1808             ColorSlideFilm
1809         </wscn:FilmScanModeValue>
1810         <wscn:FilmScanModeValue>
1811             ColorNegativeFilm
1812         </wscn:FilmScanModeValue>
1813         <wscn:FilmScanModeValue>
1814             BlackandWhiteNegativeFilm
1815         </wscn:FilmScanModeValue>
1816     </wscn:FilmScanModesSupported>
1817     <wscn:FilmOpticalResolution>
1818         <wscn:Width>600</wscn:Width>
1819         <wscn:Height>600</wscn:Height>
1820     </wscn:FilmOpticalResolution>
1821     <wscn:FilmResolutions>
1822         <wscn:Widths>
1823             <wscn:Width>150</wscn:Width>
1824             <wscn:Width>300</wscn:Width>
1825             <wscn:Width>600</wscn:Width>
1826         </wscn:Widths>
1827         <wscn:Heights>
1828             <wscn:Height>150</wscn:Height>

```



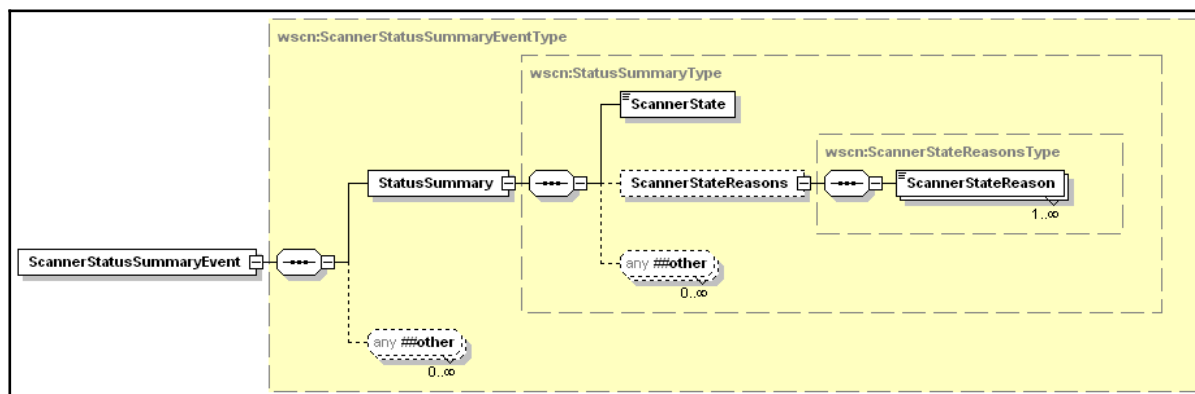
```

1829         <wscn:Height>300</wscn:Height>
1830         <wscn:Height>600</wscn:Height>
1831     </wscn:Heights>
1832 </wscn:FilmResolutions>
1833 <wscn:FilmColor>
1834     <wscn:ColorEntry>BlackAndWhite1</wscn:ColorEntry>
1835     <wscn:ColorEntry>Grayscale4</wscn:ColorEntry>
1836     <wscn:ColorEntry>RGB24</wscn:ColorEntry>
1837     <wscn:ColorEntry>RGBa32</wscn:ColorEntry>
1838 </wscn:FilmColor>
1839 <wscn:FilmMinimumSize>
1840     <wscn:Width>1378</wscn:Width>
1841     <wscn:Height>1378</wscn:Height>
1842 </wscn:FilmMinimumSize>
1843 <wscn:FilmMaximumSize>
1844     <wscn:Width>2756</wscn:Width>
1845     <wscn:Height>10000</wscn:Height>
1846 </wscn:FilmMaximumSize>
1847 </wscn:Film>
1848 </wscn:ScannerConfiguration>
1849 </wscn:ElementChanges>
1850 </wscn:ScannerElementsChangeEvent>
1851 </soap:Body>
1852 </soap:Envelope>

```

## 1853 5.4. ScannerStatusSummaryEvent

1854 This event is defined to inform the CP that the device status has changed. The body of the **ScannerStatusSummaryEvent**  
1855 consists of the *StatusSummary* element.



### Figure 21 - ScannerStatusSummaryEvent Elements

### 1858 5.4.1. StatusSummary

1859 This data element contains the current summary of the scanner status.

### 1860 5.4.1.1. ScannerState

1861 This data element is described in Section 4.4.2

### 1862 5.4.1.2. ScannerStateReasons

1863 This data element is described in Section 4.4.3

## 1864 5.4.1.2.1. ScannerStateReason

1865 This data element is described in Section 4.4.3.1.

### 1866 5.4.2. Example ScannerStatusSummaryEvent

1867 In this example the device is stopped because of a jam in the media feed path.

```
1868 <soap:Envelope
1869     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
```

```

1870     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
1871     xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing"
1872     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
1873     <soap:Header>
1874       <wsa:To>AddressofEventSink</wsa:To>
1875       <wsa:Action>
1876         http://schemas.microsoft.com/windows/2006/08/wdp/scan/ScannerStatusSummaryEvent
1877       </wsa:Action>
1878       <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
1879     </soap:Header>
1880     <soap:Body>
1881       <wscn:ScannerStatusSummaryEvent>
1882         <wscn:StatusSummary>
1883           <wscn:ScannerState>Stopped</wscn:ScannerState>
1884           <wscn:ScannerStateReasons>
1885             <wscn:ScannerStateReason>MediaJam</wscn:ScannerStateReason>
1886           </wscn:ScannerStateReasons>
1887         </wscn:StatusSummary>
1888       </wscn:ScannerStatusSummaryEvent>
1889     </soap:Body>
1890   </soap:Envelope>
1891

```

## 1892 5.5. ScannerStatusConditionEvent

1893 This event is defined to inform the CP detailed information about a status change in the device. The body of the  
 1894 **ScannerStatusConditionEvent** event consists of the *DeviceCondition* element for the status change. This element contains  
 1895 the following data:

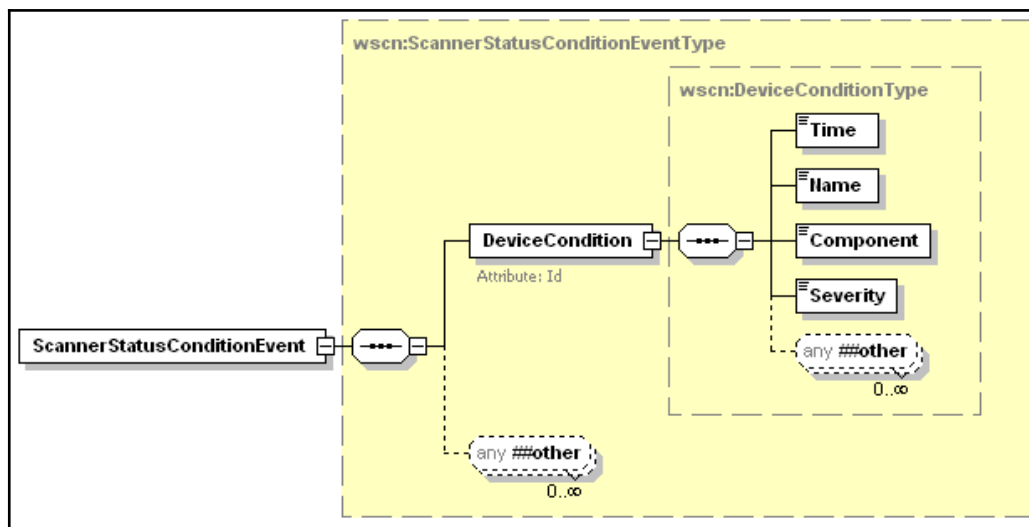


Figure 22 - ScannerStatusCondition Event

### 1898 5.5.1. DeviceCondition

1899 This is an element that describes the details about one of the currently active conditions. This data element is described in  
 1900 Section 4.4.4.1.

### 1901 5.5.2. Example ScannerStatusConditionEvent

1902 In this example the device is notifying the CP of a scan Lamp failure.

```

1903 <soap:Envelope
1904   xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
1905   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
1906   xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing"
1907   xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
1908   <soap:Header>
1909     <wsa:To>AddressofEventSink</wsa:To>
1910     <wsa:Action>
1911       http://schemas.microsoft.com/windows/2006/08/wdp/scan/ScannerStatusConditionEvent

```

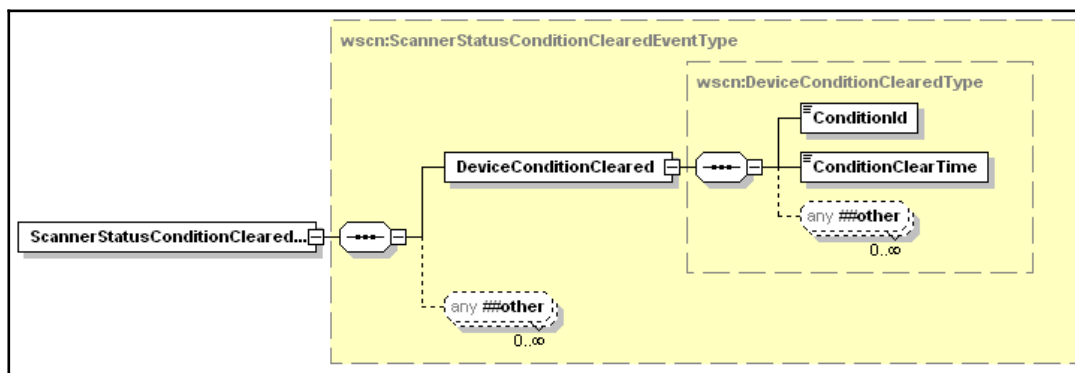
```

1912     </wsa:Action>
1913     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
1914   </soap:Header>
1915   <soap:Body>
1916     <wscn:ScannerStatusConditionEvent>
1917       <wscn:DeviceCondition Id="1543">
1918         <wscn:Time>2006-01-21T17:22:27.5242689Z</wscn:Time>
1919         <wscn:Name>LampError</wscn:Name>
1920         <wscn:Component>Platen</wscn:Component>
1921         <wscn:Severity>Critical</wscn:Severity>
1922       </wscn:DeviceCondition>
1923     </wscn:ScannerStatusConditionEvent>
1924   </soap:Body>
1925 </soap:Envelope>

```

## 1926 5.6. ScannerStatusConditionClearedEvent

1927 This event is defined to inform the CP that a previously reported *DeviceCondition* has been cleared. The body of the  
 1928 **ScannerStatusConditionClearedEvent** message consists of the *DeviceConditionId* element for the condition that has been  
 1929 cleared, and an element representing the time the condition was cleared. This event contains the following data:



1931 Figure 23 - ScannerStatusConditionCleared Event

### 1932 5.6.1. DeviceConditonCleared

1933 This data element contains the *Id* of the condition that cleared and the time the condition was cleared.

#### 1934 5.6.1.1. ConditonId

1935 This data element is equivalent to the *Id* attribute of a *DeviceCondition* entry. See Section 4.4.4.1.1 for an explanation of  
 1936 the format.

#### 1937 5.6.1.2. ConditionClearTime

1938 This data element is a dateTime element that describes when the condition was cleared. See Section 4.4.5.1.6 for an  
 1939 explanation of the format.

## 1940 5.6.2. Example ScannerStatusConditionClearedEvent

1941 In this example the device is notifying the CP that the previous condition identified by Id 1543 has cleared.

```

1942 <soap:Envelope
1943   xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
1944   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
1945   xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing"
1946   xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
1947   <soap:Header>
1948     <wsa:To>AddressofEventSink</wsa:To>
1949     <wsa:Action>
1950       http://schemas.microsoft.com/windows/2006/08/wdp/scan/ScannerStatusConditionClearedEvent
1951     </wsa:Action>
1952     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
1953   </soap:Header>
1954   <soap:Body>

```

```

1955 <wscn:ScannerStatusConditionClearedEvent>
1956 <wscn:DeviceConditionCleared>
1957 <wscn:ConditionId>1543</wscn:ConditionId>
1958 <wscn:ConditionClearTime>2006-01-21T17:22:35.8345Z</wscn:ConditionClearTime>
1959 </wscn:DeviceConditionCleared>
1960 </wscn:ScannerStatusConditionClearedEvent>
1961 </soap:Body>
1962 </soap:Envelope>

```

## 1963 5.7. JobStatusEvent

1964 This event is defined to inform the CP that a job's status has changed. The first **JobStatusEvent** message sent will usually  
 1965 have the *JobId* and a *JobState* of Started. The body of the **JobStatusEvent** message consists of the following data  
 1966 elements:

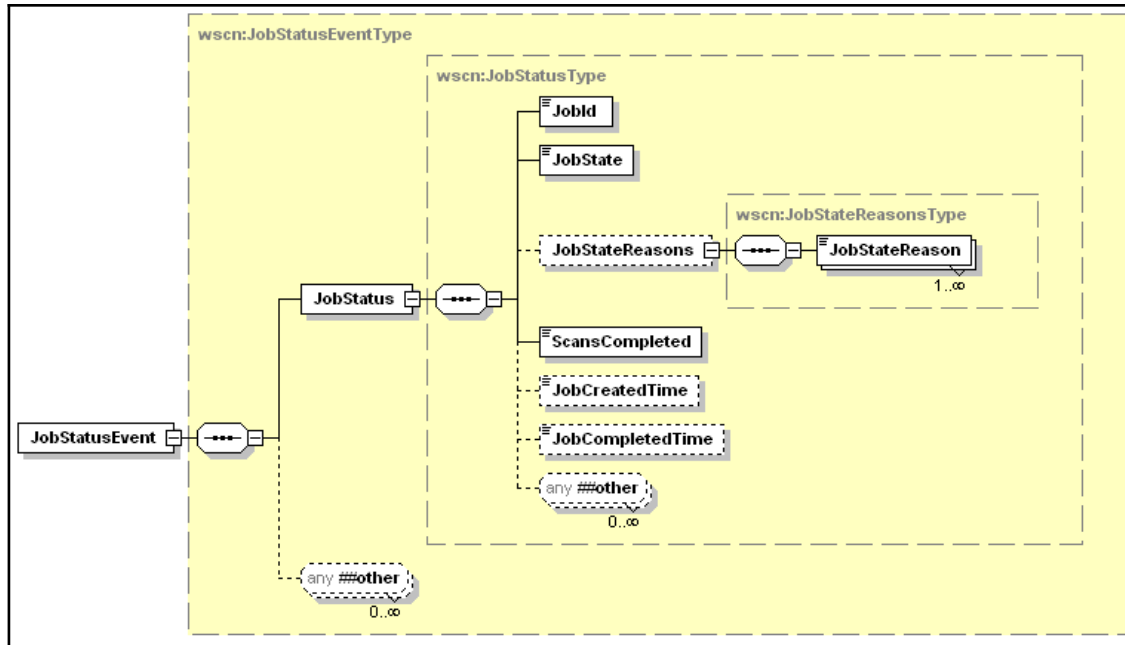


Figure 24 - JobStatus Event

### 1969 5.7.1. JobStatus

1970 This data element contains the current status of a Job. This data element is described in Section 4.5.1

### 1971 5.7.2. Example JobStatusEvent

1972 In this example the device is notifying the CP of the current state of Job 253.

```

1973 <soap:Envelope>
1974   xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
1975   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
1976   xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing"
1977   xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
1978   <soap:Header>
1979     <wsa:To>AddressofEventSink</wsa:To>
1980     <wsa:Action>
1981       http://schemas.microsoft.com/windows/2006/08/wdp/scan/JobStatusEvent
1982     </wsa:Action>
1983     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
1984   </soap:Header>
1985   <soap:Body>
1986     <wscn:JobStatusEvent>
1987       <wscn:JobStatus>
1988         <wscn:JobId>253</wscn:JobId>
1989         <wscn:JobState>Processing</wscn:JobState>
1990         <wscn:JobStateReasons>
1991           <wscn:JobStateReason>JobScanning</wscn:JobStateReason>

```

```
1992         </wscn:JobStateReasons>
1993         <wscn:ScansCompleted>4</wscn:ScansCompleted>
1994         <wscn:JobCreatedTime>2006-01-24T11:34:35.8345Z</wscn:JobCreatedTime>
1995         <wscn:JobStatus>
1996         </wscn:JobStatusEvent>
1997     </soap:Body>
1998 </soap:Envelope>
```

1999 **5.8. JobEndStateEvent**

2000 This event is defined to inform the CP that a Job has finished processing.

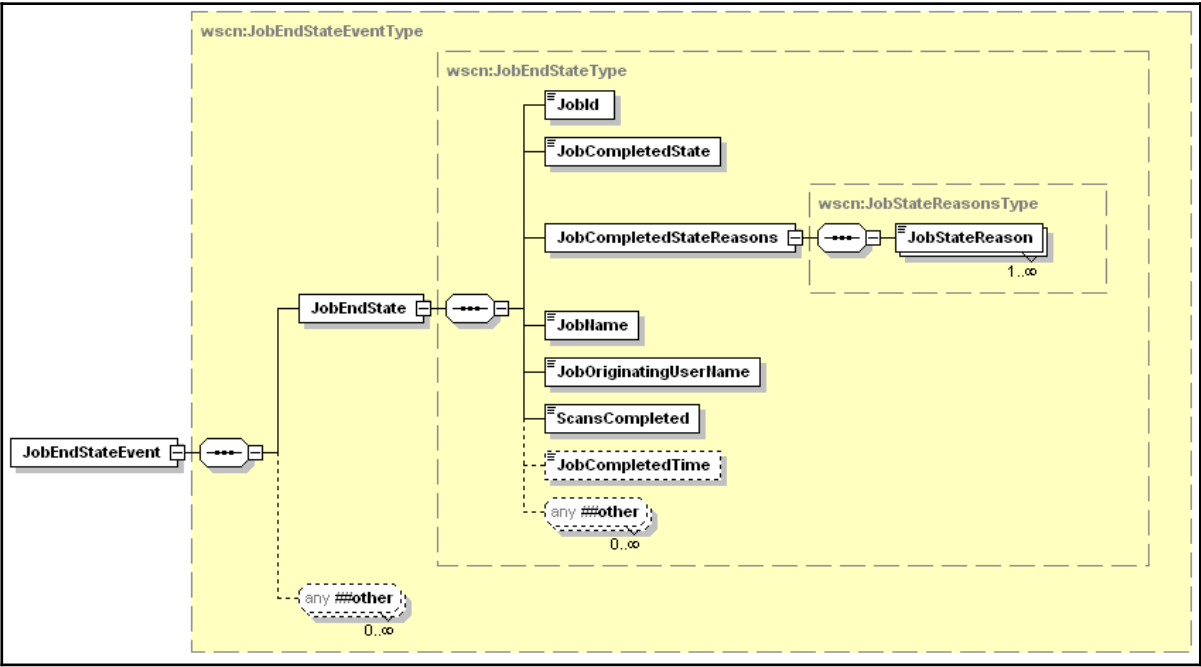


Figure 25 - JobEndState Event

2003 **5.8.1. JobEndState**

2004 This data element contains the final state of the Job status elements.

2005 **5.8.1.1. JobId**

2006 This data element is described in Section 4.5.1.1

2007 **5.8.1.2. JobCompletedState**

2008 This data element is the final *JobState* for the job and has the same semantics and values as the *JobState* element from  
2009 *JobStatus*. The *JobState* element is described in Section 4.5.1.2

2010 **5.8.1.2.1. JobCompletedStateReasons**

2011 This element is a collection that describes all of the additional information about how/why the Job completed.

2012 **5.8.1.2.1.1. JobStateReason**

2013 This elements indicates additional information about how/why the Job completed and has the same semantics and values as  
2014 the *JobStateReason* element from *JobStatus*. The *JobStateReason* element is described in Section 4.5.1.3.1

2015 **5.8.1.3. JobName**

2016 This data element is described in Section 4.5.2.1.1

#### 2017 5.8.1.4. JobOriginatingUser

2018 This data element is described in Section 4.5.2.1.2

#### 2019 5.8.1.5. ScansCompleted

2020 This data element is described in Section 4.5.1.6

#### 2021 5.8.1.6. JobCompletedTime

2022 This data element is described in Section 4.5.1.5

### 2023 5.8.2. Example JobEndStateEvent

2024 In this example the device is notifying the CP of the final state/status of Job 253.

```

2025 <soap:Envelope
2026     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2027     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2028     xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing"
2029     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
2030   <soap:Header>
2031     <wsa:To>AddressofEventSink</wsa:To>
2032     <wsa:Action>
2033       http://schemas.microsoft.com/windows/2006/08/wdp/scan/JobEndStateEvent
2034     </wsa:Action>
2035     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2036   </soap:Header>
2037   <soap:Body>
2038     <wscn:JobEndStateEvent>
2039       <wscn:JobEndState>
2040         <wscn:JobId>253</wscn:JobId>
2041         <wscn:JobCompletedState>Completed</wscn:JobCompletedState>
2042         <wscn:JobCompletedStateReasons>
2043           <wscn:JobStateReason>JobCompletedWithWarnings</wscn:JobStateReason>
2044         </wscn:JobCompletedStateReasons>
2045         <wscn:JobName>Scan from Imaging App</wscn:JobName>
2046         <wscn:JobOriginatingUserName>User</wscn:JobOriginatingUserName>
2047         <wscn:ScansCompleted>7</wscn:ScansCompleted>
2048         <wscn:JobCompletedTime>2006-01-24T11:37:05.673Z</wscn:JobCompletedTime>
2049       </wscn:JobEndState>
2050     </wscn:JobEndStateEvent>
2051   </soap:Body>
2052 </soap:Envelope>

```

## 2053 6. Operations

2054 Immediately following this table is detailed information about these operations, including short descriptions of the  
 2055 operations, the effects of the operations on state, and error codes defined by the operations.

2056 Table 2 - Operations

Name	Req. or Opt. <sup>1</sup>
CreateScanJob	R
RetrieveImage	R
CancelJob	R
ValidateScanTicket	R
GetScannerElements	R
GetJobElements	R
GetActiveJobs	R
GetJobHistory	R
<i>Non-standard operations implemented by a WSD vendor go here.</i>	<i>X</i>

2057 <sup>1</sup> R = REQUIRED, O = Optional, X = Non-standard.

## 2058 6.1. Operation Error Reporting

2059 Error codes are returned in the <soap:Fault> element. A vendor MAY subset or extend these error codes by supporting  
2060 private error subcodes. All fault messages defined in this specification MUST be sent according to the rules described in  
2061 [ADDRESS] section 4 and [DEVICE]. They are sent to the [fault endpoint], if present and valid. Otherwise they are sent to  
2062 the [reply endpoint] if present. If neither is present faults may be sent to the [source endpoint].

2063 Endpoints compliant with this specification MUST include required message information headers on all fault messages.  
2064 Fault messages are correlated as replies using the [relationship] property as defined in WS-Addressing. The [action]  
2065 property below designates fault messages:

2066 `http://schemas.xmlsoap.org/ws/2004/08/addressing/fault`

2067  
2068 The definitions of faults use the following properties:

<b>[Code]</b>	The fault code.
<b>[Subcode]</b>	The fault subcode.
<b>[Reason]</b>	The English language reason element.
<b>[Detail]</b>	The detail element. If absent, no detail element is defined for the fault.

2069 The properties above bind to a SOAP 1.2 fault as follows:

```
2070 <S:Envelope>
2071   <S:Header>
2072     <wsa:Action>http://schemas.xmlsoap.org/ws/2004/08/addressing/fault</wsa:Action>
2073     <!-- Headers excluded for clarity -->
2074   </S:Header>
2075   <S:Body>
2076     <S:Fault>
2077       <S:Code>
2078         <S:Value>[Code]</S:Value>
2079         <S:Subcode>
2080           <S:Value>[Subcode]</S:Value>
2081         </S:Subcode>
2082       </S:Code>
2083       <S:Reason>
2084         <S:Text xml:lang="en">[Reason]</S:Text>
2085       </S:Reason>
2086       <S:Detail> [Detail] </S:Detail>
2087     </S:Fault>
2088   </S:Body>
2089 </S:Envelope>
```

2090

2091 Example SOAP Fault:

```
2092 <soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soapelope"
2093   xmlns:xm1="http://www.w3.org/XML/1998/namespace"
2094   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2095   xmlns:wscn="http://schemas.microsoft.com/windows/2006/08/wdp/scan">
2096   <soap:Header>
2097     <wsa:Action>http://schemas.xmlsoap.org/ws/2004/08/addressing/fault</wsa:Action>
2098     <!-- Headers excluded for brevity -->
2099   </soap:Header>
2100   <soap:Body>
2101     <soap:Fault>
2102       <soap:Code>
2103         <soap:Value>soap:Receiver</soap:Value>
2104         <soap:Subcode>
2105           <soap:Value>wscn:OperationFailed</soap:Value>
2106         </soap:Subcode>
2107       </soap:Code>
2108       <soap:Reason>
2109         <soap:Text xml:lang="en">Service can not perform the requested Operation</soap:Text>
2110       </soap:Reason>
2111     </soap:Fault>
2112   </soap:Body>
```

2113 </soap:Envelope>

### 2114 6.1.1. Common Operation Faults

2115 The following table lists SOAP Faults common to all operations for this service type. If an operation results in multiple  
2116 errors, the most specific fault SHOULD be returned.

#### 2117 6.1.1.1. wsa:ActionNotSupported

2118 This fault is sent when a Client requests an operation that is not supported by the current service.

[Code]	soap:Sender
[Subcode ]	wsa:ActionNotSupported
[Reason]	The [wsa:action] cannot be processed at the receiver
[Detail]	<i>The invalid operation name</i>

#### 2119 6.1.1.2. InvalidArgs

2120 This fault is sent when a Client sends an invalid argument as part of an operation. The invalid argument could be any of the  
2121 following: not enough in args, too many in args, no in arg by that name, one or more in args are of the wrong data type.

[Code]	soap:Sender
[Subcode ]	wscn:InvalidArgs
[Reason]	At least one input argument is invalid
[Detail]	<i>The invalid argument</i>

#### 2122 6.1.1.3. OperationFailed

2123 This fault may be returned if the current state of the service prevents invoking that action.

[Code]	soap:Receiver
[Subcode ]	wscn:OperationFailed
[Reason]	Service can not perform the requested operation
[Detail]	<i>None</i>

#### 2124 6.1.1.4. ServerErrorTemporaryError

2125 This fault is sent when the server experiences a temporary error that occurs while the Scanner processes the operation. The  
2126 client MAY try the unmodified request again at some later point in time with an expectation that the temporary internal  
2127 error condition MAY have been cleared. If there is a more specific error defined that applies to a temporary error, such as  
2128 disk full, that code SHOULD be used.

[Code]	soap:Receiver
--------	---------------



[Subcode]	wscn:ServerErrorTemporaryError
[Reason]	The service had an unexpected error
[Detail]	<i>None</i>

### 2129 6.1.1.5. ServerErrorInternalError

2130 This fault is sent when the Scanner encounters an unexpected condition that prevented it from fulfilling the request. This  
 2131 error differs from *ServerErrorTemporaryError* in that it implies a more permanent type of internal error and resending the  
 2132 operation will return the same fault.

[Code]	soap:Receiver
[Subcode]	wscn:ServerErrorInternalError
[Reason]	The service had an unexpected error
[Detail]	<i>None</i>

2133

## 2134 6.2. CreateScanJob

2135 This operation is the main mechanism to prepare a scan device to scan the images available to it. This operation can be  
 2136 initiated in two different ways – either the User selects a destination and pushes the scan button at the device or the User  
 2137 starts an application on the client and acquires an image. Each method will send different arguments in the operation  
 2138 request.

2139 If the scan is initiated from the device via a **ScanAvailableEvent** the operation contains the *ScanIdentifier* from the  
 2140 **ScanAvailableEvent** and also the *DestinationToken* returned during the **Subscribe** operation for the **ScanAvailableEvent**.  
 2141 The request also contains a scan ticket to control the processing of the scan. The values in the *ScanTicket* are the defaults  
 2142 set at the client before the User went to the device to initiate the scan.

2143 If the scan is initiated from an application on the client the request contains a *ScanTicket* to control the processing of the  
 2144 scan. The *ScanIdentifier* and *DestinationToken* are omitted.

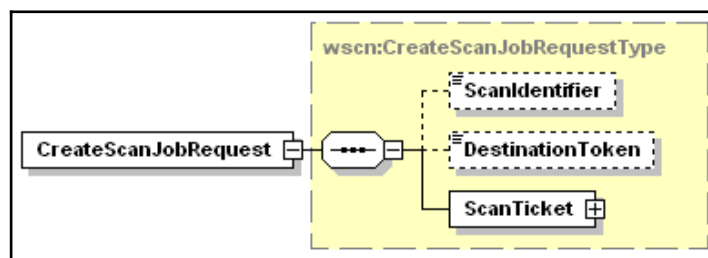
2145 The allowed values returned in a **GetScannerElements(ScannerConfiguration)** (see section 4.3) indicate the values of the  
 2146 arguments that the Scan Service instance (scanner) supports (see section 4.9) for a Job creation operation. The scanner  
 2147 performs the following validation in the indicated order:

- 2148 • If the *Format* is not supported, the Scanner MUST reject the request and return the  
 2149 *ClientErrorDocumentFormatNotSupported* error code.
- 2150 • If the client (CP) supplies elements that are unsupported or their values are unsupported (except *Format*) the  
 2151 Scanner
  - 2152 ○ MUST reject the Job if the *MustHonor* attribute with a value of 1 or *true* is in effect.
  - 2153 ○ MUST ignore or substitute with supported values, respectively, if the *MustHonor* attribute with a value of  
 2154 0 or *false* is in effect
  - 2155 ○ The *MustHonor* attribute is in effect if the attribute is supplied at the element level. Note that if the  
 2156 *MustHonor* attribute is not explicitly specified in the element, the default is 0 or *false*.
- 2157 • If a client (CP) supplies a conflicting combination of elements in the arguments (such as *InputSource* and  
 2158 *Resolution*), the Scanner MUST reject the Job if the *MustHonor* attribute with a value of 1 or *true* is in effect.

2159 The scanner returns a unique *JobId* to identify the job for this service. The scanner generates the *JobId* in an  
2160 implementation-defined manner. The scanner **MUST** return values in the range 1 to  $2^{31}-1$ ; 0 and negative values are invalid  
2161 values to be returned as a result of a **CreateScanJob** operation. Furthermore, the scanner **MUST NOT** re-use values  
2162 recently assigned, since CPs would confuse such jobs with older jobs. The scanner also returns a unique identifier to be  
2163 used in subsequent **RetrieveImage** operations associated with this scan job. The device **MUST** respond to the  
2164 **CreateScanJob** request as quickly as possible. The scan device should not wait for scanning to begin before sending the  
2165 **CreateScanJobResponse**.

2166 The client (CP) **MUST** retrieve the image data from the scan service using one or more **RetrieveImage** operations. Once  
2167 the device has responded to the **CreateScanJob** request, the client has 60 seconds to send the **RetrieveImage** operation. If  
2168 the device does not receive a **RetrieveImage** operation within this time, it should abort the job with a *JobStateReason* of  
2169 *JobTimedOut*. If the job consists of multiple documents this timeout applies between each successive **RetrieveImage**  
2170 operation also.

## 2171 6.2.1. Request Elements



2172  
2173 Figure 26 - CreateScanJobRequest Elements

### 2174 6.2.1.1. ScanIdentifier

2175 This optional element specifies a device specific string the scanner sent in the **ScanAvailableEvent**. This identifier will  
2176 allow the scanner to make sure the correct client is requesting the scan after a user selected a destination. See section 5.2.5.2  
2177 for more details on this element.

### 2178 6.2.1.2. DestinationToken

2179 This optional element specifies a device specific string the scanner will assign to this client. This string was returned as a  
2180 part of the *SubscribeResponse* element when the client subscribed to the **ScanAvailableEvent** for the current destination.  
2181 See section 5.2.3.1 for more details on this element.

### 2182 6.2.1.3. ScanTicket

2183 This element contains all the settings the client wishes to affect the scan operation. The scan ticket may contain only the  
2184 processing elements that the client wishes to override in the scanner, or it may contain every possible element supported in  
2185 the scan service. See section 4.5.2 for more details on the definition of the *ScanTicket*.

## 2186 6.2.2. Response Elements

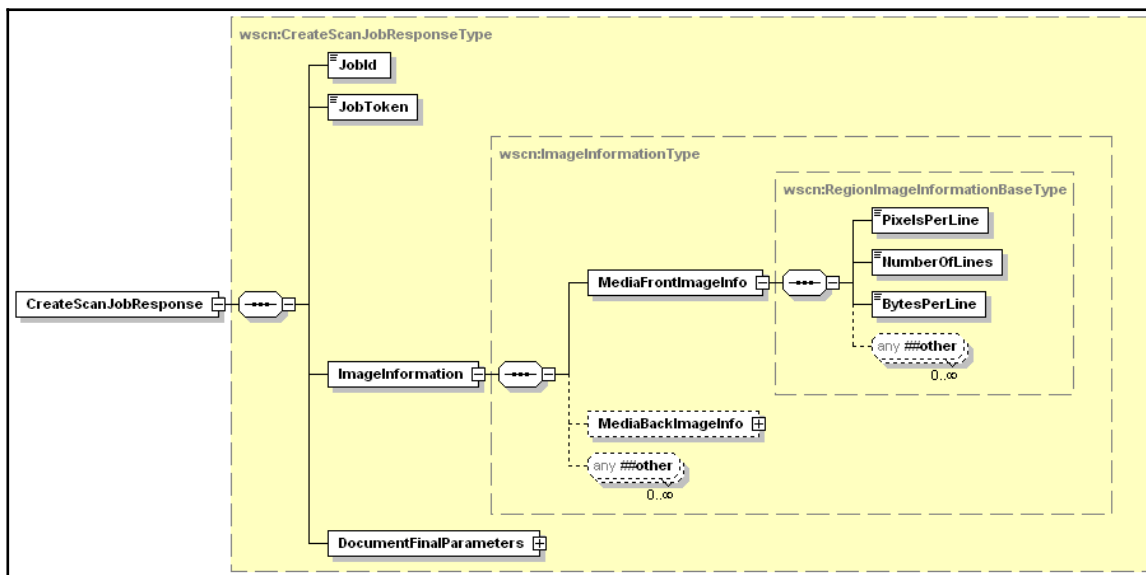


Figure 27 - CreateScanJobResponse Elements

### 2189 6.2.2.1. JobId

2190 This element is the device created identifier for the new scan job. This Id can be used in subsequent operations like  
 2191 **CancelJob** and **GetJobElements** to modify the job or retrieve job information. This data element is described in Section  
 2192 4.5.1.1

### 2193 6.2.2.2. JobToken

2194 This element is the device created token for the new scan job. This element is paired with the *JobId* to uniquely represent  
 2195 the scan job. It will be passed to the device in the **RetrieveImage** command to allow the scan device to verify the requester  
 2196 actually created the scan job.

### 2197 6.2.2.3. ImageInformation

2198 This element contains information about the resulting image data from a scan made with the *ScanTicket* that is currently  
 2199 being validated. This data is valuable to scan applications for decoding the image within an image file.

#### 2200 6.2.2.3.1. MediaFrontImageInfo

2201 This element contains the *ImageInformation* for a simplex scan, or the front side of an ADFDuplex scan.

##### 2202 6.2.2.3.1.1. PixelsPerLine

2203 This element describes the exact width, in pixels, of the final image that would be scanned from this document side using  
 2204 the current *ScanTicket* settings that are being validated. This width should include rotation and any adjustment done by the  
 2205 scanner on the final images transferred to the client.

2206 Values: 1 – 2147483647

##### 2207 6.2.2.3.1.2. NumberOfLines

2208 This element describes the exact height, in pixels (or: number of lines) of the final output image that would be generated for  
 2209 the current *ScanTicket*, including rotation and any adjustment the scanner may perform on the scanned image before to  
 2210 transfer it to the client.

2211 Values: 1 – 2147483647

##### 2212 6.2.2.3.1.3. BytesPerLine

2213 This element indicates how many bytes each scan line will use in the resultant image file. This includes the data pixels and  
 2214 any padding the scanner will add to each scan line. This element is only valid if the requested *Format* is an uncompressed  
 2215 file format. If the file format indicates compression then this element should have a value of 0.

2216 Values: 0 – 2147483647

#### 2217 6.2.2.3.2. MediaBackImageInfo

2218 This element contains the *ImageInformation* for the back side of an ADFDuplex scan.

#### 2219 6.2.2.4. DocumentFinalParameters

2220 This section of the schema contains the actual *DocumentParameters* which were used by the scan device for this scan job.

2221 This data element is described in Section 4.6.1.1

#### 2222 6.2.3. Example Request – Device Initiated

```

2223 <?xml version="1.0" encoding="utf-8"?>
2224 <soap:Envelope
2225     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2226     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2227     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
2228   <soap:Header>
2229     <wsa:To>AddressofScannerService</wsa:To>
2230     <wsa:Action>
2231       http://schemas.microsoft.com/windows/2006/08/wdp/scan/CreateScanJob
2232     </wsa:Action>
2233     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2234   </soap:Header>
2235   <soap:Body>
2236     <wscn:CreateScanJobRequest>
2237       <wscn:ScanIdentifier>uuid:12e7a983-1034-5428-d298-0016f11097fa</wscn:ScanIdentifier>
2238       <wscn:DestinationToken>Dest1234TokenString</wscn:DestinationToken>
2239       <wscn:ScanTicket>
2240         <wscn:JobDescription>
2241           <wscn:JobName>Photo Scan</wscn:JobName>
2242           <wscn:JobOriginatingUserName>RogerSmith</JobOriginatingUserName>
2243         </wscn:JobDescription>
2244         <wscn:DocumentParameters>
2245           <wscn:Format>jfif</wscn:Format>
2246           <wscn:CompressionQualityFactor>45</wscn:CompressionQualityFactor>
2247           <wscn:InputSource>Platen</wscn:InputSource>
2248           <wscn:ContentType>Auto</wscn:ContentType>
2249           <wscn:InputSize>
2250             <wscn:DocumentSizeAutoDetect>true</wscn:DocumentSizeAutoDetect>
2251           </wscn:InputSize>
2252           <wscn:Scaling wscn:MustHonor="1">
2253             <wscn:ScalingWidth>125</wscn:ScalingWidth>
2254             <wscn:ScalingHeight>125</wscn:ScalingHeight>
2255           </wscn:Scaling>
2256           <wscn:MediaSides>
2257             <wscn:MediaFront>
2258               <wscn:Resolution wscn:MustHonor="1">
2259                 <wscn:Width>300</wscn:Width>
2260                 <wscn:Height>300</wscn:Height>
2261               </wscn:Resolution>
2262             </wscn:MediaFront>
2263           </wscn:MediaSides>
2264         </wscn:DocumentParameters>
2265       </wscn:ScanTicket>
2266     </wscn:CreateScanJobRequest>
2267   </soap:Body>
2268 </soap:Envelope>

```

#### 2269 6.2.4. Example Response

```

2270 <?xml version="1.0" encoding="utf-8"?>
2271 <soap:Envelope
2272     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2273     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2274     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">

```

```

2275 <soap:Header>
2276   <wsa:To>http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</wsa:To>
2277   <wsa:Action>
2278     http://schemas.microsoft.com/windows/2006/08/wdp/scan/CreateScanJobResponse
2279   </wsa:Action>
2280   <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2281   <wsa:RelatesTo>uuid:MsgIdOfTheCreateScanJobRequest</wsa:RelatesTo>
2282 </soap:Header>
2283 <soap:Body>
2284   <wscn:CreateScanJobResponse>
2285     <wscn:JobId>1</wscn:JobId>
2286     <wscn:JobToken>Job9876TokenString</wscn:JobToken>
2287     <wscn:ImageInformation>
2288       <wscn:MediaFrontImageInfo>
2289         <wscn:PixelsPerLine>900</wscn:PixelsPerLine>
2290         <wscn:NumberOfLines>1500</wscn:NumberOfLines>
2291         <wscn:BytesPerLine>113</wscn:BytesPerLine>
2292       </wscn:MediaFrontImageInfo>
2293     </wscn:ImageInformation>
2294     <wscn:DocumentFinalParameters>
2295       <wscn:Format>jfif</wscn:Format>
2296       <wscn:CompressionQualityFactor>45</wscn:CompressionQualityFactor>
2297       <wscn:ImagesToTransfer>0</wscn:ImagesToTransfer>
2298       <wscn:InputSource>Platen</wscn:InputSource>
2299       <wscn:ContentType>Auto</wscn:ContentType>
2300       <wscn:InputSize>
2301         <wscn:InputMediaSize>
2302           <wscn:Width Override="true">8500</wscn:Width>
2303           <wscn:Height Override="true">11000</wscn:Height>
2304         </wscn:InputMediaSize>
2305       </wscn:InputSize>
2306       <wscn:Exposure>
2307         <wscn:ExposureSettings>
2308           <wscn:Contrast UsedDefault="true">0</wscn:Contrast>
2309           <wscn:Brightness UsedDefault="true">0</wscn:Brightness>
2310           <wscn:Sharpness UsedDefault="true">0</wscn:Sharpness>
2311         </wscn:ExposureSettings>
2312       </wscn:Exposure>
2313       <wscn:Scaling>
2314         <wscn:ScalingWidth>125</wscn:ScalingWidth>
2315         <wscn:ScalingHeight>125</wscn:ScalingHeight>
2316       </wscn:Scaling>
2317       <wscn:Rotation UsedDefault="true">0</wscn:Rotation>
2318       <wscn:MediaSides>
2319         <wscn:MediaFront>
2320           <wscn:ScanRegion>
2321             <wscn:ScanRegionXOffset UsedDefault="true">0</wscn:ScanRegionXOffset>
2322             <wscn:ScanRegionYOffset UsedDefault="true">0</wscn:ScanRegionYOffset>
2323             <wscn:ScanRegionWidth UsedDefault="true">8500</wscn:ScanRegionWidth>
2324             <wscn:ScanRegionHeight UsedDefault="true">11000</wscn:ScanRegionHeight>
2325           </wscn:ScanRegion>
2326           <wscn:ColorProcessing UsedDefault="true">RGB24</wscn:ColorProcessing>
2327           <wscn:Resolution>
2328             <wscn:Width>300</wscn:Width>
2329             <wscn:Height>300</wscn:Height>
2330           </wscn:Resolution>
2331         </wscn:MediaFront>
2332       </wscn:MediaSides>
2333     </wscn:DocumentFinalParameters>
2334   </wscn:CreateScanJobResponse>
2335 </soap:Body>
2336 </soap:Envelope>

```

## 2337 6.2.5. Example Request – Client Initiated

```

2338 <?xml version="1.0" encoding="utf-8"?>
2339 <soap:Envelope
2340   xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2341   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2342   xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
2343   <soap:Header>
2344     <wsa:To>AddressofScannerService</wsa:To>
2345     <wsa:Action>

```

```

2346      http://schemas.microsoft.com/windows/2006/08/wdp/scan/CreateScanJob
2347      </wsa:Action>
2348      <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2349    </soap:Header>
2350    <soap:Body>
2351      <wscn:CreateScanJobRequest>
2352        <wscn:ScanTicket>
2353          <wscn:JobDescription>
2354            <wscn:JobName>Application Scan</wscn:JobName>
2355            <wscn:JobOriginatingUserName>RogerSmith</JobOriginatingUserName>
2356          </wscn:JobDescription>
2357          <wscn:DocumentParameters>
2358            <wscn:Format>xps</wscn:Format>
2359            <wscn:ImagesToTransfer>0</wscn:ImagesToTransfer>
2360            <wscn:InputSource>ADF</wscn:InputSource>
2361            <wscn:ContentType>Auto</wscn:ContentType>
2362            <wscn:InputSize>
2363              <wscn:DocumentSizeAutoDetect>true</wscn:DocumentSizeAutoDetect>
2364            </wscn:InputSize>
2365            <wscn:MediaSides>
2366              <wscn:MediaFront>
2367                <wscn:ColorProcessing>RGB48</wscn:ColorProcessing>
2368                <wscn:Resolution>
2369                  <wscn:Width>1200</wscn:Width>
2370                </wscn:Resolution>
2371              </wscn:MediaFront>
2372            </wscn:MediaSides>
2373          </wscn:DocumentParameters>
2374        </wscn:ScanTicket>
2375      </wscn:CreateScanJobRequest>
2376    </soap:Body>
2377  </soap:Envelope>

```

## 2378 6.2.6. Errors

2379 All the Codes described in section 6.1.1 - Common Operation Error Codes could be returned from this operation. The  
 2380 following errors could also be returned from this operation.

### 2381 6.2.6.1. ServerErrorNotAcceptingJobs

2382 This fault is sent when the server can't accept a new scan job. This could occur because the scanner has been put into  
 2383 service mode, or there is a user intervention condition and all the memory buffers have been exhausted. The client MAY  
 2384 try the unmodified request again at some later point in time with an expectation that the server has become unblocked and  
 2385 the scanner is accepting jobs again.

[Code]	soap:Receiver
[Subcode]	wscn:ServerErrorNotAcceptingJobs
[Reason]	The service is temporarily blocked and can't accept new job or document requests.
[Detail]	None

### 2386 6.2.6.2. ClientErrorFormatNotSupported

2387 This fault is sent when the supplied *Format* value is not supported by the Scanner object.

[Code]	soap:Sender
[Subcode]	wscn:ClientErrorFormatNotSupported

[Reason]	<i>Format</i> parameter value not supported
[Detail]	<i>Optional: Return a list of supported formats. The data in this element should be of type wscn:FormatSupportedType.</i>

### 2388 6.2.6.3. ClientErrorInvalidScanIdentifier

2389 This fault is sent when the supplied *ScanIdentifier* value is not currently valid within the scan device.

[Code]	soap:Sender
[Subcode]	Wscn:ClientErrorInvalidScanIdentifier
[Reason]	<i>ScanIdentifier</i> parameter value not currently valid
[Detail]	<i>None</i>

### 2390 6.2.6.4. ClientErrorInvalidDestinationToken

2391 This fault is sent when the supplied *DestinationToken* value is not valid for this scan device.

[Code]	soap:Sender
[Subcode]	Wscn:ClientErrorInvalidDestinationToken
[Reason]	<i>DestinationToken</i> parameter value not currently valid
[Detail]	<i>None</i>

### 2392 6.2.6.5. ClientErrorConflictingRequiredParameters

2393 This fault is sent when there is a conflict between 2 or more *DocumentParameters* elements which each have the  
 2394 *MustHonor* attribute set to `true`. Using all of the settings supplied with *MustHonor* attributes set to `true` will cause a  
 2395 conflict in the scanner mechanism. This conflict cannot be resolved so the *ScanTicket* is invalid.

[Code]	soap:Sender
[Subcode]	wscn: ClientErrorConflictingRequiredParameters
[Reason]	Multiple elements in the <i>DocumentParameters</i> element have <i>MustHonor</i> set to <code>true</code> but applying all settings causes a conflict in the scanner device.
[Detail]	<i>None</i>

## 2396 6.3. RetrieveImage

2397 This operation is used to actually retrieve the scan data from the device after a scan job has been created.

2398 The scan data is returned as a binary attachment along with the *RetrieveImageResponse* packet. The response will be  
 2399 packaged as a MIME Multipart/Related content type and make use of the new SOAP Message Transmission Optimization

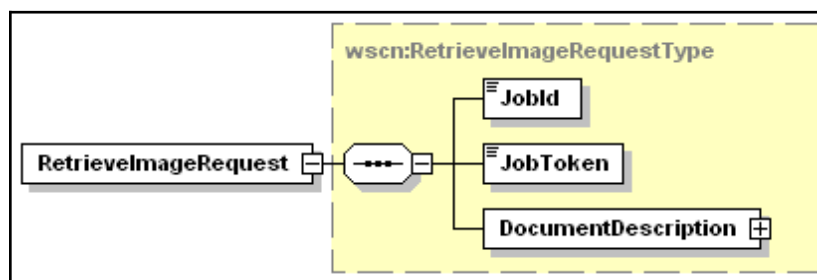
2400 Mechanism [MTOM] to efficiently send the binary image data. The example below indicates how to create a valid  
2401 response.

2402 The number of images returned in the resultant file depends on the combination of the *ImagesToTransfer* element of the  
2403 *ScanTicket* and the image file *Format* element. If the file *Format* is a single image format then the returned file will always  
2404 contain a single image, if the file *Format* is a multi-page format then the resultant file will contain as many images as the  
2405 input source can scan up to the value of *ImagesToTransfer*. In the case of a single image file *Format* and an  
2406 *ImagesToTransfer* value of 0 or >1, the client will send repeated **RetrieveImage** commands until either the devices replies  
2407 with a *ClientErrorNoImagesAvailable* fault to one of the operations, or the *ImagesToTransfer* value is met.

2408 The scan device sends the headers and XML part of the **RetrieveImageResponse** as soon as it can. This should be before  
2409 the timeout of 60 seconds occurs and can be well before the scanner starts writing the binary *ScanData* as the data becomes  
2410 available, without an imposed timeout restriction. This is the benefit of using Multipart/Related in the MTOM processing.  
2411 The first part containing the XML for the **RetrieveImageResponse**, including the reference to the 2<sup>nd</sup> part (binary data  
2412 block), can be sent back immediately and the http connection will remain open without timing out waiting for the  
2413 completion of the data transfer. When the complete file is scanned and all *ScanData* for this file is written the current  
2414 **RetrieveImage** operation ends.

2415 If there is a communication failure during the transfer of the image data the device will abort the job with a *JobStateReason*  
2416 of *ImageTransferError*.

### 2417 6.3.1. Request Elements



2418  
2419 Figure 28 - RetrieveImageRequest Elements

#### 2420 6.3.1.1. JobId

2421 This data element contains the *JobId* with which the current document is associated. This data element is described in  
2422 Section 4.5.1.1

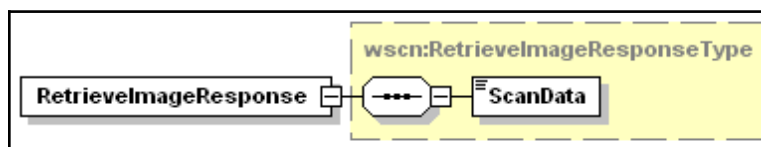
#### 2423 6.3.1.2. JobToken

2424 This element is the device created token for the scan job. This data element is described in Section 6.2.2.2.

#### 2425 6.3.1.3. DocumentDescription

2426 This data element contains the description attributes that pertain to the basic creation information of the currently identified  
2427 *Document*. This data element is described in Section 4.6.1

### 2428 6.3.2. Response Elements



2429  
2430 Figure 29 - RetrieveImageResponse Elements

#### 2431 6.3.2.1. ScanData

2432 The data element is the binary data that represents the scanned image is part of the response as a binary attachment to the  
2433 SOAP Envelope/Body.



2434 **6.3.3. Example Request**

```

2435 <?xml version="1.0" encoding="utf-8"?>
2436 <soap:Envelope
2437     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2438     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2439     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
2440   <soap:Header>
2441     <wsa:To>AddressofScannerService</wsa:To>
2442     <wsa:Action>
2443       http://schemas.microsoft.com/windows/2006/08/wdp/scan/RetrieveImage
2444     </wsa:Action>
2445     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2446   </soap:Header>
2447   <soap:Body>
2448     <wscn:RetrieveImageRequest>
2449       <wscn:JobId>1</wscn:JobId>
2450       <wscn:JobToken>Job9876TokenString</wscn:JobToken>
2451       <wscn:DocumentDescription>
2452         <wscn:DocumentName>Scan001.jpg</DocumentName>
2453       </wscn:DocumentDescription>
2454     </wscn:RetrieveImageRequest>
2455   </soap:Body>
2456 </soap:Envelope>

```

2457 **6.3.4. Example Response**

```

2458 mime-version: 1.0
2459 Content-Type: Multipart/Related;
2460     boundary=4aa7d814-adc1-47a2-8e1c-07585b9892a4;
2461     type=application/xop+xml;
2462     start="<14629f74-2047-436c-8046-5cac76d280fc@uuid>";
2463     startinfo="application/soap+xml"
2464
2465 --4aa7d814-adc1-47a2-8e1c-07585b9892a4
2466 Content-Type: application/xop+xml; type="application/soap+xml"
2467     charset=UTF-8
2468 Content-Transfer-Encoding: binary
2469 Content-ID: <14629f74-2047-436c-8046-5cac76d280fc@uuid>
2470
2471 <?xml version="1.0" encoding="utf-8"?>
2472 <soap:Envelope
2473     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2474     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2475     xmlns:xop="http://www.w3.org/2003/12/xop/include"
2476     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
2477   <soap:Header>
2478     <wsa:To>http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</wsa:To>
2479     <wsa:Action>
2480       http://schemas.microsoft.com/windows/2006/08/wdp/scan/RetrieveImageResponse
2481     </wsa:Action>
2482     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2483     <wsa:RelatesTo>uuid:MsgIdOfTheRetrieveImageRequest</wsa:RelatesTo>
2484   </soap:Header>
2485   <soap:Body>
2486     <wscn:RetrieveImageResponse>
2487       <wscn:ScanData>
2488         <xop:Include href="cid:1c696bd7-005a-48d9-9ee9-9adca11f8892@uuid" />
2489       </wscn:ScanData>
2490     </wscn:RetrieveImageResponse>
2491   </soap:Body>
2492 </soap:Envelope>
2493
2494 --4aa7d814-adc1-47a2-8e1c-07585b9892a4
2495 Content-Type: image/jpeg;
2496 Content-Transfer-Encoding: binary
2497 Content-ID: <1c696bd7-005a-48d9-9ee9-9adca11f8892@uuid>
2498
2499 Binary Scan Data
2500 --4aa7d814-adc1-47a2-8e1c-07585b9892a4--
2501

```

### 2502 6.3.5. Errors

2503 All the Codes described in section 6.1.1 - Common Operation Error Codes could be returned from this operation. The  
2504 following errors could also be returned from this operation.

#### 2505 6.3.5.1. ClientErrorJobIdNotFound

2506 This fault is sent when the scanner can not find a job matching the *JobId* argument (including when the argument is not in  
2507 the range: 1 to  $2^{31}-1$ ).

[Code]	soap:Sender
[Subcode ]	wprt:ClientErrorJobIdNotFound
[Reason]	Specified <i>JobId</i> not found
[Detail]	<i>JobId:Incorrect JobId</i>

#### 2508 6.3.5.2. ClientErrorNoImagesAvailable

2509 This fault is sent when the scanner does not have any more images available for the client to retrieve.

[Code]	soap:Sender
[Subcode ]	Wscn:ClientErrorNoImagesAvailable
[Reason]	The server has no images available to acquire.
[Detail]	<i>None</i>

#### 2510 6.3.5.3. ClientErrorInvalidJobToken

2511 This fault is sent when the supplied *JobToken* value is not valid for this scan *JobId*.

[Code]	soap:Sender
[Subcode ]	Wscn:ClientErrorInvalidJobToken
[Reason]	<i>JobToken</i> parameter value not valid with <i>JobId</i> parameter
[Detail]	<i>None</i>

#### 2512 6.3.5.4. ClientErrorJobCancelled

2513 This fault is sent when the current scan job has been cancelled.

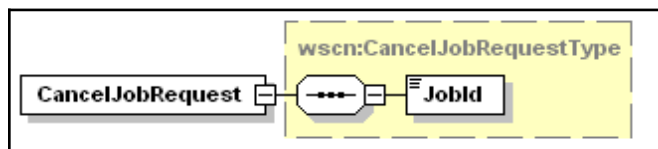
[Code]	soap:Sender
[Subcode ]	wscn:ClientErrorJobCancelled
[Reason]	The current Scan job has been cancelled.

[Detail]	None
----------	------

## 2514 6.4. CancelJob

2515 This operation allows a client to cancel a Scan job from the time the job is created up to the time it is completed, canceled  
2516 or aborted.

### 2517 6.4.1. Request Elements



#### 2519 6.4.1.1. JobId

2520 This data element contains the *JobId* which the client is trying to cancel. This data element is described in Section 4.5.1

### 2521 6.4.2. Request

```

2522 <?xml version="1.0" encoding="utf-8"?>
2523 <soap:Envelope
2524     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2525     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2526     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
2527   <soap:Header>
2528     <wsa:To>AddressofScannerService</wsa:To>
2529     <wsa:Action>
2530       http://schemas.microsoft.com/windows/2006/08/wdp/scan/CancelJob
2531     </wsa:Action>
2532     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2533   </soap:Header>
2534   <soap:Body>
2535     <wscn:CancelJobRequest>
2536       <wscn:JobId>1</ wscn::JobId>
2537     </wscn:CancelJobRequest>
2538   </soap:Body>
2539 </soap:Envelope>

```

### 2540 6.4.3. Response

```

2541 <?xml version="1.0" encoding="utf-8"?>
2542 <soap:Envelope
2543     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2544     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2545     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
2546   <soap:Header>
2547     <wsa:To>http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</wsa:To>
2548     <wsa:Action>
2549       http://schemas.microsoft.com/windows/2006/08/wdp/scan/CancelJobResponse
2550     </wsa:Action>
2551     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2552     <wsa:RelatesTo>uuid:MsgIdOfTheCancelJobRequest</wsa:RelatesTo>
2553   </soap:Header>
2554   <soap:Body>
2555     <wscn:CancelJobResponse/>
2556   </soap:Body>
2557 </soap:Envelope>

```

### 2558 6.4.4. Errors

2559 All the Codes described in section 6.1.1 - Common Operation Error Codes could be returned from this operation. The  
2560 following error could also be returned from this operation.

2561 **6.4.4.1. ClientErrorJobIdNotFound**

2562 This fault is sent when the scanner can not find a job matching the *JobId* argument (including when the argument is not in  
2563 the range: 1 to 2<sup>31</sup>-1).

[Code]	soap:Sender
[Subcode ]	wscn:ClientErrorJobIdNotFound
[Reason]	Specified <i>JobId</i> not found
[Detail]	<i>JobId:Incorrect JobId</i>

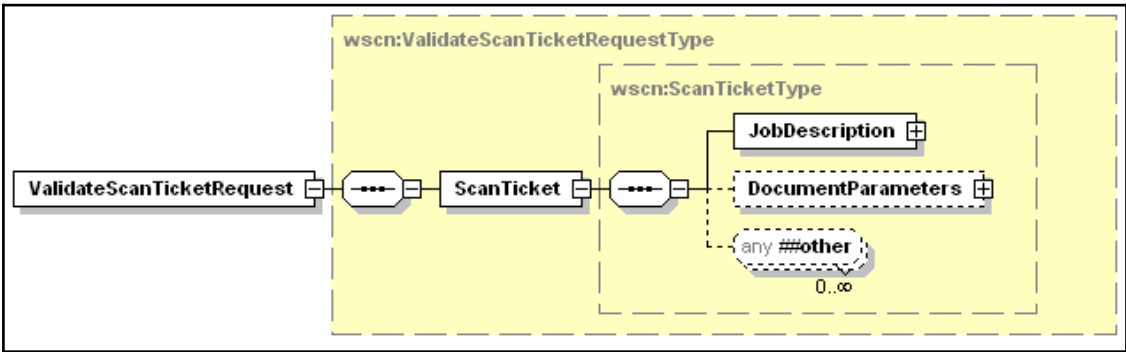
2564 **6.4.5. Effect on State**

2565 The specified job moves to the *Canceled* state if the Job was *Pending* or *Processing*. It is an error to attempt to  
2566 cancel a completed or canceled job or to try and cancel any Job the CP does not have rights to.

2567 **6.5. ValidateScanTicket**

2568 This operation will allow a client to ask the scan device if the settings for a future scan operation are valid. This can be used  
2569 to validate changes/combinations of settings.

2570 **6.5.1. Request Elements**

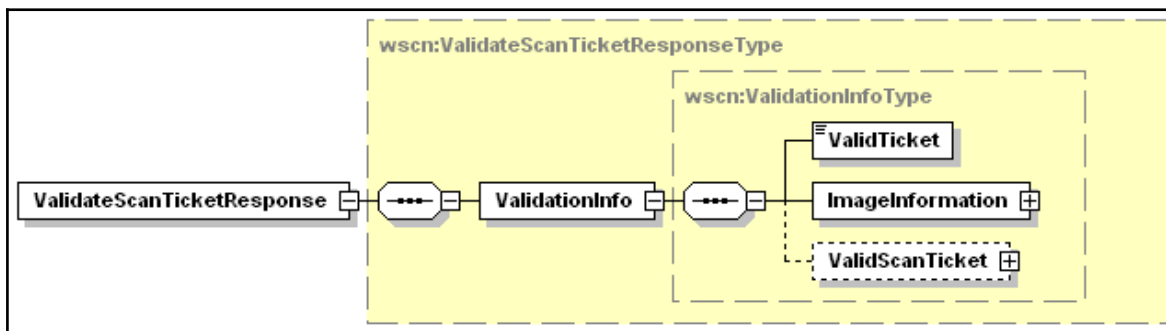


2571  
2572 **Figure 30 - ValidateScanTicketRequest Elements**

2573 **6.5.1.1. ScanTicket**

2574 This element contains all the settings the client wishes to submit in a future scan operation. The scan ticket may contain  
2575 only the processing elements that the client wishes to override in the scanner, or it may contain every possible element  
2576 supported in the scan service. See section 4.8 for more details on the definition of the *ScanTicket*.

## 2577 6.5.2. Response Elements

2578  
2579 Figure 31 - ValidationInfo elements

## 2580 6.5.2.1. ValidationInfo

2581 This element defines whether the *ScanTicket* was valid and if not what data was changed to make the ticket valid.

## 2582 6.5.2.1.1. ValidTicket

2583 This element indicates whether the *ScanTicket* the device received contains all valid settings.

2584 Values: 0, 1, true, false

## 2585 6.5.2.1.2. ImageInformation

2586 This element contains information about the resulting image data from a scan made with the *ScanTicket* that is currently  
2587 being validated. This data is valuable to scan applications for decoding the image within an image file. This data element is  
2588 described in Section 6.2.2.3.

## 2589 6.5.2.1.3. ValidScanTicket

2590 If the initial *ScanTicket* had some invalid settings and the scan device could fix the problems; this element will contain a  
2591 new *ScanTicket* with any invalid options changed to valid data. See section 4.8 for more details on the definition of the  
2592 *ScanTicket*.

## 2593 6.5.3. Example Request – Valid Ticket

```

2594 <?xml version="1.0" encoding="utf-8"?>
2595 <soap:Envelope
2596   xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2597   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2598   xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
2599   <soap:Header>
2600     <wsa:To>AddressofScannerService</wsa:To>
2601     <wsa:Action>
2602       http://schemas.microsoft.com/windows/2006/08/wdp/scan/ValidateScanTicket
2603     </wsa:Action>
2604     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2605   </soap:Header>
2606   <soap:Body>
2607     <wscn:ValidateScanTicketRequest>
2608       <wscn:ScanTicket>
2609         <wscn:JobDescription>
2610           <wscn:JobName>Photo Scan</wscn:JobName>
2611           <wscn:JobOriginatingUserName>RogerSmith</JobOriginatingUserName>
2612         </wscn:JobDescription>
2613         <wscn:DocumentParameters>
2614           <wscn:Format>dib</wscn:Format>
2615           <wscn:InputSource>Platen</wscn:InputSource>
2616           <wscn:ContentType>Auto</wscn:ContentType>
2617           <wscn:InputSize>
2618             <wscn:InputMediaSize>
2619               <wscn:Width>3000</wscn:Width>
2620               <wscn:Height>5000</wscn:Height>
2621             </wscn:InputMediaSize>
2622           </wscn:InputSize>

```

```

2623         <wscn:Scaling>
2624             <wscn:ScalingWidth>125</wscn:ScalingWidth>
2625             <wscn:ScalingHeight>125</wscn:ScalingHeight>
2626         </wscn:Scaling>
2627         <wscn:MediaSides>
2628             <wscn:MediaFront>
2629                 <wscn:ColorProcessing>GrayScale4</wscn:ColorProcessing>
2630                 <wscn:Resolution>
2631                     <wscn:Width>300</wscn:Width>
2632                     <wscn:Height>300</wscn:Height>
2633                 </wscn:Resolution>
2634             </wscn:MediaFront>
2635         </wscn:MediaSides>
2636     </wscn:DocumentParameters>
2637 </wscn:ScanTicket>
2638 </wscn:ValidateScanTicketRequest>
2639 </soap:Body>
2640 </soap:Envelope>

```

## 2641 6.5.4. Example Response – Valid Ticket

```

2642 <?xml version="1.0" encoding="utf-8"?>
2643 <soap:Envelope
2644     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2645     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2646     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan" >
2647     <soap:Header>
2648         <wsa:To>
2649             http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous
2650         </wsa:To>
2651         <wsa:Action>
2652             http://schemas.microsoft.com/windows/2006/08/wdp/scan/ValidateScanTicketResponse
2653         </wsa:Action>
2654         <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2655         <wsa:RelatesTo>uuid:MsgIdOfTheValidateScanTicketRequest</wsa:RelatesTo>
2656     </soap:Header>
2657     <soap:Body>
2658         <wscn:ValidateScanTicketResponse>
2659             <wscn:ValidationInfo>
2660                 <wscn:ValidTicket>true</wscn:ScanIdentifier>
2661                 <wscn:ImageInformation>
2662                     <wscn:MediaFrontImageInfo>
2663                         <wscn:PixelsPerLine>900</wscn:PixelsPerLine>
2664                         <wscn:NumberOfLines>1500</wscn:NumberOfLines>
2665                         <wscn:BytesPerLine>113</wscn:BytesPerLine>
2666                     </wscn:MediaFrontImageInfo>
2667                 </wscn:ImageInformation>
2668             </wscn:ValidationInfo>
2669         </wscn:ValidateScanTicketResponse>
2670     </soap:Body>
2671 </soap:Envelope>

```

## 2672 6.5.5. Example Request – Invalid Ticket

```

2673 <?xml version="1.0" encoding="utf-8"?>
2674 <soap:Envelope
2675     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2676     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2677     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
2678     <soap:Header>
2679         <wsa:To>AddressofScannerService</wsa:To>
2680         <wsa:Action>
2681             http://schemas.microsoft.com/windows/2006/08/wdp/scan/ValidateScanTicket
2682         </wsa:Action>
2683         <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2684     </soap:Header>
2685     <soap:Body>
2686         <wscn:ValidateScanTicketRequest>
2687             <wscn:ScanTicket>
2688                 <wscn:JobDescription>
2689                     <wscn:JobName>Photo Scan</wscn:JobName>
2690                     <wscn:JobOriginatingUserName>RogerSmith</JobOriginatingUserName>
2691                 </wscn:JobDescription>

```

```

2692         <wscn:DocumentParameters>
2693             <wscn:Format>jfif</wscn:Format>
2694             <wscn:InputSource>Platen</wscn:InputSource>
2695             <wscn:ContentType>Auto</wscn:ContentType>
2696             <wscn:InputSize>
2697                 <wscn:DocumentSizeAutoDetect>true</wscn:DocumentSizeAutoDetect>
2698             </wscn:InputSize>
2699             <wscn:Scaling>
2700                 <wscn:ScalingWidth>1250</wscn:ScalingWidth>
2701                 <wscn:ScalingHeight>1250</wscn:ScalingHeight>
2702             </wscn:Scaling>
2703             <wscn:MediaSides>
2704                 <wscn:MediaFront>
2705                     <wscn:Resolution>
2706                         <wscn:Width>350</wscn:Width>
2707                         <wscn:Height>350</wscn:Height>
2708                     </wscn:Resolution>
2709                 </wscn:MediaFront>
2710             </wscn:MediaSides>
2711         </wscn:DocumentParameters>
2712     </wscn:ScanTicket>
2713 </wscn:ValidateScanTicketRequest>
2714 </soap:Body>
2715 </soap:Envelope>

```

## 2716 6.5.6. Example Response – Invalid Ticket

```

2717 <?xml version="1.0" encoding="utf-8"?>
2718 <soap:Envelope
2719     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2720     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2721     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
2722     <soap:Header>
2723         <wsa:To>
2724             http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous
2725         </wsa:To>
2726         <wsa:Action>
2727             http://schemas.microsoft.com/windows/2006/08/wdp/scan/ValidateScanTicketResponse
2728         </wsa:Action>
2729         <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2730         <wsa:RelatesTo>uuid:MsgIdOfTheValidateScanTicketRequest</wsa:RelatesTo>
2731     </soap:Header>
2732     <soap:Body>
2733         <wscn:ValidateScanTicketResponse>
2734             <wscn:ValidationInfo>
2735                 <wscn:ValidTicket>false</wscn:ValidTicket>
2736                 <wscn:ImageInformation>
2737                     <wscn:MediaFrontImageInfo>
2738                         <wscn:PixelsPerLine>0</wscn:PixelsPerLine>
2739                         <wscn:NumberOfLines>0</wscn:NumberOfLines>
2740                         <wscn:BytesPerLine>0</wscn:BytesPerLine>
2741                     </wscn:MediaFrontImageInfo>
2742                 </wscn:ImageInformation>
2743                 <wscn:ValidScanTicket>
2744                     <wscn:JobDescription>
2745                         <wscn:JobName>Photo Scan</wscn:JobName>
2746                         <wscn:JobOriginatingUserName>RogerSmith</wscn:JobOriginatingUserName>
2747                     </wscn:JobDescription>
2748                     <wscn:DocumentParameters>
2749                         <wscn:Format>jfif</wscn:Format>
2750                         <wscn:InputSource>Platen</wscn:InputSource>
2751                         <wscn:ContentType>Auto</wscn:ContentType>
2752                         <wscn:InputSize>
2753                             <wscn:DocumentSizeAutoDetect>true</wscn:DocumentSizeAutoDetect>
2754                         </wscn:InputSize>
2755                         <wscn:Scaling>
2756                             <wscn:ScalingWidth>1000</wscn:ScalingWidth>
2757                             <wscn:ScalingHeight>1000</wscn:ScalingHeight>
2758                         </wscn:Scaling>
2759                         <wscn:MediaSides>
2760                             <wscn:MediaFront>
2761                                 <wscn:Resolution>
2762                                     <wscn:Width>300</wscn:Width>

```

```
2763         <wscn:Height>300</wscn:Height>
2764         </wscn:Resolution>
2765         <wscn:MediaFront>
2766         <wscn:MediaSides>
2767         </wscn:DocumentParameters>
2768         </wscn:ValidScanTicket>
2769         </wscn:ValidationInfo>
2770     </wscn:ValidateScanTicketResponse>
2771 </soap:Body>
2772 </soap:Envelope>
```

2773 **6.5.7. Errors**

2774 All the Codes described in section 6.1.1 - Common Operation Error Codes could be returned from this operation. The  
2775 following error could also be returned from this operation.

2776 **6.5.7.1. ClientErrorConflictingRequiredParameters**

2777 This fault is sent when the there is a conflict between 2 or more *DocumentParameters* elements which each have the  
2778 *MustHonor* attribute set to `true` and using all of the settings supplied with *MustHonor* attributes set to `true` will cause a  
2779 conflict in the scanner mechanism. This conflict cannot be resolved so the *ScanTicket* is invalid.

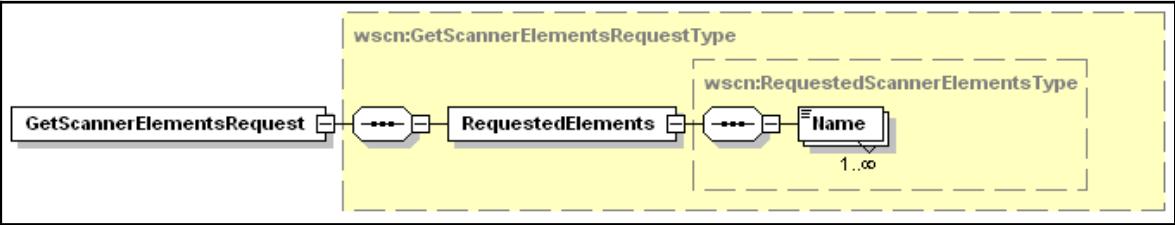
[Code]	soap:Sender
[Subcode ]	wscn: ClientErrorConflictingRequiredParameters
[Reason]	Multiple elements in the <i>DocumentParameters</i> element have <i>MustHonor</i> set to <code>true</code> but applying all settings causes a conflict in the scanner device.
[Detail]	<i>None</i>

2780 **6.6. GetScannerElements**

2781 The **GetScannerElements** operation allows a client (CP) to request information about the scanner. This info includes any  
2782 part of scanner data accessible at the device root level. Examples of this are the configuration, status, default *ScanTicket*, or  
2783 IHV extensions to the Scanner schema.

2784 The **GetScannerElements** operation allows a client to discover standard and vendor extended elements.

2785 **6.6.1. Request Elements**



2786  
2787 **Figure 32 - GetScannerElementsRequest Elements**

2788 **6.6.1.1. RequestedElements**

2789 This data element is a collection of elements that describes the data in which the CP is interested.

2790 **6.6.1.2. Name**

2791 This data element is a QName that represents a location within the Scanner schema. The keyword represents a top level  
2792 section of the scanner schema such as the *ScannerConfiguration* or *DefaultScanTicket*.  
2793



2794 Allowed Values:

2795 *wscn:ScannerDescription*– Get all the descriptive information for the scan device.

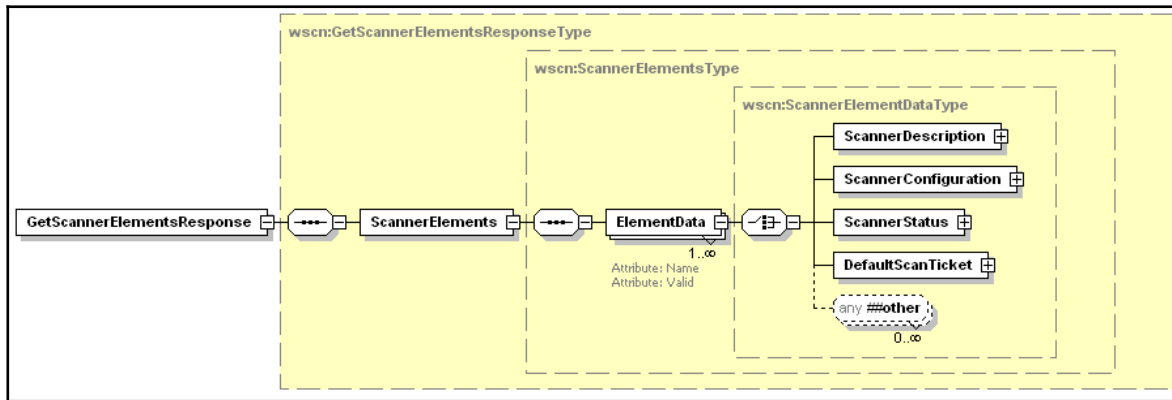
2796 *wscn:ScannerConfiguration*– Get all the configuration information for the scan device.

2797 *wscn:ScannerStatus* – Entire status section including all ActiveConditons and the ConditionHistory

2798 *wscn:DefaultScanTicket* – The current default values for Job creation and processing

2799 *xmlns:VendorSection*– A Vendor defined extension to the Scanner Schema

## 2800 6.6.2. Response Elements



2801  
2802 **Figure 33 - GetScannerElementsResponse Elements**

### 2803 6.6.2.1. ScannerElements

2804 This data element is a collection of all the responses generated by the scan device for the schema queries in the

2805 **GetScannerElements** request.

### 2806 6.6.2.2. ElementData

2807 This data element contains the data returned for one of the schema requests. There will be the same number of *ElementData*

2808 elements in the response as there were *Name* elements in the request.

### 2809 6.6.2.3. Name

2810 This attribute contains the schema QName used to create the data that is returned in the element.

2811

2812 REQUIRED Attribute

### 2813 6.6.2.4. Valid

2814 This attribute indicates whether the schema query value was for a valid or invalid schema keyword within the device

2815 schema. This attribute will be *false* if the requested schema keyword does not map to a valid schema section in the

2816 Scanner schema supported by the device.

2817 REQUIRED Attribute

## 2818 6.6.3. Request - ScannerDescription

```

2819 <?xml version="1.0" encoding="utf-8"?>
2820 <soap:Envelope
2821   xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2822   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2823   xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
2824   <soap:Header>
2825     <wsa:To>AddressofScannerService</wsa:To>
2826     <wsa:Action>
2827       http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetScannerElements
2828     </wsa:Action>
2829     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2830   </soap:Header>
2831   <soap:Body>
2832     <wscn:GetScannerElementsRequest>

```

```

2833         <wscn:RequestedElements>
2834             <wscn:Name>wscn:ScannerDescription</wscn:Name>
2835         </wscn:RequestedElements>
2836     </wscn:GetScannerElementsRequest>
2837 </soap:Body>
2838 </soap:Envelope>

```

## 2839 6.6.4. Response – ScannerDescription

```

2840 <?xml version="1.0" encoding="utf-8"?>
2841 <soap:Envelope
2842     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2843     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2844     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
2845     <soap:Header>
2846         <wsa:To>http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</wsa:To>
2847         <wsa:Action>
2848             http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetScannerElementsResponse
2849         </wsa:Action>
2850         <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2851         <wsa:RelatesTo>uuid:MsgIdOfTheGetScannerElementsRequest</wsa:RelatesTo>
2852     </soap:Header>
2853     <soap:Body>
2854         <wscn:GetScannerElementsResponse>
2855             <wscn:ScannerElements>
2856                 <wscn:ElementData Name="wscn:ScannerDescription" Valid="true">
2857                     <wscn:ScannerDescription>
2858                         <wscn:ScannerName xml:lang="en-AU, en-CA, en-GB, en-US">
2859                             Accounting Scanner in Copy Room 2
2860                         </wscn:ScannerName>
2861                         <wscn:ScannerInfo xml:lang="en-AU, en-CA, en-GB, en-US">
2862                             Scanner for use of Accounting only
2863                         </wscn:ScannerInfo>
2864                         <wscn:ScannerLocation xml:lang="en-AU, en-CA, en-GB, en-US">
2865                             LA Campus - Building 3
2866                         </wscn:ScannerLocation>
2867                     </wscn:ScannerDescription>
2868                 </wscn:ElementData>
2869             </wscn:ScannerElements>
2870         </wscn:GetScannerElementsResponse>
2871     </soap:Body>
2872 </soap:Envelope>

```

## 2873 6.6.5. Request - ScannerStatus

```

2874 <?xml version="1.0" encoding="utf-8"?>
2875 <soap:Envelope
2876     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2877     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2878     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan"
2879     soap:encodingStyle='http://www.w3.org/2002/12/soap-encoding'>
2880     <soap:Header>
2881         <wsa:To>AddressofScannerService</wsa:To>
2882         <wsa:Action>
2883             http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetScannerElements
2884         </wsa:Action>
2885         <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2886     </soap:Header>
2887     <soap:Body>
2888         <wscn:GetScannerElementsRequest>
2889             <wscn:RequestedElements>
2890                 <wscn:Name>wscn:ScannerStatus</wscn:Name>
2891             </wscn:RequestedElements>
2892         </wscn:GetScannerElementsRequest>
2893     </soap:Body>
2894 </soap:Envelope>

```

## 2895 6.6.6. Response – ScannerStatus

```

2896 <?xml version="1.0" encoding="utf-8"?>
2897 <soap:Envelope
2898     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2899     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"

```

```

2900     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
2901     <soap:Header>
2902       <wsa:To>http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</wsa:To>
2903       <wsa:Action>
2904         http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetScannerElementsResponse
2905       </wsa:Action>
2906       <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2907       <wsa:RelatesTo>uuid:MsgIdOfTheGetScannerElementsRequest</wsa:RelatesTo>
2908     </soap:Header>
2909     <soap:Body>
2910       <wscn:GetScannerElementsResponse>
2911         <wscn:ScannerElements>
2912           <wscn:ElementData Name="wscn:ScannerStatus" Valid="true">
2913             <wscn:ScannerStatus>
2914               <wscn:ScannerCurrentTime>2006-01-26T11:17:00Z</wscn:ScannerCurrentTime>
2915               <wscn:ScannerState>Stopped</wscn:ScannerState>
2916               <wscn:ScannerStateReasons>
2917                 <wscn:ScannerStateReason>MediaJam</wscn:ScannerStateReason>
2918                 <wscn:ScannerStateReason>LampError</wscn:ScannerStateReason>
2919               </wscn:ScannerStateReasons>
2920               <wscn:ActiveConditions>
2921                 <wscn:DeviceCondition Id="1384">
2922                   <wscn:Time>2005-01-26T11:07:00Z</wscn:Time>
2923                   <wscn:Name>MediaJam</wscn:Name>
2924                   <wscn:Component>MediaPath</wscn:Component>
2925                   <wscn:Severity>Critical</wscn:Severity>
2926                 </wscn:DeviceCondition>
2927                 <wscn:DeviceCondition Id="534">
2928                   <wscn:Time>2005-01-26T11:09:12Z</wscn:Time>
2929                   <wscn:Name>LampError</wscn:Name>
2930                   <wscn:Component>Platen</wscn:Component>
2931                   <wscn:Severity>Warning</wscn:Severity>
2932                 </wscn:DeviceCondition>
2933               </wscn:ActiveConditions>
2934             </wscn:ScannerStatus>
2935           </wscn:ElementData>
2936         </wscn:ScannerElements>
2937       </wscn:GetScannerElementsResponse>
2938     </soap:Body>
2939   </soap:Envelope>

```

## 2940 6.6.7. Request – ScannerConfiguration and Invalid entry

```

2941 <?xml version="1.0" encoding="utf-8"?>
2942 <soap:Envelope
2943   xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2944   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2945   xmlns:wscn="http://schemas.microsoft.com/windows/2006/08/wdp/scan"
2946   xmlns:ihv="http://www.example.com/extension">
2947   <soap:Header>
2948     <wsa:To>AddressofScannerService</wsa:To>
2949     <wsa:Action>
2950       http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetScannerElements
2951     </wsa:Action>
2952     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2953   </soap:Header>
2954   <soap:Body>
2955     <wscn:GetScannerElementsRequest>
2956       <wscn:RequestedElements>
2957         <wscn:Name>wscn:ScannerConfiguration</wscn:Name>
2958         <wscn:Name>ihv:InvalidRequestEntry</wscn:Name>
2959       </wscn:RequestedElements>
2960     </wscn:GetScannerElementsRequest>
2961   </soap:Body>
2962 </soap:Envelope>

```

## 2963 6.6.8. Response – ScannerConfiguration and Invalid entry

```

2964 <?xml version="1.0" encoding="utf-8"?>
2965 <soap:Envelope
2966   xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2967   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2968   xmlns:wscn="http://schemas.microsoft.com/windows/2006/08/wdp/scan"

```

```

2969     xmlns:ihv="http://www.example.com/extention">
2970     <soap:Header>
2971       <wsa:To>http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</wsa:To>
2972       <wsa:Action>
2973         http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetScannerElementsResponse
2974       </wsa:Action>
2975       <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2976       <wsa:RelatesTo>uuid:MsgIdOfTheGetScannerElementsRequest</wsa:RelatesTo>
2977     </soap:Header>
2978     <soap:Body>
2979       <wscn:GetScannerElementsResponse>
2980         <wscn:ScannerElements>
2981           <wscn:ElementData Name="wscn:ScannerConfiguration" Valid="true">
2982             <wscn:ScannerConfiguration>
2983               <wscn:DeviceSettings>
2984                 <wscn:FormatsSupported>
2985                   <wscn:FormatValue>dib</wscn:FormatValue>
2986                   <wscn:FormatValue>exif</wscn:FormatValue>
2987                   <wscn:FormatValue>jpeg2k</wscn:FormatValue>
2988                   <wscn:FormatValue>pdf-a</wscn:FormatValue>
2989                   <wscn:FormatValue>png</wscn:FormatValue>
2990                   <wscn:FormatValue>tiff-single-uncompressed</wscn:FormatValue>
2991                   <wscn:FormatValue>tiff-single-g4</wscn:FormatValue>
2992                   <wscn:FormatValue>tiff-multi-uncompressed</wscn:FormatValue>
2993                   <wscn:FormatValue>tiff-multi-g4</wscn:FormatValue>
2994                   <wscn:FormatValue>xps</wscn:FormatValue>
2995                 </wscn:FormatsSupported>
2996                 <wscn:CompressionQualityFactorSupported>
2997                   <wscn:MinValue>15</wscn:MinValue>
2998                   <wscn:MaxValue>100</wscn:MaxValue>
2999                 </wscn:CompressionQualityFactorSupported>
3000                 <wscn:ContentTypesSupported>
3001                   <wscn:ContentTypeValue>Auto</wscn:ContentTypeValue>
3002                   <wscn:ContentTypeValue>Text</wscn:ContentTypeValue>
3003                   <wscn:ContentTypeValue>Photo</wscn:ContentTypeValue>
3004                   <wscn:ContentTypeValue>Halftone </wscn:ContentTypeValue>
3005                   <wscn:ContentTypeValue>Mixed</wscn:ContentTypeValue>
3006                 </wscn:ContentTypesSupported>
3007                 <wscn:DocumentSizeAutoDetectSupported>
3008                   true
3009                 </wscn:DocumentSizeAutoDetectSupported>
3010                 <wscn:AutoExposureSupported>true</wscn:AutoExposureSupported>
3011                 <wscn:BrightnessSupported>true</wscn:BrightnessSupported>
3012                 <wscn:ContrastSupported>true</wscn:ContrastSupported>
3013                 <wscn:ScalingRangeSupported>
3014                   <wscn:ScalingWidth>
3015                     <wscn:MinValue>50</wscn:MinValue>
3016                     <wscn:MaxValue>500</wscn:MaxValue>
3017                   </wscn:ScalingWidth>
3018                   <wscn:ScalingHeight>
3019                     <wscn:MinValue>50</wscn:MinValue>
3020                     <wscn:MaxValue>500</wscn:MaxValue>
3021                   </wscn:ScalingHeight>
3022                 </wscn:ScalingRangeSupported>
3023                 <wscn:RotationsSupported>
3024                   <wscn:RotationValue>0</wscn:RotationValue>
3025                   <wscn:RotationValue>90</wscn:RotationValue>
3026                   <wscn:RotationValue>180</wscn:RotationValue>
3027                   <wscn:RotationValue>270</wscn:RotationValue>
3028                 </wscn:RotationsSupported>
3029               </wscn:DeviceSettings>
3030               <wscn:Platen>
3031                 <wscn:PlatenOpticalResolution>
3032                   <wscn:Width>1200</wscn:Width>
3033                   <wscn:Height>1200</wscn:Height>
3034                 </wscn:PlatenOpticalResolution>
3035                 <wscn:PlatenResolutions>
3036                   <wscn:Widths>
3037                     <wscn:Width>150</wscn:Width>
3038                     <wscn:Width>204</wscn:Width>
3039                     <wscn:Width>300</wscn:Width>
3040                     <wscn:Width>600</wscn:Width>
3041                     <wscn:Width>1200</wscn:Width>

```

```

3042         </wscn:Widths>
3043         <wscn:Heights>
3044             <wscn:Height>96</wscn:Height>
3045             <wscn:Height>150</wscn:Height>
3046             <wscn:Height>204</wscn:Height>
3047             <wscn:Height>300</wscn:Height>
3048             <wscn:Height>600</wscn:Height>
3049             <wscn:Height>900</wscn:Height>
3050             <wscn:Height>1200</wscn:Height>
3051         </wscn:Heights>
3052     </wscn:PlatenResolutions>
3053     <wscn:PlatenColor>
3054         <wscn:ColorEntry>BlackAndWhite1</wscn:ColorEntry>
3055         <wscn:ColorEntry>Grayscale4</wscn:ColorEntry>
3056         <wscn:ColorEntry>Grayscale8</wscn:ColorEntry>
3057         <wscn:ColorEntry>RGB24</wscn:ColorEntry>
3058         <wscn:ColorEntry>RGB48</wscn:ColorEntry>
3059         <wscn:ColorEntry>RGBa32</wscn:ColorEntry>
3060         <wscn:ColorEntry>RGBa64</wscn:ColorEntry>
3061     </wscn:PlatenColor>
3062     <wscn:PlatenMinimumSize>
3063         <wscn:Width>250</wscn:Width>
3064         <wscn:Height>250</wscn:Height>
3065     </wscn:PlatenMinimumSize>
3066     <wscn:PlatenMaximumSize>
3067         <wscn:Width>11000</wscn:Width>
3068         <wscn:Height>14000</wscn:Height>
3069     </wscn:PlatenMaximumSize>
3070 </wscn:Platen>
3071 <wscn:ADF>
3072     <wscn:ADFSupportsDuplex>false</wscn:ADFSupportsDuplex>
3073     <wscn:ADFFront>
3074         <wscn:ADFOpticalResolution>
3075             <wscn:Width>600</wscn:Width>
3076             <wscn:Height>600</wscn:Height>
3077         </wscn:ADFOpticalResolution>
3078         <wscn:ADFResolutions>
3079             <wscn:Widths>
3080                 <wscn:Width>150</wscn:Width>
3081                 <wscn:Width>204</wscn:Width>
3082                 <wscn:Width>300</wscn:Width>
3083                 <wscn:Width>600</wscn:Width>
3084             </wscn:Widths>
3085             <wscn:Heights>
3086                 <wscn:Height>96</wscn:Height>
3087                 <wscn:Height>150</wscn:Height>
3088                 <wscn:Height>204</wscn:Height>
3089                 <wscn:Height>300</wscn:Height>
3090                 <wscn:Height>600</wscn:Height>
3091             </wscn:Heights>
3092         </wscn:ADFResolutions>
3093         <wscn:ADFColor>
3094             <wscn:ColorEntry>BlackAndWhite1</wscn:ColorEntry>
3095             <wscn:ColorEntry>Grayscale4</wscn:ColorEntry>
3096             <wscn:ColorEntry>RGB24</wscn:ColorEntry>
3097         </wscn:ADFColor>
3098         <wscn:ADFMinimumSize>
3099             <wscn:Width>4000</wscn:Width>
3100             <wscn:Height>6000</wscn:Height>
3101         </wscn:ADFMinimumSize>
3102         <wscn:ADFMaximumSize>
3103             <wscn:Width>8500</wscn:Width>
3104             <wscn:Height>11000</wscn:Height>
3105         </wscn:ADFMaximumSize>
3106     </wscn:ADFFront>
3107 </wscn:ADF>
3108 <wscn:Film>
3109     <wscn:FilmScanModesSupported>
3110         <wscn:FilmScanModeValue>
3111             ColorSlideFilm
3112         </wscn:FilmScanModeValue>
3113         <wscn:FilmScanModeValue>
3114             ColorNegativeFilm

```

```

3115         </wscn:FilmScanModeValue>
3116         <wscn:FilmScanModeValue>
3117             BlackandWhiteNegativeFilm
3118         </wscn:FilmScanModeValue>
3119     </wscn:FilmScanModesSupported>
3120     <wscn:FilmOpticalResolution>
3121         <wscn:Width>600</wscn:Width>
3122         <wscn:Height>600</wscn:Height>
3123     </wscn:FilmOpticalResolution>
3124     <wscn:FilmResolutions>
3125         <wscn:Widths>
3126             <wscn:Width>150</wscn:Width>
3127             <wscn:Width>300</wscn:Width>
3128             <wscn:Width>600</wscn:Width>
3129         </wscn:Widths>
3130         <wscn:Heights>
3131             <wscn:Height>150</wscn:Height>
3132             <wscn:Height>300</wscn:Height>
3133             <wscn:Height>600</wscn:Height>
3134         </wscn:Heights>
3135     </wscn:FilmResolutions>
3136     <wscn:FilmColor>
3137         <wscn:ColorEntry>BlackAndWhite1</wscn:ColorEntry>
3138         <wscn:ColorEntry>Grayscale4</wscn:ColorEntry>
3139         <wscn:ColorEntry>RGB24</wscn:ColorEntry>
3140         <wscn:ColorEntry>RGBa32</wscn:ColorEntry>
3141     </wscn:FilmColor>
3142     <wscn:FilmMinimumSize>
3143         <wscn:Width>1378</wscn:Width>
3144         <wscn:Height>1378</wscn:Height>
3145     </wscn:FilmMinimumSize>
3146     <wscn:FilmMaximumSize>
3147         <wscn:Width>2756</wscn:Width>
3148         <wscn:Height>10000</wscn:Height>
3149     </wscn:FilmMaximumSize>
3150 </wscn:Film>
3151 </wscn:ScannerConfiguration>
3152 </wscn:ElementData>
3153 <wscn:ElementData Name="ihv:InvalidRequestEntry" Valid="false"/>
3154 </wscn:ScannerElements>
3155 </wscn:GetScannerElementsResponse>
3156 </soap:Body>
3157 </soap:Envelope>

```

## 3158 6.6.9. Errors

3159 All the Codes described in section 6.1.1 - Common Operation Error Codes could be returned from this operation.

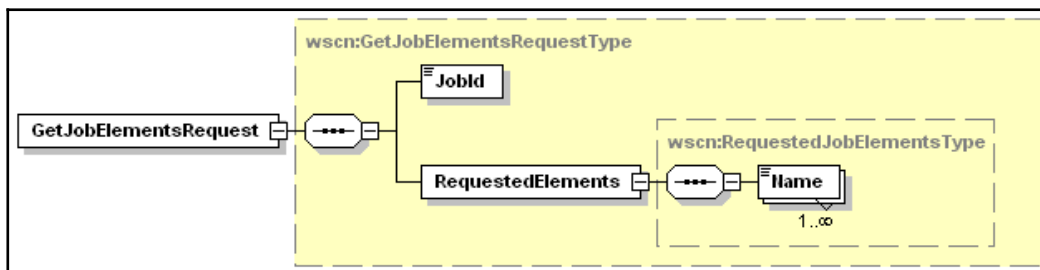
## 3160 6.7. GetJobElements

3161 The **GetJobElements** operation allows a client (CP) to access job-related information of the specified job with a *JobId*  
3162 from 1 to  $2^{31}-1$ . The information returned complies with the full scan job schema.

3163 If the specified job is not found, the fault *ClientErrorJobIdNotFound* is returned. Any job not found either never existed or  
3164 has been purged from the system and is no longer known to the Scan Service.

3165 The **GetJobElements** operation allows a client to discover standard and vendor extended elements.

## 3166 6.7.1. Request Elements



3167  
3168 **Figure 34 - GetJobElementsRequest Elements**

### 3169 6.7.1.1. JobId

3170 This data element contains the *JobId* of the Job about which the client is request information. This data element is described  
3171 in Section 4.5.1.1

### 3172 6.7.1.2. RequestedElements

3173 This data element is a collection of elements that describes the data in which the CP is interested.

### 3174 6.7.1.3. Name

3175 This data element is a QName that represents a location within the Job schema. The keyword represents a top level section  
3176 of the Job schema such as the *JobStatus* or *ScanTicket*.

3177  
3178 Allowed Values:

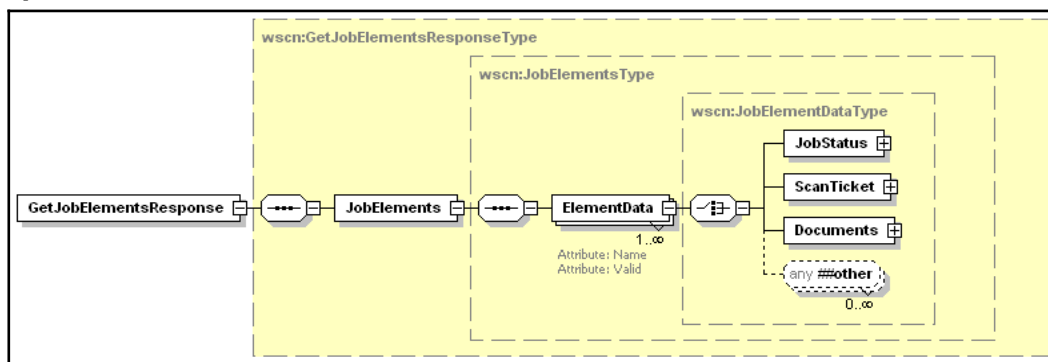
3179 *wscn:JobStatus* – Get the current *JobStatus* element for the specified Job.

3180 *wscn:ScanTicket* – Get the *ScanTicket* element for the specified Job

3181 *wscn:Documents* - Get the *Documents* element for the specified Job

3182 *xmlns:VendorSection*– A Vendor defined extension to the Job Schema

## 3183 6.7.2. Response Elements



3184  
3185 **Figure 35 - GetJobElementsResponse Elements**

### 3186 6.7.2.1. JobElements

3187 This data element is a collection of all the responses generated by the scan device for the schema queries in the  
3188 **GetJobElements** request.

### 3189 6.7.2.2. ElementData

3190 This data element contains the data returned for one of the schema requests. There will be the same number of *ElementData*  
3191 elements in the response as there were *Name* elements in the request.

### 3192 6.7.2.3. Name

3193 This attribute contains the schema QName used to create the data that is returned in the element.

**3194 6.7.2.4. Valid**

3195 This attribute indicates whether the schema query value was for a valid or invalid schema keyword within the device  
 3196 schema. This attribute will be `false` if the requested schema keyword does not map to a valid schema section in the Job  
 3197 schema supported by the device.

**3198 6.7.3. Request**

```

3199 <?xml version="1.0" encoding="utf-8"?>
3200 <soap:Envelope
3201     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
3202     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
3203     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
3204   <soap:Header>
3205     <wsa:To>AddressofScannerService</wsa:To>
3206     <wsa:Action>
3207       http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetJobElements
3208     </wsa:Action>
3209     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
3210   </soap:Header>
3211   <soap:Body>
3212     <wscn:GetJobElements>
3213       <wscn:JobId>1</wscn:JobId>
3214       <wscn:RequestedElements>
3215         <wscn:Name>wscn:JobStatus</wscn:Name>
3216       </wscn:RequestedElements>
3217     </wscn:GetJobElements>
3218   </soap:Body>
3219 </soap:Envelope>
3220
```

**3221 6.7.4. Response**

```

3222 <?xml version="1.0" encoding="utf-8"?>
3223 <soap:Envelope
3224     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
3225     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
3226     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
3227   <soap:Header>
3228     <wsa:To>http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</wsa:To>
3229     <wsa:Action>
3230       http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetJobElementsResponse
3231     </wsa:Action>
3232     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
3233     <wsa:RelatesTo>uuid:MsgIdOfTheGetJobElementsRequest</wsa:RelatesTo>
3234   </soap:Header>
3235   <soap:Body>
3236     <wscn:GetJobElementsResponse>
3237       <wscn:JobElements>
3238         <wscn:ElementData Name="wscn:JobStatus" Valid="true">
3239           <wscn:JobStatus>
3240             <wscn:JobId>1</wscn:JobId>
3241             <wscn:JobState>Completed</wscn:JobState>
3242             <wscn:ScansCompleted>1</wscn:ScansCompleted>
3243           </wscn:JobStatus>
3244         </wscn:ElementData>
3245       </wscn:JobElements>
3246     </wscn:GetJobElementsResponse >
3247   </soap:Body>
3248 </soap:Envelope>

```

**3249 6.7.5. Errors**

3250 All the Codes described in section 6.1.1 - Common Operation Error Codes could be returned from this operation. The  
 3251 following error could also be returned from this operation.

**3252 6.7.5.1. ClientErrorJobIdNotFound**

3253 This fault is sent when the scanner can not find a job matching the *JobId* argument (including when the argument is not in  
 3254 the range: 1 to 2<sup>31</sup>-1).



[Code]	soap:Sender
[Subcode]	wscn:ClientErrorJobIdNotFound
[Reason]	Specified <i>JobId</i> not found
[Detail]	<i>JobId:Incorrect JobId</i>

3255 **6.8. GetActiveJobs**

3256 The **GetActiveJobs** operation allows a client (CP) to retrieve a list containing a summary of the currently active jobs. The  
3257 list of Jobs returned contains information such as the *JobId*, *JobOriginatingUserName* and the *JobName*. To retrieve more  
3258 detailed information on a Job use the **GetJobElements** operation (section 6.7)

3259 **6.8.1. Response Elements**

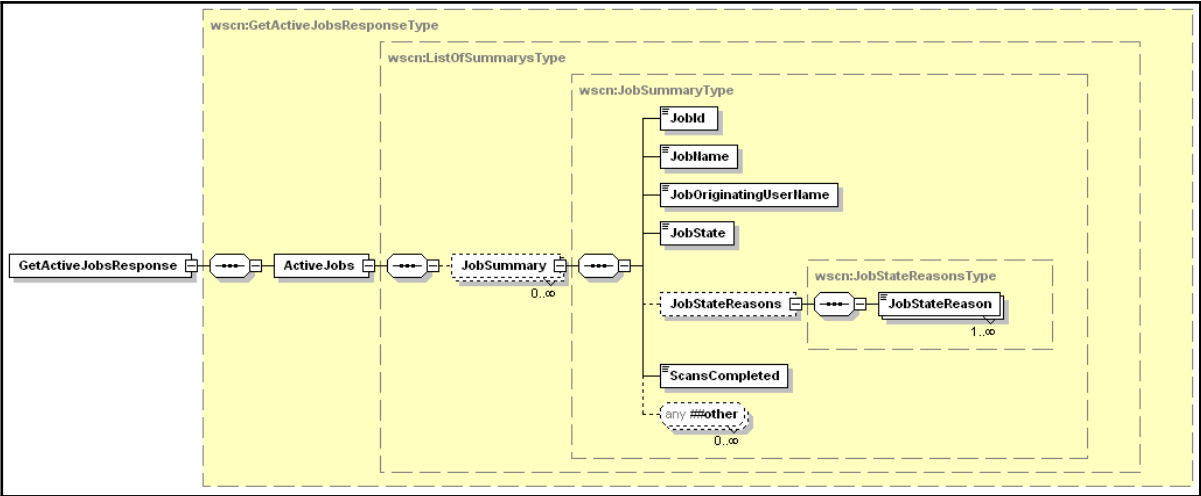


Figure 36 - GetActiveJobsResponse Elements

3262 **6.8.1.1. ActiveJobs**

3263 This data element is a collection of *JobSummary* elements that describe all the currently active jobs in the scan device.

3264 **6.8.1.1.1. JobSummary**

3265 This data element collects a subset of information about a Job currently active within the scan device. The individual  
3266 elements are detailed in the following sections.

3267 **6.8.1.1.1.1. JobId**

3268 This data element is the *JobId* of the current job entry. This data element is described in Section 4.5.1.1

3269 **6.8.1.1.1.2. JobName**

3270 This data element is described in Section 4.5.2.1.1

3271 **6.8.1.1.1.3. JobOriginatingUserName**

3272 This data element is described in Section 4.5.2.1.2

3273 **6.8.1.1.1.4. JobState**

3274 This data element is described in Section 4.5.1.2

**3275 6.8.1.1.1.5. JobStateReasons**

3276 This data element is described in Section 4.5.1.3

**3277 6.8.1.1.1.5.1. JobStateReason**

3278 This data element is described in Section 4.5.1.3.1

**3279 6.8.1.1.1.6. ScansCompleted**

3280 This data element is described in Section 4.5.1.6

**3281 6.8.2. Example Request**

```

3282 <?xml version="1.0" encoding="utf-8"?>
3283 <soap:Envelope
3284     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
3285     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
3286     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
3287   <soap:Header>
3288     <wsa:To>AddressofScannerService</wsa:To>
3289     <wsa:Action>
3290       http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetActiveJobs
3291     </wsa:Action>
3292     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
3293   </soap:Header>
3294   <soap:Body>
3295     <wscn:GetActiveJobsRequest/>
3296   </soap:Body>
3297 </soap:Envelope>
3298

```

**3299 6.8.3. Example Response – No Active Jobs**

```

3300 <?xml version="1.0" encoding="utf-8"?>
3301 <soap:Envelope
3302     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
3303     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
3304     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
3305   <soap:Header>
3306     <wsa:To>http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</wsa:To>
3307     <wsa:Action>
3308       http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetActiveJobsResponse
3309     </wsa:Action>
3310     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
3311     <wsa:RelatesTo>uuid:MsgIdOfTheGetActiveJobsRequest</wsa:RelatesTo>
3312   </soap:Header>
3313   <soap:Body>
3314     <wscn:GetActiveJobsResponse>
3315       <wscn:ActiveJobs/>
3316     </wscn:GetActiveJobsResponse>
3317   </soap:Body>
3318 </soap:Envelope>

```

**3319 6.8.4. Example Response – Two Active Jobs**

```

3320 <?xml version="1.0" encoding="utf-8"?>
3321 <soap:Envelope
3322     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
3323     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
3324     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
3325   <soap:Header>
3326     <wsa:To>http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</wsa:To>
3327     <wsa:Action>
3328       http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetActiveJobsResponse
3329     </wsa:Action>
3330     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
3331     <wsa:RelatesTo>uuid:MsgIdOfTheGetActiveJobsRequest</wsa:RelatesTo>
3332   </soap:Header>
3333   <soap:Body>
3334     <wscn:GetActiveJobsResponse>
3335       <wscn:ActiveJobs>

```

```

3336      <wscn:JobSummary>
3337        <wscn:JobId>1</wscn:JobId>
3338        <wscn:JobName>SampleJob 1</wscn:JobName>
3339        <wscn:JobOriginatingUserName>Joe.Smith</wscn:JobOriginatingUserName>
3340        <wscn:JobState>Processing</wscn:JobState>
3341        <wscn:JobStateReasons>
3342          <wscn:JobStateReason>JobScanning</wscn:JobStateReason>
3343        </wscn:JobStateReasons>
3344        <wscn:ScansCompleted>2</wscn:ScansCompleted>
3345      </wscn:JobSummary>
3346    <wscn:JobSummary>
3347      <wscn:JobId>2</wscn:JobId>
3348      <wscn:JobName>Sample Job 2</wscn:JobName>
3349      <wscn:JobOriginatingUserName>JaneSmith</wscn:JobOriginatingUserName>
3350      <wscn:JobState>Pending</wscn:JobState>
3351      <wscn:JobStateReasons>
3352        <wscn:JobStateReason>None</wscn:JobStateReason>
3353      </wscn:JobStateReasons>
3354      <wscn:ScansCompleted>0</wscn:ScansCompleted>
3355    </wscn:JobSummary>
3356  </wscn:ActiveJobs>
3357 </wscn:GetActiveJobsResponse>
3358 </soap:Body>
3359 </soap:Envelope>

```

### 6.8.5. Errors

All the Codes described in section 6.1.1 - Common Operation Error Codes could be returned from this operation.

## 6.9. GetJobHistory

The **GetJobHistory** operation allows a client (CP) to retrieve a list containing a summary of some of the recently previously completed jobs. The list of Jobs returned contains information such as *JobId*, *JobOriginatingUserName* and the *JobName*. To retrieve more detailed information on a Job use the **GetJobElements** operation (section 6.7)

How much Job history the device keeps is completely device specific. Each device can keep as much or as little history as it deems useful/practical.

### 6.9.1. Response Elements

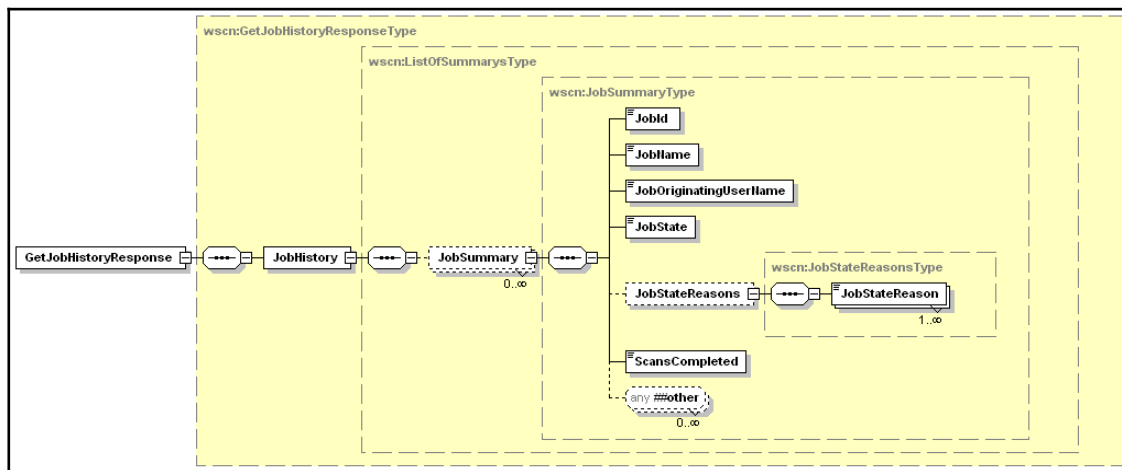


Figure 37 - GetJobHistoryResponse Elements

#### 6.9.1.1. JobHistory

This data element is a collection of *JobSummary* elements that describes the most recently completed jobs in the scan device.

**3374 6.9.1.2. JobSummary**

3375 This data element collects a subset of information about a recently completed Job within the scan device. This data element  
3376 is described in Section 6.8.1.1.1.

**3377 6.9.2. Example Request**

```
3378 <?xml version="1.0" encoding="utf-8"?>
3379 <soap:Envelope
3380     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
3381     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
3382     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
3383   <soap:Header>
3384     <wsa:To>AddressofScannerService</wsa:To>
3385     <wsa:Action>
3386       http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetJobHistory
3387     </wsa:Action>
3388     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
3389   </soap:Header>
3390   <soap:Body>
3391     <wscn:GetJobHistoryRequest/>
3392   </soap:Body>
3393 </soap:Envelope>
```

**3394 6.9.3. Example Response – No Job History**

```
3395 <?xml version="1.0" encoding="utf-8"?>
3396 <soap:Envelope
3397     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
3398     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
3399     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
3400   <soap:Header>
3401     <wsa:To>http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</wsa:To>
3402     <wsa:Action>
3403       http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetJobHistoryResponse
3404     </wsa:Action>
3405     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
3406     <wsa:RelatesTo>uuid:MsgIdOfTheGetJobHistoryRequest</wsa:RelatesTo>
3407   </soap:Header>
3408   <soap:Body>
3409     <wscn:GetJobHistoryResponse>
3410       <wscn:JobHistory/>
3411     </wscn:GetJobHistoryResponse>
3412   </soap:Body>
3413 </soap:Envelope>
```

**3414 6.9.4. Example Response – 2 Completed Jobs**

```
3415 <?xml version="1.0" encoding="utf-8"?>
3416 <soap:Envelope
3417     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
3418     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
3419     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
3420   <soap:Header>
3421     <wsa:To>http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</wsa:To>
3422     <wsa:Action>
3423       http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetJobHistoryResponse
3424     </wsa:Action>
3425     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
3426     <wsa:RelatesTo>uuid:MsgIdOfTheGetJobHistoryRequest</wsa:RelatesTo>
3427   </soap:Header>
3428   <soap:Body>
3429     <wscn:GetJobHistoryResponse>
3430       <wscn:JobHistory>
3431         <wscn:JobSummary>
3432           <wscn:JobId>1</wscn:JobId>
3433           <wscn:JobName>SampleJob 1</wscn:JobName>
3434           <wscn:JobOriginatingUserName>Joe.Smith</wscn:JobOriginatingUserName>
3435           <wscn:JobState>Completed</wscn:JobState>
3436           <wscn:JobStateReasons>
3437             <wscn:JobStateReason>JobCompletedSuccessfully</wscn:JobStateReason>
3438           </wscn:JobStateReasons>
3439           <wscn:ScansCompleted>4</wscn:ScansCompleted>
```

```
3440         </wscn:JobSummary>
3441         <wscn:JobSummary>
3442             <wscn:JobId>2</wscn:JobId>
3443             <wscn:JobName>Sample Job 2</wscn:JobName>
3444             <wscn:JobOriginatingUserName>JaneRogers</wscn:JobOriginatingUserName>
3445             <wscn:JobState>Canceled</wscn:JobState>
3446             <wscn:JobStateReasons>
3447                 <wscn:JobStateReason>JobCanceledAtDevice</wscn:JobStateReason>
3448             </wscn:JobStateReasons>
3449             <wscn:ScansCompleted>1</wscn:ScansCompleted>
3450         </wscn:JobSummary>
3451     </wscn:JobHistory>
3452 </wscn:GetJobHistoryResponse>
3453 </soap:Body>
3454 </soap:Envelope>
```

### 3455 6.9.5. Errors

3456 All the Codes described in section 6.1.1 - Common Operation Error Codes could be returned from this operation.

## 3457 6.10. Non-Standard Operations Implemented by a WSD Vendor

3458 To facilitate certification, non-standard operations implemented by WSD vendors MUST be part of a new porttype that  
3459 extends the porttype defined in this specification.

## 3460 Appendix A. WSDL Service Description

### 3461 Scan Device WSDL

```

3462 <wsdl:definitions xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
3463     xmlns:wsoap12="http://schemas.xmlsoap.org/wsdl/soap12/"
3464     xmlns:wsoap12="http://schemas.xmlsoap.org/ws/2006/02/devprof"
3465     xmlns:wsp="http://schemas.xmlsoap.org/ws/2004/09/policy"
3466     xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-
3467 utility-1.0.xsd"
3468     xmlns:wscn="http://schemas.microsoft.com/windows/2006/08/wdp/scan"
3469     targetNamespace="http://schemas.microsoft.com/windows/2006/08/wdp/scan"
3470     name="WSDSDevice">
3471
3472     <wsp:Policy wsu:Id="DevicePolicy">
3473         <wsdp:Profile />
3474     </wsp:Policy>
3475
3476     <wsdl:portType name="ScanDeviceType" />
3477
3478     <wsdl:binding name="ScannerSoapBinding" type="wscn:ScanDeviceType" >
3479         <wsoap12:binding style="document" transport="http://schemas.xmlsoap.org/soap/http" />
3480         <wsp:PolicyReference URI="#DevicePolicy" wsdl:required="true" />
3481     </wsdl:binding>
3482
3483 </wsdl:definitions>

```

### 3484 Scanner Service WSDL

```

3485 <definitions xmlns="http://schemas.xmlsoap.org/wsdl/"
3486     xmlns:wsoap12="http://schemas.xmlsoap.org/wsdl/soap12/"
3487     xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
3488     xmlns:xs="http://www.w3.org/2001/XMLSchema"
3489     xmlns:wsoap12="http://schemas.xmlsoap.org/ws/2006/02/devprof"
3490     xmlns:wsp="http://schemas.xmlsoap.org/ws/2004/09/policy"
3491     xmlns:wsdl="http://schemas.xmlsoap.org/ws/2005/04/discovery"
3492     xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing"
3493     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
3494     xmlns:wscn="http://schemas.microsoft.com/windows/2006/08/wdp/scan"
3495     xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-
3496 utility-1.0.xsd"
3497     targetNamespace="http://schemas.microsoft.com/windows/2006/08/wdp/scan"
3498     name="WSDScannerService">
3499
3500     <xs:annotation>
3501         <xs:documentation>
3502             WSD Scanner Service Web Service Description (WSDL) file
3503             Copyright 2005-2006 Microsoft Corporation. All rights reserved
3504         </xs:documentation>
3505     </xs:annotation>
3506
3507     <wsp:Policy wsu:Id="ServicePolicy">
3508         <wsdp:Profile />
3509     </wsp:Policy>
3510
3511     <types>
3512         <xs:schema targetNamespace="http://schemas.microsoft.com/windows/2006/08/wdp/scan">
3513             <xs:include schemaLocation="WDPScan.xsd"/>
3514         </xs:schema>
3515     </types>
3516
3517     <message name="CreateScanJobRequestMsg">
3518         <part name="body" element="wscn:CreateScanJobRequest"/>
3519     </message>
3520     <message name="CreateScanJobResponseMsg">
3521         <part name="body" element="wscn:CreateScanJobResponse"/>
3522     </message>
3523     <message name="RetrieveImageRequestMsg">
3524         <part name="body" element="wscn:RetrieveImageRequest"/>
3525     </message>
3526     <message name="RetrieveImageResponseMsg">
3527         <part name="body" element="wscn:RetrieveImageResponse"/>
3528     </message>

```

```

3529 <message name="CancelJobRequestMsg">
3530 <part name="body" element="wscn:CancelJobRequest"/>
3531 </message>
3532 <message name="CancelJobResponseMsg">
3533 <part name="body" element="wscn:CancelJobResponse"/>
3534 </message>
3535 <message name="ValidateScanTicketRequestMsg">
3536 <part name="body" element="wscn:ValidateScanTicketRequest"/>
3537 </message>
3538 <message name="ValidateScanTicketResponseMsg">
3539 <part name="body" element="wscn:ValidateScanTicketResponse"/>
3540 </message>
3541 <message name="GetScannerElementsRequestMsg">
3542 <part name="body" element="wscn:GetScannerElementsRequest"/>
3543 </message>
3544 <message name="GetScannerElementsResponseMsg">
3545 <part name="body" element="wscn:GetScannerElementsResponse"/>
3546 </message>
3547 <message name="GetJobElementsRequestMsg">
3548 <part name="body" element="wscn:GetJobElementsRequest"/>
3549 </message>
3550 <message name="GetJobElementsResponseMsg">
3551 <part name="body" element="wscn:GetJobElementsResponse"/>
3552 </message>
3553 <message name="GetActiveJobsRequestMsg">
3554 <part name="body" element="wscn:GetActiveJobsRequest"/>
3555 </message>
3556 <message name="GetActiveJobsResponseMsg">
3557 <part name="body" element="wscn:GetActiveJobsResponse"/>
3558 </message>
3559 <message name="GetJobHistoryRequestMsg">
3560 <part name="body" element="wscn:GetJobHistoryRequest"/>
3561 </message>
3562 <message name="GetJobHistoryResponseMsg">
3563 <part name="body" element="wscn:GetJobHistoryResponse"/>
3564 </message>
3565 <message name="ScanAvailableEventMsg">
3566 <part name="body" element="wscn:ScanAvailableEvent"/>
3567 </message>
3568 <message name="ScannerElementsChangeEventMsg">
3569 <part name="body" element="wscn:ScannerElementsChangeEvent"/>
3570 </message>
3571 <message name="ScannerStatusSummaryEventMsg">
3572 <part name="body" element="wscn:ScannerStatusSummaryEvent"/>
3573 </message>
3574 <message name="ScannerStatusConditionEventMsg">
3575 <part name="body" element="wscn:ScannerStatusConditionEvent"/>
3576 </message>
3577 <message name="ScannerStatusConditionClearedEventMsg">
3578 <part name="body" element="wscn:ScannerStatusConditionClearedEvent"/>
3579 </message>
3580 <message name="JobStatusEventMsg">
3581 <part name="body" element="wscn:JobStatusEvent"/>
3582 </message>
3583 <message name="JobEndStateEventMsg">
3584 <part name="body" element="wscn:JobEndStateEvent"/>
3585 </message>
3586
3587 <portType name="ScannerServiceType" wse:EventSource="true">
3588 <operation name="CreateScanJob">
3589 <input message="wscn:CreateScanJobRequestMsg"
3590 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/CreateScanJob" />
3591 <output message="wscn:CreateScanJobResponseMsg"
3592 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3593 CreateScanJobResponse" />
3594 </operation>
3595 <operation name="RetrieveImage">
3596 <input message="wscn:RetrieveImageRequestMsg"
3597 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/RetrieveImage" />
3598 <output message="wscn:RetrieveImageResponseMsg"
3599 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3600 RetrieveImageResponse" />
3601

```

```

3602         </operation>
3603         <operation name="CancelJob">
3604             <input message="wscn:CancelJobRequestMsg"
3605                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/CancelJob" />
3606             <output message="wscn:CancelJobResponseMsg"
3607                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/CancelJobResponse"
3608             />
3609         </operation>
3610         <operation name="ValidateScanTicket">
3611             <input message="wscn:ValidateScanTicketRequestMsg"
3612                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3613 ValidateScanTicket" />
3614             <output message="wscn:ValidateScanTicketResponseMsg"
3615                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3616 ValidateScanTicketResponse" />
3617         </operation>
3618         <operation name="GetScannerElements">
3619             <input message="wscn:GetScannerElementsRequestMsg"
3620                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3621 GetScannerElements" />
3622             <output message="wscn:GetScannerElementsResponseMsg"
3623                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3624 GetScannerElementsResponse" />
3625         </operation>
3626         <operation name="GetJobElements">
3627             <input message="wscn:GetJobElementsRequestMsg"
3628                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetJobElements" />
3629             <output message="wscn:GetJobElementsResponseMsg"
3630                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3631 GetJobElementsResponse" />
3632         </operation>
3633         <operation name="GetActiveJobs">
3634             <input message="wscn:GetActiveJobsRequestMsg"
3635                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetActiveJobs" />
3636             <output message="wscn:GetActiveJobsResponseMsg"
3637                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3638 GetActiveJobsResponse" />
3639         </operation>
3640         <operation name="GetJobHistory">
3641             <input message="wscn:GetJobHistoryRequestMsg"
3642                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetJobHistory" />
3643             <output message="wscn:GetJobHistoryResponseMsg"
3644                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3645 GetJobHistoryResponse" />
3646         </operation>
3647         <operation name="ScanAvailableEvent">
3648             <output message="wscn:ScanAvailableEventMsg"
3649                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3650 ScanAvailableEvent" />
3651         </operation>
3652         <operation name="ScannerElementsChangeEvent">
3653             <output message="wscn:ScannerElementsChangeEventMsg"
3654                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3655 ScannerElementsChangeEvent" />
3656         </operation>
3657         <operation name="ScannerStatusSummaryEvent">
3658             <output message="wscn:ScannerStatusSummaryEventMsg"
3659                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3660 ScannerStatusSummaryEvent" />
3661         </operation>
3662         <operation name="ScannerStatusConditionEvent">
3663             <output message="wscn:ScannerStatusConditionEventMsg"
3664                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3665 ScannerStatusConditionEvent" />
3666         </operation>
3667         <operation name="ScannerStatusConditionClearedEvent">
3668             <output message="wscn:ScannerStatusConditionClearedEventMsg"
3669                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3670 ScannerStatusConditionClearedEvent" />
3671         </operation>
3672         <operation name="JobStatusEvent">
3673             <output message="wscn:JobStatusEventMsg"
3674                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/JobStatusEvent" />

```



```

3675         </operation>
3676         <operation name="JobEndStateEvent">
3677             <output message="wscn:JobEndStateEventMsg"
3678                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
JobEndStateEvent" />
3680         </operation>
3681     </portType>
3682     <binding name="ScannerServiceBinding" type="wscn:ScannerServiceType">
3683         <wsoap12:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
3684         <wsp:PolicyReference URI="#ServicePolicy" />
3685         <operation name="CreateScanJob">
3686             <wsoap12:operation
3687                 soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/CreateScanJob"
3688                 soapActionRequired="true" />
3689             <input>
3690                 <wsoap12:body use="literal" />
3691             </input>
3692             <output>
3693                 <wsoap12:body use="literal" />
3694             </output>
3695         </operation>
3696         <operation name="RetrieveImage">
3697             <wsoap12:operation
3698                 soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/RetrieveImage"
3699                 soapActionRequired="true" />
3700             <input>
3701                 <wsoap12:body use="literal" />
3702             </input>
3703             <output>
3704                 <wsoap12:body use="literal" />
3705             </output>
3706         </operation>
3707         <operation name="CancelJob">
3708             <wsoap12:operation
3709                 soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/CancelJob"
3710                 soapActionRequired="true" />
3711             <input>
3712                 <wsoap12:body use="literal" />
3713             </input>
3714             <output>
3715                 <wsoap12:body use="literal" />
3716             </output>
3717         </operation>
3718         <operation name="ValidateScanTicket">
3719             <wsoap12:operation
3720                 soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/ValidateScanTicket"
3721                 soapActionRequired="true" />
3722             <input>
3723                 <wsoap12:body use="literal" />
3724             </input>
3725             <output>
3726                 <wsoap12:body use="literal" />
3727             </output>
3728         </operation>
3729         <operation name="GetScannerElements">
3730             <wsoap12:operation
3731                 soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetScannerElements"
3732                 soapActionRequired="true" />
3733             <input>
3734                 <wsoap12:body use="literal" />
3735             </input>
3736             <output>
3737                 <wsoap12:body use="literal" />
3738             </output>
3739         </operation>
3740         <operation name="GetJobElements">
3741             <wsoap12:operation
3742                 soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetJobElements"
3743                 soapActionRequired="true" />
3744             <input>
3745                 <wsoap12:body use="literal" />
3746             </input>
3747             <output>

```

```

3748         <wssoap12:body use="literal" />
3749     </output>
3750 </operation>
3751 <operation name="GetActiveJobs">
3752     <wssoap12:operation
3753         soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetActiveJobs"
3754         soapActionRequired="true" />
3755     <input>
3756         <wssoap12:body use="literal" />
3757     </input>
3758     <output>
3759         <wssoap12:body use="literal" />
3760     </output>
3761 </operation>
3762 <operation name="GetJobHistory">
3763     <wssoap12:operation
3764         soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetJobHistory"
3765         soapActionRequired="true" />
3766     <input>
3767         <wssoap12:body use="literal" />
3768     </input>
3769     <output>
3770         <wssoap12:body use="literal" />
3771     </output>
3772 </operation>
3773 <operation name="ScanAvailableEvent">
3774     <wssoap12:operation
3775         soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/ScanAvailableEvent"
3776         soapActionRequired="true" />
3777     <output>
3778         <wssoap12:body use="literal" />
3779     </output>
3780 </operation>
3781 <operation name="ScannerElementsChangeEvent">
3782     <wssoap12:operation
3783         soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3784 ScannerElementsChangeEvent"
3785         soapActionRequired="true" />
3786     <output>
3787         <wssoap12:body use="literal" />
3788     </output>
3789 </operation>
3790 <operation name="ScannerStatusSummaryEvent">
3791     <wssoap12:operation
3792         soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3793 ScannerStatusSummaryEvent"
3794         soapActionRequired="true" />
3795     <output>
3796         <wssoap12:body use="literal" />
3797     </output>
3798 </operation>
3799 <operation name="ScannerStatusConditionEvent">
3800     <wssoap12:operation
3801         soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3802 ScannerStatusConditionEvent"
3803         soapActionRequired="true" />
3804     <output>
3805         <wssoap12:body use="literal" />
3806     </output>
3807 </operation>
3808 <operation name="ScannerStatusConditionClearedEvent">
3809     <wssoap12:operation
3810         soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3811 ScannerStatusConditionClearedEvent"
3812         soapActionRequired="true" />
3813     <output>
3814         <wssoap12:body use="literal" />
3815     </output>
3816 </operation>
3817 <operation name="JobStatusEvent">
3818     <wssoap12:operation
3819         soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/JobStatusEvent"
3820         soapActionRequired="true" />

```

```
3821         <output>
3822             <wsoap12:body use="literal" />
3823         </output>
3824     </operation>
3825     <operation name="JobEndStateEvent">
3826         <wsoap12:operation
3827             soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/JobEndStateEvent"
3828             soapActionRequired="true" />
3829         <output>
3830             <wsoap12:body use="literal" />
3831         </output>
3832     </operation>
3833 </binding>
3834 <service name="ScannerService">
3835     <port name="ScannerPort" binding="wscn:ScannerServiceBinding">
3836         <wsoap12:address location="http://localhost/ScannerService/" />
3837     </port>
3838 </service>
3839 </definitions>
```

## 3840 Appendix B. Windows Vista™ Support Requirements

### 3841 1. PnP-X installation support

3842 Installation of WSD Scan devices on Windows Vista™ takes advantage of a new feature called PNP-X. This enables  
 3843 networked devices to take part in the normal PnP experience just like locally connected devices. To enable this support a  
 3844 device that complies with [DEVICE] needs to add a specific XML element to their *Relationship* section of the Device  
 3845 Metadata. This element will allow the inbox WSD Scan device driver to be loaded and kick off the install process for the  
 3846 WSD Scan device and the correct scanner driver.

3847 Within the extensibility area of the *wsdp:Relationship/wsdp:Hosted* element the metadata should include a *CompatibleId*  
 3848 element as defined in [PNPX].

#### 3849 1.1. PnP-X Namespace

3850 The current required namespace for all PNP-X related elements is:  
 3851 <http://schemas.microsoft.com/windows/pnp/2005/10>

#### 3852 1.2. PnP-X CompatibleId definition and value

3853 The current definition of the *CompatibleId* element is:

```
3854 <xs:element name="CompatibleId" type="tns:CompatibleIdType" >
3855   <xs:annotation>
3856     <xs:documentation xml:lang="en" >
3857       Used as the Compatible ID for INF file matching for devices. The length
3858       of this string must not exceed 196 wide characters (392 bytes). To specify
3859       more than one CompatibleID, separate them with a space character. For example:
3860       PNPX_SampleService_CPID_1 PNPX_SampleService_CPID_2 PNPX_SampleService1_CPID_3
3861     </xs:documentation>
3862   </xs:annotation>
3863 </xs:element>
3864 <xs:simpleType name="CompatibleIdType" >
3865   <xs:list itemType="xs:string" />
3866 </xs:simpleType>
```

3868 The value of this field in a supported Metadata section is:  
 3869 <http://schemas.microsoft.com/windows/2006/08/wdp/scan/ScannerServiceType>

#### 3870 1.3. Sample Device Metadata response

```
3871 <mex:MetadataSection Dialect="http://schemas.xmlsoap.org/ws/2006/02/devprof/relationship">
3872   <wsdp:Relationship Type="http://schemas.xmlsoap.org/ws/2006/02/devprof/host">
3873     <wsdp:Hosted>
3874       <wsa:EndpointReference>
3875         .
3876         .
3877         .
3878       </wsa:EndpointReference>
3879       <wsdp:Types xmlns:wscn="http://schemas.microsoft.com/windows/2006/08/wdp/scan">
3880         wscn:ScannerServiceType
3881       </wsdp:Types>
3882       <wsdp:ServiceId>
3883         .
3884       </wsdp:ServiceId>
3885       <pnp:CompatibleId xmlns:pnp="http://schemas.microsoft.com/windows/pnp/2005/10">
3886         http://schemas.microsoft.com/windows/2006/08/wdp/scan/ScannerServiceType
3887       </pnp:CompatibleId>
3888     </wsdp:Hosted>
3889   </wsdp:Relationship>
3890 </mex:MetadataSection>
```

## 3891 2. Network Explorer category support

3892 Another new feature of Windows Vista™ is the Network Explorer. This is a folder that can be used to discover and install  
 3893 network connected devices such as WSD capable printers & scanners. To improve the usability of the Network Explorer  
 3894 every device that is discovered can have belong to one or more Category(s). The way to indicate what category(s) a device  
 3895 belongs to is by adding one or more *DeviceCategory* elements to the device *wsdp:ThisModel* metadata section. The primary  
 3896 category for the device is equal to the first *DeviceCategory* element found. Each successive *DeviceCategory* element will  
 3897 be considered a secondary category. For more information on the definition of the device categories see [PNPX].

3898 Each device should include the *DeviceCategory* element(s) as defined in [PNPX] within the extensibility area of the  
 3899 *wsdp:ThisModel* metadata section

### 3900 2.1. PnP-X Namespace

3901 The current required namespace for all PNP-X related elements is:  
 3902 <http://schemas.microsoft.com/windows/pnpx/2005/10>

### 3903 2.2. PnP-X Category definition and value

3904 The current definition of the *DeviceCategory* element is:

```
3905 <xs:element name="DeviceCategory" type="tns:DeviceCategoryType" >
3906   <xs:annotation>
3907     <xs:documentation>
3908       Used to identify the category to which the device belongs. The device
3909       categories are strings which are defined in the DeviceCategory section
3910       of [PNPX]. To specify more than one device category, separate them with a
3911       space character. For example: Scanners Storage
3912       identifies a device with a primary category of Scanners and a secondary
3913       category of Storage. Devices can also specify a device subcategory for
3914       a more descriptive device category.
3915       For example: Displays.Television MediaDevices.DVR
3916       identifies a device which is a Television and a Digital Video recorder.
3917       The primary device category for this device would be Displays.
3918     </xs:documentation>
3919   </xs:annotation>
3920 </xs:element>
3921 <xs:simpleType name="DeviceCategoryType" >
3922   <xs:list itemType="xs:string" />
3923 </xs:simpleType>
```

### 3924 2.3. Sample Device Metadata response

```
3925 <mex:MetadataSection Dialect="http://schemas.xmlsoap.org/ws/2006/02/devprof/ThisModel">
3926   <wsdp:ThisModel>
3927     <wsdp:Manufacturer xml:lang="en">..</wsdp:Manufacturer>
3928     <wsdp:ManufacturerUrl>..</wsdp:ManufacturerUrl>
3929     <wsdp:ModelName xml:lang="en">..</wsdp:ModelName>
3930     <wsdp:ModelNumber>..</wsdp:ModelNumber>
3931     <pnpx:DeviceCategory>Scanners</pnpx:DeviceCategory>
3932   </wsdp:ThisModel>
3933 </mex:MetadataSection>
```

## 3934 3. Scan Device discoverability

3935 A common user scenario is to search for a particular type of device on the network. Searching for local devices takes  
 3936 advantage of the Multicast capabilities of [DISCOVERY] while the discovery of a distant device used the Unicast, or  
 3937 directed, discovery capabilities. To advertise a service with devices that implement [DISCOVERY] a defined porttype must  
 3938 be exposed by the high level device for each hosted service that wishes to advertise. This porttype contains no operations  
 3939 but implies the device hosts at least one of the advertised service types.

3940 Requirements to support each discovery method are explained in detail in the following sections.

### 3941 3.1. Local subnet Discovery support

3942 To advertise support for a particular service type a device includes a Scan Device porttype in the wsdisco:Types element of  
 3943 the wsdisco:Hello and wsdisco:ProbeMatches messages. The porttype is defined in the same namespace as the WSD  
 3944 Scanner Service.

#### 3945 3.1.1. WSD Scan Namespace

3946 The current namespace for WSD Scan related elements is:  
 3947 http://schemas.microsoft.com/windows/2006/08/wdp/scan

#### 3948 3.1.2. WSD Scan Device porttype

3949 The Device Type is defined as: “ScanDeviceType”.

#### 3950 3.1.3. Device Hello example

```

3951 <?xml version="1.0" encoding="utf-8"?>
3952 <soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
3953   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
3954   xmlns:wsdisco="http://schemas.xmlsoap.org/ws/2005/04/discovery"
3955   xmlns:wsd="http://schemas.xmlsoap.org/ws/2006/02/devprof"
3956   xmlns:wscn="http://schemas.microsoft.com/windows/2006/08/wdp/scan">
3957   <soap:Header>
3958     <wsa:MessageID>urn:uuid:ac8523ee-6813-498c-8c1b-6272a22353f7</wsa:MessageID>
3959     <wsa:Action>
3960       http://schemas.xmlsoap.org/ws/2005/04/discovery/Hello
3961     </wsa:Action>
3962     <wsa:To>urn:schemas-xmlsoap-org:ws:2005:04:discovery</wsa:To>
3963     <wsdisco:AppSequence InstanceId="3094203799" MessageNumber="1" />
3964   </soap:Header>
3965   <soap:Body>
3966     <wsdisco:Hello>
3967       <wsa:EndpointReference>
3968         <wsa:Address>uuid:D1000D1-ca45-5fee-a376-112233445555</wsa:Address>
3969       </wsa:EndpointReference>
3970       <wsdisco:Types>wsdp:Device wscn:ScanDeviceType</wsdisco:Types>
3971       <wsdisco:XAddr>http://IPAddress:80/TestDevice</wsdisco:XAddr>
3972       <wsdisco:MetadataVersion>1</wsdisco:MetadataVersion>
3973     </wsdisco:Hello>
3974   </soap:Body>
3975 </soap:Envelope>

```

#### 3976 3.1.4. Device ProbeMatches example

```

3977 <?xml version="1.0" encoding="utf-8"?>
3978 <soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
3979   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
3980   xmlns:wsdisco="http://schemas.xmlsoap.org/ws/2005/04/discovery"
3981   xmlns:wsd="http://schemas.xmlsoap.org/ws/2006/02/devprof"
3982   xmlns:wscn="http://schemas.microsoft.com/windows/2006/08/wdp/scan">
3983   <soap:Header>
3984     <wsa:MessageID>urn:uuid:147823ee-83f7-498c-8c1b-6272a22353f7</wsa:MessageID>
3985     <wsa:RelatesTo>urn:uuid:0a6dc791-2be6-4991-9af1-454778a1917a</wsa:RelatesTo>
3986     <wsa:Action>
3987       http://schemas.xmlsoap.org/ws/2005/04/discovery/ProbeMatches
3988     </wsa:Action>
3989     <wsa:To>http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</wsa:To>
3990     <wsdisco:AppSequence InstanceId="3094203799" MessageNumber="2" />
3991   </soap:Header>
3992   <soap:Body>
3993     <wsdisco:ProbeMatches>
3994       <wsdisco:ProbeMatch>
3995         <wsa:EndpointReference>
3996           <wsa:Address>uuid:D1000D1-ca45-5fee-a376-112233445555</wsa:Address>
3997         </wsa:EndpointReference>
3998         <wsdisco:Types>wsdp:Device wscn:ScanDeviceType</wsdisco:Types>
3999         <wsdisco:XAddr>http://IPAddress:80/TestDevice</wsdisco:XAddr>
4000         <wsdisco:MetadataVersion>1</wsdisco:MetadataVersion>
4001       </wsdisco:ProbeMatch>
4002     </wsdisco:ProbeMatches>

```

```
4003     </soap:Body>
4004 </soap:Envelope>
```

## 4005 3.2. Directed Discovery support

4006 A stable discovery URL is needed to enable a Windows Vista™ admin to easily discover a device in an enterprise  
 4007 environment. Having a defined URL allows the client to simply ask for the Hostname or IP Address of the device and then  
 4008 create the stable URL which a device will be listening at for a Probe message via HTTP. This also allows the device to  
 4009 listening at a single URL for discovery messages over HTTP.

### 4010 3.2.1. Directed Discovery URL

4011 `http://IPAddressOrHostname:80/StableWSDDiscoveryEndpoint/schemas-xmlsoap-org_ws_2005_04_discovery`

### 4012 3.2.2. Secure Directed Discovery URL

4013 `https://IPAddressOrHostname:443/StableWSDDiscoveryEndpoint/schemas-xmlsoap-org_ws_2005_04_discovery`

## 4014 4. WSD Scan WIA Driver required capabilities

4015 The WSD Scanner Service describes a number of input sources, file formats/compression technologies, and color  
 4016 capabilities. Each device and client can decide which of the described capabilities best meet the needs. However to be  
 4017 supported fully by the Windows Vista™ WSD Scan WIA Driver the following minimum requirements must be met.

### 4018 4.1. InputSource values supported

4019 Each device must support either the *Platen* or *ADF* input source.

4020 Additionally, the device must go through a power-up cycle whenever an *InputSource* is added or removed.

### 4021 4.2. ColorEntry values required

4022 Each device must support at least one of the following *ColorEntry* values for their *Platen* or *ADF* input source.

- 4023 • **BlackAndWhite1**
- 4024 • **Grayscale4**
- 4025 • **Grayscale8**
- 4026 • **RGB24**

### 4027 4.3. Document file formats required

4028 Each device must support at least one of the following file formats:

- 4029 • **png**
- 4030 • **exif** – only for RGB24 data (\*\*)
- 4031 • **tiff-single-g4** – only for BlackAndWhite1 data (\*\*)
- 4032 • **tiff-single-uncompressed**
- 4033 • **dib**

4034 All supported *ColorEntry* values must be transferable in this file format except where noted.

4035 \*\* - If this is the only required file format supported by the scanner all other color modes that may be supported by the  
 4036 scanner are ignored by the driver.

4037  
 4038 If the scanner does not support the **dib** format and a WIA application client (including the TWAIN Compatibility Layer)  
 4039 requests transferring images in the **dib** format the WSD Scan WIA Driver tries to scan in one of the following file formats,  
 4040 in order, if supported by the scanner. The driver then converts the images to the **dib** format before transferring them to the  
 4041 application:

- 4042
- 4043 1. **png**
- 4044 2. **exif** (if the current color mode is **RGB24**)
- 4045 3. **tiff-single-g4** (if the current color mode is **BlackAndWhite1**)

#### 4046 4. **tiff-single-uncompressed**

4047

4048 The file formats `xps` and `pdf-a` are used as multi-page image file formats with no specified internal compression for  
4049 image data. WSD scanners are allowed to choose the compression mode appropriate with the scanned images. The WSD  
4050 Scan WIA Driver will treat only `WIA_COMPRESSION_NONE` as supported for these formats, meaning the application  
4051 cannot change the default compression mode selected by the scanner.

### 4052 **4.4. Duplex scanning support**

4053 The WSD Scan WIA Driver will always set the same image acquisition parameters for both sides of a duplex scan using  
4054 only the *MediaFront* element.

4055