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2 **Version 1.0**

3 **For Web Services on Devices**

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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.msp>.)
- 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

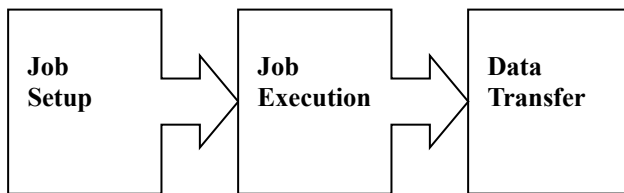


Figure 1 – Scan Workflow

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.).

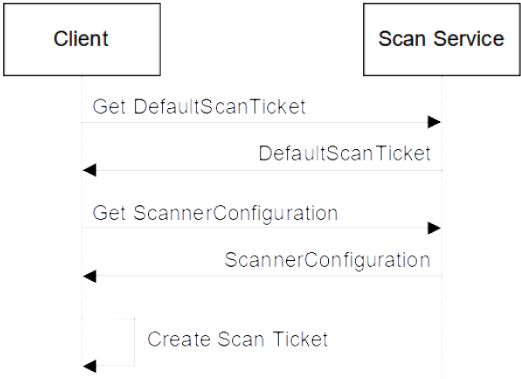


Figure 2 – Client Job Setup

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 request² 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 **RetrievelImage** operation(s).

² See the **CreateScanJob** operation defined in the Scan Service Specification

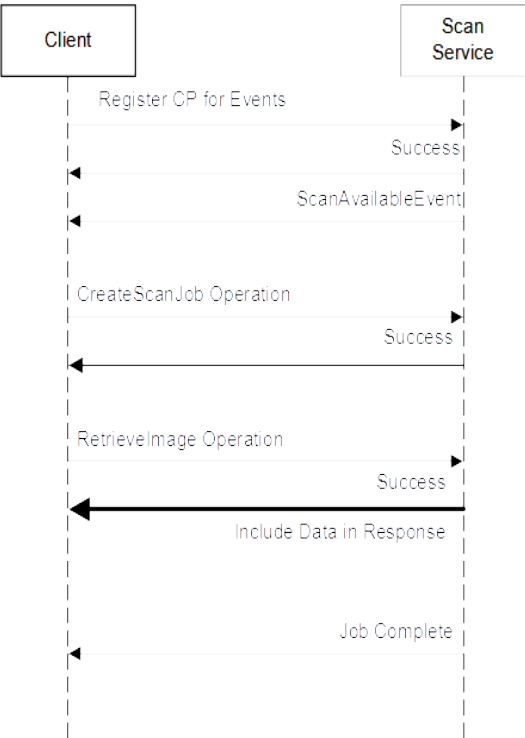


Figure 3 – Response Mode Data Transfer

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.

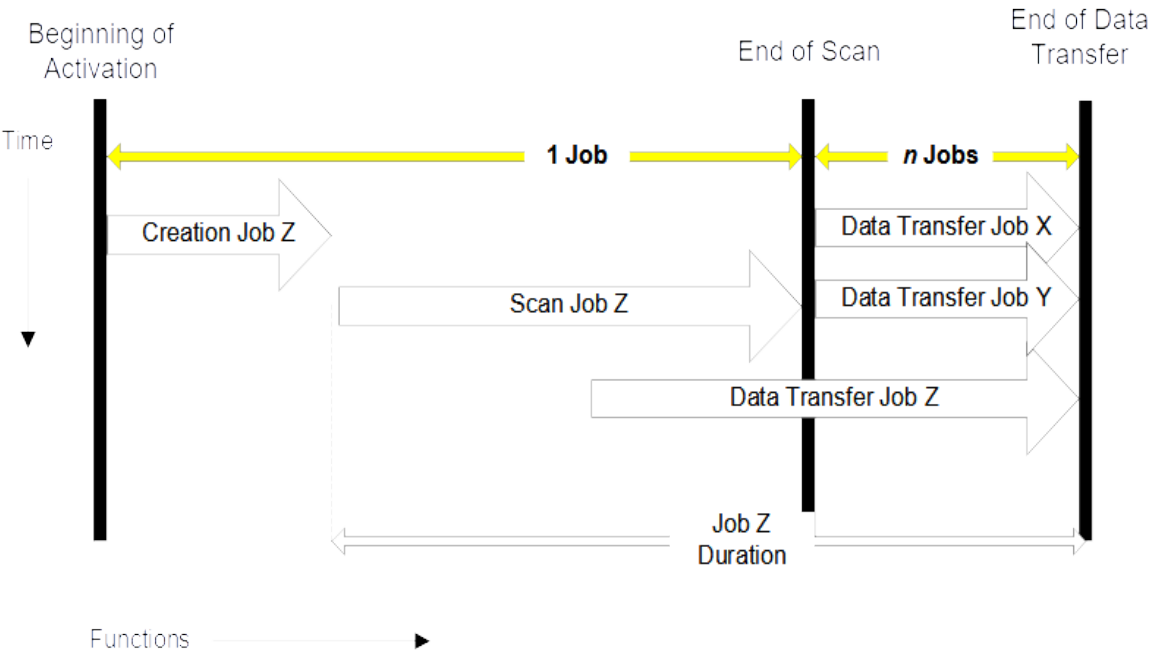


Figure 4 – Job Concurrency Example

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

640 3.4.3. Events

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

646 3.4.4. Security

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

649 3.4.5. Localization

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

653 4. Service Schema

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

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

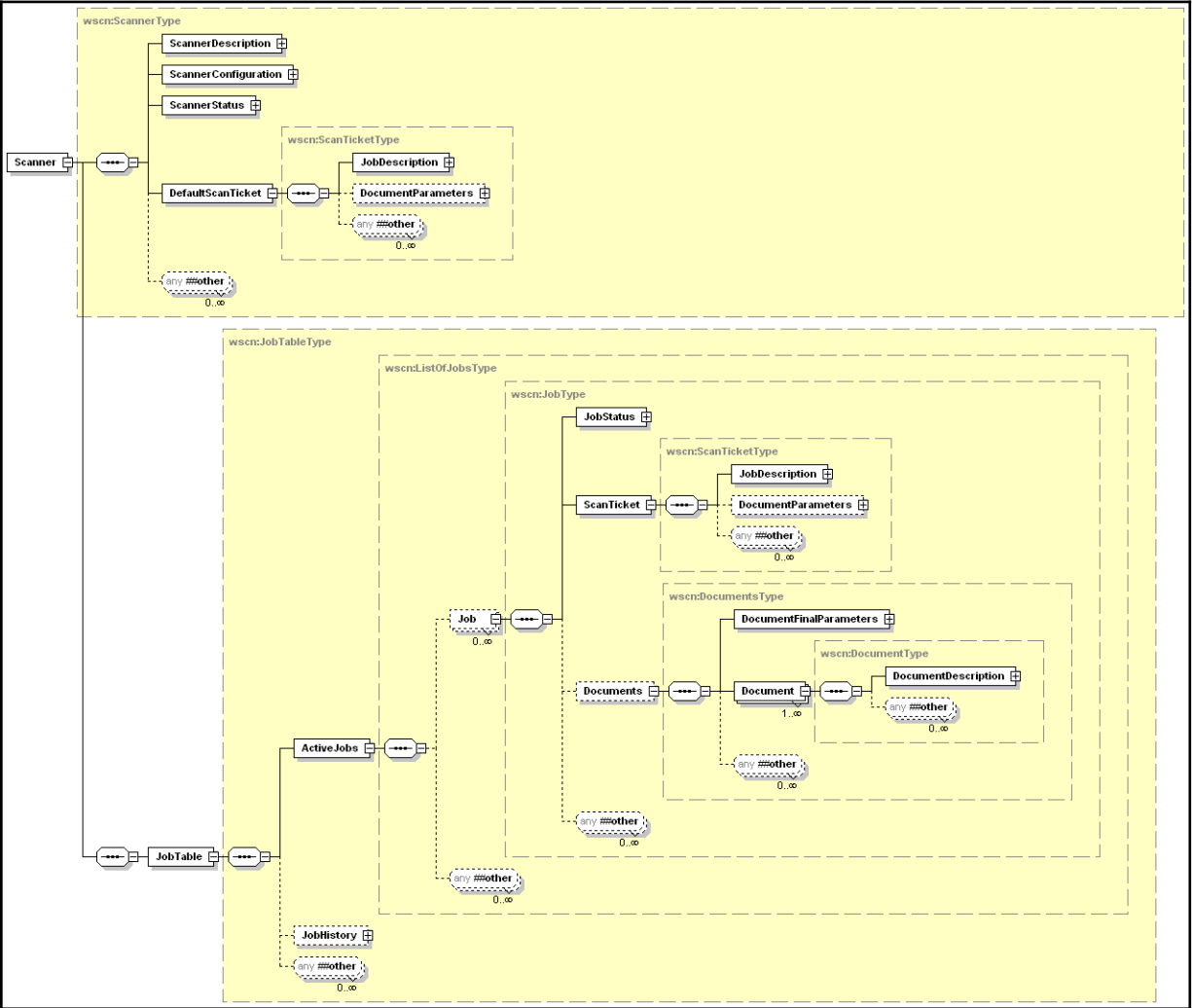


Figure 5 – Scanner Model

4.1. The Scanner's Elements

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

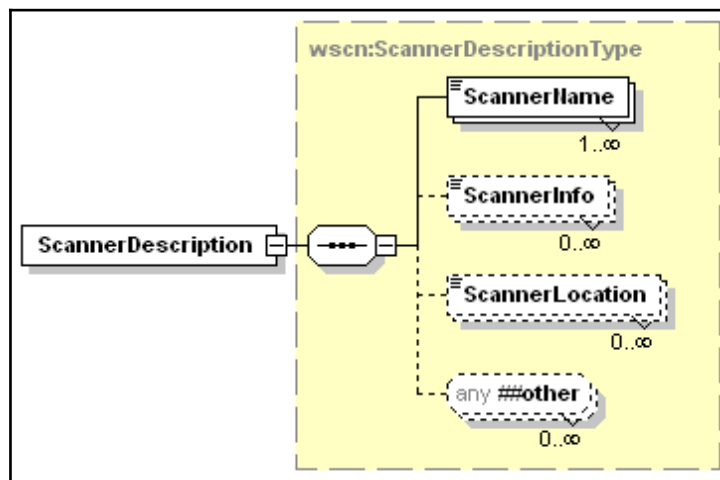


Figure 6 - ScannerDescription Elements

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

697 4.3. The ScannerConfiguration Elements

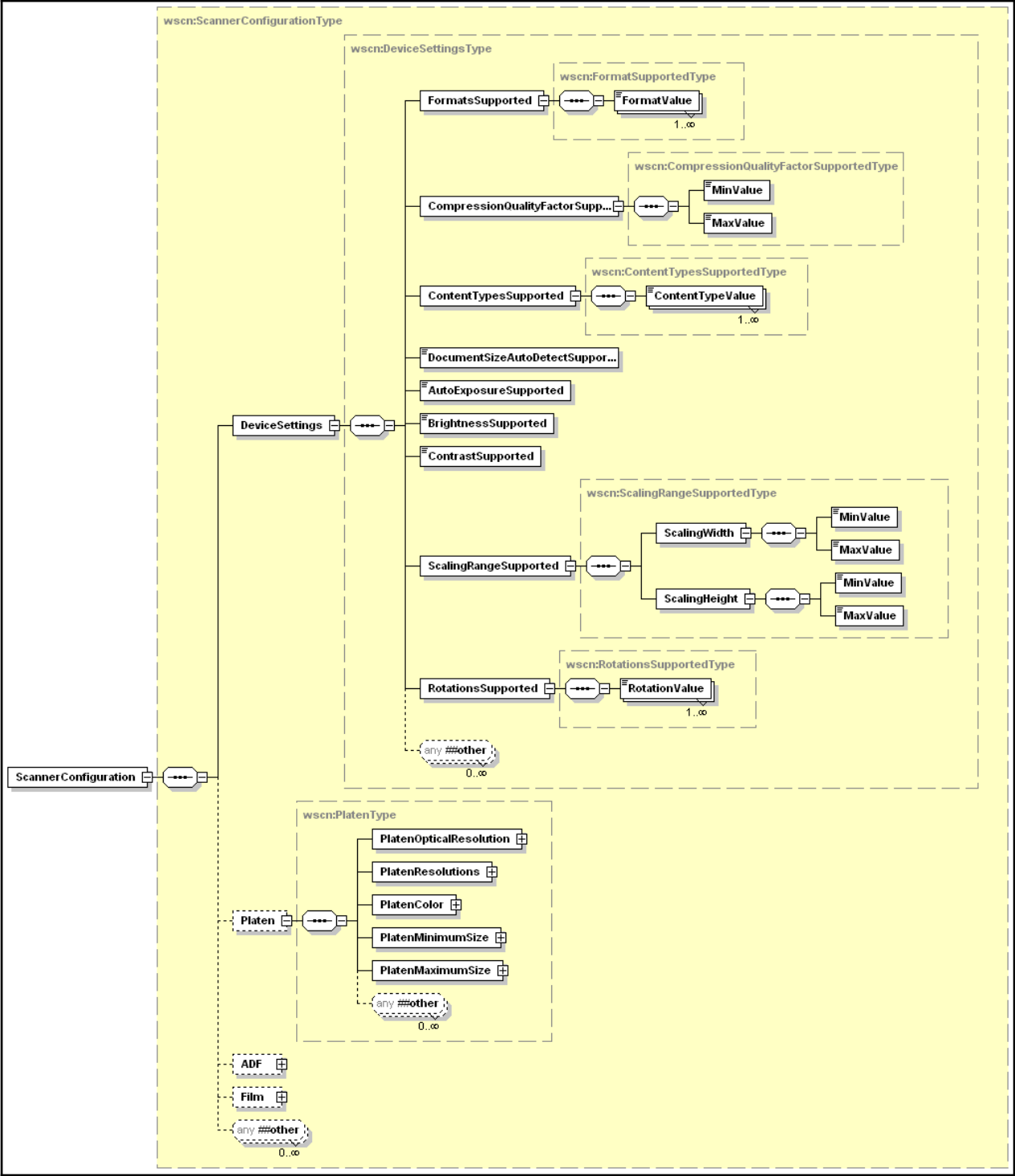


Figure 7 – ScannerConfiguration Elements – Part 1

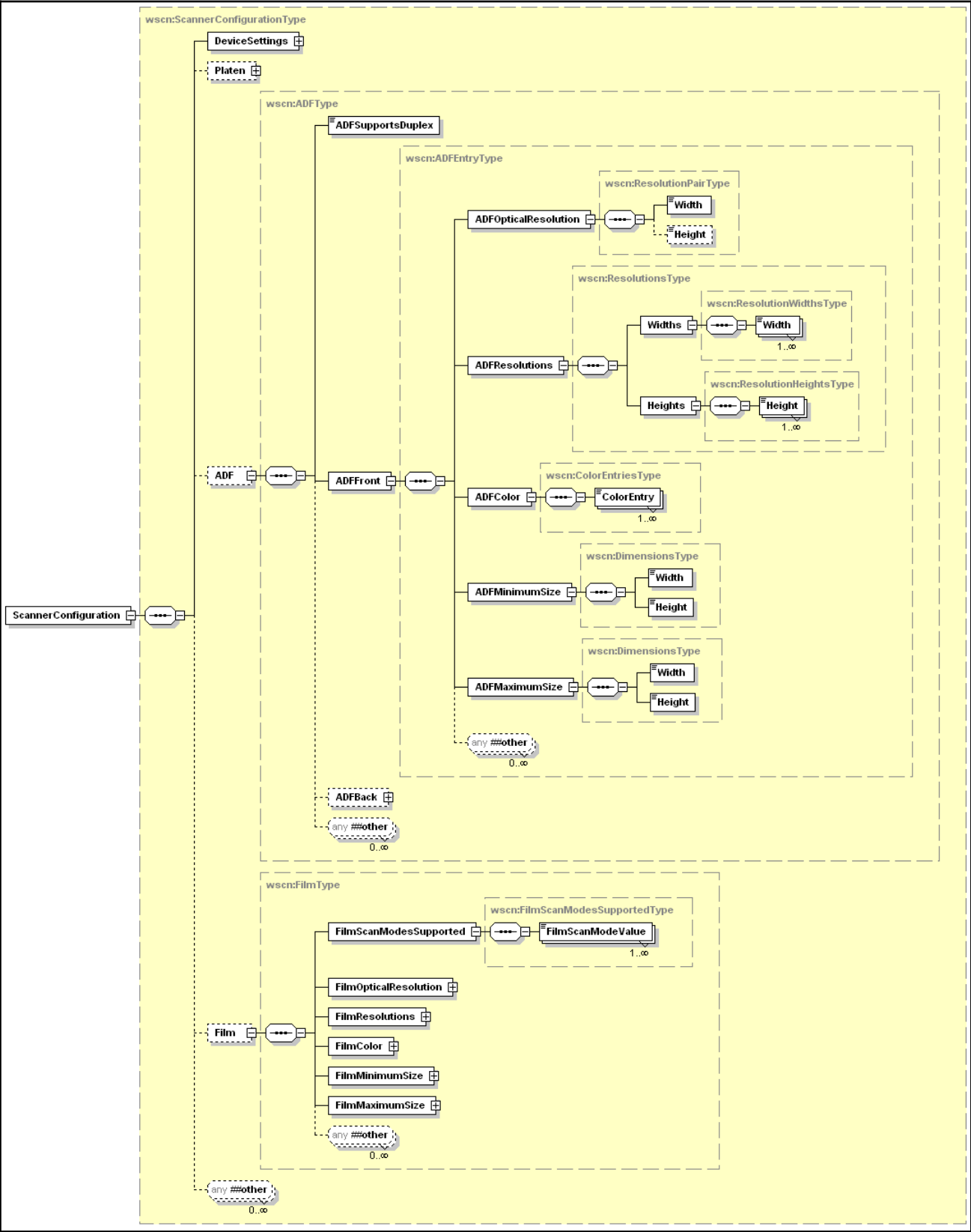


Figure 8 – ScannerConfiguration Elements – Part 2

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

704 4.3.1. DeviceSettings

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

708 4.3.1.1. FormatsSupported

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

711 4.3.1.1.1. FormatValue

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

713 Values:

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

731 Vendors MAY extend the allowed values for this element

732 Vendors MAY subset the allowed values for this element

733 4.3.1.2. CompressionQualityFactorSupported

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

738 4.3.1.2.1. MinValue

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

740 Values: 0 – 100

741 4.3.1.2.2. MaxValue

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

743 Values: 0 – 100

744 4.3.1.3. ContentTypesSupported

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

747 4.3.1.3.1. ContentTypeValue

748 This element indicates a single supported *ContentType* value

749 Values:

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

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

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

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

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

756 Vendors MAY extend the allowed values for this element

757 Vendors MAY subset the allowed values for this element

758 **4.3.1.4. DocumentSizeAutoDetectSupported**

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

760 Values: 0, 1, true, false

761 **4.3.1.5. AutoExposureSupported**

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

763 Values: 0, 1, true, false

764 **4.3.1.6. BrightnessSupported**

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

766 Values: 0, 1, true, false

767 **4.3.1.7. ContrastSupported**

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

769 Values: 0, 1, true, false

770 **4.3.1.8. ScalingRangeSupported**

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

773 **4.3.1.8.1. ScalingWidth**

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

775 **4.3.1.8.1.1. MinValue**

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

777 Values: 1 – 1000

778 **4.3.1.8.1.2. MaxValue**

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

780 Values: 1 – 1000

781 **4.3.1.8.2. ScalingHeight**

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

783 **4.3.1.8.2.1. MinValue**

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

785 Values: 1 – 1000

786 4.3.1.8.2.2. MaxValue

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

788 Values: 1 – 1000

789 4.3.1.9. RotationsSupported

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

793 4.3.1.9.1. RotationValue

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

796 Values:

797 0
798 90
799 180
800 270

801 All WSD Scanners MUST support the 0 element value.

802 Vendors MAY subset the allowed values for this element

803 Vendors MAY extend the allowed values for this element

804 4.3.2. Platen

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

806 4.3.2.1. PlatenOpticalResolution

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

808 Resolution is specified in pixels per inch.

809 4.3.2.1.1. Width

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

812 Values: 1 – 2147483647

813 4.3.2.1.2. Height

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

816 Values: 1 – 2147483647

817 4.3.2.2. PlatenResolutions

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

820 Resolutions are specified in pixels per inch.

821 4.3.2.2.1. Widths

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

823 4.3.2.2.1.1. Width

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

825 Values: 1 – 2147483647

826 4.3.2.2.2. Heights

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

828 4.3.2.2.2.1. Height

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

830 Values: 1 – 2147483647

831 4.3.2.3. PlatenColor

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

837 Another important aspect of the retuned scan data is the Photometric Interpretation of the acquired data. All image data
 838 returned is required to be black on white, where black is represented by 0 and white is represented by 1.

839 4.3.2.3.1. ColorEntry

840 This element describes a single color processing mode supported by the *Platen*. Each keyword describes the data
 841 type/encoding, bit depth, and bits per channel. The table below illustrates how the keywords map to the color processing
 842 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}

843 Table 1 – Color Processing Elements

844 Values:

845 **BlackAndWhite1** – Black and White images, 1 bit per pixel and a single channel846 **Grayscale4** – Grayscale images, 4 bits per pixel and a single channel847 **Grayscale8** – Grayscale images, 8 bits per pixel and a single channel848 **Grayscale16** – Grayscale images, 16 bits per pixel and a single channel849 **RGB24** – RGB encoded color images, 24 bits per pixel divided between 3 channels of 8 bits each850 **RGB48** – RGB encoded color images, 48 bits per pixel divided between 3 channels of 16 bits each851 **RGBa32** – RGB encoded color images with an alpha channel, 32 bits per pixel divided between 4 channels of 8 bits
852 each853 **RGBa64** – RGB encoded color images with an alpha channel, 64 bits per pixel divided between 4 channels of 16 bits
854 each

855 Vendors MAY extend the allowed values for this element

856 Vendors MAY subset the allowed values for this element

857 4.3.2.4. PlatenMinimumSize

858 This element specifies the smallest size original that can be scanned on the *Platen*. All media dimensions are measured in
859 1/1000^{ths} of an inch.

860 4.3.2.4.1. Width

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

862 Values: 1 – 2147483647

863 4.3.2.4.2. Height

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

865 Values: 1 – 2147483647

866 4.3.2.5. PlatenMaximumSize

867 This element specifies the largest size original that can be scanned on the *Platen*. This element is made up of a pair of
868 elements that describe the maximum media size. All media dimensions are measured in 1/1000^{ths} of an inch.

869 4.3.2.5.1. Width

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

871 Values: 1 – 2147483647

872 4.3.2.5.2. Height

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

874 Values: 1 – 2147483647

875 4.3.3. ADF

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

877 4.3.3.1. ADFSupportsDuplex

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

879 Allowed Values: 0, 1, true, false

880 4.3.3.2. ADFFront

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

882 4.3.3.2.1. ADFOpticalResolution

883 This element describes the maximum optical resolution at which the *ADF* Front side is capable of scanning. See Section
884 4.3.2.1. for a detailed description of this data element.

885 4.3.3.2.2. ADFResolutions

886 This element is a collection that describes the resolutions at which the *ADF* Front side is capable of scanning. See Section
887 4.3.2.2. for a detailed description of this data element.

888 4.3.3.2.3. ADFColor

889 This element is a collection of keywords that describe the *ColorProcessing* capabilities of the *ADF* Front side. See Section
890 4.3.2.2. for a detailed description of this data element.

891 4.3.3.2.4. ADFMinimumSize

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

894 4.3.3.2.5. ADFMaximumSize

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

897 4.3.3.3. ADFBack

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

900 4.3.3.3.1. ADFOpticalResolution

901 This element describes the maximum optical resolution at which the *ADF* Back side is capable of scanning. See Section
902 4.3.2.1. for a detailed description of this data element.

903 4.3.3.3.2. ADFResolutions

904 This element is a collection that describes the resolutions at which the *ADF* Back side is capable of scanning. See Section
905 4.3.2.2. for a detailed description of this data element.

906 4.3.3.3.3. ADFColor

907 This element is a collection of keywords that describe the *ColorProcessing* capabilities of the *ADF* Back side. See Section
908 4.3.2.2. for a detailed description of this data element.

909 4.3.3.3.4. ADFMinimumSize

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

912 4.3.3.3.5. ADFMaximumSize

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

915 4.3.4. Film

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

917 4.3.4.1. FilmScanModesSupported

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

920 4.3.4.1.1. FilmScanModeValue

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

922 Values:

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

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

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

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

928 Vendors MAY extend the allowed values for this element

929 Vendors MAY subset the allowed values for this element

930 4.3.4.2. FilmOpticalResolution

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

933 4.3.4.3. FilmResolutions

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

936 4.3.4.4. FilmColor

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

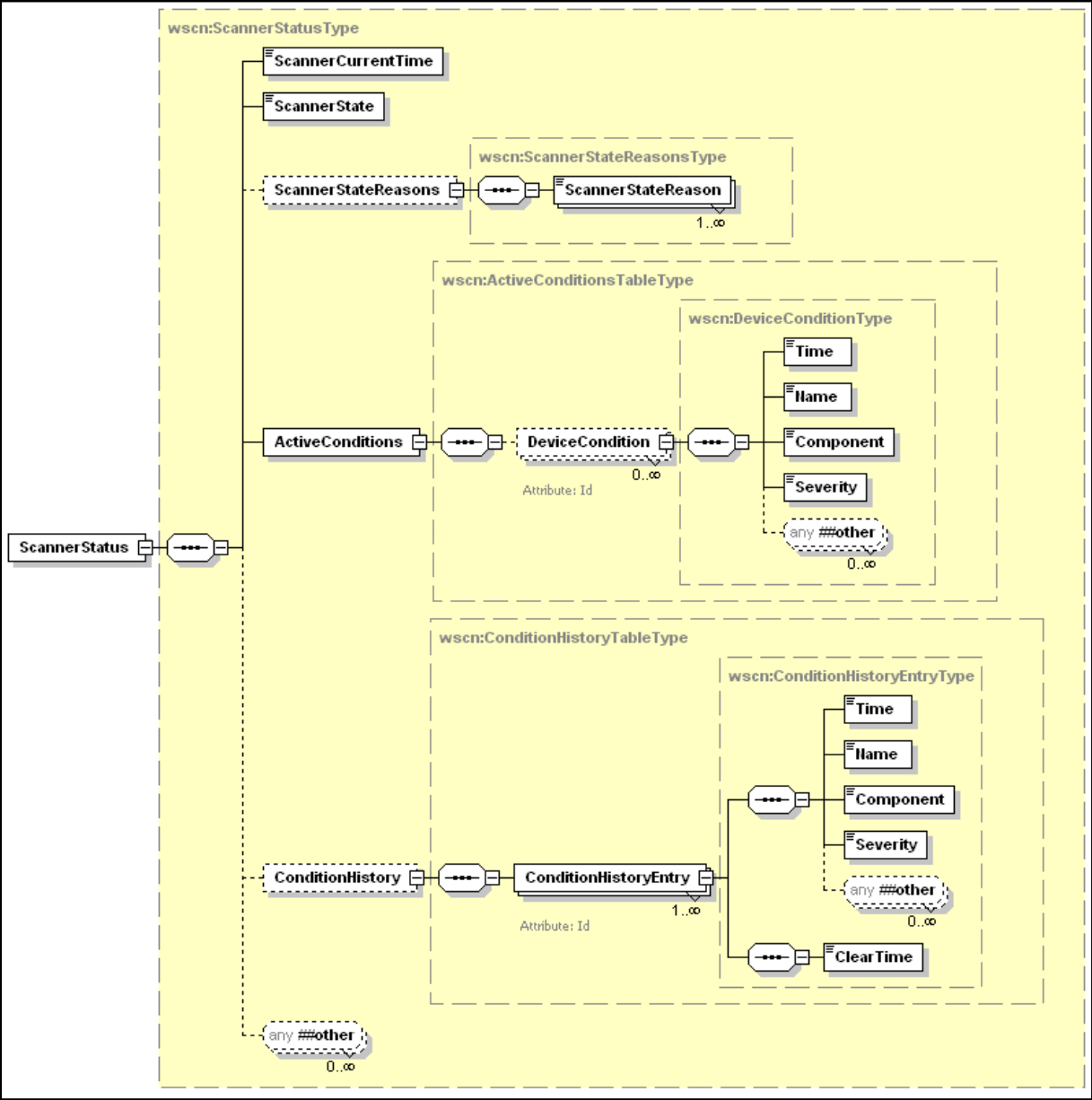
939 4.3.4.5. FilmMinimumSize

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

942 4.3.4.6. FilmMaximumSize

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

945 4.4. The ScannerStatus Elements



946
947
948 **Figure 9 - ScannerStatus Elements**

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

950 4.4.1. **ScannerCurrentTime**

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

955 Values: Any valid dateTime value

956 4.4.2. **ScannerState**

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

958 Values:

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

961 Vendors MAY extend the allowed values for this element

962 Vendors MAY subset the allowed values for this element

963
 964

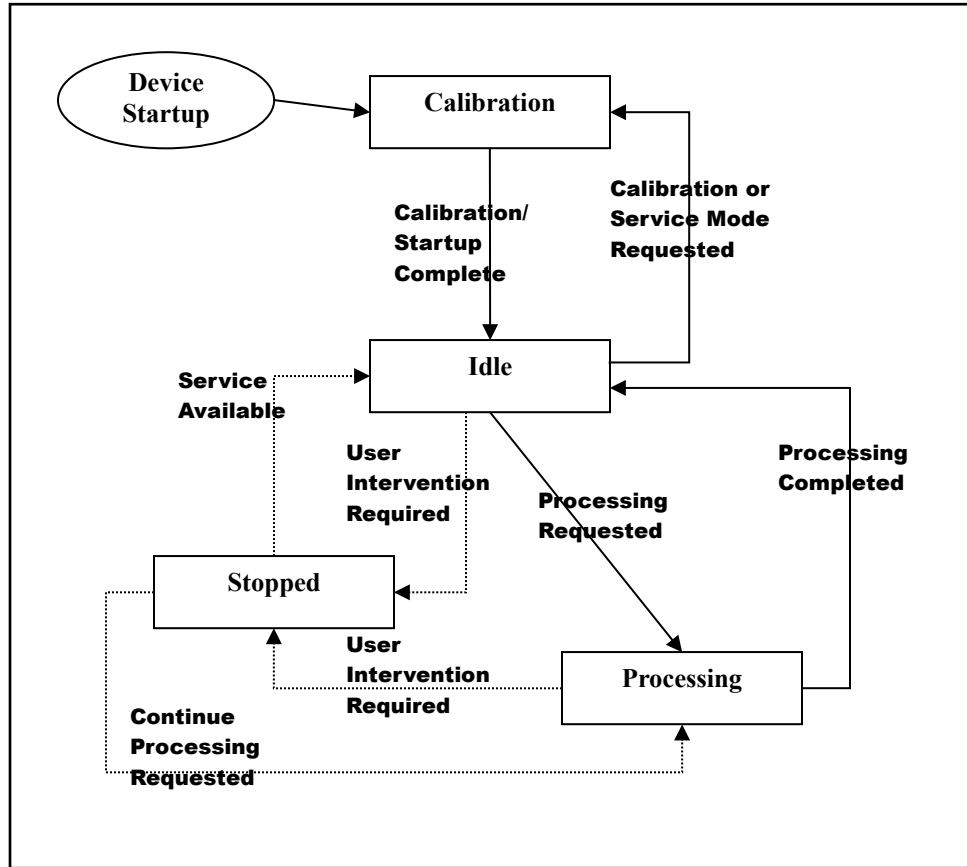


Figure 10 - Scanner State Diagram

4.4.3. ScannerStateReasons

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

4.4.3.1. ScannerStateReason

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

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

Values:

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

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

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

997 4.4.4. ActiveConditions

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

1000 4.4.4.1. DeviceCondition

1001 This is an element that describes the details about one of the currently active conditions.

1002 4.4.4.1.1. Id

1003 This attribute specifies the unique *Id* of the current *DeviceCondition* entry or *ConditionHistoryEntry* entry. This *Id* will be
 1004 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
 1005 re-used over a reasonable duration of time to allow CPs to keep track of individual *DeviceCondition*(s).

1006 REQUIRED attribute.
 1007 Values: 1 – 2147483647

1008 4.4.4.1.2. Time

1009 This element specifies the time a condition occurred. This time is according to the internal clock of the scanner.

1010
 1011 Values: Any valid *dateTime* value

1012 4.4.4.1.3. Name

1013 This element specifies the name of the current *DeviceCondition* entry. This name describes the type of the current error
 1014 condition. There are different error names for each component.

1015 Values:

1016 **Calibrating**
 1017 **CoverOpen**
 1018 **InputTrayEmpty**
 1019 **InterlockOpen**
 1020 **InternalStorageFull**
 1021 **MediaJam**
 1022 **LampError**
 1023 **LampWarming**
 1024 **MultipleFeedError**

1025 Vendors MAY extend the allowed values for this element.
 1026 Vendors MAY subset the allowed values for this element

1027 4.4.4.1.4. Component

1028 This element specifies the component that is described by the current *DeviceCondition* entry..

1029 Values:

1030 **ADF**
 1031 **Film**
 1032 **MediaPath**
 1033 **Platen**

1034 Vendors MAY extend the allowed values for this element.

1035 Vendors MAY subset the allowed values for this element

1036 4.4.4.1.5. Severity

1037 This element specifies the level of severity of the current *DeviceCondition* entry. The scanner determines the severity level
 1038 assigned to error condition.

1039
 1040 Values:

1041 **Informational** – This condition is purely for user information and has no noticeable affect on the image
 1042 acquisition process
 1043 **Warning** – This condition is not affecting processing currently, but if not attended to it could become *Critical*
 1044 **Critical** – The device can not continue processing until this condition is resolved

1045 Vendors MAY extend the allowed values for this element.

1046 Vendors MAY subset the allowed values for this element

1047 4.4.5. ConditionHistory

1048 This element is a collection of detailed descriptions that describe a set of the most recent conditions/errors on the device.
 1049 These conditions could vary in severity from *Informational* to *Critical*.

1050 4.4.5.1. ConditionHistoryEntry

1051 This is an element that describes the details about one of the past conditions.

1052 4.4.5.1.1. Id

1053 This data element is described in Section 4.4.4.1.1.

1054 4.4.5.1.2. Time

1055 This data element is described in Section 4.4.4.1.2.

1056 4.4.5.1.3. Name

1057 This data element is described in Section 4.4.4.1.3.

1058 4.4.5.1.4. Component

1059 This data element is described in Section. 4.4.4.1.4.

1060 4.4.5.1.5. Severity

1061 This data element is described in Section 4.4.4.1.5.

1062 4.4.5.1.6. ClearTime

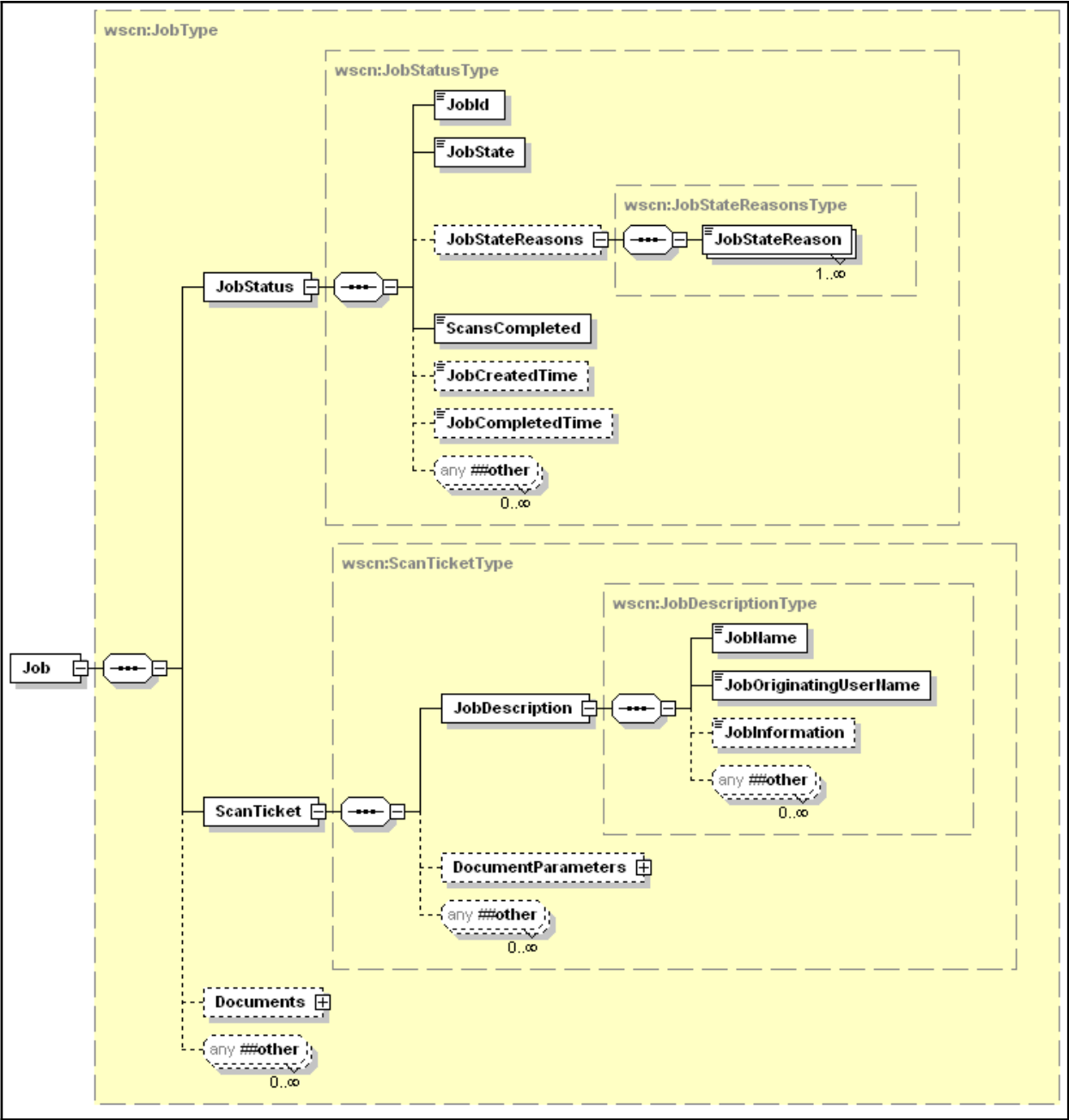
1063 This element specifies the time a condition was cleared. This time is according to the internal clock of the scanner.

1064
 1065 Values: Any valid dateTime value

1066 4.5. The Job’s Elements

1067 This section defines the elements of the WSD Scan Job object. Figure 11 shows all the elements for the Job and their
1068 grouping. Jobs may contain one or more Documents. As indicated in the figure below the processing instructions for both
1069 the Job and the Document are done at the Job level. The Document object is covered in detail in section 4.6..

1070



1071

1072

Figure 11 - Job Elements (Part 1)

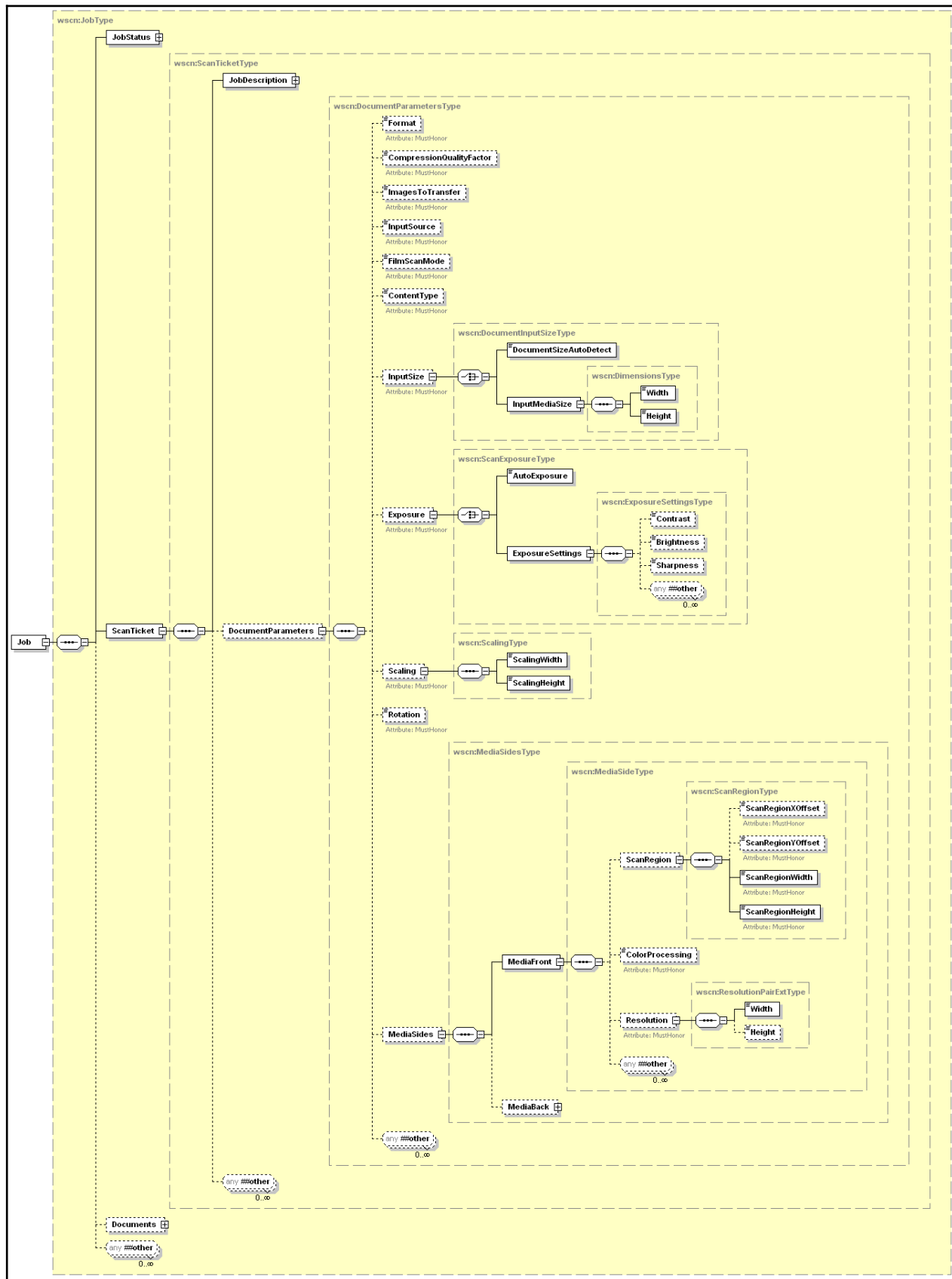


Figure 12 - Job Elements (Part 2)

1073
1074
1075 All of the Scanner elements contained within a scan job are described in detail in the following sections.

1076 The *DocumentParameters* elements of a Job are populated from corresponding elements explicitly supplied in a Job
 1077 creation request by a CP. If the CP does not supply a parameter or processing element it indicates that the CP wants the
 1078 scanner to use its default value. How the scanner's default and allowed values for processing elements are set is
 1079 implementation-specific, e.g., local console, Presentation Service (web access).

1080 The *JobDescription* elements are populated from corresponding elements supplied in a Job creation request. These values
 1081 may be changed by the scanner if more reliable information can be obtained. The *JobStatus* elements are maintained by
 1082 automata. The values may be indirectly affected by a CP operation (e.g. **CancelJob**).

1083 4.5.1. JobStatus

1084 This section describes all of the elements that make up the *JobStatus* type in the scan job.

1085 4.5.1.1. JobId

1086 This element uniquely identifies a Job within a scanner. This number is not globally unique.

1087 Values: 1 – 2147483647

1088 4.5.1.2. JobState

1089 This element specifies the current state of the Job. When contained in the **JobEndStateEvent** or a *JobHistory* entry it
 1090 represents the completion state of the Job.

1091 Values:

1092 **Aborted** – The Job was aborted by the system.

1093 **Canceled** – The Job was canceled either by a CP using the **CancelJob** operation or by means outside the scope of
 1094 WSD

1095 **Completed** – The Job is finished processing and all of the image data has been sent to the client.

1096 **Creating** – The Job is being initialized.

1097 **Pending** – The Job has been initialized and is waiting to be processed.

1098 **Pending-Held** – The Job is waiting to be processed but is unavailable for scheduling. This state can only be
 1099 reached by methods outside the scope of WSD.

1100 **Processing** – The Job data is being digitized, transformed, or transferred.

1101 **Started** – The scan device has begun processing the Job. This is a transient state, and will usually be seen only
 1102 within a **JobStatusEvent**.

1103 **Terminating** – The Job was canceled either by a CP using the **CancelJob** operation or aborted by means outside
 1104 the scope of WSD.

1105 Vendors MAY extend the allowed values for this element.

1106 Vendors MAY subset the allowed values for this element.

1107

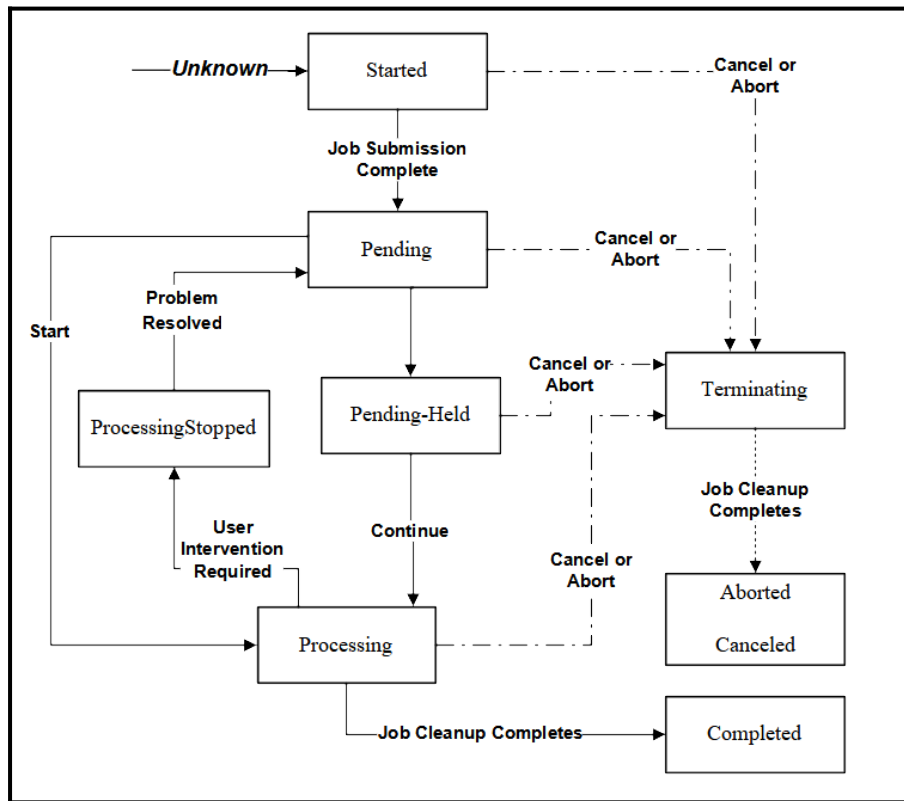


Figure 13 - Job States

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.

1141 **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.

1144 Values: Any valid dateTime value

1145 **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.

1148 Values: Any valid dateTime value

1149 **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.

1152 (Note: This information may not be known until the scanner has completed processing the Job. The scanner **MUST** update
1153 this element when more exact information is available)

1154 Values: 0 – 2147483647

1155 **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.

1159 **4.5.2.1. JobDescription**

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

1161 **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.

1164 Values: any character string

1165 **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.

1169 Values: any character string

1170 **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.

1173 Values: any character string

1174 4.5.2.2. DocumentParameters

1175 This section describes all of the elements that make up the *DocumentParameters* type in the scan job. These parameters
1176 apply to all documents within the current scan job.

1177 4.5.2.2.1. Format

1178 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
1179 values.

1180 Vendors MAY extend the allowed values for this element.

1181 Vendors MAY subset the allowed values for this element.

1182 4.5.2.2.2. CompressionQualityFactor

1183 This element specifies an integer value used by lossy compression types to determine the amount of acceptable image loss.
1184 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
1185 specified and the service should use a value of 100.

1186 Values: 0 - 100

1187 Vendors MAY subset the allowed values for this element

1188 4.5.2.2.3. ImagesToTransfer

1189 This element tells the scan device how many images to scan for the current job. This is useful if the document feeder could
1190 contain more pages of media than the current job. A value of 0 means scan as many pages as are currently available for the
1191 selected *InputSource*. If the *InputSource* is the *Platen* or *Film* then a value of 0 means a single image acquisition. If the
1192 *InputSource* is the *ADF* or *ADFDuplex* then a value of 0 means acquire images from the feeder until it is empty.

1193 When acquiring images from *ADFDuplex* each side of the media represents a single image. To get both sides of the media
1194 the *ImagesToTransfer* value needs to be an even value of at least 2, sending an odd value, such as 1, would only acquire
1195 the front of the last sheet of media and the device should discard any data acquired from the back side of the media.

1196 Values: 0 - 2147483647

1197 4.5.2.2.4. InputSource

1198 This element specifies the source of the original document:

1199 Values:

1200 **ADF:** Document being scanned is being delivered by a document feeding device scanning only the front side.
1201 **ADFDuplex:** Document being scanned is being delivered by a document feeding device scanning both sides.
1202 **Film:** Document is to be scanned using the Film scanning option.
1203 **Platen:** Document is to be scanned from the platen

1204 Vendors MAY extend the allowed values for this element.

1205 Vendors MAY subset the allowed values for this element.

1206 4.5.2.2.5. FilmScanMode

1207 This element specifies the exposure type of the film to be scanned. This element is only valid if the *InputSource* element is
1208 set to a value of *Film*. See section 4.3.4.1.1. for a list of values for this element.

1209 4.5.2.2.6. ContentType

1210 This element specifies the main characteristics of the original document. See section 4.3.1.3.1. for a list of values for this
1211 element.

1212 4.5.2.2.7. InputSize

1213 This section describes the scan-able media size and how to detect it. This section is defined as a choice entry, which means
1214 only one of the sub-elements is valid at once. A CP can either ask for auto-size detection or specify a size.

1215 4.5.2.2.7.1. DocumentSizeAutoDetect

1216 This element indicates the scanner will do its best to determine the size of the original scan media. When/how this occurs is
 1217 completely device dependent. If this element is specified along with a *ScanRegion* element, the Scan Region will be
 1218 ignored if it falls outside of the media size detected by the device.

1219 Values: 0, 1, true, false

1220 4.5.2.2.7.2. InputMediaSize

1221 This element describes the size of the media to be scanned for the current job. This element is made up of a pair of
 1222 elements that describe the Width and Height of the media.

1223 4.5.2.2.7.2.1. Width

1224 This element indicates the width of the original media in the fast scan direction.

1225 Values: 1 – 2147483647

1226 4.5.2.2.7.2.2. Height

1227 This element indicates the height of the original media in the slow scan direction.

1228 Values: 1 – 2147483647

1229 4.5.2.2.8. Exposure

1230 This section indicates whether the scan service should automatically employ image processing techniques to reduce the
 1231 background of the document to a white image or adjust the image processing by the values supplied. This section is defined
 1232 as a choice entry, which means only one of the sub-elements is valid at once. A CP can either ask for auto-exposure
 1233 adjustments or specify specific image processing adjustment values.

1234 4.5.2.2.8.1. AutoExposure

1235 This element indicates whether the scan service should automatically employ image processing techniques to reduce the
 1236 background of the document to a white image. When set to 1 or true automatic background reduction will be performed
 1237 on the original document.

1238 Values: 0, 1, true, false

1239 4.5.2.2.8.2. ExposureSettings

1240 This element contains individual adjustment values which the scan service should apply to the image data after acquisition.

1241 4.5.2.2.8.2.1. Contrast

1242 This element indicates the relative amount to enhance or reduce the contrast of the scanned image. A value of 0 means to
 1243 make no adjustments to the scanned contrast.

1244 Values: -1000 – 1000

1245 All WSD scanners MUST support the all values between and including -1000 and 1000, internally mapping as needed
 1246 these values to the actual brightness/contrast values supported by the device.

1247 Vendors MAY subset the allowed values for this element.

1248 4.5.2.2.8.2.2. Brightness

1249 This element indicates the relative amount to enhance or reduce the brightness of the scanned image. A value of 0 means to
 1250 make no adjustments to the scanned brightness.

1251 Values: -1000 – 1000

1252 All WSD scanners MUST support the all values between and including -1000 and 1000, internally mapping as needed
 1253 these values to the actual brightness/contrast values supported by the device.

1254 Vendors MAY subset the allowed values for this element.

1255 4.5.2.2.8.2.3. Sharpness

1256 This element indicates the relative amount to enhance or reduce the sharpness of the scanned image. A value of 0 means to
 1257 make no adjustments to the scanned sharpness.

1258 Values: -100 - 100

1259 All WSD scanners MUST support at least the 0 value.

1260 Vendors MAY subset the allowed values for this element.

1261 4.5.2.2.9. Scaling

1262 This section specifies the scaling for both the slow and fast scan directions.

1263 Both values must be specified. Isomorphic scaling is accomplished by supplying the same values for both width and
1264 height.

1265 4.5.2.2.9.1. ScalingWidth

1266 This element indicates the scaling factor to apply in the fast scan direction. A value of 100 specifies that no adjustments
1267 are made to the scanned image. Scaling is expressed in 1 percent increments.

1268 Values: 1 - 1000

1269 All WSD scanners MUST support at least the 100 value.

1270 Vendors MAY subset the allowed values for this element.

1271 4.5.2.2.9.2. ScalingHeight

1272 This element indicates the scaling factor to apply in the slow scan direction. A value of 100 specifies that no adjustments
1273 are made to the scanned image. Scaling is expressed in 1 percent increments.

1274 Values: 1 - 1000

1275 All WSD scanners MUST support at least the 100 value.

1276 Vendors MAY subset the allowed values for this element.

1277 4.5.2.2.10. Rotation

1278 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
1279 this element. All devices must support a value of 0 (no rotation) for this element.

1280 4.5.2.2.11. MediaSides

1281 This element contains the parameters which are unique to each physical side of the media to be scanned. Many duplex
1282 capable scanners allow setting different scan regions, color processing and resolutions for each physical side of the media
1283 to be scanned. This element contains separate data for the Front side and Back side of the physical media. Every scan job
1284 can have parameters for the media front, however parameters for the media back are only valid if the *InputSource* specified
1285 equals *ADFDuplex*. If *InputSource* is *ADFDuplex* and the *MediaBack* element is missing, any parameters specified in
1286 *MediaFront* will be applied to the back side scanning as well.

1287 4.5.2.2.11.1. MediaFront

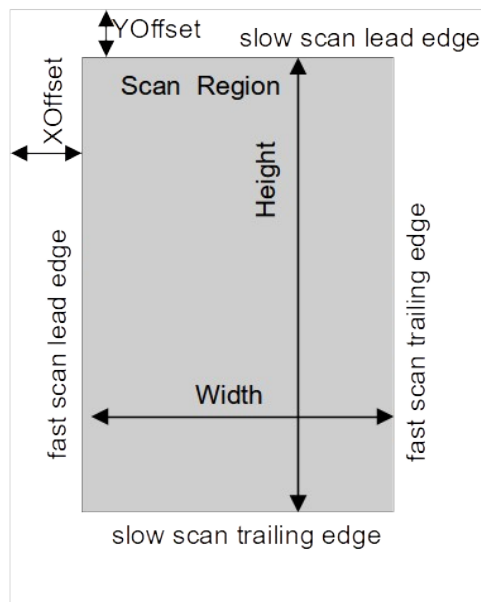
1288 This element contains all of the parameters specific to scanning the Front side of the physical media.

1289 4.5.2.2.11.1.1. ScanRegion

1290 This element specifies the area within the input document boundaries to scan. All *ScanRegion* values are in 1/1000ths of
1291 an inch.

1292 If *ScanRegion* is not specified, the device should use 0 as the offsets and the width and height of the *InputMediaSize*, if
1293 given. If *ScanRegion* is not specified and *InputMediaSize* is not specified or cannot be determined by the device, the
1294 implementation is up to the hardware vendor.

1295 The step size for all *ScanRegion* values in 1/1000th of an inch. If the requested scan region would fall completely outside of
1296 the supported acquisition area of the scanner the scan operation should be rejected. The scanner can also adjust the scan
1297 region requested if it can't fulfill the exact dimensions. Any changes to the scan region should be reported in the
1298 *DocumentFinalParameters* elements in the scan job.



1299

1300 *ScanRegionWidth* corresponds to the fast scan direction and *ScanRegionHeight* corresponds to the slow scan direction.

1301 $ScanRegionXOffset + ScanRegionWidth$ must be equal to or less than *InputSize* width.

1302 $ScanRegionYOffset + ScanRegionLength$ must be equal to or less than *InputSize* length

1303 4.5.2.2.11.1.1.1. ScanRegionXOffset

1304 This element indicates how far from the fast scan lead edge to begin the scanning for this document. This value must be
1305 less than the *InputSize* width.

1306 Values: 0 – *InputSize* width

1307 4.5.2.2.11.1.1.2. ScanRegionYOffset

1308 This element indicates how far from the slow scan lead edge to begin the scanning for this document. This value must be
1309 less than the *InputSize* height.

1310 Values: 0 – *InputSize* height

1311 4.5.2.2.11.1.1.3. ScanRegionWidth

1312 This element indicates how far from the fast scan lead edge plus the *ScanRegionXOffset* to end the scanning for this
1313 document. This value plus *ScanRegionXOffset* must be less than the *InputSize* width.

1314 Values: 1 – *InputSize* width

1315 4.5.2.2.11.1.1.4. ScanRegionHeight

1316 This element indicates how far from the slow scan lead edge plus the *ScanRegionYOffset* to end the scanning for this
1317 document. This value plus *ScanRegionYOffset* must be less than the *InputSize* height.

1318 Values: 1 – *InputSize* height

1319 4.5.2.2.11.1.2. ColorProcessing

1320 This element contains the information needed to determine how color should be handled for the scanned image(s). See
1321 section 4.3.2.3.1. for a detailed description of this data element.

1322 4.5.2.2.11.1.3. Resolution

1323 This element specifies the resolution at which to capture the image. This element contains a single WidthxHeight pair that
1324 describes the desired capture resolution. If the *Height* element is missing, it is assumed this resolution pair (WidthxHeight)
1325 is a square resolution (i.e. 300x300) based on the *Width*.

1326 Resolution is specified in pixels per inch.

1327 4.5.2.2.11.1.3.1. Width

1328 This element indicates the resolution to capture the image in the fast scan direction for this WidthxHeight pair.

1329 4.5.2.2.11.1.3.2. Height

1330 This element indicates the resolution to capture the image in the slow scan direction for this WidthxHeight pair.

1331 4.5.2.2.11.2. MediaBack

1332 This optional element contains all of the parameters specific to scanning the Back side of the physical media. These
1333 parameters are only valid when the scanner supports duplex scanning and the current scan job specifies ADFDuplex as the
1334 input source. See Section 4.5.2.2.11.1. for a detailed description of this data element.

1335 If the current scan job specifies ADFDuplex as the input source and this element is not present, all parameters in the
1336 *MediaFront* element will be applied to the backside of the duplex scan as well.

1337 4.6. The Document's Elements

1338 This section defines the elements of the WSD Document Object. Figure 14 shows all the elements for the Document and
1339 their grouping. Jobs contain one or more Documents.

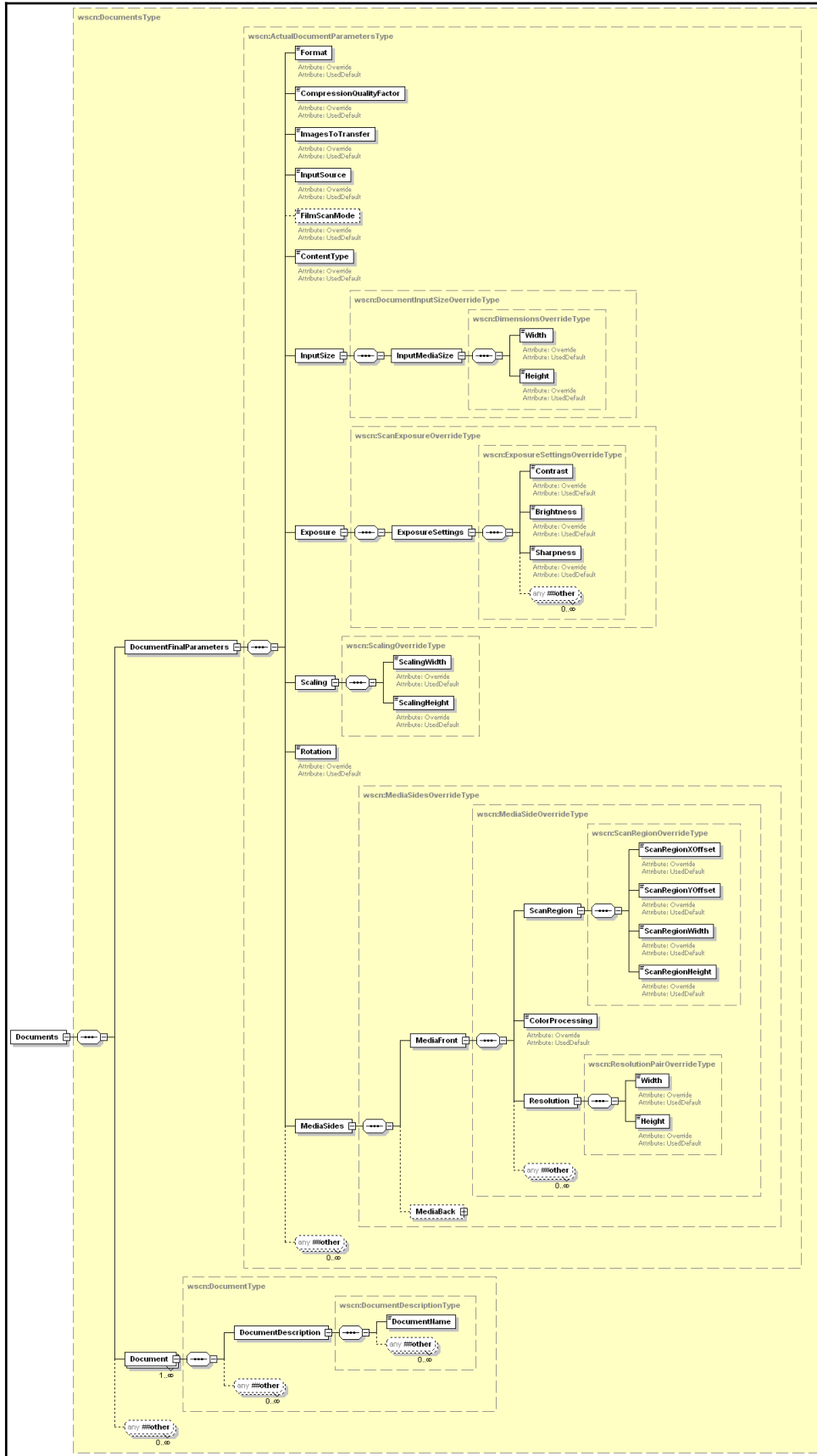


Figure 14 – Documents & Document Elements

1342 All of the Scanner elements contained within a scan document are described in detail in the following sections.

1343 The *DocumentDescription* elements are populated from corresponding elements supplied in a Job creation request. These
1344 values may be changed by the scanner if more reliable information can be obtained.

1345 4.6.1. Documents

1346 This element contains the actual scan characteristics used during image acquisition and also a collection of all the
1347 Document elements contained in the scan job.

1348 4.6.1.1. DocumentFinalParameters

1349 This section of the schema contains the actual *DocumentParameters* used by the scan device for image acquisition. These
1350 values may differ from the values requested in the job *ScanTicket* for any number of reasons. Each parameter is represented
1351 in this section, and must be filled in once the values are known. Each data element in this section also has two possible
1352 attributes associated with it. These attributes can be used by the client to determine whether the data value used by the scan
1353 device was the value sent in the *ScanTicket*, the scan device default value, or an override of the value requested by the
1354 *ScanTicket*.

1355 4.6.1.1.1. Override

1356 This attribute specifies that the current element was overridden by the scan device when the image data was aquired. The
1357 value of the element this attribute is associated with is the actual value used by the scan device during image acquisition.

1358 OPTIONAL attribute.

1359 Values: 0, 1, true, false

1360 4.6.1.1.2. UsedDefault

1361 This attribute specifies that the current element was not specified in the *ScanTicket* and the scan device used the default
1362 value when the image data was aquired. The value of the element this attribute is associated with is the actual value used by
1363 the scan device during image acquisition.

1364 OPTIONAL attribute.

1365 Values: 0, 1, true, false

1366 4.6.1.2. Document

1367 This is an element that describes the details about one of the documents scanned during the current scan job.

1368 4.6.1.2.1. DocumentDescription

1369 This section of the schema defines all the description attributes that pertain to the basic creation information of the
1370 currently identified Document.

1371 4.6.1.2.1.1. DocumentName

1372 This element specifies the name of the document supplied by the CP. The CP MUST supply a value to be used to store the
1373 document on the client.

1374 Allowed Values: any character string

1375 4.7. Job Table

1376 This section describes how the Scanner keeps track of all the current and finished jobs submitted to the Scanner service.
1377 Figure 15 below shows how the *JobTable* fits into the Scanner service. The *JobTable* has two lists of jobs. The first list
1378 (*ActiveJobs*) holds all the jobs which have not yet completed processing. The state of active jobs could be scanning,
1379 pending, or stopped. The key is they are not completed yet. The second optional list (*JobHistory*) contains a subset of the
1380 most recent jobs that have finished processing. These jobs could have scanned, been aborted, or failed for other reasons.
1381 The maximum number of jobs in this list is dependent upon the device.

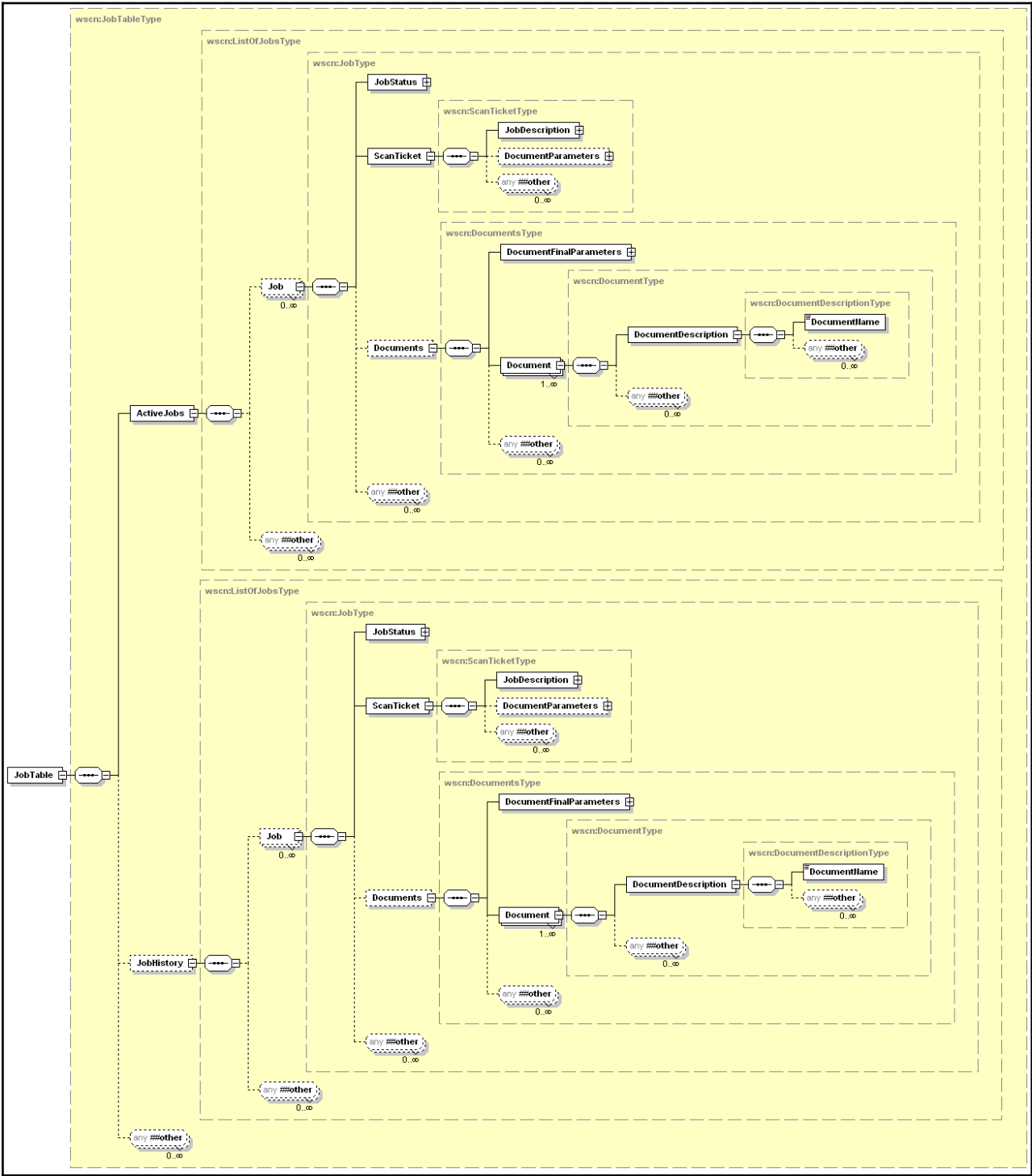


Figure 15 - JobTable Elements

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.

1389 *DocumentParameters*– This section specifies the image processing functions and their values that will be applied
1390 against the job/document.

1391 Figure 16 below illustrates the member elements of the *ScanTicket* element. Note that the member elements directly map
1392 to an instance of a Job and they are exactly what are required to be sent in a Job Creation operation.

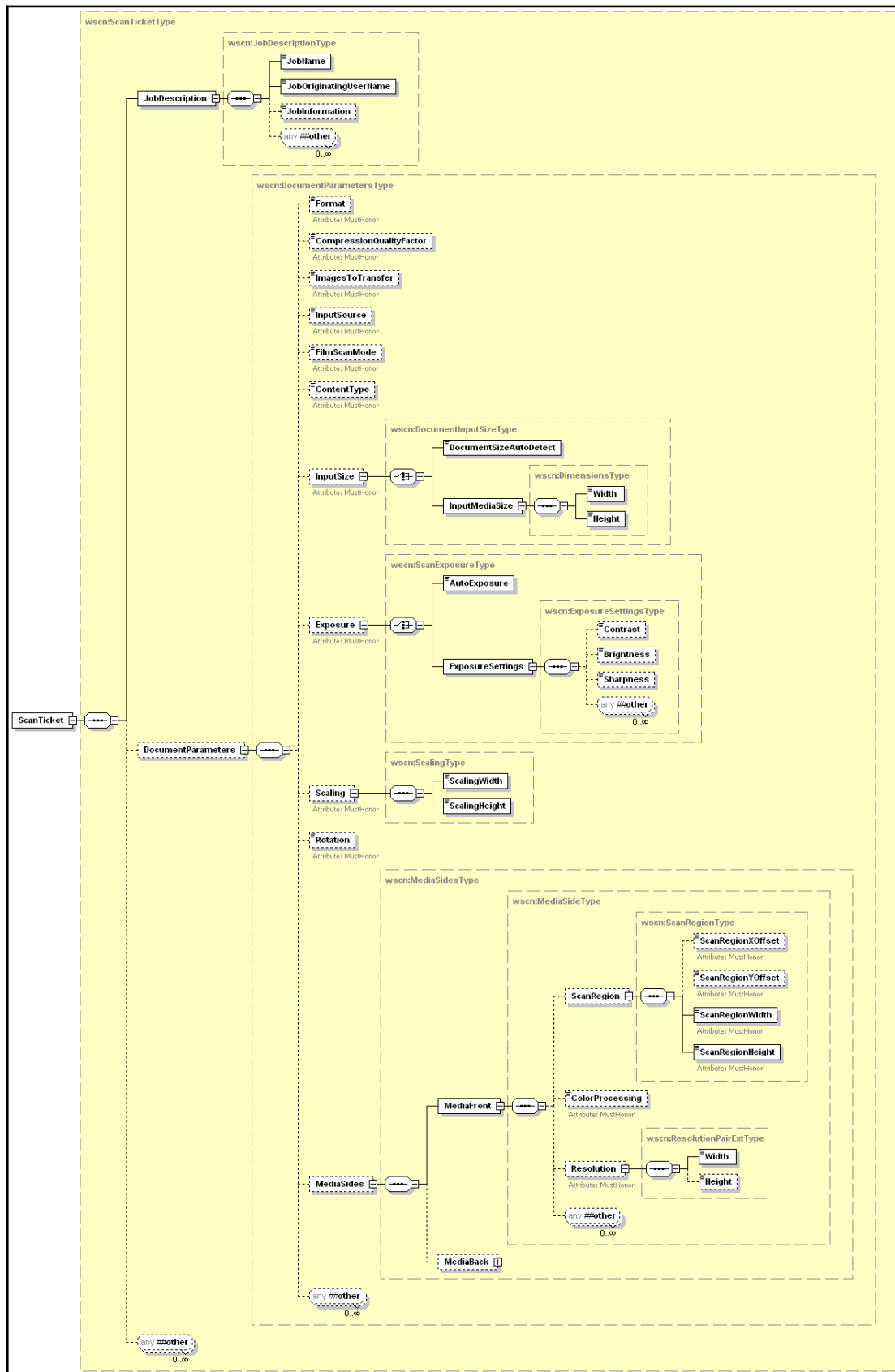


Figure 16 – ScanTicket Elements

1395 4.8.1. Example ScanTicket

```

1396 <wscn:ScanTicket>
1397   <wscn:JobDescription>
1398     <wscn:JobName>ScanJob for Den PC</wscn:JobName>
1399     <wscn:JobOriginatingUserName>Dad</wscn:JobOriginatingUserName>
1400     <wscn:JobInformation>Job created at Front Panel</wscn:JobInformation>
1401   </wscn:JobDescription>
1402   <wscn:DocumentParameters>
1403     <wscn:Format>jfif</wscn:Format>
1404     <wscn:CompressionQualityFactor>35</wscn:CompressionQualityFactor>
1405     <wscn:ImagesToTransfer>1</wscn:ImagesToTransfer>
1406     <wscn:InputSource>Platen</wscn:InputSource>
1407     <wscn:InputSize>
1408       <wscn:DocumentSizeAutoDetect>true</wscn:DocumentSizeAutoDetect>
1409     </wscn:InputSize>
1410     <wscn:Exposure>
1411       <wscn:AutoExposure>true</wscn:AutoExposure>
1412     </wscn:Exposure>
1413     <wscn:MediaSides>
1414       <wscn:MediaFront>
1415         <wscn:ScanRegion>
1416           <wscn:ScanRegionXOffset>250</wscn:ScanRegionXOffset>
1417           <wscn:ScanRegionYOffset>250</wscn:ScanRegionYOffset>
1418           <wscn:ScanRegionWidth>4000</wscn:ScanRegionWidth>
1419           <wscn:ScanRegionHeight>6000</wscn:ScanRegionHeight>
1420         </wscn:ScanRegion>
1421         <wscn:ColorProcessing>RGB24</wscn:ColorProcessing>
1422         <wscn:Resolution>
1423           <wscn:Width>1200</wscn:Width>
1424         </wscn:Resolution>
1425       </wscn:MediaFront>
1426     </wscn:MediaSides>
1427   </wscn:DocumentParameters>
1428 </wscn:ScanTicket>

```

1429 4.9. Default Values and Allowed Values for Job Submission

1430 The CP that submits a Scan Job may need to know the possible values and default values for the *DocumentParameters*
 1431 elements that are included in a Job Creation operation. The Scanner has a *ScannerConfiguration* element and a
 1432 *DefaultScanTicket* element to allow CPs to retrieve this information. The *DefaultScanTicket* element describes the current
 1433 set of default values the scan service will apply when a job is created without specifying specific job creation elements. The
 1434 *ScannerConfiguration* element contains information that will allow the CP to determine all of the allowed values for the
 1435 Job and Document elements which can be specified to affect the image creation/acquisition process.

1436 4.9.1. DefaultScanTicket

1437 The *DefaultScanTicket* element is an instance of a *ScanTicket* element filled in with all the current default values for Job
 1438 and Document creation. A CP can request the *DefaultScanTicket* and then use it as part of a **CreateScanJob** operation
 1439 without error. The *DefaultScanTicket* will contain values for all *ScanTicket* options the device supports.

1440 4.9.2. Example DefaultScanTicket

```

1441 <wscn:DefaultScanTicket>
1442   <wscn:JobDescription>
1443     <wscn:JobName>Scan Job</wscn:JobName>
1444     <wscn:JobOriginatingUserName></wscn:JobOriginatingUserName>
1445     <wscn:JobInformation>User Selected Scan Job</wscn:JobInformation>
1446   </wscn:JobDescription>
1447   <wscn:DocumentParameters>
1448     <wscn:Format>tiff-multi-uncompressed</wscn:Format>
1449     <wscn:CompressionQualityFactor>100</wscn:CompressionQualityFactor>
1450     <wscn:ImagesToTransfer>0</wscn:ImagesToTransfer>
1451     <wscn:InputSource>Platen</wscn:InputSource>
1452     <wscn:FilmScanMode>NotApplicable</wscn:FilmScanMode>
1453     <wscn:ContentType>Auto</wscn:ContentType>
1454     <wscn:InputSize>
1455       <wscn:InputMediaSize>
1456         <wscn:Width>8500</wscn:Width>
1457         <wscn:Height>11000</wscn:Height>

```

```

1458     </wscn:InputMediaSize>
1459 </wscn:InputSize>
1460 <wscn:Exposure>
1461   <wscn:AutoExposure>true</wscn:AutoExposure>
1462 </wscn:Exposure>
1463 <wscn:Scaling>
1464   <wscn:ScalingWidth>100</wscn:ScalingWidth>
1465   <wscn:ScalingHeight>100</wscn:ScalingHeight>
1466 </wscn:Scaling>
1467 <wscn:Rotation>0</wscn:Rotation>
1468 <wscn:MediaSides>
1469   <wscn:MediaFront>
1470     <wscn:ScanRegion>
1471       <wscn:ScanRegionXOffset>0</wscn:ScanRegionXOffset>
1472       <wscn:ScanRegionYOffset>0</wscn:ScanRegionYOffset>
1473       <wscn:ScanRegionWidth>8500</wscn:ScanRegionWidth>
1474       <wscn:ScanRegionHeight>11000</wscn:ScanRegionHeight>
1475     </wscn:ScanRegion>
1476     <wscn:ColorProcessing>RGB24</wscn:ColorProcessing>
1477     <wscn:Resolution>
1478       <wscn:Width>600</wscn:Width>
1479       <wscn:Height>600</wscn:Height>
1480     </wscn:Resolution>
1481   </wscn:MediaFront>
1482 </wscn:MediaSides>
1483 </wscn:DocumentParameters>
1484 </wscn:DefaultScanTicket>

```

1485 5. Eventing

1486 The scanner service will implement eventing as defined by the WS-Eventing [EVENT] specification. The scanner service
 1487 will be an extension of the WS-Eventing porttype. This will add the operations defined in that spec to the scan service for
 1488 use in creating and managing Event subscriptions.

1489 5.1. Event Model

1490 The eventing model for the scan service serves three main purposes: First is to inform the CP when the Configuration
 1491 changes on the scan device. This could include changes in the ADF capabilities or changes in storage available, etc. Second
 1492 is to inform the CP when there is a change in condition of the scan device. Examples: the scanner becomes idle or a
 1493 document jam occurs. The *ScannerState*, *ScannerStateReasons* and *DeviceCondition* elements provide this information.
 1494 Third is for job tracking; events inform a CP when a job is submitted, completed or removed from the job queue. The
 1495 *JobStatus* and **JobEndStateEvent** elements provide this information. **JobEndStateEvent** indicates the final status of each
 1496 job. It lets control points know whether it completed successfully or was canceled or aborted. *ScansCompleted* in the
 1497 *JobStatus* is an example of information that updates an interested CP on the number of images scanned for the current job.

1498 5.2. ScanAvailableEvent

1499 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
 1500 from notifying every CP when a user presses the scan button, the **Subscribe** request will contain one or more destinations
 1501 described by extensions that the scanner will use to filter down to a single CP per **ScanAvailableEvent** notification. These
 1502 elements are defined in the scanner service namespace, and then added to the *Subscribe* request body.

1503 5.2.1. Subscribe Extensions

1504 Each of these extended elements is required to be sent in the *Subscribe* element of the [EVENT] **Subscribe** operation. It is
 1505 important to note that only one *ScanDestinations* extension element should be included in the *Subscribe* element. Any
 1506 subsequent *ScanDestinations* elements will be ignored. This also implies that only one *DestinationResponses* extension
 1507 element will be returned in the *SubscribeResponse* element. An example subscribe follows the element definitions.

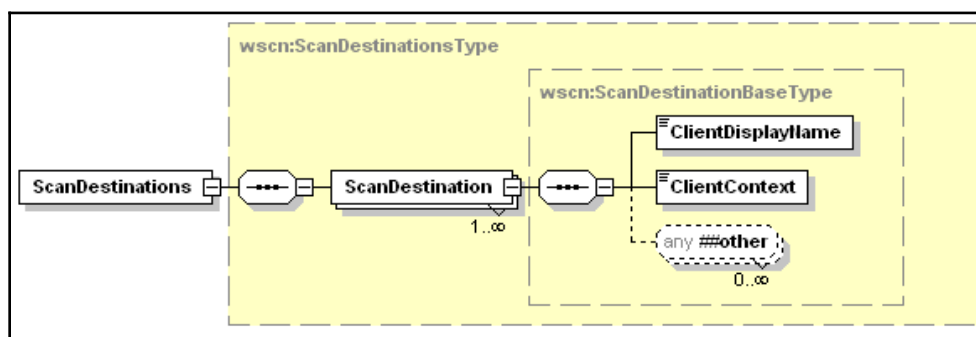


Figure 17 - ScanDestinations Elements

1510 5.2.1.1. ScanDestinations

1511 This element is a collection of all the Scan destinations the client wishes to register with the scan device. In most cases
 1512 there will be a single scan destination, but this allows the client the flexibility to register multiple unique destinations at
 1513 once.

1514 5.2.1.1.1. ScanDestination

1515 This element is a single scan destination on the CP. The elements that make up this destination registration will be used by
 1516 the scan device to create appropriate **ScanAvailableEvent**(s) and are described fully below.

1517 5.2.1.1.1.1. ClientDisplayName

1518 This element specifies a string the scanner should display in its user-interface to allow the user to select the requesting
 1519 client as a scan destination. When the user picks this display name and presses the scan button, the scanner will send a
 1520 **ScanAvailableEvent** to the endpoint contained in this subscription.

1521 Allowed Values: any character string

1522 5.2.1.1.1.2. ClientContext

1523 This element specifies a client specific string the scanner will send in the **ScanAvailableEvent**. This string will allow the
 1524 client to associate the **ScanAvailableEvent** with the correct scanner device/service.

1525 Allowed Values: any character string

1526 5.2.2. Example ScanAvailableEvent Subscribe

```

1527 <soap:Envelope
1528   xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
1529   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
1530   xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing"
1531   xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
1532   <soap:Header>
1533     <wsa:To>AddressofScannerService</wsa:To>
1534     <wsa:Action>
1535       http://schemas.xmlsoap.org/ws/2004/08/eventing/Subscribe
1536     </wsa:Action>
1537     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
1538   </soap:Header>
1539   <soap:Body>
1540     <wse:Subscribe>
1541       <wse:Delivery>
1542         <wse:NotifyTo>
1543           <wsa:Address>
1544             http://www.example.com/MyEventSink/OnScanAvailableForMe
1545           </wsa:Address>
1546         </wse:NotifyTo>
1547       </wse:Delivery>
1548       <wse:Expires>P0Y0M0DT30H0M0S</wse:Expires>
1549       <wse:Filter Dialect="http://schemas.xmlsoap.org/ws/2006/02/devprof/Action">
1550         http://schemas.microsoft.com/windows/2006/08/wdp/scan/ScanAvailableEvent
1551       </wse:Filter>
1552       <wscn:ScanDestinations>

```

```

1553     <wscn:ScanDestination>
1554       <wscn:ClientDisplayString>Den Computer</wscn:ClientDisplayString>
1555       <wscn:ClientContext>ApplScanID2345</wscn:ClientContext>
1556     </wscn:ScanDestination>
1557   </wscn:ScanDestinations>
1558 </wse:Subscribe>
1559 </soap:Body>
1560 </soap:Envelope>

```

1561 5.2.3. SubscribeResponse Extensions

1562 There is also an extended element in the **SubscribeResponse** body. This element helps tie the subscription back to the
 1563 device that accepted it.

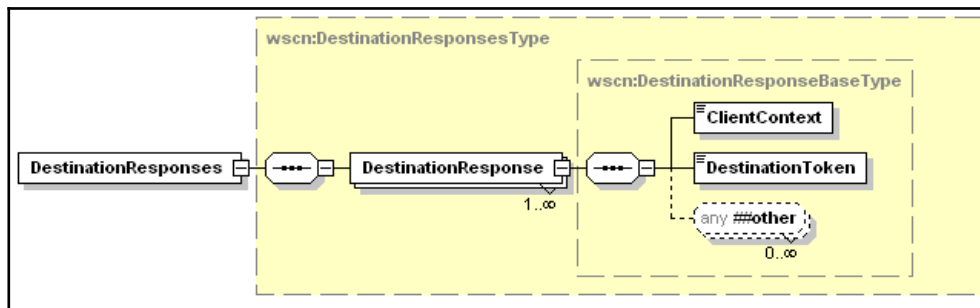


Figure 18 - DestinationResponses Elements

1566 5.2.3.1. DestinationResponses

1567 This element is a collection of all the responses to the scan destination requests. There will be one *DestinationResponse*
 1568 element for each *ScanDestination* element in the **Subscribe** request.

1569 5.2.3.1.1. DestinationResponse

1570 This element is the response information for a single *ScanDestination* registration. The element contains the *ClientContext*
 1571 from the *ScanDestination* to identify the response and a *DestinationToken* element for use in all **CreateScanJob** operations
 1572 from this destination.

1573 5.2.3.1.1.1. ClientContext

1574 This element is a copy of the data sent in a *ScanDestination* element in the **Subscribe** operation. There is a one-to-one
 1575 match of *ClientContext*(s) between a *ScanDestination* element and a *DestinationResponse* element. See Section 5.2.1.1.1.2.
 1576 for a detailed description of this data element.

1577 5.2.3.1.1.2. DestinationToken

1578 This element specifies a device specific string the scanner will assign to this client destination. When the client sends the
 1579 **CreateScanJob** operation after a **ScanAvailableEvent** it will include this token. This string will allow the device to double
 1580 check the correct client is requesting the scan.

1581 Allowed Values: any character string

1582 5.2.4. Example ScanAvailableEvent SubscribeResponse

```

1583 <soap:Envelope
1584   xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
1585   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
1586   xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing"
1587   xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan"
1588   soap:encodingStyle='http://www.w3.org/2002/12/soap-encoding' >
1589   <soap:Header>
1590     <wsa:To>http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</wsa:To>
1591     <wsa:Action>
1592       http://schemas.xmlsoap.org/ws/2004/08/eventing/SubscribeResponse
1593     </wsa:Action>
1594     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
1595     <wsa:RelatesTo>uuid:MsgIdOfTheSubscribe</wsa:RelatesTo>

```

```

1596 </soap:Header>
1597 <soap:Body>
1598   <wse:SubscribeResponse>
1599     <wse:SubscriptionManager>
1600       <!-- Elements removed for clarity -->
1601     </wse:SubscriptionManager>
1602     <wse:Expires>P0Y0M0DT30H0M0S</wse:Expires>
1603     <wscn:DestinationResponses>
1604       <wscn:DestinationResponse>
1605         <wscn:ClientContext>App1ScanID2345</wscn:ClientContext>
1606         <wscn:DestinationToken>Client3478</wscn:DestinationToken>
1607       </wscn:DestinationResponse>
1608     </wscn:DestinationResponses>
1609   </wse:SubscribeResponse>
1610 </soap:Body>
1611 </soap:Envelope>

```

1612 5.2.5. Event Elements

1613 The body of the **ScanAvailableEvent** consists of information that will allow the CP to determine which scanner to send the
 1614 **CreateScanJob** operation.

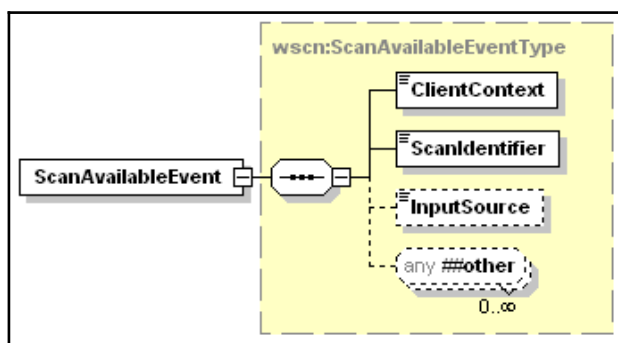


Figure 19 – ScanAvailableEvent Elements

1617 5.2.5.1. ClientContext

1618 This element contains a client specific string the scanner received as part of the **ScanAvailableEvent** subscription request..
 1619 See section 5.2.1.1.1.2. for more details about this element.

1620 5.2.5.2. ScanIdentifier

1621 This element specifies a device specific string the scanner sends in the **ScanAvailableEvent**. This identifier will be sent as
 1622 part of the resulting **CreateScanJob** operation from the client. It allows the scanner to make sure the correct client is
 1623 requesting the scan after a user has selected the destination. This value should be unique per instance of the
 1624 **ScanAvailableEvent**.

1625 Allowed Values: any character string

1626 5.2.5.3. InputSource

1627 This optional element contains the *InputSource* the user has placed the original images in on the scan device. The scan
 1628 client should use this value for the *InputSource* element of the *ScanTicket* in the successive **CreateScanJob** operation. See
 1629 section 4.5.2.2.4. for more details about this element.

1630 5.2.6. Example ScanAvailableEvent

```

1631 <soap:Envelope
1632   xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
1633   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
1634   xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing"
1635   xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
1636   <soap:Header>
1637     <wsa:To>AddressofEventSink</wsa:To>
1638     <wsa:Action>
1639       http://schemas.microsoft.com/windows/2006/08/wdp/scan/ScanAvailableEvent
1640     </wsa:Action>

```

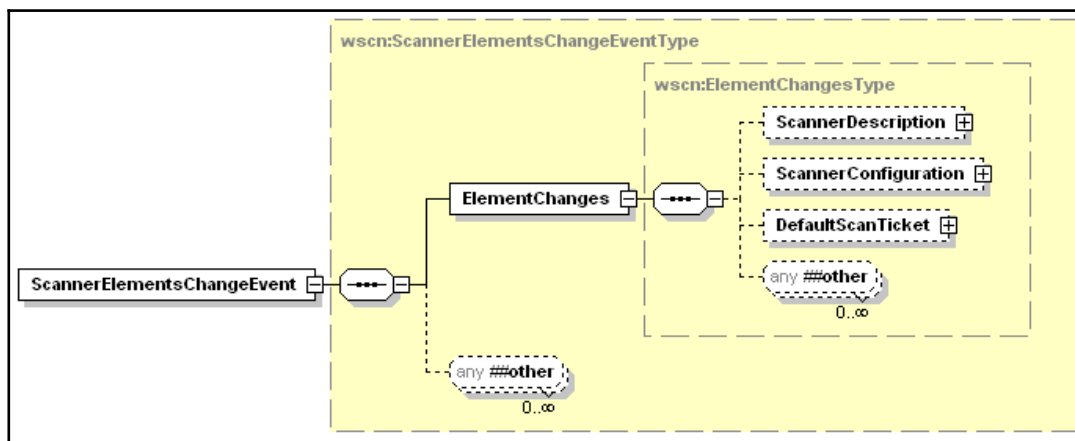
```

1641     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
1642   </soap:Header>
1643   <soap:Body>
1644     <wscn:ScanAvailableEvent>
1645       <wscn:ClientContext>App1ScanID2345</wscn:ClientContext>
1646       <wscn:ScanIdentifier>AnyUniqueIdentifierSuchAsAGUID</wscn:ScanIdentifier>
1647       <wscn:InputSource>ADF</wscn:InputSource>
1648     </wscn:ScanAvailableEvent>
1649   </soap:Body>
1650 </soap:Envelope>

```

1651 5.3. ScannerElementsChangeEvent

1652 This event is defined to inform the CP that something has changed in the *ScannerDescription* element, the
 1653 *ScannerConfiguration* element, the *DefaultScanTicket* element, or an IHV extension in the Scanner. The body of the
 1654 **ScannerElementsChangeEvent** consists of the complete XML for the updated element. If an optional element is missing
 1655 from returned XML the implication is that that element is no longer supported by the scanner service. This could be caused
 1656 by a removal of a film scan option or a duplex scanning mode. The CP is then responsible for comparing the incoming
 1657 element against previous data to determine which values have changed.



1658
1659 **Figure 20 - ScannerElementsChangeEvent Elements**

1660 5.3.1. ElementChanges

1661 The information returned in this data element should be entire element in the Scanner schema which contains changed
 1662 values. This could be because an ADF was installed, a value changed in the *DefaultScanTicket* or *DeviceSettings*, or an
 1663 IHV extension has changed value. In each case the complete *ScannerDescription*, *ScannerConfiguration*,
 1664 *DefaultScanTicket* or IHV extension would be returned in this element.

1665 5.3.2. Example ScannerElementsChangeEvent

1666 In this example the device is reporting updated device configuration due to the installation of a *Film* scanning option.

```

1667 <soap:Envelope
1668   xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
1669   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
1670   xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing"
1671   xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
1672   <soap:Header>
1673     <wsa:To>AddressofEventSink</wsa:To>
1674     <wsa:Action>
1675       http://schemas.microsoft.com/windows/2006/08/wdp/scan/ScannerElementsChangeEvent
1676     </wsa:Action>
1677     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
1678   </soap:Header>
1679   <soap:Body>
1680     <wscn:ScannerElementsChangeEvent>
1681       <wscn:ElementChanges>
1682         <wscn:ScannerConfiguration>
1683           <wscn:DeviceSettings>
1684             <wscn:FormatsSupported>

```

```

1685         <wscn:FormatValue>dib</wscn:FormatValue>
1686         <wscn:FormatValue>exif</wscn:FormatValue>
1687         <wscn:FormatValue>jpeg2k</wscn:FormatValue>
1688         <wscn:FormatValue>pdf-a</wscn:FormatValue>
1689         <wscn:FormatValue>png</wscn:FormatValue>
1690         <wscn:FormatValue>tiff-single-uncompressed</wscn:FormatValue>
1691         <wscn:FormatValue>tiff-single-g4</wscn:FormatValue>
1692         <wscn:FormatValue>tiff-multi-uncompressed</wscn:FormatValue>
1693         <wscn:FormatValue>tiff-multi-g4</wscn:FormatValue>
1694         <wscn:FormatValue>xps</wscn:FormatValue>
1695     </wscn:FormatsSupported>
1696     <wscn:CompressionQualityFactorSupported>
1697         <wscn:MinValue>15</wscn:MinValue>
1698         <wscn:MaxValue>100</wscn:MaxValue>
1699     </wscn:CompressionQualityFactorSupported>
1700     <wscn:ContentTypesSupported>
1701         <wscn:ContentTypeValue>Auto</wscn:ContentTypeValue>
1702         <wscn:ContentTypeValue>Text</wscn:ContentTypeValue>
1703         <wscn:ContentTypeValue>Photo</wscn:ContentTypeValue>
1704         <wscn:ContentTypeValue>Halftone </wscn:ContentTypeValue>
1705         <wscn:ContentTypeValue>Mixed</wscn:ContentTypeValue>
1706     </wscn:ContentTypesSupported>
1707     <wscn:DocumentSizeAutoDetectSupported>
1708         true
1709     </wscn:DocumentSizeAutoDetectSupported>
1710     <wscn:AutoExposureSupported>true</wscn:AutoExposureSupported>
1711     <wscn:BrightnessSupported>true</wscn:BrightnessSupported>
1712     <wscn:ContrastSupported>true</wscn:ContrastSupported>
1713     <wscn:ScalingRangeSupported>
1714         <wscn:ScalingWidth>
1715             <wscn:MinValue>50</wscn:MinValue>
1716             <wscn:MaxValue>500</wscn:MaxValue>
1717         </wscn:ScalingWidth>
1718         <wscn:ScalingHeight>
1719             <wscn:MinValue>50</wscn:MinValue>
1720             <wscn:MaxValue>500</wscn:MaxValue>
1721         </wscn:ScalingHeight>
1722     </wscn:ScalingRangeSupported>
1723     <wscn:RotationsSupported>
1724         <wscn:RotationValue>0</wscn:RotationValue>
1725         <wscn:RotationValue>90</wscn:RotationValue>
1726         <wscn:RotationValue>180</wscn:RotationValue>
1727         <wscn:RotationValue>270</wscn:RotationValue>
1728     </wscn:RotationsSupported>
1729 </wscn:DeviceSettings>
1730 <wscn:Platen>
1731     <wscn:PlatenOpticalResolution>
1732         <wscn:Width>1200</wscn:Width>
1733         <wscn:Height>1200</wscn:Height>
1734     </wscn:PlatenOpticalResolution>
1735     <wscn:PlatenResolutions>
1736         <wscn:Widths>
1737             <wscn:Width>150</wscn:Width>
1738             <wscn:Width>204</wscn:Width>
1739             <wscn:Width>300</wscn:Width>
1740             <wscn:Width>600</wscn:Width>
1741             <wscn:Width>1200</wscn:Width>
1742         </wscn:Widths>
1743         <wscn:Heights>
1744             <wscn:Height>96</wscn:Height>
1745             <wscn:Height>150</wscn:Height>
1746             <wscn:Height>204</wscn:Height>
1747             <wscn:Height>300</wscn:Height>
1748             <wscn:Height>600</wscn:Height>
1749             <wscn:Height>900</wscn:Height>
1750             <wscn:Height>1200</wscn:Height>
1751         </wscn:Heights>
1752     </wscn:PlatenResolutions>
1753     <wscn:PlatenColor>
1754         <wscn:ColorEntry>BlackAndWhite1</wscn:ColorEntry>
1755         <wscn:ColorEntry>Grayscale4</wscn:ColorEntry>
1756         <wscn:ColorEntry>Grayscale8</wscn:ColorEntry>
1757         <wscn:ColorEntry>RGB24</wscn:ColorEntry>

```

```

1758         <wscn:ColorEntry>RGB48</wscn:ColorEntry>
1759         <wscn:ColorEntry>RGBa32</wscn:ColorEntry>
1760         <wscn:ColorEntry>RGBa64</wscn:ColorEntry>
1761     </wscn:PlatenColor>
1762     <wscn:PlatenMinimumSize>
1763         <wscn:Width>250</wscn:Width>
1764         <wscn:Height>250</wscn:Height>
1765     </wscn:PlatenMinimumSize>
1766     <wscn:PlatenMaximumSize>
1767         <wscn:Width>11000</wscn:Width>
1768         <wscn:Height>14000</wscn:Height>
1769     </wscn:PlatenMaximumSize>
1770 </wscn:Platen>
1771 <wscn:ADF>
1772     <wscn:ADFSupportsDuplex>false</wscn:ADFSupportsDuplex>
1773     <wscn:ADFFront>
1774         <wscn:ADFOpticalResolution>
1775             <wscn:Width>600</wscn:Width>
1776             <wscn:Height>600</wscn:Height>
1777         </wscn:ADFOpticalResolution>
1778         <wscn:ADFResolutions>
1779             <wscn:Widths>
1780                 <wscn:Width>150</wscn:Width>
1781                 <wscn:Width>204</wscn:Width>
1782                 <wscn:Width>300</wscn:Width>
1783                 <wscn:Width>600</wscn:Width>
1784             </wscn:Widths>
1785             <wscn:Heights>
1786                 <wscn:Height>96</wscn:Height>
1787                 <wscn:Height>150</wscn:Height>
1788                 <wscn:Height>204</wscn:Height>
1789                 <wscn:Height>300</wscn:Height>
1790                 <wscn:Height>600</wscn:Height>
1791             </wscn:Heights>
1792         </wscn:ADFResolutions>
1793         <wscn:ADFColor>
1794             <wscn:ColorEntry>BlackAndWhite1</wscn:ColorEntry>
1795             <wscn:ColorEntry>Grayscale4</wscn:ColorEntry>
1796             <wscn:ColorEntry>RGB24</wscn:ColorEntry>
1797         </wscn:ADFColor>
1798         <wscn:ADFMinimumSize>
1799             <wscn:Width>4000</wscn:Width>
1800             <wscn:Height>6000</wscn:Height>
1801         </wscn:ADFMinimumSize>
1802         <wscn:ADFMaximumSize>
1803             <wscn:Width>8500</wscn:Width>
1804             <wscn:Height>11000</wscn:Height>
1805         </wscn:ADFMaximumSize>
1806     </wscn:ADFFront>
1807 </wscn:ADF>
1808 <wscn:Film>
1809     <wscn:FilmScanModesSupported>
1810         <wscn:FilmScanModeValue>
1811             ColorSlideFilm
1812         </wscn:FilmScanModeValue>
1813         <wscn:FilmScanModeValue>
1814             ColorNegativeFilm
1815         </wscn:FilmScanModeValue>
1816         <wscn:FilmScanModeValue>
1817             BlackandWhiteNegativeFilm
1818         </wscn:FilmScanModeValue>
1819     </wscn:FilmScanModesSupported>
1820     <wscn:FilmOpticalResolution>
1821         <wscn:Width>600</wscn:Width>
1822         <wscn:Height>600</wscn:Height>
1823     </wscn:FilmOpticalResolution>
1824     <wscn:FilmResolutions>
1825         <wscn:Widths>
1826             <wscn:Width>150</wscn:Width>
1827             <wscn:Width>300</wscn:Width>
1828             <wscn:Width>600</wscn:Width>
1829         </wscn:Widths>
1830         <wscn:Heights>

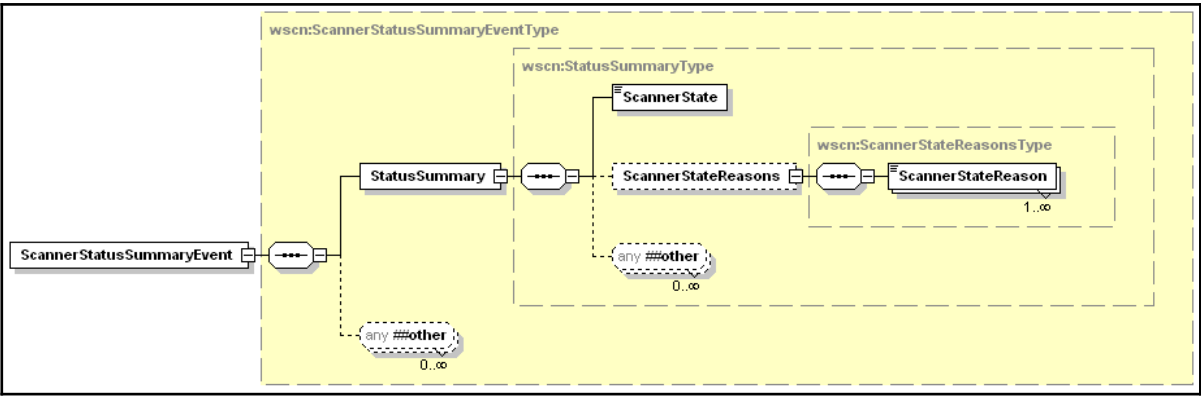
```



```
1831         <wscn:Height>150</wscn:Height>
1832         <wscn:Height>300</wscn:Height>
1833         <wscn:Height>600</wscn:Height>
1834     </wscn:Heights>
1835 </wscn:FilmResolutions>
1836 <wscn:FilmColor>
1837     <wscn:ColorEntry>BlackAndWhite1</wscn:ColorEntry>
1838     <wscn:ColorEntry>Grayscale4</wscn:ColorEntry>
1839     <wscn:ColorEntry>RGB24</wscn:ColorEntry>
1840     <wscn:ColorEntry>RGBa32</wscn:ColorEntry>
1841 </wscn:FilmColor>
1842 <wscn:FilmMinimumSize>
1843     <wscn:Width>1378</wscn:Width>
1844     <wscn:Height>1378</wscn:Height>
1845 </wscn:FilmMinimumSize>
1846 <wscn:FilmMaximumSize>
1847     <wscn:Width>2756</wscn:Width>
1848     <wscn:Height>10000</wscn:Height>
1849 </wscn:FilmMaximumSize>
1850 </wscn:Film>
1851 </wscn:ScannerConfiguration>
1852 </wscn:ElementChanges>
1853 </wscn:ScannerElementsChangeEvent>
1854 </soap:Body>
1855 </soap:Envelope>
```

1856 **5.4. ScannerStatusSummaryEvent**

1857 This event is defined to inform the CP that the device status has changed. The body of the **ScannerStatusSummaryEvent**
1858 consists of the *StatusSummary* element.



1859
1860 **Figure 21 - ScannerStatusSummaryEvent Elements**

1861 **5.4.1. StatusSummary**

1862 This data element contains the current summary of the scanner status.

1863 **5.4.1.1. ScannerState**

1864 This data element is described in Section 4.4.2.

1865 **5.4.1.2. ScannerStateReasons**

1866 This data element is described in Section 4.4.3.

1867 **5.4.1.2.1. ScannerStateReason**

1868 This data element is described in Section 4.4.3.1..

1869 **5.4.2. Example ScannerStatusSummaryEvent**

1870 In this example the device is stopped because of a jam in the media feed path.

```
1871 <soap:Envelope
```

```

1872     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
1873     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
1874     xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing"
1875     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
1876   <soap:Header>
1877     <wsa:To>AddressofEventSink</wsa:To>
1878     <wsa:Action>
1879       http://schemas.microsoft.com/windows/2006/08/wdp/scan/ScannerStatusSummaryEvent
1880     </wsa:Action>
1881     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
1882   </soap:Header>
1883   <soap:Body>
1884     <wscn:ScannerStatusSummaryEvent>
1885       <wscn:StatusSummary>
1886         <wscn:ScannerState>Stopped</wscn:ScannerState>
1887         <wscn:ScannerStateReasons>
1888           <wscn:ScannerStateReason>MediaJam</wscn:ScannerStateReason>
1889         </wscn:ScannerStateReasons>
1890       </wscn:StatusSummary>
1891     </wscn:ScannerStatusSummaryEvent>
1892   </soap:Body>
1893 </soap:Envelope>

```

1895 5.5. ScannerStatusConditionEvent

1896 This event is defined to inform the CP detailed information about a status change in the device. The body of the
 1897 **ScannerStatusConditionEvent** event consists of the *DeviceCondition* element for the status change. This element contains
 1898 the following data:

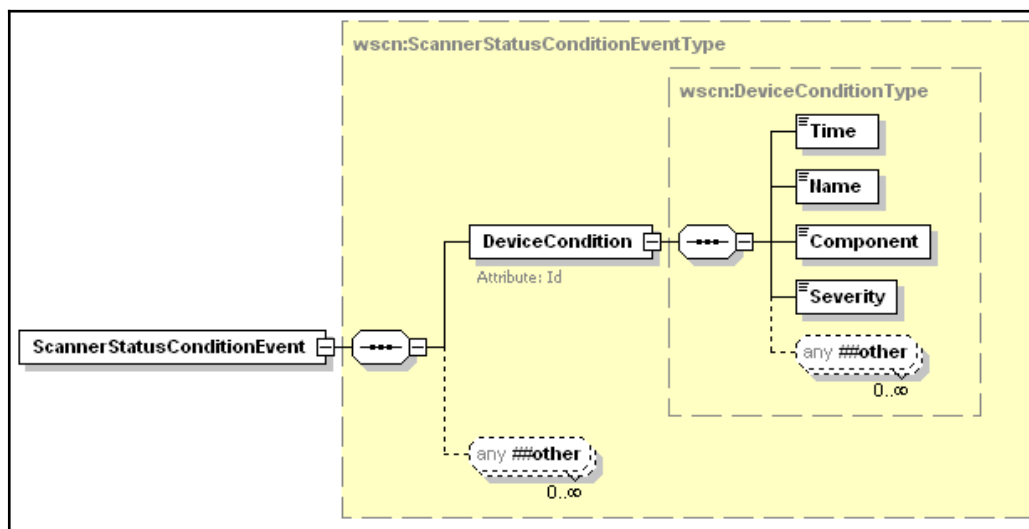


Figure 22 - ScannerStatusConditon Event

1901 5.5.1. DeviceCondition

1902 This is an element that describes the details about one of the currently active conditions. This data element is described in
 1903 Section 4.4.4.1..

1904 5.5.2. Example ScannerStatusConditionEvent

1905 In this example the device is notifying the CP of a scan Lamp failure.

```

1906 <soap:Envelope
1907   xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
1908   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
1909   xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing"
1910   xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
1911   <soap:Header>
1912     <wsa:To>AddressofEventSink</wsa:To>
1913     <wsa:Action>

```

```

1914      http://schemas.microsoft.com/windows/2006/08/wdp/scan/ScannerStatusConditionEvent
1915      </wsa:Action>
1916      <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
1917    </soap:Header>
1918    <soap:Body>
1919      <wscn:ScannerStatusConditionEvent>
1920        <wscn:DeviceCondition Id="1543">
1921          <wscn:Time>2006-01-21T17:22:27.5242689Z</wscn:Time>
1922          <wscn:Name>LampError</wscn:Name>
1923          <wscn:Component>Platen</wscn:Component>
1924          <wscn:Severity>Critical</wscn:Severity>
1925        </wscn:DeviceCondition>
1926      </wscn:ScannerStatusConditionEvent>
1927    </soap:Body>
1928  </soap:Envelope>

```

1929 5.6. ScannerStatusConditionClearedEvent

1930 This event is defined to inform the CP that a previously reported *DeviceCondition* has been cleared. The body of the
 1931 **ScannerStatusConditionClearedEvent** message consists of the *DeviceConditionId* element for the condition that has been
 1932 cleared, and an element representing the time the condition was cleared. This event contains the following data:

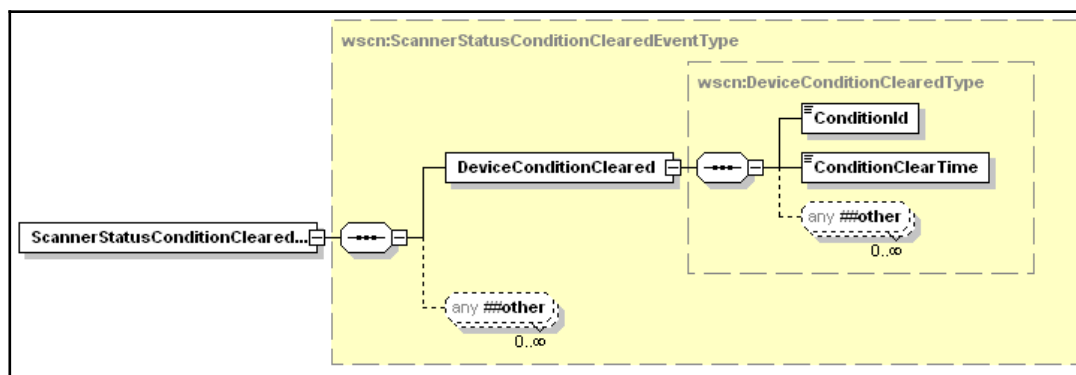


Figure 23 - ScannerStatusConditionCleared Event

1935 5.6.1. DeviceConditonCleared

1936 This data element contains the *Id* of the condition that cleared and the time the condition was cleared.

1937 5.6.1.1. ConditonId

1938 This data element is equivalent to the *Id* attribute of a *DeviceCondition* entry. See Section 4.4.4.1.1. for an explanation of
 1939 the format.

1940 5.6.1.2. ConditionClearTime

1941 This data element is a *dateTime* element that describes when the condition was cleared. See Section 4.4.5.1.6. for an
 1942 explanation of the format.

1943 5.6.2. Example ScannerStatusConditionClearedEvent

1944 In this example the device is notifying the CP that the previous condition identified by Id 1543 has cleared.

```

1945 <soap:Envelope
1946   xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
1947   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
1948   xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing"
1949   xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
1950   <soap:Header>
1951     <wsa:To>AddressofEventSink</wsa:To>
1952     <wsa:Action>
1953       http://schemas.microsoft.com/windows/2006/08/wdp/scan/ScannerStatusConditionClearedEvent
1954     </wsa:Action>
1955     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
1956   </soap:Header>

```

```

1957 <soap:Body>
1958   <wscn:ScannerStatusConditionClearedEvent>
1959     <wscn:DeviceConditionCleared>
1960       <wscn:ConditionId>1543</wscn:ConditionId>
1961       <wscn:ConditionClearTime>2006-01-21T17:22:35.8345Z</wscn:ConditionClearTime>
1962     </wscn:DeviceConditionCleared>
1963   </wscn:ScannerStatusConditionClearedEvent>
1964 </soap:Body>
1965 </soap:Envelope>

```

1966 5.7. JobStatusEvent

1967 This event is defined to inform the CP that a job's status has changed. The first **JobStatusEvent** message sent will usually
 1968 have the *JobId* and a *JobState* of Started. The body of the **JobStatusEvent** message consists of the following data
 1969 elements:

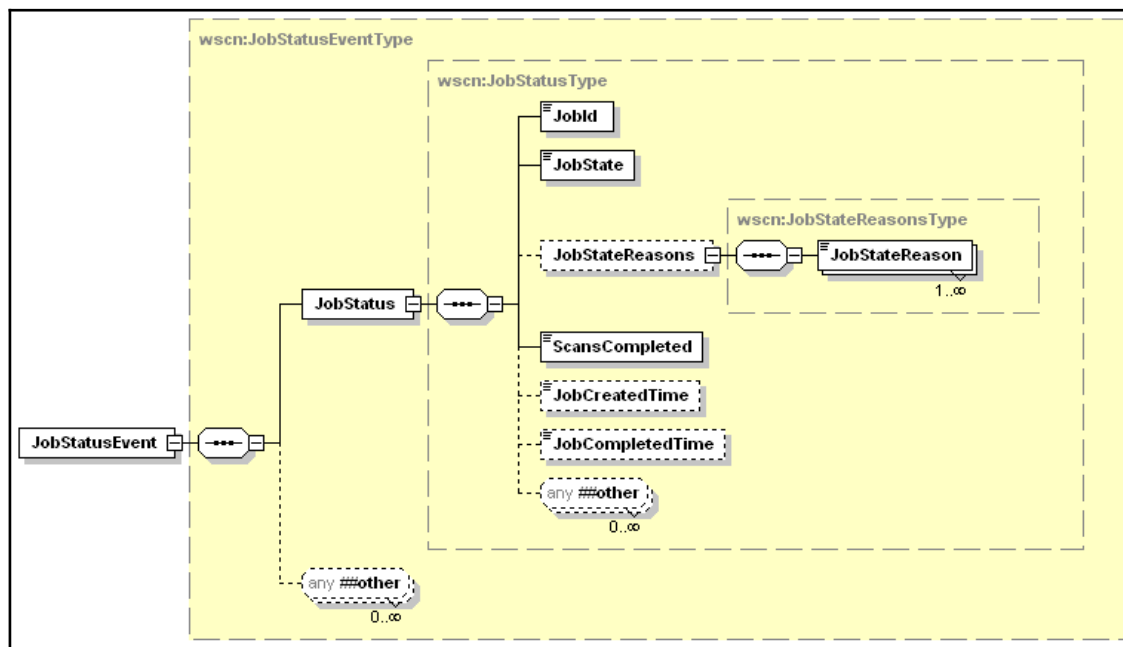


Figure 24 - JobStatus Event

1972 5.7.1. JobStatus

1973 This data element contains the current status of a Job. This data element is described in Section 4.5.1.

1974 5.7.2. Example JobStatusEvent

1975 In this example the device is notifying the CP of the current state of Job 253.

```

1976 <soap:Envelope
1977   xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
1978   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
1979   xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing"
1980   xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
1981   <soap:Header>
1982     <wsa:To>AddressofEventSink</wsa:To>
1983     <wsa:Action>
1984       http://schemas.microsoft.com/windows/2006/08/wdp/scan/JobStatusEvent
1985     </wsa:Action>
1986     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
1987   </soap:Header>
1988   <soap:Body>
1989     <wscn:JobStatusEvent>
1990       <wscn:JobStatus>
1991         <wscn:JobId>253</wscn:JobId>
1992         <wscn:JobState>Processing</wscn:JobState>
1993         <wscn:JobStateReasons>

```

```

1994         <wscn:JobStateReason>JobScanning</wscn:JobStateReason>
1995     </wscn:JobStateReasons>
1996     <wscn:ScansCompleted>4</wscn:ScansCompleted>
1997     <wscn:JobCreatedTime>2006-01-24T11:34:35.8345Z</wscn:JobCreatedTime>
1998     <wscn:JobStatus>
1999     </wscn:JobStatusEvent>
2000 </soap:Body>
2001 </soap:Envelope>
    
```

2002 5.8. JobEndStateEvent

2003 This event is defined to inform the CP that a Job has finished processing.

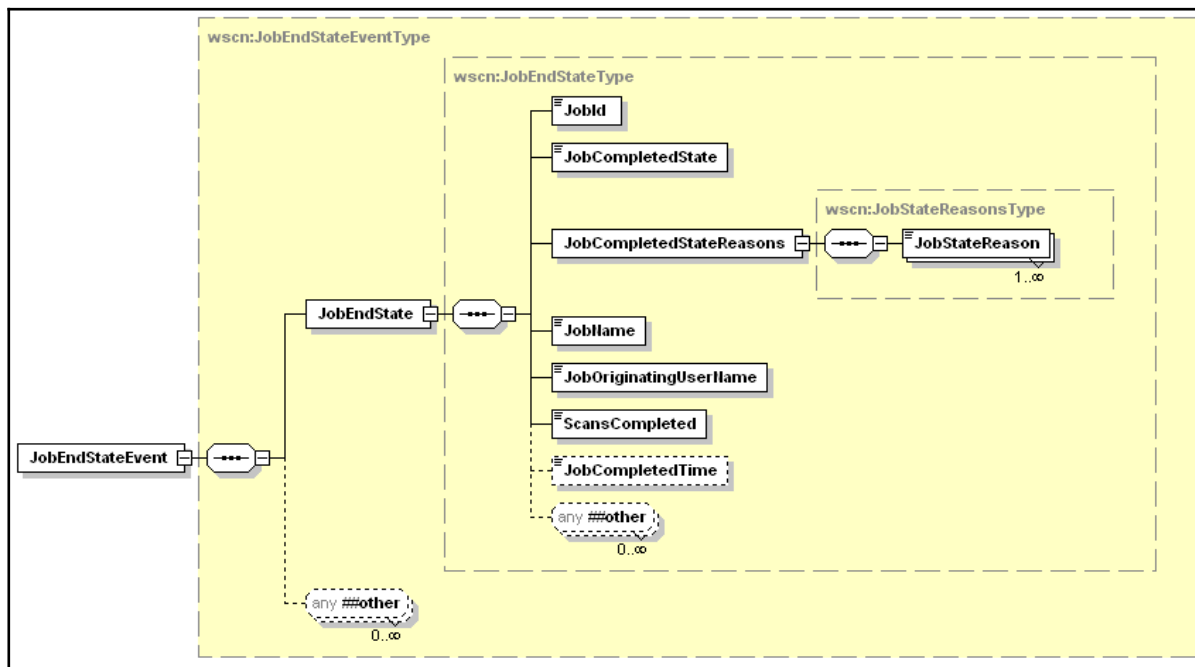


Figure 25 - JobEndState Event

2006 5.8.1. JobEndState

2007 This data element contains the final state of the Job status elements.

2008 5.8.1.1. JobId

2009 This data element is described in Section 4.5.1.1.

2010 5.8.1.2. JobCompletedState

2011 This data element is the final *JobState* for the job and has the same semantics and values as the *JobState* element from
2012 *JobStatus*. The *JobState* element is described in Section 4.5.1.2.

2013 5.8.1.2.1. JobCompletedStateReasons

2014 This element is a collection that describes all of the additional information about how/why the Job completed.

2015 5.8.1.2.1.1. JobStateReason

2016 This elements indicates additional information about how/why the Job completed and has the same semantics and values as
2017 the *JobStateReason* element from *JobStatus*. The *JobStateReason* element is described in Section 4.5.1.3.1.

2018 5.8.1.3. JobName

2019 This data element is described in Section 4.5.2.1.1.

2020 5.8.1.4. JobOriginatingUser

2021 This data element is described in Section 4.5.2.1.2.

2022 5.8.1.5. ScansCompleted

2023 This data element is described in Section 4.5.1.6.

2024 5.8.1.6. JobCompletedTime

2025 This data element is described in Section 4.5.1.5.

2026 5.8.2. Example JobEndStateEvent

2027 In this example the device is notifying the CP of the final state/status of Job 253.

```

2028 <soap:Envelope
2029     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2030     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2031     xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing"
2032     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
2033   <soap:Header>
2034     <wsa:To>AddressofEventSink</wsa:To>
2035     <wsa:Action>
2036       http://schemas.microsoft.com/windows/2006/08/wdp/scan/JobEndStateEvent
2037     </wsa:Action>
2038     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2039   </soap:Header>
2040   <soap:Body>
2041     <wscn:JobEndStateEvent>
2042       <wscn:JobEndState>
2043         <wscn:JobId>253</wscn:JobId>
2044         <wscn:JobCompletedState>Completed</wscn:JobCompletedState>
2045         <wscn:JobCompletedStateReasons>
2046           <wscn:JobStateReason>JobCompletedWithWarnings</wscn:JobStateReason>
2047         </wscn:JobCompletedStateReasons>
2048         <wscn:JobName>Scan from Imaging App</wscn:JobName>
2049         <wscn:JobOriginatingUserName>User</wscn:JobOriginatingUserName>
2050         <wscn:ScansCompleted>7</wscn:ScansCompleted>
2051         <wscn:JobCompletedTime>2006-01-24T11:37:05.673Z</wscn:JobCompletedTime>
2052       </wscn:JobEndState>
2053     </wscn:JobEndStateEvent>
2054   </soap:Body>
2055 </soap:Envelope>

```

2056 6. Operations

2057 Immediately following this table is detailed information about these operations, including short descriptions of the
 2058 operations, the effects of the operations on state, and error codes defined by the operations.

2059 **Table 2 - Operations**

Name	Req. or Opt. ¹
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>	X

2060 ¹ R = REQUIRED, O = Optional, X = Non-standard.

2061 **6.1. Operation Error Reporting**

2062 Error codes are returned in the <soap:Fault> element. A vendor MAY subset or extend these error codes by supporting
2063 private error subcodes. All fault messages defined in this specification MUST be sent according to the rules described in
2064 [ADDRESS] section 4 and [DEVICE]. They are sent to the [fault endpoint], if present and valid. Otherwise they are sent to
2065 the [reply endpoint] if present. If neither is present faults may be sent to the [source endpoint].

2066 Endpoints compliant with this specification MUST include required message information headers on all fault messages.
2067 Fault messages are correlated as replies using the [relationship] property as defined in WS-Addressing. The [action]
2068 property below designates fault messages:

2069 http://schemas.xmlsoap.org/ws/2004/08/addressing/fault

2070 The definitions of faults use the following properties:
2071

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

2072 The properties above bind to a SOAP 1.2 fault as follows:

```
2073 <S:Envelope>  
2074   <S:Header>  
2075     <wsa:Action>http://schemas.xmlsoap.org/ws/2004/08/addressing/fault</wsa:Action>  
2076     <!-- Headers excluded for clarity -->  
2077   </S:Header>  
2078   <S:Body>  
2079     <S:Fault>  
2080       <S:Code>  
2081         <S:Value>[Code]</S:Value>  
2082         <S:Subcode>  
2083           <S:Value>[Subcode]</S:Value>  
2084         </S:Subcode>  
2085       </S:Code>  
2086       <S:Reason>  
2087         <S:Text xml:lang="en">[Reason]</S:Text>  
2088       </S:Reason>  
2089       <S:Detail> [Detail] </S:Detail>  
2090     </S:Fault>  
2091   </S:Body>  
2092 </S:Envelope>
```

2093
2094 Example SOAP Fault:

```
2095 <soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soapelope"  
2096   xmlns:xm1="http://www.w3.org/XML/1998/namespace"  
2097   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"  
2098   xmlns:wscn="http://schemas.microsoft.com/windows/2006/08/wdp/scan">  
2099   <soap:Header>  
2100     <wsa:Action>http://schemas.xmlsoap.org/ws/2004/08/addressing/fault</wsa:Action>  
2101     <!-- Headers excluded for brevity -->  
2102   </soap:Header>  
2103   <soap:Body>  
2104     <soap:Fault>  
2105       <soap:Code>  
2106         <soap:Value>soap:Receiver</soap:Value>  
2107         <soap:Subcode>  
2108           <soap:Value>wscn:OperationFailed</soap:Value>  
2109         </soap:Subcode>  
2110       </soap:Code>  
2111       <soap:Reason>  
2112         <soap:Text xml:lang="en">Service can not perform the requested Operation</soap:Text>  
2113       </soap:Reason>
```

```
2114     </soap:Fault>
2115     </soap:Body>
2116 </soap:Envelope>
```

2117 6.1.1. Common Operation Faults

2118 The following table lists SOAP Faults common to all operations for this service type. If an operation results in multiple
2119 errors, the most specific fault SHOULD be returned.

2120 6.1.1.1. wsa:ActionNotSupported

2121 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>

2122 6.1.1.2. InvalidArgs

2123 This fault is sent when a Client sends an invalid argument as part of an operation. The invalid argument could be any of the
2124 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>

2125 6.1.1.3. OperationFailed

2126 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>

2127 6.1.1.4. ServerErrorTemporaryError

2128 This fault is sent when the server experiences a temporary error that occurs while the Scanner processes the operation. The
2129 client MAY try the unmodified request again at some later point in time with an expectation that the temporary internal
2130 error condition MAY have been cleared. If there is a more specific error defined that applies to a temporary error, such as
2131 disk full, that code SHOULD be used.

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

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

2132 6.1.1.5. ServerErrorInternalError

2133 This fault is sent when the Scanner encounters an unexpected condition that prevented it from fulfilling the request. This
 2134 error differs from *ServerErrorTemporaryError* in that it implies a more permanent type of internal error and resending the
 2135 operation will return the same fault.

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

2136

2137 6.2. CreateScanJob

2138 This operation is the main mechanism to prepare a scan device to scan the images available to it. This operation can be
 2139 initiated in two different ways – either the User selects a destination and pushes the scan button at the device or the User
 2140 starts an application on the client and acquires an image. Each method will send different arguments in the operation
 2141 request.

2142 If the scan is initiated from the device via a **ScanAvailableEvent** the operation contains the *ScanIdentifier* from the
 2143 **ScanAvailableEvent** and also the *DestinationToken* returned during the **Subscribe** operation for the **ScanAvailableEvent**.
 2144 The request also contains a scan ticket to control the processing of the scan. The values in the *ScanTicket* are the defaults
 2145 set at the client before the User went to the device to initiate the scan.

2146 If the scan is initiated from an application on the client the request contains a *ScanTicket* to control the processing of the
 2147 scan. The *ScanIdentifier* and *DestinationToken* are omitted.

2148 The allowed values returned in a **GetScannerElements(ScannerConfiguration)** (see section 4.3.) indicate the values of the
 2149 arguments that the Scan Service instance (scanner) supports (see section 4.9.) for a Job creation operation. The scanner
 2150 performs the following validation in the indicated order:

- 2151 • If the *Format* is not supported, the Scanner MUST reject the request and return the
 2152 *ClientErrorDocumentFormatNotSupported* error code.
- 2153 • If the client (CP) supplies elements that are unsupported or their values are unsupported (except *Format*) the
 2154 Scanner
 - 2155 ○ MUST reject the Job if the *MustHonor* attribute with a value of 1 or *true* is in effect.
 - 2156 ○ MUST ignore or substitute with supported values, respectively, if the *MustHonor* attribute with a value of
 2157 0 or *false* is in effect
 - 2158 ○ The *MustHonor* attribute is in effect if the attribute is supplied at the element level. Note that if the
 2159 *MustHonor* attribute is not explicitly specified in the element, the default is 0 or *false*.

- If a client (CP) supplies a conflicting combination of elements in the arguments (such as *InputSource* and *Resolution*), the Scanner MUST reject the Job if the *MustHonor* attribute with a value of 1 or `true` is in effect.

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

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

6.2.1. Request Elements

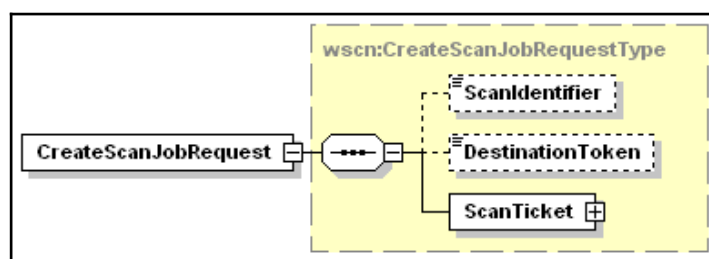


Figure 26 - CreateScanJobRequest Elements

6.2.1.1. ScanIdentifier

This optional element specifies a device specific string the scanner sent in the **ScanAvailableEvent**. This identifier will 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. for more details on this element.

6.2.1.2. DestinationToken

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

6.2.1.3. ScanTicket

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

2189 6.2.2. Response Elements

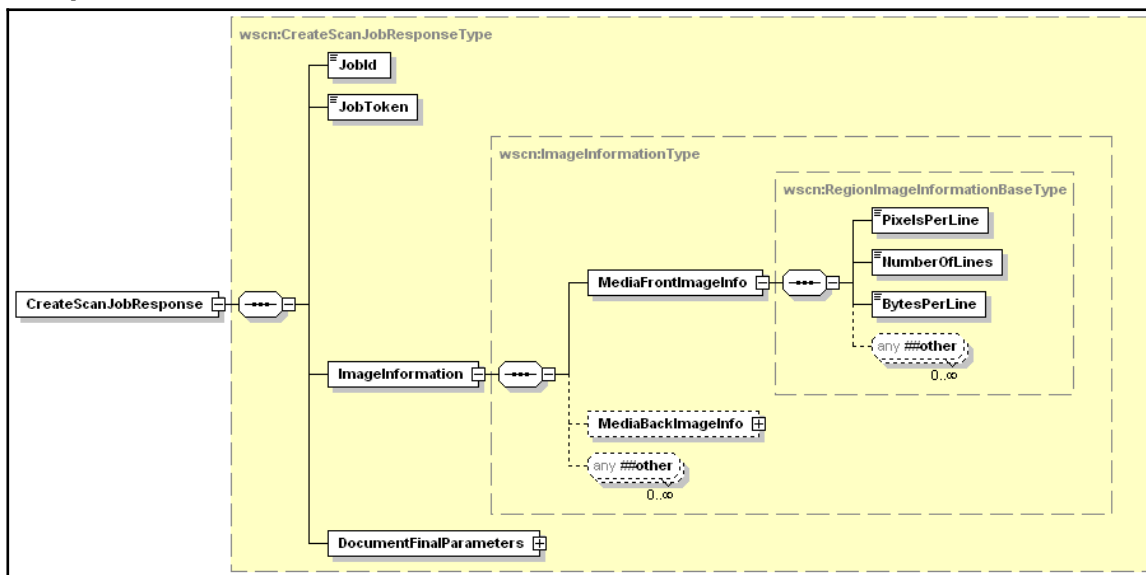


Figure 27 - CreateScanJobResponse Elements

2192 6.2.2.1. JobId

2193 This element is the device created identifier for the new scan job. This Id can be used in subsequent operations like
 2194 **CancelJob** and **GetJobElements** to modify the job or retrieve job information. This data element is described in Section
 2195 4.5.1.1.

2196 6.2.2.2. JobToken

2197 This element is the device created token for the new scan job. This element is paired with the *JobId* to uniquely represent
 2198 the scan job. It will be passed to the device in the **RetrieveImage** command to allow the scan device to verify the requester
 2199 actually created the scan job.

2200 6.2.2.3. ImageInformation

2201 This element contains information about the resulting image data from a scan made with the *ScanTicket* that is currently
 2202 being validated. This data is valuable to scan applications for decoding the image within an image file.

2203 6.2.2.3.1. MediaFrontImageInfo

2204 This element contains the *ImageInformation* for a simplex scan, or the front side of an ADFDuplex scan.

2205 6.2.2.3.1.1. PixelsPerLine

2206 This element describes the exact width, in pixels, of the final image that would be scanned from this document side using
 2207 the current *ScanTicket* settings that are being validated. This width should include rotation and any adjustment done by the
 2208 scanner on the final images transferred to the client.

2209 Values: 1 – 2147483647

2210 6.2.2.3.1.2. NumberOfLines

2211 This element describes the exact height, in pixels (or: number of lines) of the final output image that would be generated
 2212 for the current *ScanTicket*, including rotation and any adjustment the scanner may perform on the scanned image before to
 2213 transfer it to the client.

2214 Values: 1 – 2147483647

2215 6.2.2.3.1.3. BytesPerLine

2216 This element indicates how many bytes each scan line will use in the resultant image file. This includes the data pixels and
 2217 any padding the scanner will add to each scan line. This element is only valid if the requested *Format* is an uncompressed
 2218 file format. If the file format indicates compression then this element should have a value of 0.

2219 Values: 0 – 2147483647

2220 6.2.2.3.2. MediaBackImageInfo

2221 This element contains the *ImageInformation* for the back side of an ADFDuplex scan.

2222 6.2.2.4. DocumentFinalParameters

2223 This section of the schema contains the actual *DocumentParameters* which were used by the scan device for this scan job.

2224 This data element is described in Section 4.6.1.1.

2225 6.2.3. Example Request – Device Initiated

```

2226 <?xml version="1.0" encoding="utf-8"?>
2227 <soap:Envelope
2228   xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2229   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2230   xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
2231   <soap:Header>
2232     <wsa:To>AddressofScannerService</wsa:To>
2233     <wsa:Action>
2234       http://schemas.microsoft.com/windows/2006/08/wdp/scan/CreateScanJob
2235     </wsa:Action>
2236     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2237   </soap:Header>
2238   <soap:Body>
2239     <wscn:CreateScanJobRequest>
2240       <wscn:ScanIdentifier>uuid:12e7a983-1034-5428-d298-0016f11097fa</wscn:ScanIdentifier>
2241       <wscn:DestinationToken>Dest1234TokenString</wscn:DestinationToken>
2242       <wscn:ScanTicket>
2243         <wscn:JobDescription>
2244           <wscn:JobName>Photo Scan</wscn:JobName>
2245           <wscn:JobOriginatingUserName>RogerSmith</wscn:JobOriginatingUserName>
2246         </wscn:JobDescription>
2247         <wscn:DocumentParameters>
2248           <wscn:Format>jfif</wscn:Format>
2249           <wscn:CompressionQualityFactor>45</wscn:CompressionQualityFactor>
2250           <wscn:InputSource>Platen</wscn:InputSource>
2251           <wscn:ContentType>Auto</wscn:ContentType>
2252           <wscn:InputSize>
2253             <wscn:DocumentSizeAutoDetect>true</wscn:DocumentSizeAutoDetect>
2254           </wscn:InputSize>
2255           <wscn:Scaling wscn:MustHonor="1">
2256             <wscn:ScalingWidth>125</wscn:ScalingWidth>
2257             <wscn:ScalingHeight>125</wscn:ScalingHeight>
2258           </wscn:Scaling>
2259           <wscn:MediaSides>
2260             <wscn:MediaFront>
2261               <wscn:Resolution wscn:MustHonor="1">
2262                 <wscn:Width>300</wscn:Width>
2263                 <wscn:Height>300</wscn:Height>
2264               </wscn:Resolution>
2265             </wscn:MediaFront>
2266           </wscn:MediaSides>
2267         </wscn:DocumentParameters>
2268       </wscn:ScanTicket>
2269     </wscn:CreateScanJobRequest>
2270   </soap:Body>
2271 </soap:Envelope>

```

2272 6.2.4. Example Response

```

2273 <?xml version="1.0" encoding="utf-8"?>
2274 <soap:Envelope
2275   xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2276   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2277   xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">

```

```

2278 <soap:Header>
2279   <wsa:To>http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</wsa:To>
2280   <wsa:Action>
2281     http://schemas.microsoft.com/windows/2006/08/wdp/scan/CreateScanJobResponse
2282   </wsa:Action>
2283   <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2284   <wsa:RelatesTo>uuid:MsgIdOfTheCreateScanJobRequest</wsa:RelatesTo>
2285 </soap:Header>
2286 <soap:Body>
2287   <wscn:CreateScanJobResponse>
2288     <wscn:JobId>1</wscn:JobId>
2289     <wscn:JobToken>Job9876TokenString</wscn:JobToken>
2290     <wscn:ImageInformation>
2291       <wscn:MediaFrontImageInfo>
2292         <wscn:PixelsPerLine>900</wscn:PixelsPerLine>
2293         <wscn:NumberOfLines>1500</wscn:NumberOfLines>
2294         <wscn:BytesPerLine>113</wscn:BytesPerLine>
2295       </wscn:MediaFrontImageInfo>
2296     </wscn:ImageInformation>
2297     <wscn:DocumentFinalParameters>
2298       <wscn:Format>jfif</wscn:Format>
2299       <wscn:CompressionQualityFactor>45</wscn:CompressionQualityFactor>
2300       <wscn:ImagesToTransfer>0</wscn:ImagesToTransfer>
2301       <wscn:InputSource>Platen</wscn:InputSource>
2302       <wscn:ContentType>Auto</wscn:ContentType>
2303       <wscn:InputSize>
2304         <wscn:InputMediaSize>
2305           <wscn:Width Override="true">8500</wscn:Width>
2306           <wscn:Height Override="true">11000</wscn:Height>
2307         </wscn:InputMediaSize>
2308       </wscn:InputSize>
2309       <wscn:Exposure>
2310         <wscn:ExposureSettings>
2311           <wscn:Contrast UsedDefault="true">0</wscn:Contrast>
2312           <wscn:Brightness UsedDefault="true">0</wscn:Brightness>
2313           <wscn:Sharpness UsedDefault="true">0</wscn:Sharpness>
2314         </wscn:ExposureSettings>
2315       </wscn:Exposure>
2316       <wscn:Scaling>
2317         <wscn:ScalingWidth>125</wscn:ScalingWidth>
2318         <wscn:ScalingHeight>125</wscn:ScalingHeight>
2319       </wscn:Scaling>
2320       <wscn:Rotation UsedDefault="true">0</wscn:Rotation>
2321       <wscn:MediaSides>
2322         <wscn:MediaFront>
2323           <wscn:ScanRegion>
2324             <wscn:ScanRegionXOffset UsedDefault="true">0</wscn:ScanRegionXOffset>
2325             <wscn:ScanRegionYOffset UsedDefault="true">0</wscn:ScanRegionYOffset>
2326             <wscn:ScanRegionWidth UsedDefault="true">8500</wscn:ScanRegionWidth>
2327             <wscn:ScanRegionHeight UsedDefault="true">11000</wscn:ScanRegionHeight>
2328           </wscn:ScanRegion>
2329           <wscn:ColorProcessing UsedDefault="true">RGB24</wscn:ColorProcessing>
2330           <wscn:Resolution>
2331             <wscn:Width>300</wscn:Width>
2332             <wscn:Height>300</wscn:Height>
2333           </wscn:Resolution>
2334         </wscn:MediaFront>
2335       </wscn:MediaSides>
2336     </wscn:DocumentFinalParameters>
2337   </wscn:CreateScanJobResponse>
2338 </soap:Body>
2339 </soap:Envelope>

```

2340 6.2.5. Example Request – Client Initiated

```

2341 <?xml version="1.0" encoding="utf-8"?>
2342 <soap:Envelope
2343   xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2344   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2345   xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
2346   <soap:Header>
2347     <wsa:To>AddressofScannerService</wsa:To>
2348     <wsa:Action>

```

```

2349     http://schemas.microsoft.com/windows/2006/08/wdp/scan/CreateScanJob
2350     </wsa:Action>
2351     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2352 </soap:Header>
2353 <soap:Body>
2354     <wscn:CreateScanJobRequest>
2355         <wscn:ScanTicket>
2356             <wscn:JobDescription>
2357                 <wscn:JobName>Application Scan</wscn:JobName>
2358                 <wscn:JobOriginatingUserName>RogerSmith</JobOriginatingUserName>
2359             </wscn:JobDescription>
2360             <wscn:DocumentParameters>
2361                 <wscn:Format>xps</wscn:Format>
2362                 <wscn:ImagesToTransfer>0</wscn:ImagesToTransfer>
2363                 <wscn:InputSource>ADF</wscn:InputSource>
2364                 <wscn:ContentType>Auto</wscn:ContentType>
2365                 <wscn:InputSize>
2366                     <wscn:DocumentSizeAutoDetect>true</wscn:DocumentSizeAutoDetect>
2367                 </wscn:InputSize>
2368                 <wscn:MediaSides>
2369                     <wscn:MediaFront>
2370                         <wscn:ColorProcessing>RGB48</wscn:ColorProcessing>
2371                         <wscn:Resolution>
2372                             <wscn:Width>1200</wscn:Width>
2373                         </wscn:Resolution>
2374                     </wscn:MediaFront>
2375                 </wscn:MediaSides>
2376             </wscn:DocumentParameters>
2377         </wscn:ScanTicket>
2378     </wscn:CreateScanJobRequest>
2379 </soap:Body>
2380 </soap:Envelope>

```

2381 6.2.6. Errors

2382 All the Codes described in section 6.1.1. - Common Operation Error Codes could be returned from this operation. The
 2383 following errors could also be returned from this operation.

2384 6.2.6.1. ServerErrorNotAcceptingJobs

2385 This fault is sent when the server can't accept a new scan job. This could occur because the scanner has been put into
 2386 service mode, or there is a user intervention condition and all the memory buffers have been exhausted. The client MAY
 2387 try the unmodified request again at some later point in time with an expectation that the server has become unblocked and
 2388 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

2389 6.2.6.2. ClientErrorFormatNotSupported

2390 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>

2391 6.2.6.3. ClientErrorInvalidScanIdentifier

2392 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>

2393 6.2.6.4. ClientErrorInvalidDestinationToken

2394 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>

2395 6.2.6.5. ClientErrorConflictingRequiredParameters

2396 This fault is sent when there is a conflict between 2 or more *DocumentParameters* elements which each have the
 2397 *MustHonor* attribute set to `true`. Using all of the settings supplied with *MustHonor* attributes set to `true` will cause a
 2398 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>

2399 6.3. RetrievalImage

2400 This operation is used to actually retrieve the scan data from the device after a scan job has been created.

The scan data is returned as a binary attachment along with the *RetrieveImageResponse* packet. The response will be packaged as a MIME Multipart/Related content type and make use of the new SOAP Message Transmission Optimization Mechanism [MTOM] to efficiently send the binary image data. The example below indicates how to create a valid response.

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

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

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

6.3.1. Request Elements

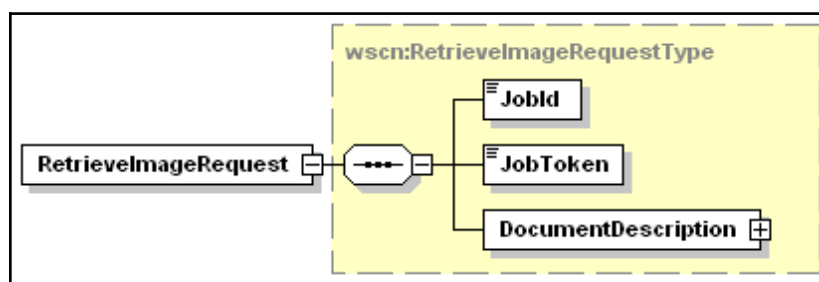


Figure 28 - RetrieveImageRequest Elements

6.3.1.1. JobId

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

6.3.1.2. JobToken

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

6.3.1.3. DocumentDescription

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

6.3.2. Response Elements

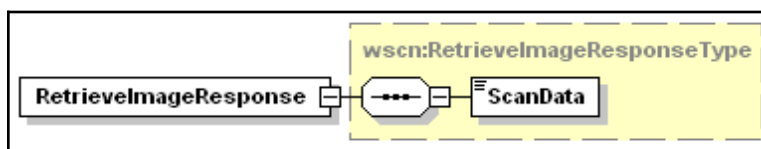


Figure 29 - RetrieveImageResponse Elements

2434 **6.3.2.1. ScanData**

2435 The data element is the binary data that represents the scanned image is part of the response as a binary attachment to the
2436 SOAP Envelope/Body.

2437 **6.3.3. Example Request**

```
2438 <?xml version="1.0" encoding="utf-8"?>
2439 <soap:Envelope
2440     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2441     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2442     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
2443   <soap:Header>
2444     <wsa:To>AddressofScannerService</wsa:To>
2445     <wsa:Action>
2446       http://schemas.microsoft.com/windows/2006/08/wdp/scan/RetrieveImage
2447     </wsa:Action>
2448     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2449   </soap:Header>
2450   <soap:Body>
2451     <wscn:RetrieveImageRequest>
2452       <wscn:JobId>1</wscn:JobId>
2453       <wscn:JobToken>Job9876TokenString</wscn:JobToken>
2454       <wscn:DocumentDescription>
2455         <wscn:DocumentName>Scan001.jpg</DocumentName>
2456       </wscn:DocumentDescription>
2457     </wscn:RetrieveImageRequest>
2458   </soap:Body>
2459 </soap:Envelope>
```

2460 **6.3.4. Example Response**

```
2461 mime-version: 1.0
2462 Content-Type: Multipart/Related;
2463     boundary=4aa7d814-adc1-47a2-8e1c-07585b9892a4;
2464     type=application/xop+xml;
2465     start="<14629f74-2047-436c-8046-5cac76d280fc@uuid>";
2466     startinfo="application/soap+xml"

2467 --4aa7d814-adc1-47a2-8e1c-07585b9892a4
2468 Content-Type: application/xop+xml; type="application/soap+xml"
2469     charset=UTF-8
2470 Content-Transfer-Encoding: binary
2471 Content-ID: <14629f74-2047-436c-8046-5cac76d280fc@uuid>

2472 <?xml version="1.0" encoding="utf-8"?>
2473 <soap:Envelope
2474     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2475     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2476     xmlns:xop="http://www.w3.org/2003/12/xop/include"
2477     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
2478   <soap:Header>
2479     <wsa:To>http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</wsa:To>
2480     <wsa:Action>
2481       http://schemas.microsoft.com/windows/2006/08/wdp/scan/RetrieveImageResponse
2482     </wsa:Action>
2483     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2484     <wsa:RelatesTo>uuid:MsgIdOfTheRetrieveImageRequest</wsa:RelatesTo>
2485   </soap:Header>
2486   <soap:Body>
2487     <wscn:RetrieveImageResponse>
2488       <wscn:ScanData>
2489         <xop:Include href="cid:1c696bd7-005a-48d9-9ee9-9adca11f8892@uuid" />
2490       </wscn:ScanData>
2491     </wscn:RetrieveImageResponse>
2492   </soap:Body>
2493 </soap:Envelope>

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>
```

2502 *Binary Scan Data*
 2503 --4aa7d814-adc1-47a2-8e1c-07585b9892a4--
 2504

2505 6.3.5. Errors

2506 All the Codes described in section 6.1.1. - Common Operation Error Codes could be returned from this operation. The
 2507 following errors could also be returned from this operation.

2508 6.3.5.1. ClientErrorJobIdNotFound

2509 This fault is sent when the scanner can not find a job matching the *JobId* argument (including when the argument is not in
 2510 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>

2511 6.3.5.2. ClientErrorNoImagesAvailable

2512 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>

2513 6.3.5.3. ClientErrorInvalidJobToken

2514 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>

2515 6.3.5.4. ClientErrorJobCancelled

2516 This fault is sent when the current scan job has been cancelled.

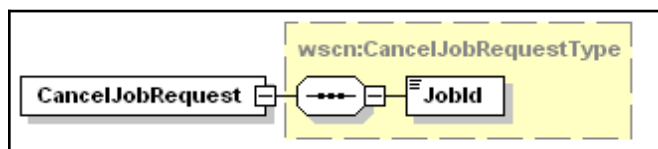
[Code]	soap:Sender
[Subcode]	wscn:ClientErrorJobCancelled

]	
[Reason]	The current Scan job has been cancelled.
[Detail]	<i>None</i>

2517 6.4. CancelJob

2518 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
2519 or aborted.

2520 6.4.1. Request Elements



2521 6.4.1.1. JobId

2523 This data element contains the *JobId* which the client is trying to cancel. This data element is described in Section 4.5.1.

2524 6.4.2. Request

```

2525 <?xml version="1.0" encoding="utf-8"?>
2526 <soap:Envelope
2527     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2528     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2529     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
2530   <soap:Header>
2531     <wsa:To>AddressofScannerService</wsa:To>
2532     <wsa:Action>
2533       http://schemas.microsoft.com/windows/2006/08/wdp/scan/CancelJob
2534     </wsa:Action>
2535     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2536   </soap:Header>
2537   <soap:Body>
2538     <wscn:CancelJobRequest>
2539       <wscn:JobId>1</wscn:JobId>
2540     </wscn:CancelJobRequest>
2541   </soap:Body>
2542 </soap:Envelope>

```

2543 6.4.3. Response

```

2544 <?xml version="1.0" encoding="utf-8"?>
2545 <soap:Envelope
2546     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2547     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2548     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
2549   <soap:Header>
2550     <wsa:To>http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</wsa:To>
2551     <wsa:Action>
2552       http://schemas.microsoft.com/windows/2006/08/wdp/scan/CancelJobResponse
2553     </wsa:Action>
2554     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2555     <wsa:RelatesTo>uuid:MsgIdOfTheCancelJobRequest</wsa:RelatesTo>
2556   </soap:Header>
2557   <soap:Body>
2558     <wscn:CancelJobResponse/>
2559   </soap:Body>
2560 </soap:Envelope>

```

2561 6.4.4. Errors

2562 All the Codes described in section 6.1.1. - Common Operation Error Codes could be returned from this operation. The
2563 following error could also be returned from this operation.

2564 6.4.4.1. ClientErrorJobIdNotFound

2565 This fault is sent when the scanner can not find a job matching the *JobId* argument (including when the argument is not in
2566 the range: 1 to 2³¹-1).

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

2567 6.4.5. Effect on State

2568 The specified job moves to the *Canceled* state if the Job was *Pending* or *Processing*. It is an error to attempt to
2569 cancel a completed or canceled job or to try and cancel any Job the CP does not have rights to.

2570 6.5. ValidateScanTicket

2571 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
2572 to validate changes/combinations of settings.

2573 6.5.1. Request Elements

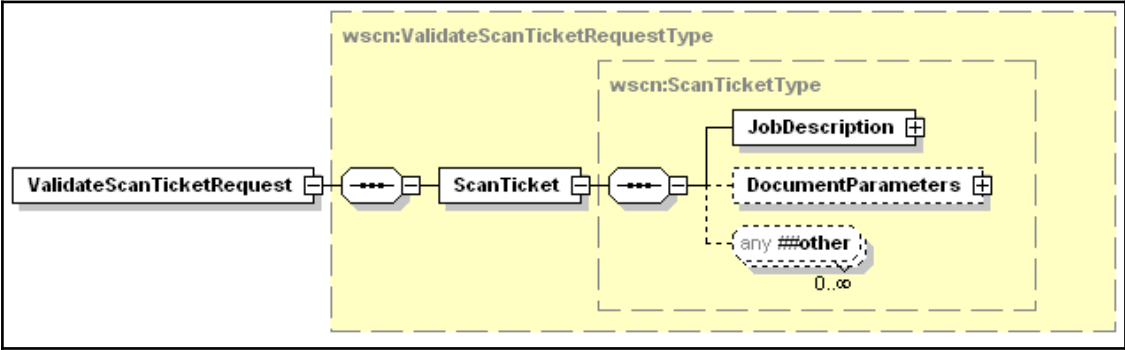
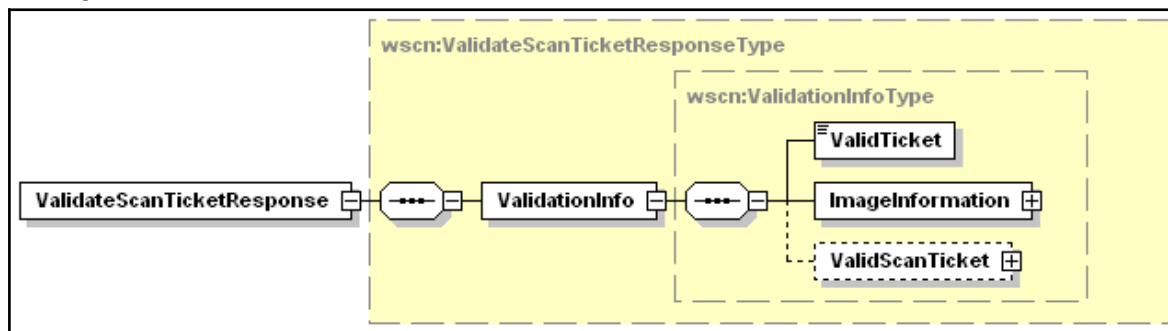


Figure 30 - ValidateScanTicketRequest Elements

2576 6.5.1.1. ScanTicket

2577 This element contains all the settings the client wishes to submit in a future scan operation. The scan ticket may contain
2578 only the processing elements that the client wishes to override in the scanner, or it may contain every possible element
2579 supported in the scan service. See section 4.8. for more details on the definition of the *ScanTicket*.

2580 6.5.2. Response Elements

2581
2582 Figure 31 - ValidationInfo elements

2583 6.5.2.1. ValidationInfo

2584 This element defines whether the *ScanTicket* was valid and if not what data was changed to make the ticket valid.

2585 6.5.2.1.1. ValidTicket

2586 This element indicates whether the *ScanTicket* the device received contains all valid settings.

2587 Values: 0, 1, true, false

2588 6.5.2.1.2. ImageInformation

2589 This element contains information about the resulting image data from a scan made with the *ScanTicket* that is currently
2590 being validated. This data is valuable to scan applications for decoding the image within an image file. This data element is
2591 described in Section 6.2.2.3..

2592 6.5.2.1.3. ValidScanTicket

2593 If the initial *ScanTicket* had some invalid settings and the scan device could fix the problems; this element will contain a
2594 new *ScanTicket* with any invalid options changed to valid data. See section 4.8. for more details on the definition of the
2595 *ScanTicket*.

2596 6.5.3. Example Request – Valid Ticket

```

2597 <?xml version="1.0" encoding="utf-8"?>
2598 <soap:Envelope
2599   xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2600   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2601   xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
2602   <soap:Header>
2603     <wsa:To>AddressofScannerService</wsa:To>
2604     <wsa:Action>
2605       http://schemas.microsoft.com/windows/2006/08/wdp/scan/ValidateScanTicket
2606     </wsa:Action>
2607     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2608   </soap:Header>
2609   <soap:Body>
2610     <wscn:ValidateScanTicketRequest>
2611       <wscn:ScanTicket>
2612         <wscn:JobDescription>
2613           <wscn:JobName>Photo Scan</wscn:JobName>
2614           <wscn:JobOriginatingUserName>RogerSmith</JobOriginatingUserName>
2615         </wscn:JobDescription>
2616         <wscn:DocumentParameters>
2617           <wscn:Format>dib</wscn:Format>
2618           <wscn:InputSource>Platen</wscn:InputSource>
2619           <wscn:ContentType>Auto</wscn:ContentType>
2620           <wscn:InputSize>
2621             <wscn:InputMediaSize>
2622               <wscn:Width>3000</wscn:Width>
2623               <wscn:Height>5000</wscn:Height>
2624             </wscn:InputMediaSize>
2625           </wscn:InputSize>

```

```

2626         <wscn:Scaling>
2627             <wscn:ScalingWidth>125</wscn:ScalingWidth>
2628             <wscn:ScalingHeight>125</wscn:ScalingHeight>
2629         </wscn:Scaling>
2630         <wscn:MediaSides>
2631             <wscn:MediaFront>
2632                 <wscn:ColorProcessing>GrayScale4</wscn:ColorProcessing>
2633                 <wscn:Resolution>
2634                     <wscn:Width>300</wscn:Width>
2635                     <wscn:Height>300</wscn:Height>
2636                 </wscn:Resolution>
2637             </wscn:MediaFront>
2638         </wscn:MediaSides>
2639     </wscn:DocumentParameters>
2640 </wscn:ScanTicket>
2641 </wscn:ValidateScanTicketRequest>
2642 </soap:Body>
2643 </soap:Envelope>

```

2644 6.5.4. Example Response – Valid Ticket

```

2645 <?xml version="1.0" encoding="utf-8"?>
2646 <soap:Envelope
2647     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2648     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2649     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan" >
2650     <soap:Header>
2651         <wsa:To>
2652             http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous
2653         </wsa:To>
2654         <wsa:Action>
2655             http://schemas.microsoft.com/windows/2006/08/wdp/scan/ValidateScanTicketResponse
2656         </wsa:Action>
2657         <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2658         <wsa:RelatesTo>uuid:MsgIdOfTheValidateScanTicketRequest</wsa:RelatesTo>
2659     </soap:Header>
2660     <soap:Body>
2661         <wscn:ValidateScanTicketResponse>
2662             <wscn:ValidationInfo>
2663                 <wscn:ValidTicket>true</wscn:ScanIdentifier>
2664                 <wscn:ImageInformation>
2665                     <wscn:MediaFrontImageInfo>
2666                         <wscn:PixelsPerLine>900</wscn:PixelsPerLine>
2667                         <wscn:NumberOfLines>1500</wscn:NumberOfLines>
2668                         <wscn:BytesPerLine>113</wscn:BytesPerLine>
2669                     </wscn:MediaFrontImageInfo>
2670                 </wscn:ImageInformation>
2671             </wscn:ValidationInfo>
2672         </wscn:ValidateScanTicketResponse>
2673     </soap:Body>
2674 </soap:Envelope>

```

2675 6.5.5. Example Request – Invalid Ticket

```

2676 <?xml version="1.0" encoding="utf-8"?>
2677 <soap:Envelope
2678     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2679     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2680     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
2681     <soap:Header>
2682         <wsa:To>AddressofScannerService</wsa:To>
2683         <wsa:Action>
2684             http://schemas.microsoft.com/windows/2006/08/wdp/scan/ValidateScanTicket
2685         </wsa:Action>
2686         <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2687     </soap:Header>
2688     <soap:Body>
2689         <wscn:ValidateScanTicketRequest>
2690             <wscn:ScanTicket>
2691                 <wscn:JobDescription>
2692                     <wscn:JobName>Photo Scan</wscn:JobName>
2693                     <wscn:JobOriginatingUserName>RogerSmith</JobOriginatingUserName>
2694                 </wscn:JobDescription>

```

```

2695         <wscn:DocumentParameters>
2696             <wscn:Format>jfif</wscn:Format>
2697             <wscn:InputSource>Platen</wscn:InputSource>
2698             <wscn:ContentType>Auto</wscn:ContentType>
2699             <wscn:InputSize>
2700                 <wscn:DocumentSizeAutoDetect>true</wscn:DocumentSizeAutoDetect>
2701             </wscn:InputSize>
2702             <wscn:Scaling>
2703                 <wscn:ScalingWidth>1250</wscn:ScalingWidth>
2704                 <wscn:ScalingHeight>1250</wscn:ScalingHeight>
2705             </wscn:Scaling>
2706             <wscn:MediaSides>
2707                 <wscn:MediaFront>
2708                     <wscn:Resolution>
2709                         <wscn:Width>350</wscn:Width>
2710                         <wscn:Height>350</wscn:Height>
2711                     </wscn:Resolution>
2712                 </wscn:MediaFront>
2713             </wscn:MediaSides>
2714         </wscn:DocumentParameters>
2715     </wscn:ScanTicket>
2716 </wscn:ValidateScanTicketRequest>
2717 </soap:Body>
2718 </soap:Envelope>

```

2719 6.5.6. Example Response – Invalid Ticket

```

2720 <?xml version="1.0" encoding="utf-8"?>
2721 <soap:Envelope
2722     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2723     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2724     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
2725     <soap:Header>
2726         <wsa:To>
2727             http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous
2728         </wsa:To>
2729         <wsa:Action>
2730             http://schemas.microsoft.com/windows/2006/08/wdp/scan/ValidateScanTicketResponse
2731         </wsa:Action>
2732         <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2733         <wsa:RelatesTo>uuid:MsgIdOfTheValidateScanTicketRequest</wsa:RelatesTo>
2734     </soap:Header>
2735     <soap:Body>
2736         <wscn:ValidateScanTicketResponse>
2737             <wscn:ValidationInfo>
2738                 <wscn:ValidTicket>false</wscn:ValidTicket>
2739                 <wscn:ImageInformation>
2740                     <wscn:MediaFrontImageInfo>
2741                         <wscn:PixelsPerLine>0</wscn:PixelsPerLine>
2742                         <wscn:NumberOfLines>0</wscn:NumberOfLines>
2743                         <wscn:BytesPerLine>0</wscn:BytesPerLine>
2744                     </wscn:MediaFrontImageInfo>
2745                 </wscn:ImageInformation>
2746                 <wscn:ValidScanTicket>
2747                     <wscn:JobDescription>
2748                         <wscn:JobName>Photo Scan</wscn:JobName>
2749                         <wscn:JobOriginatingUserName>RogerSmith</wscn:JobOriginatingUserName>
2750                     </wscn:JobDescription>
2751                     <wscn:DocumentParameters>
2752                         <wscn:Format>jfif</wscn:Format>
2753                         <wscn:InputSource>Platen</wscn:InputSource>
2754                         <wscn:ContentType>Auto</wscn:ContentType>
2755                         <wscn:InputSize>
2756                             <wscn:DocumentSizeAutoDetect>true</wscn:DocumentSizeAutoDetect>
2757                         </wscn:InputSize>
2758                         <wscn:Scaling>
2759                             <wscn:ScalingWidth>1000</wscn:ScalingWidth>
2760                             <wscn:ScalingHeight>1000</wscn:ScalingHeight>
2761                         </wscn:Scaling>
2762                         <wscn:MediaSides>
2763                             <wscn:MediaFront>
2764                                 <wscn:Resolution>
2765                                     <wscn:Width>300</wscn:Width>

```

```
2766         <wscn:Height>300</wscn:Height>
2767         </wscn:Resolution>
2768         <wscn:MediaFront>
2769         <wscn:MediaSides>
2770         </wscn:DocumentParameters>
2771         </wscn:ValidScanTicket>
2772         </wscn:ValidationInfo>
2773         </wscn:ValidateScanTicketResponse>
2774     </soap:Body>
2775 </soap:Envelope>
```

2776 **6.5.7. Errors**

2777 All the Codes described in section 6.1.1. - Common Operation Error Codes could be returned from this operation. The
2778 following error could also be returned from this operation.

2779 **6.5.7.1. ClientErrorConflictingRequiredParameters**

2780 This fault is sent when the there is a conflict between 2 or more *DocumentParameters* elements which each have the
2781 *MustHonor* attribute set to `true` and using all of the settings supplied with *MustHonor* attributes set to `true` will cause a
2782 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>

2783 **6.6. GetScannerElements**

2784 The **GetScannerElements** operation allows a client (CP) to request information about the scanner. This info includes any
2785 part of scanner data accessible at the device root level. Examples of this are the configuration, status, default *ScanTicket*, or
2786 IHV extensions to the Scanner schema.

2787 The **GetScannerElements** operation allows a client to discover standard and vendor extended elements.

2788 **6.6.1. Request Elements**

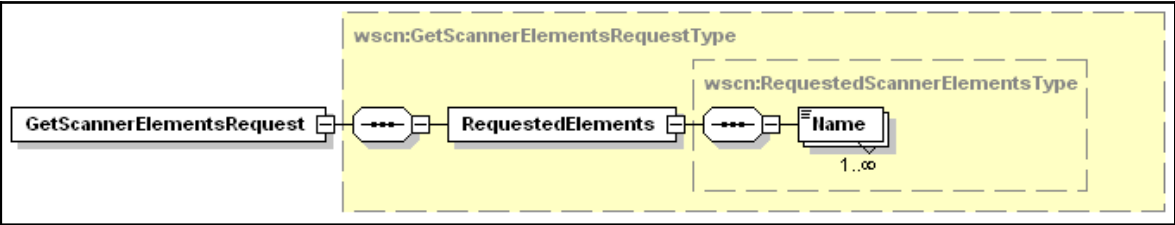


Figure 32 - GetScannerElementsRequest Elements

2791 **6.6.1.1. RequestedElements**

2792 This data element is a collection of elements that describes the data in which the CP is interested.

2793 **6.6.1.2. Name**

2794 This data element is a QName that represents a location within the Scanner schema. The keyword represents a top level
2795 section of the scanner schema such as the *ScannerConfiguration* or *DefaultScanTicket*.
2796

2797 Allowed Values:

2798 *wscn:ScannerDescription*– Get all the descriptive information for the scan device.

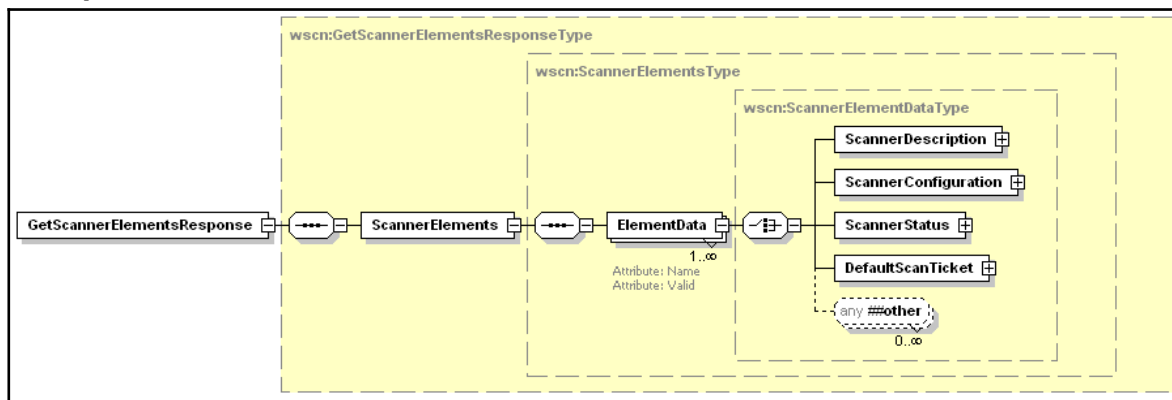
2799 *wscn:ScannerConfiguration*– Get all the configuration information for the scan device.

2800 *wscn:ScannerStatus* – Entire status section including all ActiveConditons and the ConditionHistory

2801 *wscn:DefaultScanTicket* – The current default values for Job creation and processing

2802 *xmlns:VendorSection*– A Vendor defined extension to the Scanner Schema

2803 6.6.2. Response Elements



2804
2805 **Figure 33 - GetScannerElementsResponse Elements**

2806 6.6.2.1. ScannerElements

2807 This data element is a collection of all the responses generated by the scan device for the schema queries in the

2808 **GetScannerElements** request.

2809 6.6.2.2. ElementData

2810 This data element contains the data returned for one of the schema requests. There will be the same number of

2811 *ElementData* elements in the response as there were *Name* elements in the request.

2812 6.6.2.3. Name

2813 This attribute contains the schema QName used to create the data that is returned in the element.

2814
2815 REQUIRED Attribute

2816 6.6.2.4. Valid

2817 This attribute indicates whether the schema query value was for a valid or invalid schema keyword within the device

2818 schema. This attribute will be *false* if the requested schema keyword does not map to a valid schema section in the

2819 Scanner schema supported by the device.

2820 REQUIRED Attribute

2821 6.6.3. Request - ScannerDescription

```

2822 <?xml version="1.0" encoding="utf-8"?>
2823 <soap:Envelope
2824   xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2825   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2826   xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
2827   <soap:Header>
2828     <wsa:To>AddressofScannerService</wsa:To>
2829     <wsa:Action>
2830       http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetScannerElements
2831     </wsa:Action>
2832     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2833   </soap:Header>
2834   <soap:Body>
2835     <wscn:GetScannerElementsRequest>

```

```

2836         <wscn:RequestedElements>
2837             <wscn:Name>wscn:ScannerDescription</wscn:Name>
2838         </wscn:RequestedElements>
2839     </wscn:GetScannerElementsRequest>
2840 </soap:Body>
2841 </soap:Envelope>

```

2842 6.6.4. Response – ScannerDescription

```

2843 <?xml version="1.0" encoding="utf-8"?>
2844 <soap:Envelope
2845     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2846     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2847     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
2848     <soap:Header>
2849         <wsa:To>http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</wsa:To>
2850         <wsa:Action>
2851             http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetScannerElementsResponse
2852         </wsa:Action>
2853         <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2854         <wsa:RelatesTo>uuid:MsgIdOfTheGetScannerElementsRequest</wsa:RelatesTo>
2855     </soap:Header>
2856     <soap:Body>
2857         <wscn:GetScannerElementsResponse>
2858             <wscn:ScannerElements>
2859                 <wscn:ElementData Name="wscn:ScannerDescription" Valid="true">
2860                     <wscn:ScannerDescription>
2861                         <wscn:ScannerName xml:lang="en-AU, en-CA, en-GB, en-US">
2862                             Accounting Scanner in Copy Room 2
2863                         </wscn:ScannerName>
2864                         <wscn:ScannerInfo xml:lang="en-AU, en-CA, en-GB, en-US">
2865                             Scanner for use of Accounting only
2866                         </wscn:ScannerInfo>
2867                         <wscn:ScannerLocation xml:lang="en-AU, en-CA, en-GB, en-US">
2868                             LA Campus - Building 3
2869                         </wscn:ScannerLocation>
2870                     </wscn:ScannerDescription>
2871                 </wscn:ElementData>
2872             </wscn:ScannerElements>
2873         </wscn:GetScannerElementsResponse>
2874     </soap:Body>
2875 </soap:Envelope>

```

2876 6.6.5. Request - ScannerStatus

```

2877 <?xml version="1.0" encoding="utf-8"?>
2878 <soap:Envelope
2879     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2880     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2881     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan"
2882     soap:encodingStyle='http://www.w3.org/2002/12/soap-encoding'>
2883     <soap:Header>
2884         <wsa:To>AddressofScannerService</wsa:To>
2885         <wsa:Action>
2886             http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetScannerElements
2887         </wsa:Action>
2888         <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2889     </soap:Header>
2890     <soap:Body>
2891         <wscn:GetScannerElementsRequest>
2892             <wscn:RequestedElements>
2893                 <wscn:Name>wscn:ScannerStatus</wscn:Name>
2894             </wscn:RequestedElements>
2895         </wscn:GetScannerElementsRequest>
2896     </soap:Body>
2897 </soap:Envelope>

```

2898 6.6.6. Response – ScannerStatus

```

2899 <?xml version="1.0" encoding="utf-8"?>
2900 <soap:Envelope
2901     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2902     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"

```

```

2903     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
2904     <soap:Header>
2905       <wsa:To>http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</wsa:To>
2906       <wsa:Action>
2907         http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetScannerElementsResponse
2908       </wsa:Action>
2909       <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2910       <wsa:RelatesTo>uuid:MsgIdOfTheGetScannerElementsRequest</wsa:RelatesTo>
2911     </soap:Header>
2912     <soap:Body>
2913       <wscn:GetScannerElementsResponse>
2914         <wscn:ScannerElements>
2915           <wscn:ElementData Name="wscn:ScannerStatus" Valid="true">
2916             <wscn:ScannerStatus>
2917               <wscn:ScannerCurrentTime>2006-01-26T11:17:00Z</wscn:ScannerCurrentTime>
2918               <wscn:ScannerState>Stopped</wscn:ScannerState>
2919               <wscn:ScannerStateReasons>
2920                 <wscn:ScannerStateReason>MediaJam</wscn:ScannerStateReason>
2921                 <wscn:ScannerStateReason>LampError</wscn:ScannerStateReason>
2922               </wscn:ScannerStateReasons>
2923               <wscn:ActiveConditions>
2924                 <wscn:DeviceCondition Id="1384">
2925                   <wscn:Time>2005-01-26T11:07:00Z</wscn:Time>
2926                   <wscn:Name>MediaJam</wscn:Name>
2927                   <wscn:Component>MediaPath</wscn:Component>
2928                   <wscn:Severity>Critical</wscn:Severity>
2929                 </wscn:DeviceCondition>
2930                 <wscn:DeviceCondition Id="534">
2931                   <wscn:Time>2005-01-26T11:09:12Z</wscn:Time>
2932                   <wscn:Name>LampError</wscn:Name>
2933                   <wscn:Component>Platen</wscn:Component>
2934                   <wscn:Severity>Warning</wscn:Severity>
2935                 </wscn:DeviceCondition>
2936               </wscn:ActiveConditions>
2937             </wscn:ScannerStatus>
2938           </wscn:ElementData>
2939         </wscn:ScannerElements>
2940       </wscn:GetScannerElementsResponse>
2941     </soap:Body>
2942   </soap:Envelope>

```

2943 6.6.7. Request – ScannerConfiguration and Invalid entry

```

2944 <?xml version="1.0" encoding="utf-8"?>
2945 <soap:Envelope
2946   xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2947   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2948   xmlns:wscn="http://schemas.microsoft.com/windows/2006/08/wdp/scan"
2949   xmlns:ihv="http://www.example.com/extension">
2950   <soap:Header>
2951     <wsa:To>AddressofScannerService</wsa:To>
2952     <wsa:Action>
2953       http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetScannerElements
2954     </wsa:Action>
2955     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2956   </soap:Header>
2957   <soap:Body>
2958     <wscn:GetScannerElementsRequest>
2959       <wscn:RequestedElements>
2960         <wscn:Name>wscn:ScannerConfiguration</wscn:Name>
2961         <wscn:Name>ihv:InvalidRequestEntry</wscn:Name>
2962       </wscn:RequestedElements>
2963     </wscn:GetScannerElementsRequest>
2964   </soap:Body>
2965 </soap:Envelope>

```

2966 6.6.8. Response – ScannerConfiguration and Invalid entry

```

2967 <?xml version="1.0" encoding="utf-8"?>
2968 <soap:Envelope
2969   xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2970   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2971   xmlns:wscn="http://schemas.microsoft.com/windows/2006/08/wdp/scan"

```

```

2972     xmlns:ihv="http://www.example.com/extention">
2973     <soap:Header>
2974       <wsa:To>http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</wsa:To>
2975       <wsa:Action>
2976         http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetScannerElementsResponse
2977       </wsa:Action>
2978       <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2979       <wsa:RelatesTo>uuid:MsgIdOfTheGetScannerElementsRequest</wsa:RelatesTo>
2980     </soap:Header>
2981     <soap:Body>
2982       <wscn:GetScannerElementsResponse>
2983         <wscn:ScannerElements>
2984           <wscn:ElementData Name="wscn:ScannerConfiguration" Valid="true">
2985             <wscn:ScannerConfiguration>
2986               <wscn:DeviceSettings>
2987                 <wscn:FormatsSupported>
2988                   <wscn:FormatValue>dib</wscn:FormatValue>
2989                   <wscn:FormatValue>exif</wscn:FormatValue>
2990                   <wscn:FormatValue>jpeg2k</wscn:FormatValue>
2991                   <wscn:FormatValue>pdf-a</wscn:FormatValue>
2992                   <wscn:FormatValue>png</wscn:FormatValue>
2993                   <wscn:FormatValue>tiff-single-uncompressed</wscn:FormatValue>
2994                   <wscn:FormatValue>tiff-single-g4</wscn:FormatValue>
2995                   <wscn:FormatValue>tiff-multi-uncompressed</wscn:FormatValue>
2996                   <wscn:FormatValue>tiff-multi-g4</wscn:FormatValue>
2997                   <wscn:FormatValue>xps</wscn:FormatValue>
2998                 </wscn:FormatsSupported>
2999                 <wscn:CompressionQualityFactorSupported>
3000                   <wscn:MinValue>15</wscn:MinValue>
3001                   <wscn:MaxValue>100</wscn:MaxValue>
3002                 </wscn:CompressionQualityFactorSupported>
3003                 <wscn:ContentTypesSupported>
3004                   <wscn:ContentTypeValue>Auto</wscn:ContentTypeValue>
3005                   <wscn:ContentTypeValue>Text</wscn:ContentTypeValue>
3006                   <wscn:ContentTypeValue>Photo</wscn:ContentTypeValue>
3007                   <wscn:ContentTypeValue>Halftone </wscn:ContentTypeValue>
3008                   <wscn:ContentTypeValue>Mixed</wscn:ContentTypeValue>
3009                 </wscn:ContentTypesSupported>
3010                 <wscn:DocumentSizeAutoDetectSupported>
3011                   true
3012                 </wscn:DocumentSizeAutoDetectSupported>
3013                 <wscn:AutoExposureSupported>true</wscn:AutoExposureSupported>
3014                 <wscn:BrightnessSupported>true</wscn:BrightnessSupported>
3015                 <wscn:ContrastSupported>true</wscn:ContrastSupported>
3016                 <wscn:ScalingRangeSupported>
3017                   <wscn:ScalingWidth>
3018                     <wscn:MinValue>50</wscn:MinValue>
3019                     <wscn:MaxValue>500</wscn:MaxValue>
3020                   </wscn:ScalingWidth>
3021                   <wscn:ScalingHeight>
3022                     <wscn:MinValue>50</wscn:MinValue>
3023                     <wscn:MaxValue>500</wscn:MaxValue>
3024                   </wscn:ScalingHeight>
3025                 </wscn:ScalingRangeSupported>
3026                 <wscn:RotationsSupported>
3027                   <wscn:RotationValue>0</wscn:RotationValue>
3028                   <wscn:RotationValue>90</wscn:RotationValue>
3029                   <wscn:RotationValue>180</wscn:RotationValue>
3030                   <wscn:RotationValue>270</wscn:RotationValue>
3031                 </wscn:RotationsSupported>
3032               </wscn:DeviceSettings>
3033               <wscn:Platen>
3034                 <wscn:PlatenOpticalResolution>
3035                   <wscn:Width>1200</wscn:Width>
3036                   <wscn:Height>1200</wscn:Height>
3037                 </wscn:PlatenOpticalResolution>
3038                 <wscn:PlatenResolutions>
3039                   <wscn:Widths>
3040                     <wscn:Width>150</wscn:Width>
3041                     <wscn:Width>204</wscn:Width>
3042                     <wscn:Width>300</wscn:Width>
3043                     <wscn:Width>600</wscn:Width>
3044                     <wscn:Width>1200</wscn:Width>

```

```

3045         </wscn:Widths>
3046         <wscn:Heights>
3047             <wscn:Height>96</wscn:Height>
3048             <wscn:Height>150</wscn:Height>
3049             <wscn:Height>204</wscn:Height>
3050             <wscn:Height>300</wscn:Height>
3051             <wscn:Height>600</wscn:Height>
3052             <wscn:Height>900</wscn:Height>
3053             <wscn:Height>1200</wscn:Height>
3054         </wscn:Heights>
3055     </wscn:PlatenResolutions>
3056     <wscn:PlatenColor>
3057         <wscn:ColorEntry>BlackAndWhite1</wscn:ColorEntry>
3058         <wscn:ColorEntry>Grayscale4</wscn:ColorEntry>
3059         <wscn:ColorEntry>Grayscale8</wscn:ColorEntry>
3060         <wscn:ColorEntry>RGB24</wscn:ColorEntry>
3061         <wscn:ColorEntry>RGB48</wscn:ColorEntry>
3062         <wscn:ColorEntry>RGBa32</wscn:ColorEntry>
3063         <wscn:ColorEntry>RGBa64</wscn:ColorEntry>
3064     </wscn:PlatenColor>
3065     <wscn:PlatenMinimumSize>
3066         <wscn:Width>250</wscn:Width>
3067         <wscn:Height>250</wscn:Height>
3068     </wscn:PlatenMinimumSize>
3069     <wscn:PlatenMaximumSize>
3070         <wscn:Width>11000</wscn:Width>
3071         <wscn:Height>14000</wscn:Height>
3072     </wscn:PlatenMaximumSize>
3073 </wscn:Platen>
3074 <wscn:ADF>
3075     <wscn:ADFSupportsDuplex>false</wscn:ADFSupportsDuplex>
3076     <wscn:ADFFront>
3077         <wscn:ADFOpticalResolution>
3078             <wscn:Width>600</wscn:Width>
3079             <wscn:Height>600</wscn:Height>
3080         </wscn:ADFOpticalResolution>
3081         <wscn:ADFResolutions>
3082             <wscn:Widths>
3083                 <wscn:Width>150</wscn:Width>
3084                 <wscn:Width>204</wscn:Width>
3085                 <wscn:Width>300</wscn:Width>
3086                 <wscn:Width>600</wscn:Width>
3087             </wscn:Widths>
3088             <wscn:Heights>
3089                 <wscn:Height>96</wscn:Height>
3090                 <wscn:Height>150</wscn:Height>
3091                 <wscn:Height>204</wscn:Height>
3092                 <wscn:Height>300</wscn:Height>
3093                 <wscn:Height>600</wscn:Height>
3094             </wscn:Heights>
3095         </wscn:ADFResolutions>
3096         <wscn:ADFColor>
3097             <wscn:ColorEntry>BlackAndWhite1</wscn:ColorEntry>
3098             <wscn:ColorEntry>Grayscale4</wscn:ColorEntry>
3099             <wscn:ColorEntry>RGB24</wscn:ColorEntry>
3100         </wscn:ADFColor>
3101         <wscn:ADFMinimumSize>
3102             <wscn:Width>4000</wscn:Width>
3103             <wscn:Height>6000</wscn:Height>
3104         </wscn:ADFMinimumSize>
3105         <wscn:ADFMaximumSize>
3106             <wscn:Width>8500</wscn:Width>
3107             <wscn:Height>11000</wscn:Height>
3108         </wscn:ADFMaximumSize>
3109     </wscn:ADFFront>
3110 </wscn:ADF>
3111 <wscn:Film>
3112     <wscn:FilmScanModesSupported>
3113         <wscn:FilmScanModeValue>
3114             ColorSlideFilm
3115         </wscn:FilmScanModeValue>
3116         <wscn:FilmScanModeValue>
3117             ColorNegativeFilm

```

```

3118         </wscn:FilmScanModeValue>
3119         <wscn:FilmScanModeValue>
3120             BlackandWhiteNegativeFilm
3121         </wscn:FilmScanModeValue>
3122     </wscn:FilmScanModesSupported>
3123     <wscn:FilmOpticalResolution>
3124         <wscn:Width>600</wscn:Width>
3125         <wscn:Height>600</wscn:Height>
3126     </wscn:FilmOpticalResolution>
3127     <wscn:FilmResolutions>
3128         <wscn:Widths>
3129             <wscn:Width>150</wscn:Width>
3130             <wscn:Width>300</wscn:Width>
3131             <wscn:Width>600</wscn:Width>
3132         </wscn:Widths>
3133         <wscn:Heights>
3134             <wscn:Height>150</wscn:Height>
3135             <wscn:Height>300</wscn:Height>
3136             <wscn:Height>600</wscn:Height>
3137         </wscn:Heights>
3138     </wscn:FilmResolutions>
3139     <wscn:FilmColor>
3140         <wscn:ColorEntry>BlackAndWhite1</wscn:ColorEntry>
3141         <wscn:ColorEntry>Grayscale4</wscn:ColorEntry>
3142         <wscn:ColorEntry>RGB24</wscn:ColorEntry>
3143         <wscn:ColorEntry>RGBa32</wscn:ColorEntry>
3144     </wscn:FilmColor>
3145     <wscn:FilmMinimumSize>
3146         <wscn:Width>1378</wscn:Width>
3147         <wscn:Height>1378</wscn:Height>
3148     </wscn:FilmMinimumSize>
3149     <wscn:FilmMaximumSize>
3150         <wscn:Width>2756</wscn:Width>
3151         <wscn:Height>10000</wscn:Height>
3152     </wscn:FilmMaximumSize>
3153 </wscn:Film>
3154 </wscn:ScannerConfiguration>
3155 </wscn:ElementData>
3156 <wscn:ElementData Name="ihv:InvalidRequestEntry" Valid="false"/>
3157 </wscn:ScannerElements>
3158 </wscn:GetScannerElementsResponse>
3159 </soap:Body>
3160 </soap:Envelope>

```

3161 6.6.9. Errors

3162 All the Codes described in section 6.1.1. - Common Operation Error Codes could be returned from this operation.

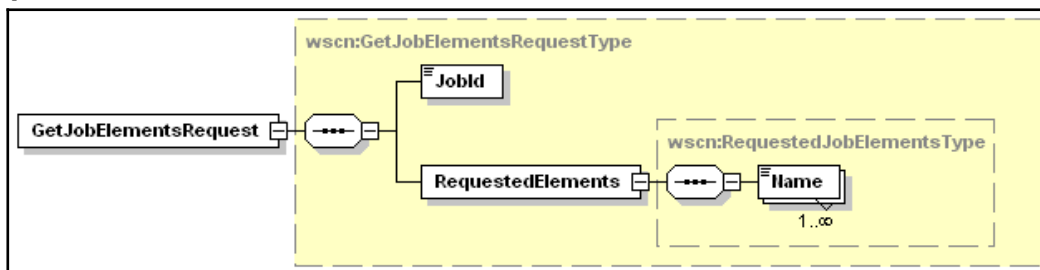
3163 6.7. GetJobElements

3164 The **GetJobElements** operation allows a client (CP) to access job-related information of the specified job with a *JobId*
3165 from 1 to 2³¹-1. The information returned complies with the full scan job schema.

3166 If the specified job is not found, the fault *ClientErrorJobIdNotFound* is returned. Any job not found either never existed or
3167 has been purged from the system and is no longer known to the Scan Service.

3168 The **GetJobElements** operation allows a client to discover standard and vendor extended elements.

3169 6.7.1. Request Elements



3170
3171 **Figure 34 - GetJobElementsRequest Elements**

3172 6.7.1.1. JobId

3173 This data element contains the *JobId* of the Job about which the client is request information. This data element is
3174 described in Section 4.5.1.1.

3175 6.7.1.2. RequestedElements

3176 This data element is a collection of elements that describes the data in which the CP is interested.

3177 6.7.1.3. Name

3178 This data element is a QName that represents a location within the Job schema. The keyword represents a top level section
3179 of the Job schema such as the *JobStatus* or *ScanTicket*.

3180
3181 Allowed Values:

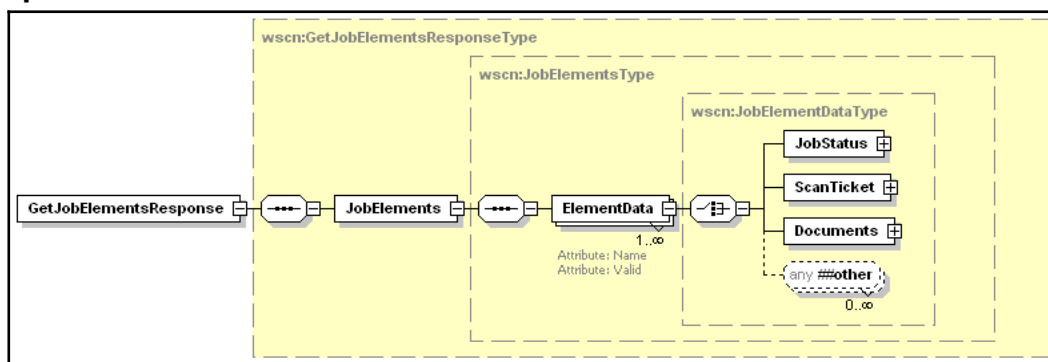
3182 *wscn:JobStatus* – Get the current *JobStatus* element for the specified Job.

3183 *wscn:ScanTicket* – Get the *ScanTicket* element for the specified Job

3184 *wscn:Documents* - Get the *Documents* element for the specified Job

3185 *xmlns:VendorSection*– A Vendor defined extension to the Job Schema

3186 6.7.2. Response Elements



3187
3188 **Figure 35 - GetJobElementsResponse Elements**

3189 6.7.2.1. JobElements

3190 This data element is a collection of all the responses generated by the scan device for the schema queries in the
3191 **GetJobElements** request.

3192 6.7.2.2. ElementData

3193 This data element contains the data returned for one of the schema requests. There will be the same number of
3194 *ElementData* elements in the response as there were *Name* elements in the request.

3195 6.7.2.3. Name

3196 This attribute contains the schema QName used to create the data that is returned in the element.

3197 6.7.2.4. Valid

3198 This attribute indicates whether the schema query value was for a valid or invalid schema keyword within the device
3199 schema. This attribute will be `false` if the requested schema keyword does not map to a valid schema section in the Job
3200 schema supported by the device.

3201 6.7.3. Request

```
3202 <?xml version="1.0" encoding="utf-8"?>
3203 <soap:Envelope
3204     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
3205     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
3206     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
3207   <soap:Header>
3208     <wsa:To>AddressofScannerService</wsa:To>
3209     <wsa:Action>
3210       http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetJobElements
3211     </wsa:Action>
3212     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
3213   </soap:Header>
3214   <soap:Body>
3215     <wscn:GetJobElements>
3216       <wscn:JobId>1</wscn:JobId>
3217       <wscn:RequestedElements>
3218         <wscn:Name>wscn:JobStatus</wscn:Name>
3219       </wscn:RequestedElements>
3220     </wscn:GetJobElements>
3221   </soap:Body>
3222 </soap:Envelope>
```

3224 6.7.4. Response

```
3225 <?xml version="1.0" encoding="utf-8"?>
3226 <soap:Envelope
3227     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
3228     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
3229     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
3230   <soap:Header>
3231     <wsa:To>http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</wsa:To>
3232     <wsa:Action>
3233       http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetJobElementsResponse
3234     </wsa:Action>
3235     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
3236     <wsa:RelatesTo>uuid:MsgIdOfTheGetJobElementsRequest</wsa:RelatesTo>
3237   </soap:Header>
3238   <soap:Body>
3239     <wscn:GetJobElementsResponse>
3240       <wscn:JobElements>
3241         <wscn:ElementData Name="wscn:JobStatus" Valid="true">
3242           <wscn:JobStatus>
3243             <wscn:JobId>1</wscn:JobId>
3244             <wscn:JobState>Completed</wscn:JobState>
3245             <wscn:ScansCompleted>1</wscn:ScansCompleted>
3246           </wscn:JobStatus>
3247         </wscn:ElementData>
3248       </wscn:JobElements>
3249     </wscn:GetJobElementsResponse >
3250   </soap:Body>
3251 </soap:Envelope>
```

3252 6.7.5. Errors

3253 All the Codes described in section 6.1.1. - Common Operation Error Codes could be returned from this operation. The
3254 following error could also be returned from this operation.

3255 6.7.5.1. ClientErrorJobIdNotFound

3256 This fault is sent when the scanner can not find a job matching the *JobId* argument (including when the argument is not in
3257 the range: 1 to $2^{31}-1$).

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

3258 **6.8. GetActiveJobs**

3259 The **GetActiveJobs** operation allows a client (CP) to retrieve a list containing a summary of the currently active jobs. The
3260 list of Jobs returned contains information such as the *JobId*, *JobOriginatingUserName* and the *JobName*. To retrieve more
3261 detailed information on a Job use the **GetJobElements** operation (section 6.7.)

3262 **6.8.1. Response Elements**

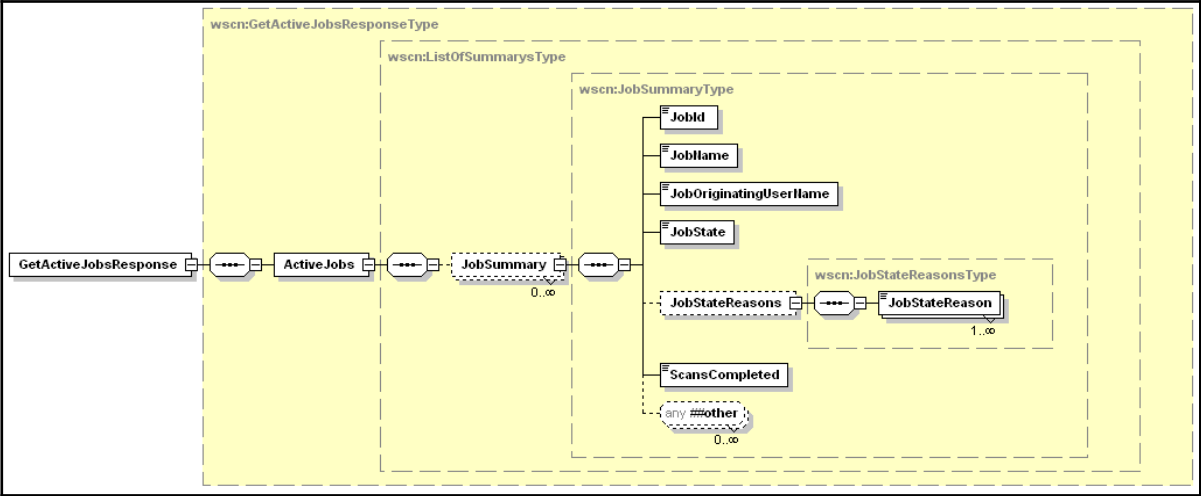


Figure 36 - GetActiveJobsResponse Elements

3265 **6.8.1.1. ActiveJobs**

3266 This data element is a collection of *JobSummary* elements that describe all the currently active jobs in the scan device.

3267 **6.8.1.1.1. JobSummary**

3268 This data element collects a subset of information about a Job currently active within the scan device. The individual
3269 elements are detailed in the following sections.

3270 **6.8.1.1.1.1. JobId**

3271 This data element is the *JobId* of the current job entry. This data element is described in Section 4.5.1.1.

3272 **6.8.1.1.1.2. JobName**

3273 This data element is described in Section 4.5.2.1.1.

3274 **6.8.1.1.1.3. JobOriginatingUserName**

3275 This data element is described in Section 4.5.2.1.2.

3276 **6.8.1.1.1.4. JobState**

3277 This data element is described in Section 4.5.1.2.

3278 6.8.1.1.1.5. JobStateReasons

3279 This data element is described in Section 4.5.1.3.

3280 6.8.1.1.1.5.1. JobStateReason

3281 This data element is described in Section 4.5.1.3.1.

3282 6.8.1.1.1.6. ScansCompleted

3283 This data element is described in Section 4.5.1.6.

3284 6.8.2. Example Request

```

3285 <?xml version="1.0" encoding="utf-8"?>
3286 <soap:Envelope
3287     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
3288     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
3289     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
3290   <soap:Header>
3291     <wsa:To>AddressofScannerService</wsa:To>
3292     <wsa:Action>
3293       http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetActiveJobs
3294     </wsa:Action>
3295     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
3296   </soap:Header>
3297   <soap:Body>
3298     <wscn:GetActiveJobsRequest/>
3299   </soap:Body>
3300 </soap:Envelope>

```

3301

3302 6.8.3. Example Response – No Active Jobs

```

3303 <?xml version="1.0" encoding="utf-8"?>
3304 <soap:Envelope
3305     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
3306     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
3307     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
3308   <soap:Header>
3309     <wsa:To>http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</wsa:To>
3310     <wsa:Action>
3311       http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetActiveJobsResponse
3312     </wsa:Action>
3313     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
3314     <wsa:RelatesTo>uuid:MsgIdOfTheGetActiveJobsRequest</wsa:RelatesTo>
3315   </soap:Header>
3316   <soap:Body>
3317     <wscn:GetActiveJobsResponse>
3318       <wscn:ActiveJobs/>
3319     </wscn:GetActiveJobsResponse>
3320   </soap:Body>
3321 </soap:Envelope>

```

3322 6.8.4. Example Response – Two Active Jobs

```

3323 <?xml version="1.0" encoding="utf-8"?>
3324 <soap:Envelope
3325     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
3326     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
3327     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
3328   <soap:Header>
3329     <wsa:To>http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</wsa:To>
3330     <wsa:Action>
3331       http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetActiveJobsResponse
3332     </wsa:Action>
3333     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
3334     <wsa:RelatesTo>uuid:MsgIdOfTheGetActiveJobsRequest</wsa:RelatesTo>
3335   </soap:Header>
3336   <soap:Body>
3337     <wscn:GetActiveJobsResponse>
3338       <wscn:ActiveJobs>

```

```

3339     <wscn:JobSummary>
3340       <wscn:JobId>1</wscn:JobId>
3341       <wscn:JobName>SampleJob 1</wscn:JobName>
3342       <wscn:JobOriginatingUserName>Joe.Smith</wscn:JobOriginatingUserName>
3343       <wscn:JobState>Processing</wscn:JobState>
3344       <wscn:JobStateReasons>
3345         <wscn:JobStateReason>JobScanning</wscn:JobStateReason>
3346       </wscn:JobStateReasons>
3347       <wscn:ScansCompleted>2</wscn:ScansCompleted>
3348     </wscn:JobSummary>
3349   <wscn:JobSummary>
3350     <wscn:JobId>2</wscn:JobId>
3351     <wscn:JobName>Sample Job 2</wscn:JobName>
3352     <wscn:JobOriginatingUserName>JaneSmith</wscn:JobOriginatingUserName>
3353     <wscn:JobState>Pending</wscn:JobState>
3354     <wscn:JobStateReasons>
3355       <wscn:JobStateReason>None</wscn:JobStateReason>
3356     </wscn:JobStateReasons>
3357     <wscn:ScansCompleted>0</wscn:ScansCompleted>
3358   </wscn:JobSummary>
3359 </wscn:ActiveJobs>
3360 </wscn:GetActiveJobsResponse>
3361 </soap:Body>
3362 </soap:Envelope>

```

3363 6.8.5. Errors

3364 All the Codes described in section 6.1.1. - Common Operation Error Codes could be returned from this operation.

3365 6.9. GetJobHistory

3366 The **GetJobHistory** operation allows a client (CP) to retrieve a list containing a summary of some of the recently
 3367 previously completed jobs. The list of Jobs returned contains information such as *JobId*, *JobOriginatingUserName* and the
 3368 *JobName*. To retrieve more detailed information on a Job use the **GetJobElements** operation (section 6.7.)

3369 How much Job history the device keeps is completely device specific. Each device can keep as much or as little history as
 3370 it deems useful/practical.

3371 6.9.1. Response Elements

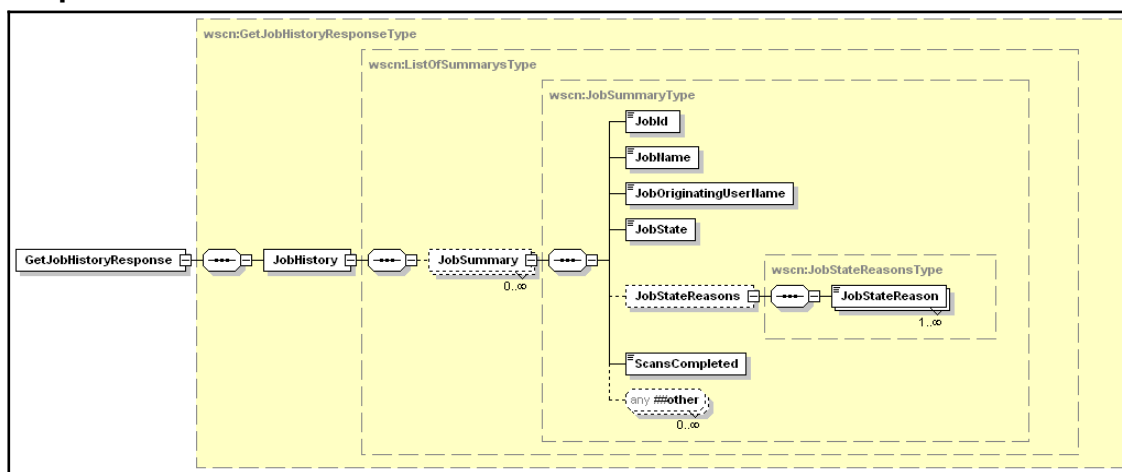


Figure 37 - GetJobHistoryResponse Elements

3374 6.9.1.1. JobHistory

3375 This data element is a collection of *JobSummary* elements that describes the most recently completed jobs in the scan
 3376 device.

3377 6.9.1.2. JobSummary

3378 This data element collects a subset of information about a recently completed Job within the scan device. This data element
3379 is described in Section 6.8.1.1.1..

3380 6.9.2. Example Request

```
3381 <?xml version="1.0" encoding="utf-8"?>
3382 <soap:Envelope
3383     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
3384     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
3385     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
3386   <soap:Header>
3387     <wsa:To>AddressofScannerService</wsa:To>
3388     <wsa:Action>
3389       http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetJobHistory
3390     </wsa:Action>
3391     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
3392   </soap:Header>
3393   <soap:Body>
3394     <wscn:GetJobHistoryRequest/>
3395   </soap:Body>
3396 </soap:Envelope>
```

3397 6.9.3. Example Response – No Job History

```
3398 <?xml version="1.0" encoding="utf-8"?>
3399 <soap:Envelope
3400     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
3401     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
3402     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
3403   <soap:Header>
3404     <wsa:To>http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</wsa:To>
3405     <wsa:Action>
3406       http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetJobHistoryResponse
3407     </wsa:Action>
3408     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
3409     <wsa:RelatesTo>uuid:MsgIdOfTheGetJobHistoryRequest</wsa:RelatesTo>
3410   </soap:Header>
3411   <soap:Body>
3412     <wscn:GetJobHistoryResponse>
3413       <wscn:JobHistory/>
3414     </wscn:GetJobHistoryResponse>
3415   </soap:Body>
3416 </soap:Envelope>
```

3417 6.9.4. Example Response – 2 Completed Jobs

```
3418 <?xml version="1.0" encoding="utf-8"?>
3419 <soap:Envelope
3420     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
3421     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
3422     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
3423   <soap:Header>
3424     <wsa:To>http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</wsa:To>
3425     <wsa:Action>
3426       http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetJobHistoryResponse
3427     </wsa:Action>
3428     <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
3429     <wsa:RelatesTo>uuid:MsgIdOfTheGetJobHistoryRequest</wsa:RelatesTo>
3430   </soap:Header>
3431   <soap:Body>
3432     <wscn:GetJobHistoryResponse>
3433       <wscn:JobHistory>
3434         <wscn:JobSummary>
3435           <wscn:JobId>1</wscn:JobId>
3436           <wscn:JobName>SampleJob 1</wscn:JobName>
3437           <wscn:JobOriginatingUserName>Joe.Smith</wscn:JobOriginatingUserName>
3438           <wscn:JobState>Completed</wscn:JobState>
3439           <wscn:JobStateReasons>
3440             <wscn:JobStateReason>JobCompletedSuccessfully</wscn:JobStateReason>
3441           </wscn:JobStateReasons>
3442           <wscn:ScansCompleted>4</wscn:ScansCompleted>
```

```
3443         </wscn:JobSummary>
3444         <wscn:JobSummary>
3445             <wscn:JobId>2</wscn:JobId>
3446             <wscn:JobName>Sample Job 2</wscn:JobName>
3447             <wscn:JobOriginatingUserName>JaneRogers</wscn:JobOriginatingUserName>
3448             <wscn:JobState>Canceled</wscn:JobState>
3449             <wscn:JobStateReasons>
3450                 <wscn:JobStateReason>JobCanceledAtDevice</wscn:JobStateReason>
3451             </wscn:JobStateReasons>
3452             <wscn:ScansCompleted>1</wscn:ScansCompleted>
3453         </wscn:JobSummary>
3454     </wscn:JobHistory>
3455 </wscn:GetJobHistoryResponse>
3456 </soap:Body>
3457 </soap:Envelope>
```

3458 6.9.5. Errors

3459 All the Codes described in section 6.1.1. - Common Operation Error Codes could be returned from this operation.

3460 6.10. Non-Standard Operations Implemented by a WSD Vendor

3461 To facilitate certification, non-standard operations implemented by WSD vendors MUST be part of a new porttype that
3462 extends the porttype defined in this specification.

3463 Appendix A. WSDL Service Description

3464 Scan Device WSDL

```

3465 <wsdl:definitions xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
3466     xmlns:soap12="http://schemas.xmlsoap.org/wsdl/soap12/"
3467     xmlns:wsdp="http://schemas.xmlsoap.org/ws/2006/02/devprof"
3468     xmlns:wsp="http://schemas.xmlsoap.org/ws/2004/09/policy"
3469     xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-
3470 1.0.xsd"
3471     xmlns:wscn="http://schemas.microsoft.com/windows/2006/08/wdp/scan"
3472     targetNamespace="http://schemas.microsoft.com/windows/2006/08/wdp/scan"
3473     name="WSDSScanDevice">
3474
3475     <wsp:Policy wsu:Id="DevicePolicy">
3476         <wsdp:Profile />
3477     </wsp:Policy>
3478
3479     <wsdl:portType name="ScanDeviceType" />
3480
3481     <wsdl:binding name="ScannerSoapBinding" type="wscn:ScanDeviceType" >
3482         <soap12:binding style="document" transport="http://schemas.xmlsoap.org/soap/http" />
3483         <wsp:PolicyReference URI="#DevicePolicy" wsdl:required="true" />
3484     </wsdl:binding>
3485
3486 </wsdl:definitions>

```

3487 Scanner Service WSDL

```

3488 <definitions xmlns="http://schemas.xmlsoap.org/wsdl/"
3489     xmlns:soap12="http://schemas.xmlsoap.org/wsdl/soap12/"
3490     xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
3491     xmlns:xs="http://www.w3.org/2001/XMLSchema"
3492     xmlns:wsdp="http://schemas.xmlsoap.org/ws/2006/02/devprof"
3493     xmlns:wsp="http://schemas.xmlsoap.org/ws/2004/09/policy"
3494     xmlns:wsd="http://schemas.xmlsoap.org/ws/2005/04/discovery"
3495     xmlns:wse="http://schemas.xmlsoap.org/ws/2004/08/eventing"
3496     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
3497     xmlns:wscn="http://schemas.microsoft.com/windows/2006/08/wdp/scan"
3498     xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-
3499 1.0.xsd"
3500     targetNamespace="http://schemas.microsoft.com/windows/2006/08/wdp/scan"
3501     name="WSDScannerService">
3502
3503     <xs:annotation>
3504         <xs:documentation>
3505             WSD Scanner Service Web Service Description (WSDL) file
3506             Copyright 2005-2006 Microsoft Corporation. All rights reserved
3507         </xs:documentation>
3508     </xs:annotation>
3509
3510     <wsp:Policy wsu:Id="ServicePolicy">
3511         <wsdp:Profile />
3512     </wsp:Policy>
3513
3514     <types>
3515         <xs:schema targetNamespace="http://schemas.microsoft.com/windows/2006/08/wdp/scan">
3516             <xs:include schemaLocation="WDPScan.xsd"/>
3517         </xs:schema>
3518     </types>
3519
3520     <message name="CreateScanJobRequestMsg">
3521         <part name="body" element="wscn:CreateScanJobRequest"/>
3522     </message>
3523     <message name="CreateScanJobResponseMsg">
3524         <part name="body" element="wscn:CreateScanJobResponse"/>
3525     </message>
3526     <message name="RetrieveImageRequestMsg">
3527         <part name="body" element="wscn:RetrieveImageRequest"/>
3528     </message>
3529     <message name="RetrieveImageResponseMsg">
3530         <part name="body" element="wscn:RetrieveImageResponse"/>
3531     </message>

```

```

3532 <message name="CancelJobRequestMsg">
3533   <part name="body" element="wscn:CancelJobRequest"/>
3534 </message>
3535 <message name="CancelJobResponseMsg">
3536   <part name="body" element="wscn:CancelJobResponse"/>
3537 </message>
3538 <message name="ValidateScanTicketRequestMsg">
3539   <part name="body" element="wscn:ValidateScanTicketRequest"/>
3540 </message>
3541 <message name="ValidateScanTicketResponseMsg">
3542   <part name="body" element="wscn:ValidateScanTicketResponse"/>
3543 </message>
3544 <message name="GetScannerElementsRequestMsg">
3545   <part name="body" element="wscn:GetScannerElementsRequest"/>
3546 </message>
3547 <message name="GetScannerElementsResponseMsg">
3548   <part name="body" element="wscn:GetScannerElementsResponse"/>
3549 </message>
3550 <message name="GetJobElementsRequestMsg">
3551   <part name="body" element="wscn:GetJobElementsRequest"/>
3552 </message>
3553 <message name="GetJobElementsResponseMsg">
3554   <part name="body" element="wscn:GetJobElementsResponse"/>
3555 </message>
3556 <message name="GetActiveJobsRequestMsg">
3557   <part name="body" element="wscn:GetActiveJobsRequest"/>
3558 </message>
3559 <message name="GetActiveJobsResponseMsg">
3560   <part name="body" element="wscn:GetActiveJobsResponse"/>
3561 </message>
3562 <message name="GetJobHistoryRequestMsg">
3563   <part name="body" element="wscn:GetJobHistoryRequest"/>
3564 </message>
3565 <message name="GetJobHistoryResponseMsg">
3566   <part name="body" element="wscn:GetJobHistoryResponse"/>
3567 </message>
3568
3569 <message name="ScanAvailableEventMsg">
3570   <part name="body" element="wscn:ScanAvailableEvent"/>
3571 </message>
3572 <message name="ScannerElementsChangeEventMsg">
3573   <part name="body" element="wscn:ScannerElementsChangeEvent"/>
3574 </message>
3575 <message name="ScannerStatusSummaryEventMsg">
3576   <part name="body" element="wscn:ScannerStatusSummaryEvent"/>
3577 </message>
3578 <message name="ScannerStatusConditionEventMsg">
3579   <part name="body" element="wscn:ScannerStatusConditionEvent"/>
3580 </message>
3581 <message name="ScannerStatusConditionClearedEventMsg">
3582   <part name="body" element="wscn:ScannerStatusConditionClearedEvent"/>
3583 </message>
3584 <message name="JobStatusEventMsg">
3585   <part name="body" element="wscn:JobStatusEvent"/>
3586 </message>
3587 <message name="JobEndStateEventMsg">
3588   <part name="body" element="wscn:JobEndStateEvent"/>
3589 </message>
3590
3591 <portType name="ScannerServiceType" wse:EventSource="true">
3592   <operation name="CreateScanJob">
3593     <input message="wscn:CreateScanJobRequestMsg"
3594       wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/CreateScanJob" />
3595     <output message="wscn:CreateScanJobResponseMsg"
3596       wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3597 CreateScanJobResponse" />
3598   </operation>
3599   <operation name="RetrieveImage">
3600     <input message="wscn:RetrieveImageRequestMsg"
3601       wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/RetrieveImage" />
3602     <output message="wscn:RetrieveImageResponseMsg"
3603       wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3604 RetrieveImageResponse" />

```

```

3605         </operation>
3606         <operation name="CancelJob">
3607             <input message="wscn:CancelJobRequestMsg"
3608                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/CancelJob" />
3609             <output message="wscn:CancelJobResponseMsg"
3610                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/CancelJobResponse"
3611             />
3612         </operation>
3613         <operation name="ValidateScanTicket">
3614             <input message="wscn:ValidateScanTicketRequestMsg"
3615                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3616 ValidateScanTicket" />
3617             <output message="wscn:ValidateScanTicketResponseMsg"
3618                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3619 ValidateScanTicketResponse" />
3620         </operation>
3621         <operation name="GetScannerElements">
3622             <input message="wscn:GetScannerElementsRequestMsg"
3623                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3624 GetScannerElements" />
3625             <output message="wscn:GetScannerElementsResponseMsg"
3626                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3627 GetScannerElementsResponse" />
3628         </operation>
3629         <operation name="GetJobElements">
3630             <input message="wscn:GetJobElementsRequestMsg"
3631                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetJobElements" />
3632             <output message="wscn:GetJobElementsResponseMsg"
3633                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3634 GetJobElementsResponse" />
3635         </operation>
3636         <operation name="GetActiveJobs">
3637             <input message="wscn:GetActiveJobsRequestMsg"
3638                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetActiveJobs" />
3639             <output message="wscn:GetActiveJobsResponseMsg"
3640                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3641 GetActiveJobsResponse" />
3642         </operation>
3643         <operation name="GetJobHistory">
3644             <input message="wscn:GetJobHistoryRequestMsg"
3645                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetJobHistory" />
3646             <output message="wscn:GetJobHistoryResponseMsg"
3647                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3648 GetJobHistoryResponse" />
3649         </operation>
3650         <operation name="ScanAvailableEvent">
3651             <output message="wscn:ScanAvailableEventMsg"
3652                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3653 ScanAvailableEvent" />
3654         </operation>
3655         <operation name="ScannerElementsChangeEvent">
3656             <output message="wscn:ScannerElementsChangeEventMsg"
3657                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3658 ScannerElementsChangeEvent" />
3659         </operation>
3660         <operation name="ScannerStatusSummaryEvent">
3661             <output message="wscn:ScannerStatusSummaryEventMsg"
3662                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3663 ScannerStatusSummaryEvent" />
3664         </operation>
3665         <operation name="ScannerStatusConditionEvent">
3666             <output message="wscn:ScannerStatusConditionEventMsg"
3667                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3668 ScannerStatusConditionEvent" />
3669         </operation>
3670         <operation name="ScannerStatusConditionClearedEvent">
3671             <output message="wscn:ScannerStatusConditionClearedEventMsg"
3672                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3673 ScannerStatusConditionClearedEvent" />
3674         </operation>
3675         <operation name="JobStatusEvent">
3676             <output message="wscn:JobStatusEventMsg"
3677                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/JobStatusEvent" />

```



```

3678         </operation>
3679         <operation name="JobEndStateEvent">
3680             <output message="wscn:JobEndStateEventMsg"
3681                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
JobEndStateEvent" />
3682         </operation>
3683     </portType>
3684     <binding name="ScannerServiceBinding" type="wscn:ScannerServiceType">
3685         <wsoap12:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
3686         <wsp:PolicyReference URI="#ServicePolicy" />
3687         <operation name="CreateScanJob">
3688             <wsoap12:operation
3689                 soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/CreateScanJob"
3690                 soapActionRequired="true" />
3691             <input>
3692                 <wsoap12:body use="literal" />
3693             </input>
3694             <output>
3695                 <wsoap12:body use="literal" />
3696             </output>
3697         </operation>
3698         <operation name="RetrieveImage">
3699             <wsoap12:operation
3700                 soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/RetrieveImage"
3701                 soapActionRequired="true" />
3702             <input>
3703                 <wsoap12:body use="literal" />
3704             </input>
3705             <output>
3706                 <wsoap12:body use="literal" />
3707             </output>
3708         </operation>
3709         <operation name="CancelJob">
3710             <wsoap12:operation
3711                 soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/CancelJob"
3712                 soapActionRequired="true" />
3713             <input>
3714                 <wsoap12:body use="literal" />
3715             </input>
3716             <output>
3717                 <wsoap12:body use="literal" />
3718             </output>
3719         </operation>
3720         <operation name="ValidateScanTicket">
3721             <wsoap12:operation
3722                 soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/ValidateScanTicket"
3723                 soapActionRequired="true" />
3724             <input>
3725                 <wsoap12:body use="literal" />
3726             </input>
3727             <output>
3728                 <wsoap12:body use="literal" />
3729             </output>
3730         </operation>
3731         <operation name="GetScannerElements">
3732             <wsoap12:operation
3733                 soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetScannerElements"
3734                 soapActionRequired="true" />
3735             <input>
3736                 <wsoap12:body use="literal" />
3737             </input>
3738             <output>
3739                 <wsoap12:body use="literal" />
3740             </output>
3741         </operation>
3742         <operation name="GetJobElements">
3743             <wsoap12:operation
3744                 soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetJobElements"
3745                 soapActionRequired="true" />
3746             <input>
3747                 <wsoap12:body use="literal" />
3748             </input>
3749             <output>
3750

```

```

3751         <wssoap12:body use="literal" />
3752     </output>
3753 </operation>
3754 <operation name="GetActiveJobs">
3755     <wssoap12:operation
3756         soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetActiveJobs"
3757         soapActionRequired="true" />
3758     <input>
3759         <wssoap12:body use="literal" />
3760     </input>
3761     <output>
3762         <wssoap12:body use="literal" />
3763     </output>
3764 </operation>
3765 <operation name="GetJobHistory">
3766     <wssoap12:operation
3767         soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetJobHistory"
3768         soapActionRequired="true" />
3769     <input>
3770         <wssoap12:body use="literal" />
3771     </input>
3772     <output>
3773         <wssoap12:body use="literal" />
3774     </output>
3775 </operation>
3776 <operation name="ScanAvailableEvent">
3777     <wssoap12:operation
3778         soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/ScanAvailableEvent"
3779         soapActionRequired="true" />
3780     <output>
3781         <wssoap12:body use="literal" />
3782     </output>
3783 </operation>
3784 <operation name="ScannerElementsChangeEvent">
3785     <wssoap12:operation
3786         soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3787 ScannerElementsChangeEvent"
3788         soapActionRequired="true" />
3789     <output>
3790         <wssoap12:body use="literal" />
3791     </output>
3792 </operation>
3793 <operation name="ScannerStatusSummaryEvent">
3794     <wssoap12:operation
3795         soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3796 ScannerStatusSummaryEvent"
3797         soapActionRequired="true" />
3798     <output>
3799         <wssoap12:body use="literal" />
3800     </output>
3801 </operation>
3802 <operation name="ScannerStatusConditionEvent">
3803     <wssoap12:operation
3804         soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3805 ScannerStatusConditionEvent"
3806         soapActionRequired="true" />
3807     <output>
3808         <wssoap12:body use="literal" />
3809     </output>
3810 </operation>
3811 <operation name="ScannerStatusConditionClearedEvent">
3812     <wssoap12:operation
3813         soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3814 ScannerStatusConditionClearedEvent"
3815         soapActionRequired="true" />
3816     <output>
3817         <wssoap12:body use="literal" />
3818     </output>
3819 </operation>
3820 <operation name="JobStatusEvent">
3821     <wssoap12:operation
3822         soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/JobStatusEvent"
3823         soapActionRequired="true" />

```

```
3824         <output>
3825             <wsoap12:body use="literal" />
3826         </output>
3827     </operation>
3828     <operation name="JobEndStateEvent">
3829         <wsoap12:operation
3830             soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/JobEndStateEvent"
3831             soapActionRequired="true" />
3832         <output>
3833             <wsoap12:body use="literal" />
3834         </output>
3835     </operation>
3836 </binding>
3837 <service name="ScannerService">
3838     <port name="ScannerPort" binding="wscn:ScannerServiceBinding">
3839         <wsoap12:address location="http://localhost/ScannerService/" />
3840     </port>
3841 </service>
3842 </definitions>
```

3843 Appendix B. Windows Vista™ Support Requirements

3844 1. PnP-X installation support

3845 Installation of WSD Scan devices on Windows Vista™ takes advantage of a new feature called PNP-X. This enables
 3846 networked devices to take part in the normal PnP experience just like locally connected devices. To enable this support a
 3847 device that complies with [DEVICE] needs to add a specific XML element to their *Relationship* section of the Device
 3848 Metadata. This element will allow the inbox WSD Scan device driver to be loaded and kick off the install process for the
 3849 WSD Scan device and the correct scanner driver.

3850 Within the extensibility area of the *wsdp:Relationship/wsdp:Hosted* element the metadata should include a *CompatibleId*
 3851 element as defined in [PNPX].

3852 1.1. PnP-X Namespace

3853 The current required namespace for all PNP-X related elements is:
 3854 <http://schemas.microsoft.com/windows/pnp/2005/10>

3855 1.2. PnP-X CompatibleId definition and value

3856 The current definition of the *CompatibleId* element is:

```
3857 <xs:element name="CompatibleId" type="tns:CompatibleIdType" >
3858   <xs:annotation>
3859     <xs:documentation xml:lang="en" >
3860       Used as the Compatible ID for INF file matching for devices. The length
3861       of this string must not exceed 196 wide characters (392 bytes). To specify
3862       more than one CompatibleID, separate them with a space character. For example:
3863       PNPX_SampleService_CPID_1 PNPX_SampleService_CPID_2 PNPX_SampleService1_CPID_3
3864     </xs:documentation>
3865   </xs:annotation>
3866 </xs:element>
3867 <xs:simpleType name="CompatibleIdType" >
3868   <xs:list itemType="xs:string" />
3869 </xs:simpleType>
```

3871 The value of this field in a supported Metadata section is:
 3872 <http://schemas.microsoft.com/windows/2006/08/wdp/scan/ScannerServiceType>

3873 1.3. Sample Device Metadata response

```
3874 <mex:MetadataSection Dialect="http://schemas.xmlsoap.org/ws/2006/02/devprof/relationship">
3875   <wsdp:Relationship Type="http://schemas.xmlsoap.org/ws/2006/02/devprof/host">
3876     <wsdp:Hosted>
3877       <wsa:EndpointReference>
3878         .
3879         .
3880         .
3881       </wsa:EndpointReference>
3882       <wsdp:Types xmlns:wscn="http://schemas.microsoft.com/windows/2006/08/wdp/scan">
3883         wscn:ScannerServiceType
3884       </wsdp:Types>
3885       <wsdp:ServiceId>
3886         .
3887       </wsdp:ServiceId>
3888       <pnp:CompatibleId xmlns:pnp="http://schemas.microsoft.com/windows/pnp/2005/10">
3889         http://schemas.microsoft.com/windows/2006/08/wdp/scan/ScannerServiceType
3890       </pnp:CompatibleId>
3891     </wsdp:Hosted>
3892   </wsdp:Relationship>
3893 </mex:MetadataSection>
```

3894 2. Network Explorer category support

3895 Another new feature of Windows Vista™ is the Network Explorer. This is a folder that can be used to discover and install
 3896 network connected devices such as WSD capable printers & scanners. To improve the usability of the Network Explorer
 3897 every device that is discovered can have belong to one or more Category(s). The way to indicate what category(s) a device
 3898 belongs to is by adding one or more *DeviceCategory* elements to the device *wsdp:ThisModel* metadata section. The
 3899 primary category for the device is equal to the first *DeviceCategory* element found. Each successive *DeviceCategory*
 3900 element will be considered a secondary category. For more information on the definition of the device categories see
 3901 [PNPX].

3902 Each device should include the *DeviceCategory* element(s) as defined in [PNPX] within the extensibility area of the
 3903 *wsdp:ThisModel* metadata section

3904 2.1. PnP-X Namespace

3905 The current required namespace for all PNP-X related elements is:
 3906 <http://schemas.microsoft.com/windows/pnpx/2005/10>

3907 2.2. PnP-X Category definition and value

3908 The current definition of the *DeviceCategory* element is:

```
3909 <xs:element name="DeviceCategory" type="tns:DeviceCategoryType" >
3910   <xs:annotation>
3911     <xs:documentation>
3912       Used to identify the category to which the device belongs. The device
3913       categories are strings which are defined in the DeviceCategory section
3914       of [PNPX]. To specify more than one device category, separate them with a
3915       space character. For example: Scanners Storage
3916       identifies a device with a primary category of Scanners and a secondary
3917       category of Storage. Devices can also specify a device subcategory for
3918       a more descriptive device category.
3919       For example: Displays.Television MediaDevices.DVR
3920       identifies a device which is a Television and a Digital Video recorder.
3921       The primary device category for this device would be Displays.
3922     </xs:documentation>
3923   </xs:annotation>
3924 </xs:element>
3925 <xs:simpleType name="DeviceCategoryType" >
3926   <xs:list itemType="xs:string" />
3927 </xs:simpleType>
```

3928 2.3. Sample Device Metadata response

```
3929 <mex:MetadataSection Dialect="http://schemas.xmlsoap.org/ws/2006/02/devprof/ThisModel">
3930   <wsdp:ThisModel>
3931     <wsdp:Manufacturer xml:lang="en">..</wsdp:Manufacturer>
3932     <wsdp:ManufacturerUrl>..</wsdp:ManufacturerUrl>
3933     <wsdp:ModelName xml:lang="en">..</wsdp:ModelName>
3934     <wsdp:ModelNumber>..</wsdp:ModelNumber>
3935     <pnpx:DeviceCategory>Scanners</pnpx:DeviceCategory>
3936   </wsdp:ThisModel>
3937 </mex:MetadataSection>
```

3938 3. Scan Device discoverability

3939 A common user scenario is to search for a particular type of device on the network. Searching for local devices takes
 3940 advantage of the Multicast capabilities of [DISCOVERY] while the discovery of a distant device used the Unicast, or
 3941 directed, discovery capabilities. To advertise a service with devices that implement [DISCOVERY] a defined porttype must
 3942 be exposed by the high level device for each hosted service that wishes to advertise. This porttype contains no operations
 3943 but implies the device hosts at least one of the advertised service types.

3944 Requirements to support each discovery method are explained in detail in the following sections.

3945 3.1. Local subnet Discovery support

3946 To advertise support for a particular service type a device includes a Scan Device porttype in the wsdisco:Types element of
 3947 the wsdisco:Hello and wsdisco:ProbeMatches messages. The porttype is defined in the same namespace as the WSD
 3948 Scanner Service.

3949 3.1.1. WSD Scan Namespace

3950 The current namespace for WSD Scan related elements is:
 3951 http://schemas.microsoft.com/windows/2006/08/wdp/scan

3952 3.1.2. WSD Scan Device porttype

3953 The Device Type is defined as: "ScanDeviceType".

3954 3.1.3. Device Hello example

```

3955 <?xml version="1.0" encoding="utf-8"?>
3956 <soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
3957   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
3958   xmlns:wsdisco="http://schemas.xmlsoap.org/ws/2005/04/discovery"
3959   xmlns:wsdp="http://schemas.xmlsoap.org/ws/2006/02/devprof"
3960   xmlns:wscn="http://schemas.microsoft.com/windows/2006/08/wdp/scan">
3961   <soap:Header>
3962     <wsa:MessageID>urn:uuid:ac8523ee-6813-498c-8c1b-6272a22353f7</wsa:MessageID>
3963     <wsa:Action>
3964       http://schemas.xmlsoap.org/ws/2005/04/discovery/Hello
3965     </wsa:Action>
3966     <wsa:To>urn:schemas-xmlsoap-org:ws:2005:04:discovery</wsa:To>
3967     <wsdisco:AppSequence InstanceId="3094203799" MessageNumber="1" />
3968   </soap:Header>
3969   <soap:Body>
3970     <wsdisco:Hello>
3971       <wsa:EndpointReference>
3972         <wsa:Address>uuid:D10000D1-ca45-5fee-a376-112233445555</wsa:Address>
3973       </wsa:EndpointReference>
3974       <wsdisco:Types>wsdp:Device wscn:ScanDeviceType</wsdisco:Types>
3975       <wsdisco:XAddr>http://IPAddress:80/TestDevice</wsdisco:XAddr>
3976       <wsdisco:MetadataVersion>1</wsdisco:MetadataVersion>
3977     </wsdisco:Hello>
3978   </soap:Body>
3979 </soap:Envelope>

```

3980 3.1.4. Device ProbeMatches example

```

3981 <?xml version="1.0" encoding="utf-8"?>
3982 <soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
3983   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
3984   xmlns:wsdisco="http://schemas.xmlsoap.org/ws/2005/04/discovery"
3985   xmlns:wsdp="http://schemas.xmlsoap.org/ws/2006/02/devprof"
3986   xmlns:wscn="http://schemas.microsoft.com/windows/2006/08/wdp/scan">
3987   <soap:Header>
3988     <wsa:MessageID>urn:uuid:147823ee-83f7-498c-8c1b-6272a22353f7</wsa:MessageID>
3989     <wsa:RelatesTo>urn:uuid:0a6dc791-2be6-4991-9af1-454778a1917a</wsa:RelatesTo>
3990     <wsa:Action>
3991       http://schemas.xmlsoap.org/ws/2005/04/discovery/ProbeMatches
3992     </wsa:Action>
3993     <wsa:To>http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</wsa:To>
3994     <wsdisco:AppSequence InstanceId="3094203799" MessageNumber="2" />
3995   </soap:Header>
3996   <soap:Body>
3997     <wsdisco:ProbeMatches>
3998       <wsdisco:ProbeMatch>
3999         <wsa:EndpointReference>
4000           <wsa:Address>uuid:D10000D1-ca45-5fee-a376-112233445555</wsa:Address>
4001         </wsa:EndpointReference>
4002         <wsdisco:Types>wsdp:Device wscn:ScanDeviceType</wsdisco:Types>
4003         <wsdisco:XAddr>http://IPAddress:80/TestDevice</wsdisco:XAddr>
4004         <wsdisco:MetadataVersion>1</wsdisco:MetadataVersion>
4005       </wsdisco:ProbeMatch>
4006     </wsdisco:ProbeMatches>

```

```
4007     </soap:Body>
4008 </soap:Envelope>
```

4009 3.2. Directed Discovery support

4010 A stable discovery URL is needed to enable a Windows Vista™ admin to easily discover a device in an enterprise
 4011 environment. Having a defined URL allows the client to simply ask for the Hostname or IP Address of the device and then
 4012 create the stable URL which a device will be listening at for a Probe message via HTTP. This also allows the device to
 4013 listening at a single URL for discovery messages over HTTP.

4014 3.2.1. Directed Discovery URL

4015 `http://IPAddressOrHostname:80/StableWSDDiscoveryEndpoint/schemas-xmlsoap-org_ws_2005_04_discovery`

4016 3.2.2. Secure Directed Discovery URL

4017 `https://IPAddressOrHostname:443/StableWSDDiscoveryEndpoint/schemas-xmlsoap-org_ws_2005_04_discovery`

4018 4. WSD Scan WIA Driver required capabilities

4019 The WSD Scanner Service describes a number of input sources, file formats/compression technologies, and color
 4020 capabilities. Each device and client can decide which of the described capabilities best meet the needs. However to be
 4021 supported fully by the Windows Vista™ WSD Scan WIA Driver the following minimum requirements must be met.

4022 4.1. InputSource values supported

4023 Each device must support either the *Platen* or *ADF* input source.

4024 Additionally, the device must go through a power-up cycle whenever an *InputSource* is added or removed.

4025 4.2. ColorEntry values required

4026 Each device must support at least one of the following *ColorEntry* values for their *Platen* or *ADF* input source.

- 4027 • **BlackAndWhite1**
- 4028 • **Grayscale4**
- 4029 • **Grayscale8**
- 4030 • **RGB24**

4031 4.3. Document file formats required

4032 Each device must support at least one of the following file formats:

- 4033 • **png**
- 4034 • **exif** – only for RGB24 data (**)
- 4035 • **tiff-single-g4** – only for BlackAndWhite1 data (**)
- 4036 • **tiff-single-uncompressed**
- 4037 • **dib**

4038 All supported *ColorEntry* values must be transferable in this file format except where noted.

4039 ** - If this is the only required file format supported by the scanner all other color modes that may be supported by the
 4040 scanner are ignored by the driver.

4041
 4042 If the scanner does not support the **dib** format and a WIA application client (including the TWAIN Compatibility Layer)
 4043 requests transferring images in the **dib** format the WSD Scan WIA Driver tries to scan in one of the following file formats,
 4044 in order, if supported by the scanner. The driver then converts the images to the **dib** format before transferring them to the
 4045 application:

- 4046 1. **png**
- 4047

- 4048 2. **exif** (if the current color mode is **RGB24**)
- 4049 3. **tiff-single-g4** (if the current color mode is **BlackAndWhite1**)
- 4050 4. **tiff-single-uncompressed**

4051

4052 The file formats `xps` and `pdf-a` are used as multi-page image file formats with no specified internal compression for

4053 image data. WSD scanners are allowed to choose the compression mode appropriate with the scanned images. The WSD

4054 Scan WIA Driver will treat only `WIA_COMPRESSION_NONE` as supported for these formats, meaning the application

4055 cannot change the default compression mode selected by the scanner.

4056 **4.4. Duplex scanning support**

4057 The WSD Scan WIA Driver will always set the same image acquisition parameters for both sides of a duplex scan using

4058 only the *MediaFront* element.

4059