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2 **Version 1.0**

3 **For Web Services on Devices**

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457 1. Overview and Scope

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

459 This service-type enables the following functions:

- 460 • Scanning

461 This service template does not address:

- 462 • Printing

- 463 • Copying

- 464 • Faxing

- 465 • Inbound

- 466 • Outbound

- 467 • Multi-function Devices

468 2. Device Service Modeling Definitions

469 2.1. Device Service-Class

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

473 2.2. Terminology

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

476 2.2.1. Conformance Terminology

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

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

493 2.2.2. Other terminology

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

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

500 2.2.3. Notation: use of quotation marks

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

504 2.3. References

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

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

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

527 **2.4. Purpose**

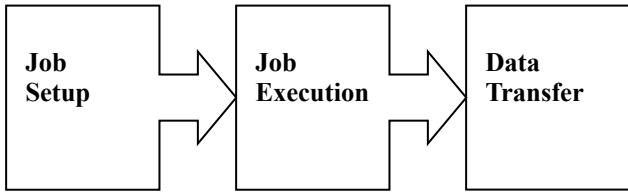
- 528 The purpose of this document is to describe the operational model for network connected scanning devices. The Devices
529 Profile for Web Services [DEVICE] defines a peer-to-peer network connectivity model allowing intelligent applications to
530 discover and make use of network resident devices.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

541 **3. Scanning Functional Model**

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

547 The scanning process consists of three logical functions:

- 548 • Job Setup
549 • Job Execution
550 • Data Transfer

**Figure 1 – Scan Workflow**

552
 553 The Scanner Model defines a Scan Ticket as the means by which Job Elements are communicated down the line of
 554 functions. At Job Setup the Scan Ticket is created based on user selections. At Job Execution a specific scan ticket is
 555 submitted to the Scan Service by a CLIENT. During Job Execution the Scan Ticket is used by the device to determine the
 556 appropriate settings to use during the scan. After the Job Execution has completed, the Scan Ticket may be used to generate
 557 a log containing the actual scanning parameters used during execution as well as additional information.

558 **3.1. Theory of Operation**

559 **3.1.1. Summary**

560 Scanning breaks into three logical sets of interactions:

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

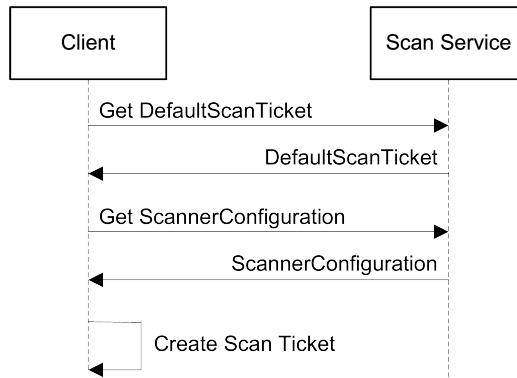
568 Each of the above sets of operations represents a series of interactions between a service component provided by a scanner
 569 and a CLIENT.

570 **3.1.2. Function Descriptions**

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

572 **3.1.2.1. Job Setup**

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



577

578

Figure 2 – Client Job Setup

579 3.1.2.2. Job Execution

580 Two different methods of Job Execution are supported:

- 581 • **Device Initiated:** A device can initiate execution as the result of a user interacting directly with the device.
- 582 • **CLIENT Initiated:** A CLIENT can initiate Job Execution by sending a request² to the scan device.

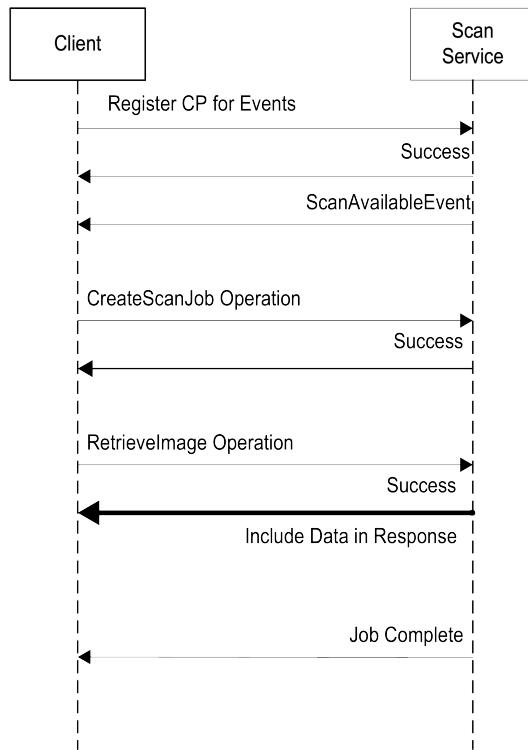
583

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

586 3.1.2.3. Data Transfer

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

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



591

592

Figure 3 – Response Mode Data Transfer

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

594 **3.2. Job Concurrency**

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

597 The following diagram illustrates the number of allowable concurrent jobs during the Job Functions. Shown in the diagram
598 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.
599 In order for another job to be activated, job Z must reach the completion of the physical scan. The Buffered Data Transfer
600 portion of the diagram illustrates that multiple data transfers can be occurring at the same time.

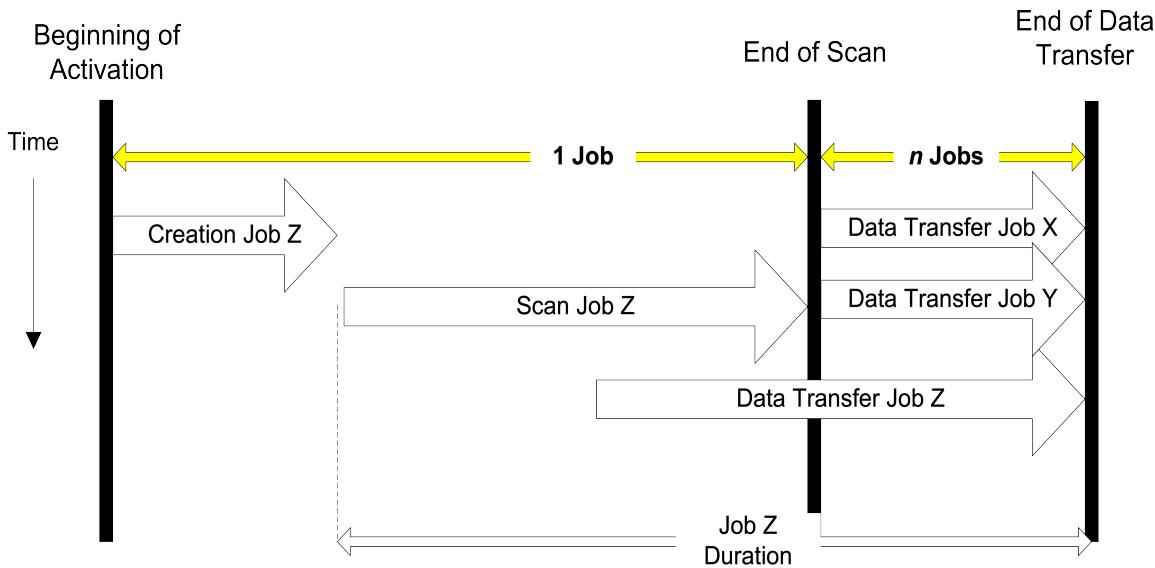


Figure 4 – Job Concurrency Example

3.3. Usage Scenarios

3.3.1. Scan to Workstation, Device Initiated

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

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

3.3.2. Scan to Workstation, Client Initiated

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

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

3.4. Service Summary

3.4.1. Jobs

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

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

3.4.2. Operations

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

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

639 3.4.3. Events

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

645 3.4.4. Security

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

648 3.4.5. Localization

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

652 4. Service Schema

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

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

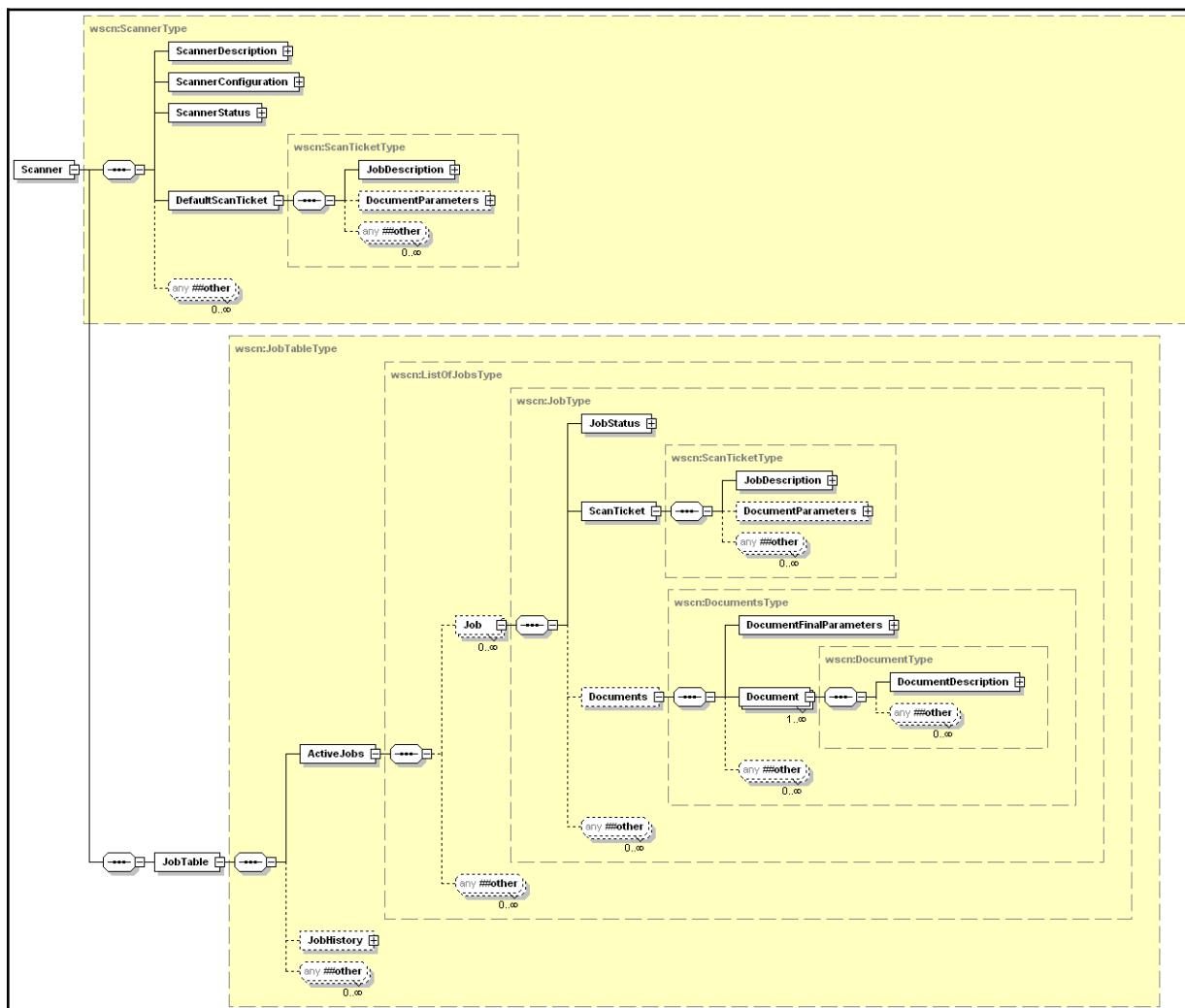


Figure 5 – Scanner Model

664

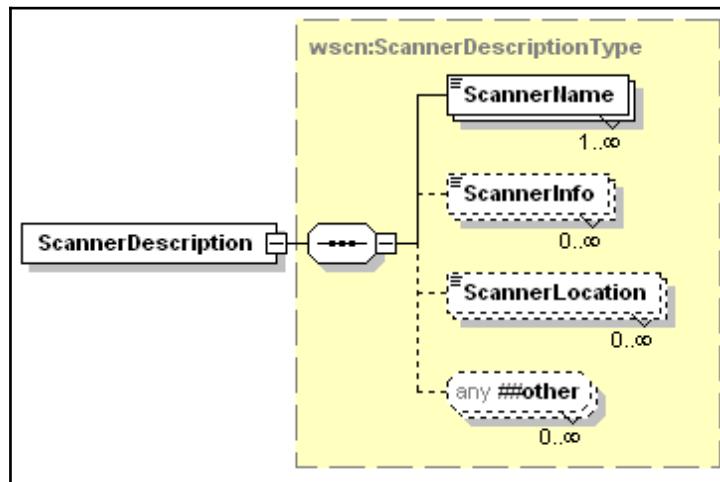
665

666 4.1. The Scanner's Elements

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

668 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.

671 4.2. The ScannerDescription Elements



672 **Figure 6 - ScannerDescription Elements**

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

676 4.2.1. ScannerName

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

682 Allowed Values: any character string

683 4.2.2. ScannerInfo

684 This element is the descriptive information about this Scanner (example: "Out of courtesy for others, please scan only small
 685 (1-5 page) jobs at this scanner"). How the value for this element is configured is implementation-specific, e.g., local
 686 console, Presentation Service (web access). A scan device can return multiple version of this element to allow support for
 687 multiple localized languages by using the *xml:lang* attribute.

688 Allowed Values: any character string

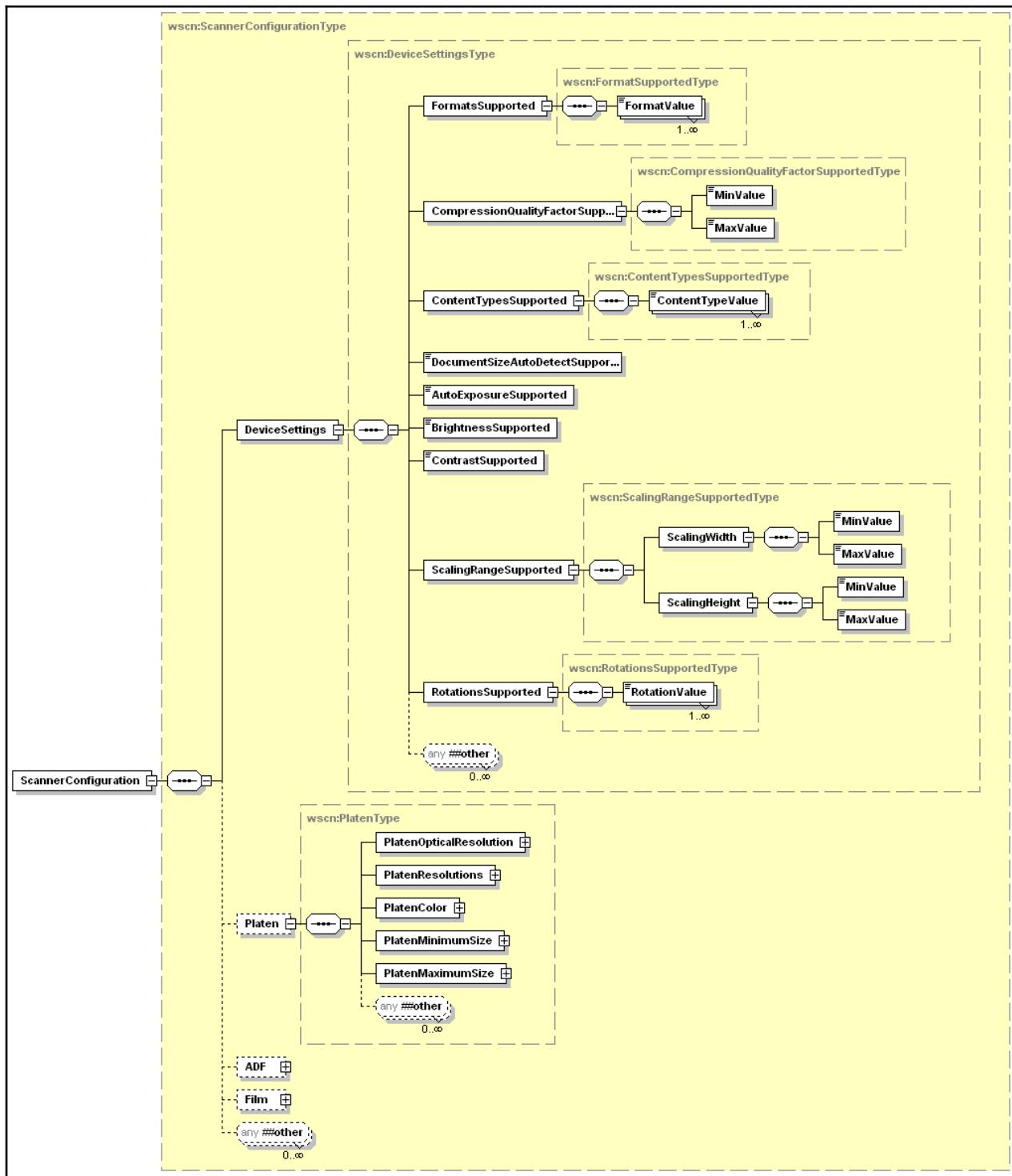
689 4.2.3. ScannerLocation

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

693 Allowed Values: any character string

694

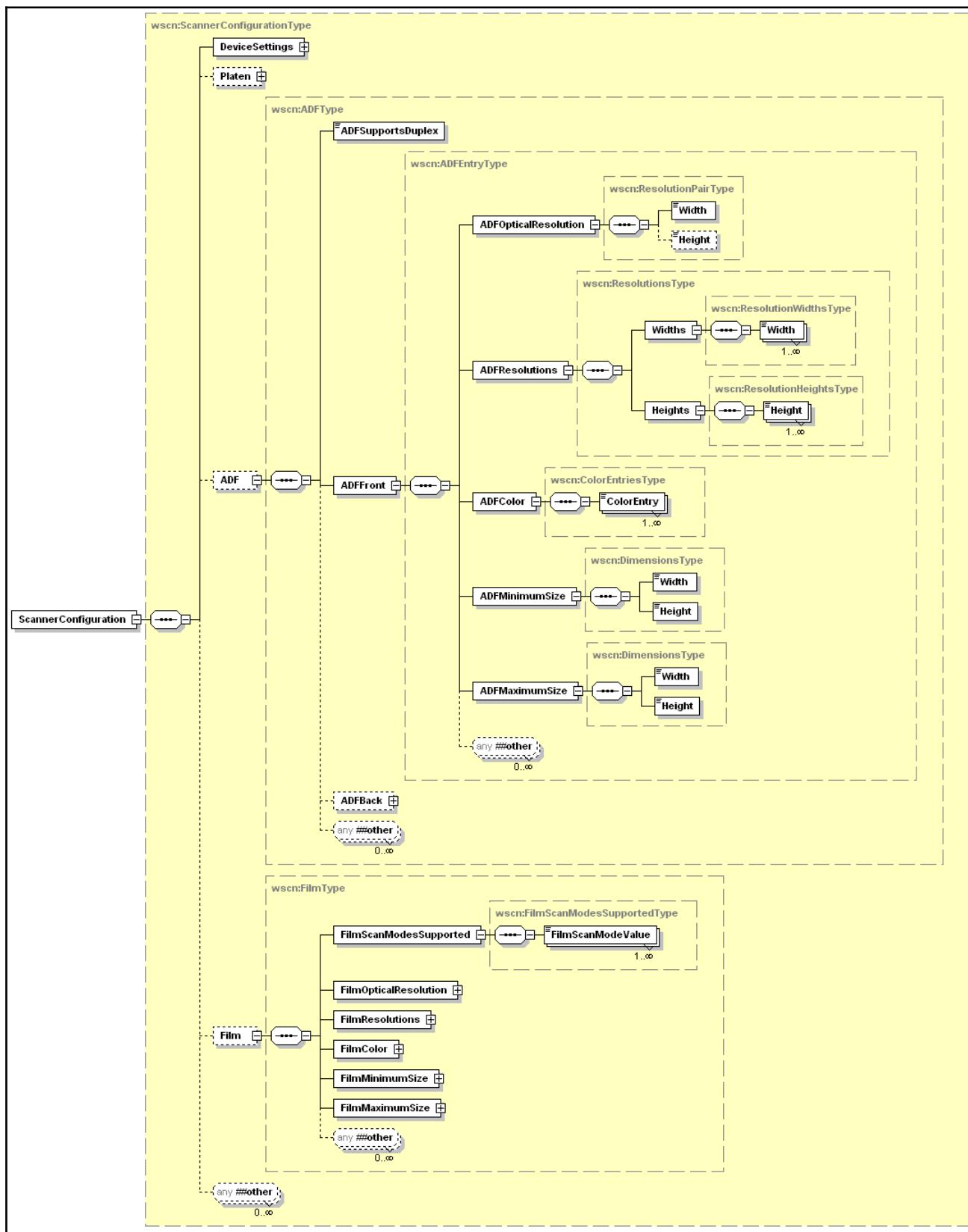
4.3. The ScannerConfiguration Elements



695

696

Figure 7 – ScannerConfiguration Elements – Part 1



697

698

Figure 8 – ScannerConfiguration Elements – Part 2

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

701 4.3.1. DeviceSettings

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

705 4.3.1.1. FormatsSupported

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

708 4.3.1.1.1. FormatValue

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

710 Values:

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

728 Vendors MAY extend the allowed values for this element

729 Vendors MAY subset the allowed values for this element

730 4.3.1.2. CompressionQualityFactorSupported

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

735 4.3.1.2.1. MinValue

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

737 Values: 0 – 100

738 4.3.1.2.2. MaxValue

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

740 Values: 0 – 100

741 4.3.1.3. ContentTypesSupported

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

744 4.3.1.3.1. ContentTypeValue

745 This element indicates a single supported *ContentType* value

746 Values:

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

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

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

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

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

753 Vendors MAY extend the allowed values for this element

754 Vendors MAY subset the allowed values for this element

755 **4.3.1.4. DocumentSizeAutoDetectSupported**

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

757 Values: 0, 1, true, false

758 **4.3.1.5. AutoExposureSupported**

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

760 Values: 0, 1, true, false

761 **4.3.1.6. BrightnessSupported**

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

763 Values: 0, 1, true, false

764 **4.3.1.7. ContrastSupported**

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

766 Values: 0, 1, true, false

767 **4.3.1.8. ScalingRangeSupported**

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

770 **4.3.1.8.1. ScalingWidth**

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

772 **4.3.1.8.1.1. MinValue**

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

774 Values: 1 – 1000

775 **4.3.1.8.1.2. MaxValue**

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

777 Values: 1 – 1000

778 **4.3.1.8.2. ScalingHeight**

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

780 **4.3.1.8.2.1. MinValue**

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

782 Values: 1 – 1000

783 **4.3.1.8.2.2. MaxValue**

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

785 Values: 1 – 1000

786 **4.3.1.9. RotationsSupported**

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

790 **4.3.1.9.1. RotationValue**

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

793 Values:

794 0
795 90
796 180
797 270

798 All WSD Scanners MUST support the 0 element value.

799 Vendors MAY subset the allowed values for this element

800 Vendors MAY extend the allowed values for this element

801 **4.3.2. Platen**

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

803 **4.3.2.1. PlatenOpticalResolution**

804 This element describes the maximum optical resolution at which the *Platen* is capable of scanning.
805 Resolution is specified in pixels per inch.

806 **4.3.2.1.1. Width**

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

809 Values: 1 – 2147483647

810 **4.3.2.1.2. Height**

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

813 Values: 1 – 2147483647

814 **4.3.2.2. PlatenResolutions**

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

818 **4.3.2.2.1. Widths**

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

820 **4.3.2.2.1.1. Width**

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

822 Values: 1 – 2147483647

823 **4.3.2.2.2. Heights**

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

825 **4.3.2.2.2.1. Height**

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

827 Values: 1 – 2147483647

828 **4.3.2.3. PlatenColor**

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

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

836 **4.3.2.3.1. ColorEntry**

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

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

840 **Table 1 – Color Processing Elements**

841 Values:

842 **BlackAndWhite1** – Black and White images, 1 bit per pixel and a single channel

843 **Grayscale4** – Grayscale images, 4 bits per pixel and a single channel

844 **Grayscale8** – Grayscale images, 8 bits per pixel and a single channel

845 **Grayscale16** – Grayscale images, 16 bits per pixel and a single channel

846 **RGB24** – RGB encoded color images, 24 bits per pixel divided between 3 channels of 8 bits each

847 **RGB48** – RGB encoded color images, 48 bits per pixel divided between 3 channels of 16 bits each

848 **RGBa32** – RGB encoded color images with an alpha channel, 32 bits per pixel divided between 4 channels of 8 bits
 849 each

850 **RGBa64** – RGB encoded color images with an alpha channel, 64 bits per pixel divided between 4 channels of 16 bits
 851 each

852 Vendors MAY extend the allowed values for this element

853 Vendors MAY subset the allowed values for this element

854 **4.3.2.4. PlatenMinimumSize**

855 This element specifies the smallest size original that can be scanned on the *Platen*. All media dimensions are measured in
856 1/1000^{ths} of an inch.

857 **4.3.2.4.1. Width**

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

859 Values: 1 – 2147483647

860 **4.3.2.4.2. Height**

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

862 Values: 1 – 2147483647

863 **4.3.2.5. PlatenMaximumSize**

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

866 **4.3.2.5.1. Width**

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

868 Values: 1 – 2147483647

869 **4.3.2.5.2. Height**

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

871 Values: 1 – 2147483647

872 **4.3.3. ADF**

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

874 **4.3.3.1. ADFSupportsDuplex**

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

876 Allowed Values: 0, 1, true, false

877 **4.3.3.2. ADFFront**

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

879 **4.3.3.2.1. ADOpticalResolution**

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

882 **4.3.3.2.2. ADFResolutions**

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

885 **4.3.3.2.3. ADFColor**

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

888 **4.3.3.2.4. ADFMinimumSize**

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

891 **4.3.3.2.5. ADFMaximumSize**

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

894 **4.3.3.3. ADFBack**

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

897 **4.3.3.3.1. ADOpticalResolution**

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

900 **4.3.3.3.2. ADFResolutions**

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

903 **4.3.3.3.3. ADFColor**

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

906 **4.3.3.3.4. ADFMinimumSize**

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

909 **4.3.3.3.5. ADFMaximumSize**

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

912 **4.3.4. Film**

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

914 **4.3.4.1. FilmScanModesSupported**

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

917 **4.3.4.1.1. FilmScanModeValue**

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

919 Values:

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

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

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

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

925 Vendors MAY extend the allowed values for this element

926 Vendors MAY subset the allowed values for this element

927 **4.3.4.2. FilmOpticalResolution**

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

930 4.3.4.3. FilmResolutions

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

933 4.3.4.4. FilmColor

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

936 4.3.4.5. FilmMinimumSize

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

939 4.3.4.6. FilmMaximumSize

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

942 **4.4. The ScannerStatus Elements**

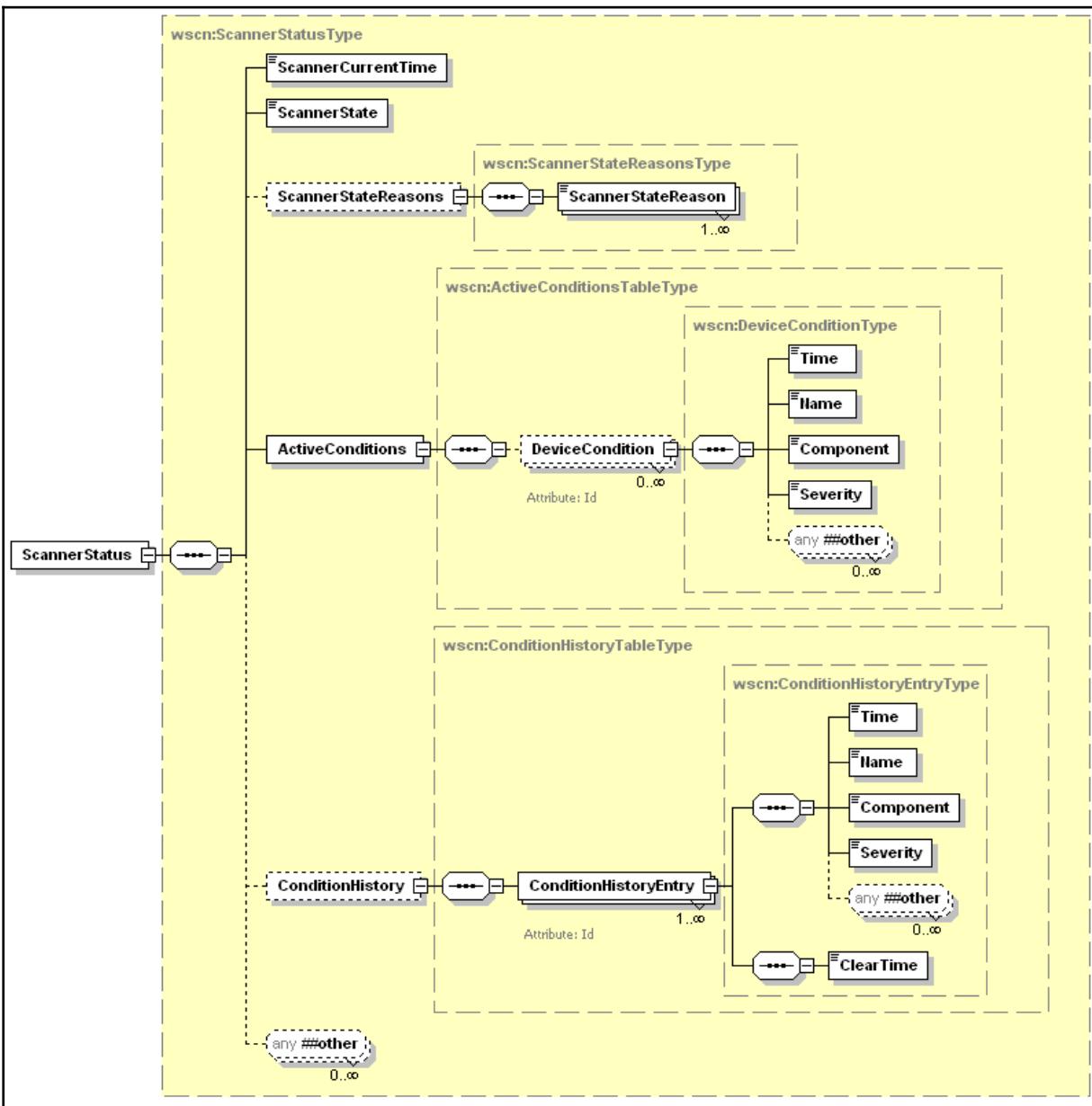


Figure 9 - ScannerStatus Elements

943

944

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

946 **4.4.1. ScannerCurrentTime**

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

951 Values: Any valid dateTime value

952 **4.4.2. ScannerState**

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

954 Values:

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

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

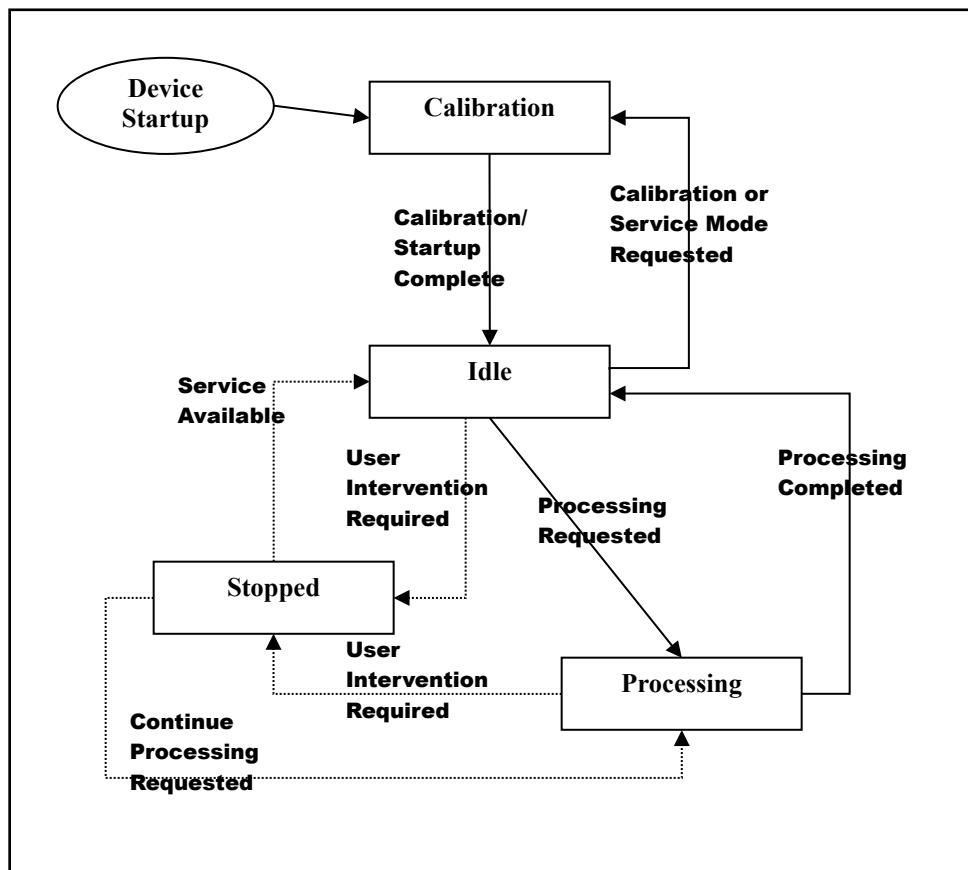


Figure 10 - Scanner State Diagram

964 4.4.3. ScannerStateReasons

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

966 4.4.3.1. ScannerStateReason

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

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

971 Values:

Attention Required - 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

LampWarming – The scanner lamp is warming in preparation to acquire images

980 **MediaJam** – Media is jammed in one of the input options causing image acquisition to fail
981 **MultipleFeedError** – The *ADF* option picked more than one piece of media
982 **None** - Indicates that there are no current state reasons
983 **Paused** - Someone has paused the scanner and the *ScannerState* is *Stopped*. In this state, a scanner will not produce
984 Scanned output.
985 Vendors MUST support the values that represent conditions that are detectable in their implementation. Therefore, vendors
986 MAY subset allowed values if specific *ScannerStateReasons* are undetectable in their implementation.
987 Vendors MAY extend allowed values. However, scanner vendors need to understand the implications of extending this list
988 on a CP. The CP usually localizes the *ScannerStateReasons* value (as with other string variable values) to the human
989 language of the user. However, such a scanner vendor extension value will not be recognized by the CP. As a Fallback
990 presentation, the CP MAY display the value received as is, which should be in English and therefore, might not be
991 understandable by the user. Alternatively, the vendor might use the general *ScannerStateReasons* value:
992 **AttentionRequired** and then explain the problem on the scanner console which the user would see when they are at
993 the scanner.

994 **4.4.4. ActiveConditions**

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

997 **4.4.4.1. DeviceCondition**

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

999 **4.4.4.1.1. Id**

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

1003 REQUIRED attribute.

1004 Values: 1 – 2147483647

1005 **4.4.4.1.2. Time**

1006 This element specifies the time a condition occurred. This time is according to the internal clock of the scanner.

1007

1008 Values: Any valid *dateTime* value

1009 **4.4.4.1.3. Name**

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

1012 Values:

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

1022 Vendors MAY extend the allowed values for this element.

1023 Vendors MAY subset the allowed values for this element

1024 **4.4.4.1.4. Component**

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

1026 Values:

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

1031 Vendors MAY extend the allowed values for this element.
1032 Vendors MAY subset the allowed values for this element

1033 4.4.4.1.5. Severity

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

1036

1037 Values:

1038 **Informational** – This condition is purely for user information and has no noticeable affect on the image
1039 acquisition process
1040 **Warning** – This condition is not affecting processing currently, but if not attended to it could become **Critical**
1041 **Critical** – The device can not continue processing until this condition is resolved

1042 Vendors MAY extend the allowed values for this element.
1043 Vendors MAY subset the allowed values for this element

1044 4.4.5. ConditionHistory

1045 This element is a collection of detailed descriptions that describe a set of the most recent conditions/errors on the device.
1046 These conditions could vary in severity from **Informational** to **Critical**.

1047 4.4.5.1. ConditionHistoryEntry

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

1049 4.4.5.1.1. Id

1050 This data element is described in Section 4.4.4.1.1

1051 4.4.5.1.2. Time

1052 This data element is described in Section 4.4.4.1.2

1053 4.4.5.1.3. Name

1054 This data element is described in Section 4.4.4.1.3

1055 4.4.5.1.4. Component

1056 This data element is described in Section 4.4.4.1.4

1057 4.4.5.1.5. Severity

1058 This data element is described in Section 4.4.4.1.5

1059 4.4.5.1.6. ClearTime

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

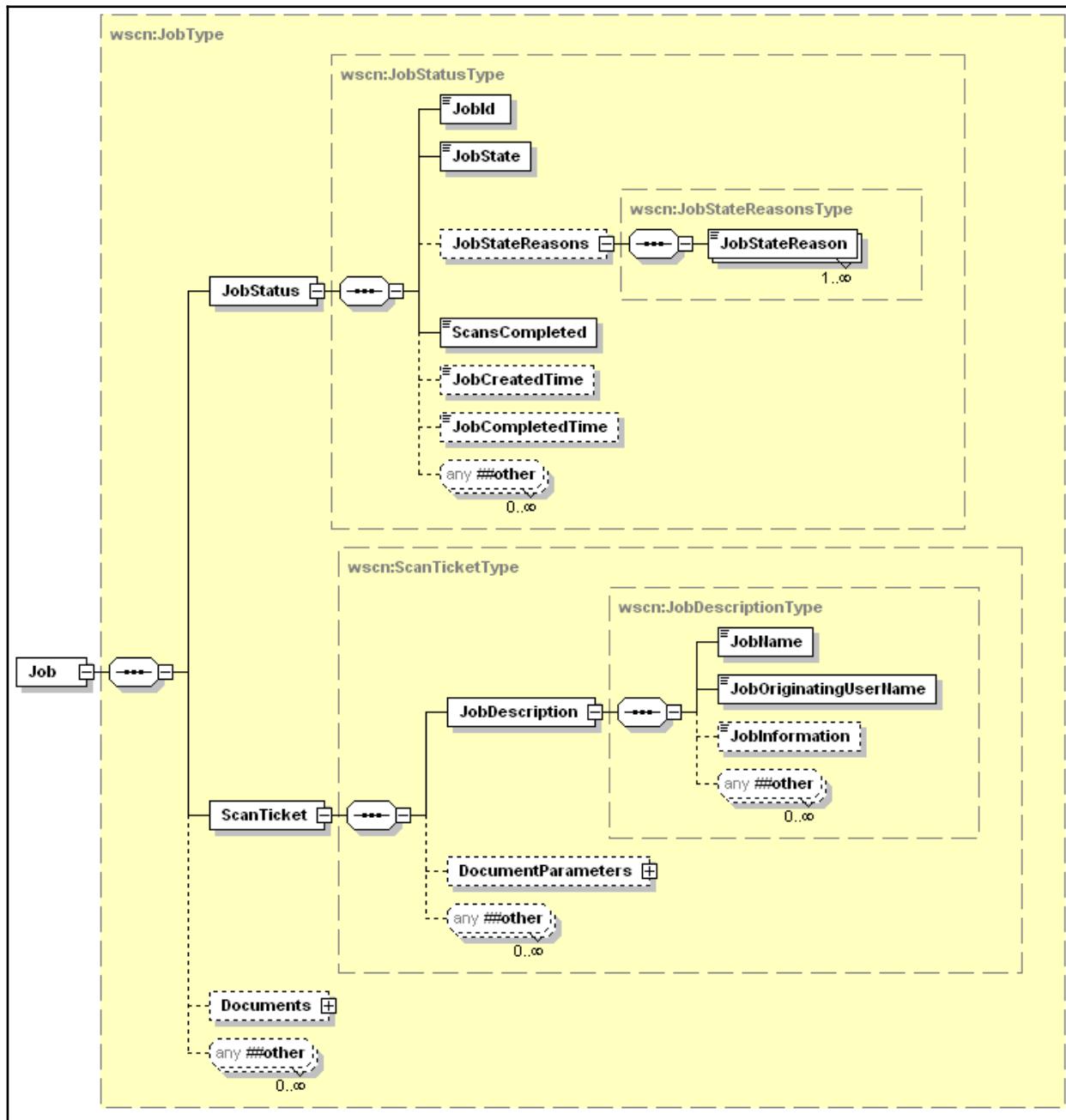
1061

1062 Values: Any valid dateTime value

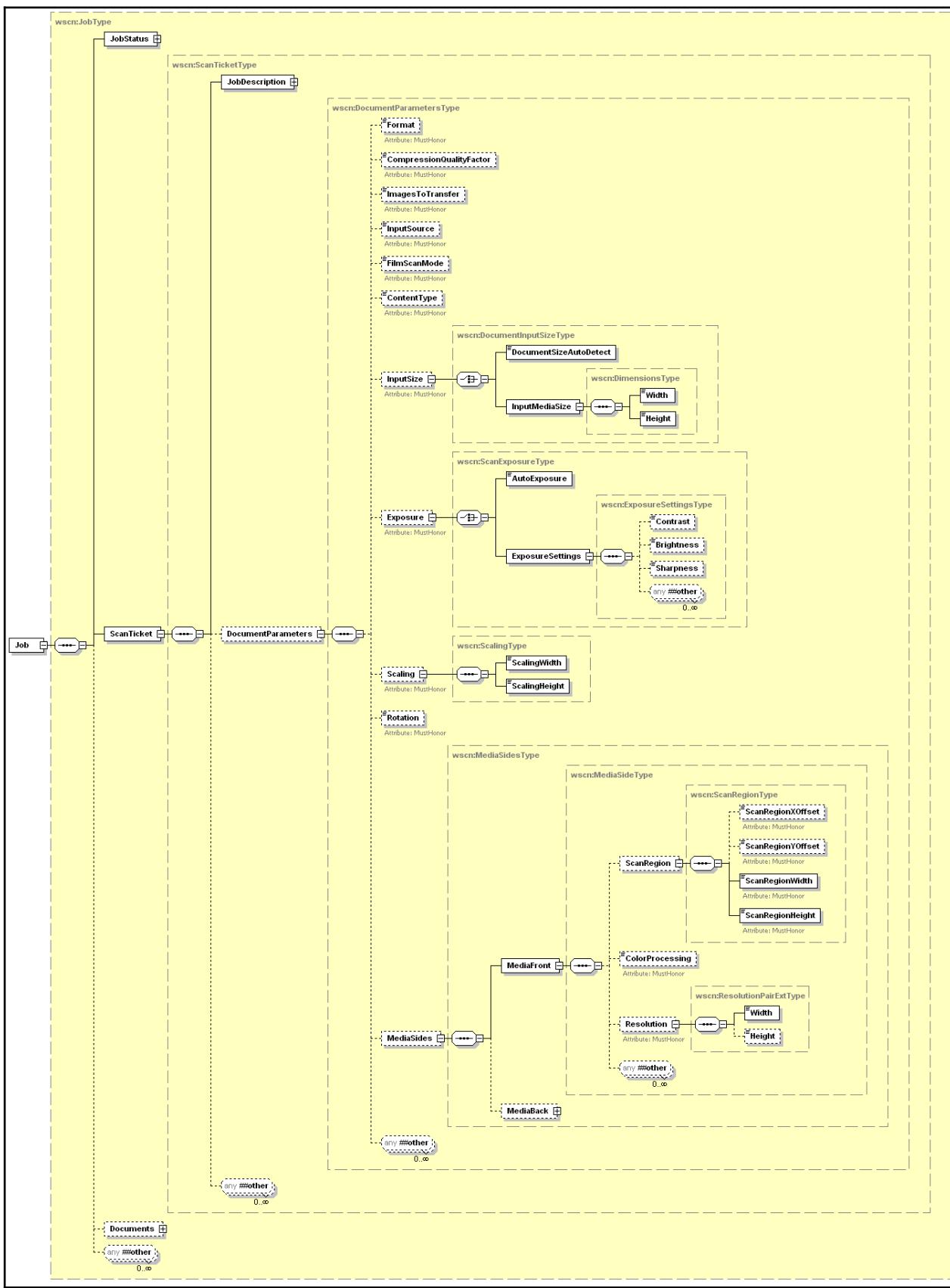
1063 4.5. The Job's Elements

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

1067



1068 1069 Figure 11 - Job Elements (Part 1)



1070

Figure 12 - Job Elements (Part 2)

1071 All of the Scanner elements contained within a scan job are described in detail in the following sections.

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

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

1080 4.5.1. JobStatus

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

1082 4.5.1.1. JobId

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

1084 Values: 1 – 2147483647

1085 4.5.1.2. JobState

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

1088 Values:

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

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

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

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

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

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

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

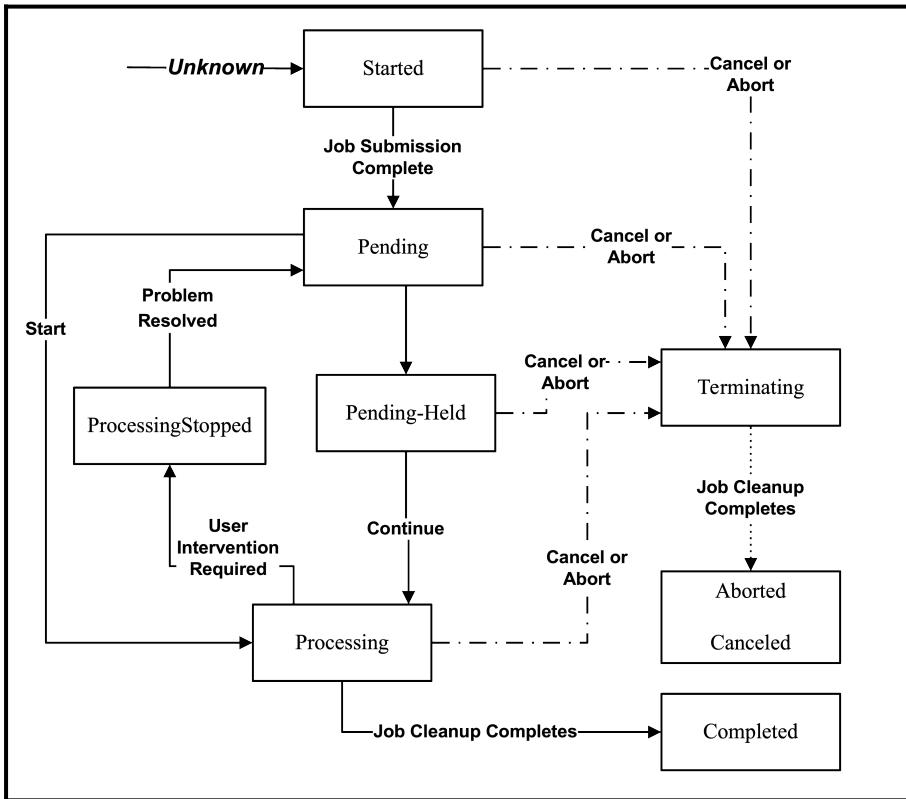
1098 **Started** – The scan device has begun processing the Job. This is a transient state, and will usually be seen only
1099 within a **JobStatusEvent**.

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

1102 Vendors MAY extend the allowed values for this element.

1103 Vendors MAY subset the allowed values for this element.

1104



1105

1106

1107

Figure 13 - Job States**1108 4.5.1.3. JobStateReasons**

1109 This element is a collection that describes all of the additional information about why the Job is in its current state.

1110 4.5.1.3.1. JobStateReason

1111 This element is a single piece of additional information about why the Job is in its current state

1112 Values:

1113 **InvalidScanTicket** – The Job was rejected because the ScanTicket could not be processed.

1114 **DocumentFormatError** – The requested Document format is not supported by the scan service

1115 **ImageTransferError** – The data transfer of an image in the job failed. If this occurs the job is aborted.

1116 **JobCanceledAtDevice** – The current scan job was canceled at the device front panel

1117 **JobCompletedSuccessfully** – The Job is complete without any warnings or errors

1118 **JobCompletedWithErrors** – The Job completed with at least one error.

1119 **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.

1120 **JobScanning** – The scanner is digitizing the Job data.

1121 **JobScanningAndTransferring** – The scanner is digitizing the Job data and data is being transferred to the client.

1122 **JobTimedOut** – The Job completed after no **RetrieveImage** operations followed the **CreateScanJob** operation in a timely fashion.

1123 **JobTransferring** – The Job data is being transferred to the client.

1124 **None** – The Job has no additional information on the Job State.

1125 **ScannerStopped** – The scan device is stopped due to an active condition and the job can not continue until the condition is corrected

1131 Vendors MUST support the values that represent conditions that are detectable in their implementation. Therefore, vendors
1132 MAY subset allowed values if specific *JobStateReasons* are undetectable in their implementation.

1133 Vendors MAY extend allowed values. However, scanner vendors need to understand the implications of extending this list
1134 on a CP. The CP usually localizes the *JobStateReason* value (as with other string variable values) to the human language of
1135 the user. However, such a scanner vendor extension value will not be recognized by the CP. As a Fallback presentation,
1136 the CP MAY display the value received as is, which should be in English and therefore, might not be understandable by the
1137 user.

1138 **4.5.1.4. JobCreatedTime**

1139 This element contains the local time when the job was created. Job creation is the point in time where the job is submitted
1140 to the system.

1141 Values: Any valid dateTime value

1142 **4.5.1.5. JobCompletedTime**

1143 This element specifies the scanner time at completion of the scan job. Completion is when all processing has completed,
1144 either because of successful completion of scanning and document transfer or because a fatal error was encountered.

1145 Values: Any valid dateTime value

1146 **4.5.1.6. ScansCompleted**

1147 This element specifies the number of images scanned. A sheet of media may be scanned multiple times. In duplex
1148 scanning each side of the sheet is scanned, generating two scans in the *ScansCompleted* count.

1149 (Note: This information may not be known until the scanner has completed processing the Job. The scanner MUST update
1150 this element when more exact information is available)

1151 Values: 0 – 2147483647

1152 **4.5.2. ScanTicket**

1153 This section of the schema defines all the information that pertains to the description and processing parameters of the
1154 currently identified Job. This is the *ScanTicket* definition that was supplied with the **CreateScanJob** operation which
1155 started the Job.

1156 **4.5.2.1. JobDescription**

1157 This section describes all of the elements that make up the *JobDescription* type in the scan job.

1158 **4.5.2.1.1. JobName**

1159 This element is the user-friendly name of the job supplied by the CP. It is RECOMMENDED that the CP supply a value to
1160 help a user easily distinguish between the jobs that he/she has submitted.

1161 Values: any character string

1162 **4.5.2.1.2. JobOriginatingUserName**

1163 This element is the name of the user that submitted the job. Either supplied by the CP or by the security infrastructure, if
1164 any. It is RECOMMENDED that the CP supply a value to help a user easily distinguish between the jobs that he/she has
1165 submitted and jobs that others have submitted.

1166 Values: any character string

1167 **4.5.2.1.3. JobInformation**

1168 This element describes the intended use of the job. This value is useful if the job ticket used to create this job will be
1169 reused.

1170 Values: any character string

1171 **4.5.2.2. DocumentParameters**

1172 This section describes all of the elements that make up the *DocumentParameters* type in the scan job. These parameters
1173 apply to all documents within the current scan job.

1174 4.5.2.2.1. Format

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

1177 Vendors MAY extend the allowed values for this element.
1178 Vendors MAY subset the allowed values for this element.

1179 4.5.2.2.2. CompressionQualityFactor

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

1183 Values: 0 – 100
1184 Vendors MAY subset the allowed values for this element

1185 4.5.2.2.3. ImagesToTransfer

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

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

1193 Values: 0 – 2147483647

1194 4.5.2.2.4. InputSource

1195 This element specifies the source of the original document:

1196 Values:

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

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

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

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

1201 Vendors MAY extend the allowed values for this element.

1202 Vendors MAY subset the allowed values for this element.

1203 4.5.2.2.5. FilmScanMode

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

1206 4.5.2.2.6. ContentType

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

1209 4.5.2.2.7. InputSize

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

1212 4.5.2.2.7.1. DocumentSizeAutoDetect

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

1216 Values: 0, 1, true, false

1217 4.5.2.2.7.2. InputMediaSize

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

1220 4.5.2.2.7.2.1. Width

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

1222 Values: 1 – 2147483647

1223 4.5.2.2.7.2.2. Height

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

1225 Values: 1 – 2147483647

1226 4.5.2.2.8. Exposure

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

1231 4.5.2.2.8.1. AutoExposure

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

1235 Values: 0, 1, true, false

1236 4.5.2.2.8.2. ExposureSettings

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

1238 4.5.2.2.8.2.1. Contrast

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

1241 Values: -1000 – 1000

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

1244 Vendors MAY subset the allowed values for this element.

1245 4.5.2.2.8.2.2. Brightness

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

1248 Values: -1000 – 1000

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

1251 Vendors MAY subset the allowed values for this element.

1252 4.5.2.2.8.2.3. Sharpness

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

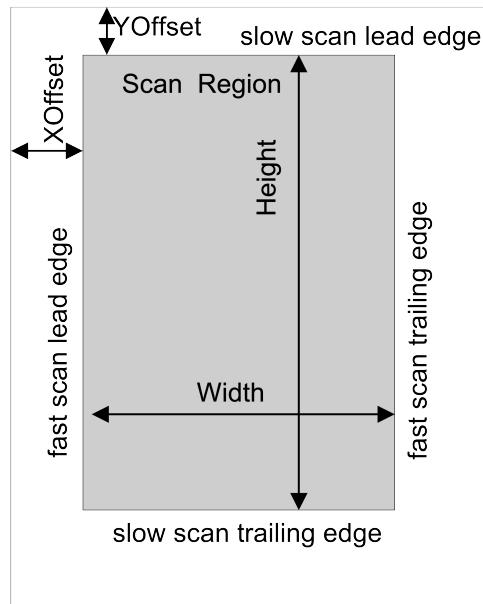
1255 Values: -100 – 100

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

1257 Vendors MAY subset the allowed values for this element.

1258 4.5.2.2.9. Scaling

- 1259 This section specifies the scaling for both the slow and fast scan directions.
- 1260 Both values must be specified. Isomorphic scaling is accomplished by supplying the same values for both width and
1261 height.
- 1262 **4.5.2.2.9.1. ScalingWidth**
- 1263 This element indicates the scaling factor to apply in the fast scan direction. A value of 100 specifies that no adjustments are
1264 made to the scanned image. Scaling is expressed in 1 percent increments.
- 1265 Values: 1 – 1000
- 1266 All WSD scanners MUST support at least the 100 value.
- 1267 Vendors MAY subset the allowed values for this element.
- 1268 **4.5.2.2.9.2. ScalingHeight**
- 1269 This element indicates the scaling factor to apply in the slow scan direction. A value of 100 specifies that no adjustments are
1270 made to the scanned image. Scaling is expressed in 1 percent increments.
- 1271 Values: 1 – 1000
- 1272 All WSD scanners MUST support at least the 100 value.
- 1273 Vendors MAY subset the allowed values for this element.
- 1274 **4.5.2.2.10. Rotation**
- 1275 This element indicates the amount to rotate each image of a scanned document. See section 4.3.1.9.1 for a list of values for
1276 this element. All devices must support a value of 0 (no rotation) for this element.
- 1277 **4.5.2.2.11. MediaSides**
- 1278 This element contains the parameters which are unique to each physical side of the media to be scanned. Many duplex
1279 capable scanners allow setting different scan regions, color processing and resolutions for each physical side of the media to
1280 be scanned. This element contains separate data for the Front side and Back side of the physical media. Every scan job can
1281 have parameters for the media front, however parameters for the media back are only valid if the *InputSource* specified
1282 equals *ADFDuplex*. If *InputSource* is *ADFDuplex* and the *MediaBack* element is missing, any parameters specified in
1283 *MediaFront* will be applied to the back side scanning as well.
- 1284 **4.5.2.2.11.1. MediaFront**
- 1285 This element contains all of the parameters specific to scanning the Front side of the physical media.
- 1286 **4.5.2.2.11.1.1. ScanRegion**
- 1287 This element specifies the area within the input document boundaries to scan. All *ScanRegion* values are in 1/1000ths of an
1288 inch.
- 1289 If *ScanRegion* is not specified, the device should use 0 as the offsets and the width and height of the *InputMediaSize*, if
1290 given. If *ScanRegion* is not specified and *InputMediaSize* is not specified or cannot be determined by the device, the
1291 implementation is up to the hardware vendor.
- 1292 The step size for all *ScanRegion* values is 1/1000th of an inch. If the requested scan region would fall completely outside of
1293 the supported acquisition area of the scanner the scan operation should be rejected. The scanner can also adjust the scan
1294 region requested if it can't fulfill the exact dimensions. Any changes to the scan region should be reported in the
1295 *DocumentFinalParameters* elements in the scan job.



1296

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

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

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

1300 4.5.2.2.11.1.1.1. ScanRegionXOffset

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

1303 Values: 0 – *InputSize* width

1304 4.5.2.2.11.1.1.2. ScanRegionYOffset

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

1307 Values: 0 – *InputSize* height

1308 4.5.2.2.11.1.1.3. ScanRegionWidth

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

1311 Values: 1 – *InputSize* width

1312 4.5.2.2.11.1.1.4. ScanRegionHeight

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

1315 Values: 1 – *InputSize* height

1316 4.5.2.2.11.1.2. ColorProcessing

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

1319 4.5.2.2.11.1.3. Resolution

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

1323 Resolution is specified in pixels per inch.

1324 4.5.2.2.11.1.3.1. Width

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

1326 4.5.2.2.11.1.3.2. Height

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

1328 4.5.2.2.11.2. MediaBack

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

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

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

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

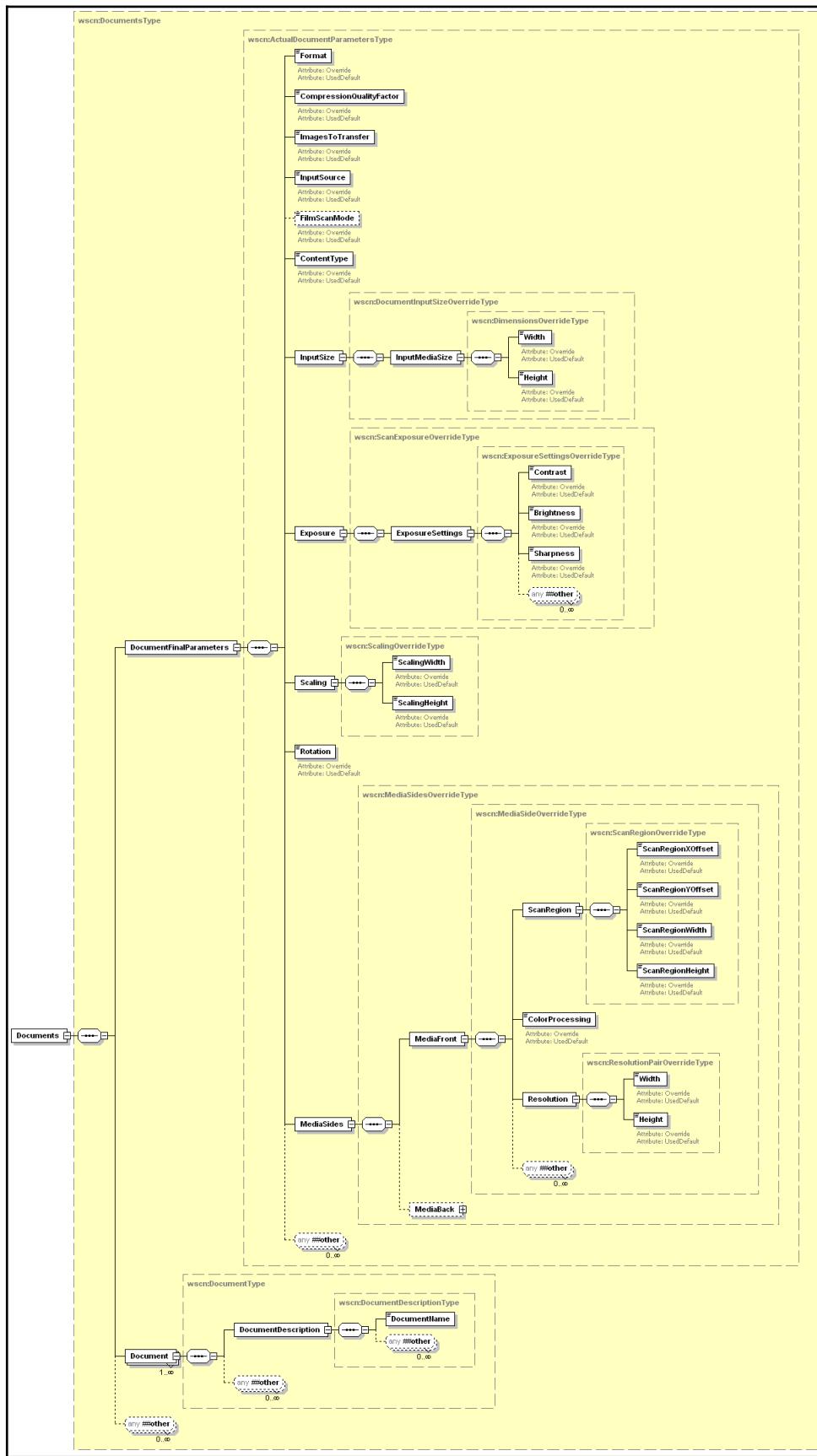


Figure 14 – Documents & Document Elements

1339 All of the Scanner elements contained within a scan document are described in detail in the following sections.
1340 The *DocumentDescription* elements are populated from corresponding elements supplied in a Job creation request. These
1341 values may be changed by the scanner if more reliable information can be obtained.

1342 4.6.1. Documents

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

1345 4.6.1.1. DocumentFinalParameters

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

1352 4.6.1.1.1. Override

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

1355 OPTIONAL attribute.

1356 Values: 0, 1, true, false

1357 4.6.1.1.2. UsedDefault

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

1361 OPTIONAL attribute.

1362 Values: 0, 1, true, false

1363 4.6.1.2. Document

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

1365 4.6.1.2.1. DocumentDescription

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

1368 4.6.1.2.1.1. DocumentName

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

1371 Allowed Values: any character string

1372 4.7. Job Table

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

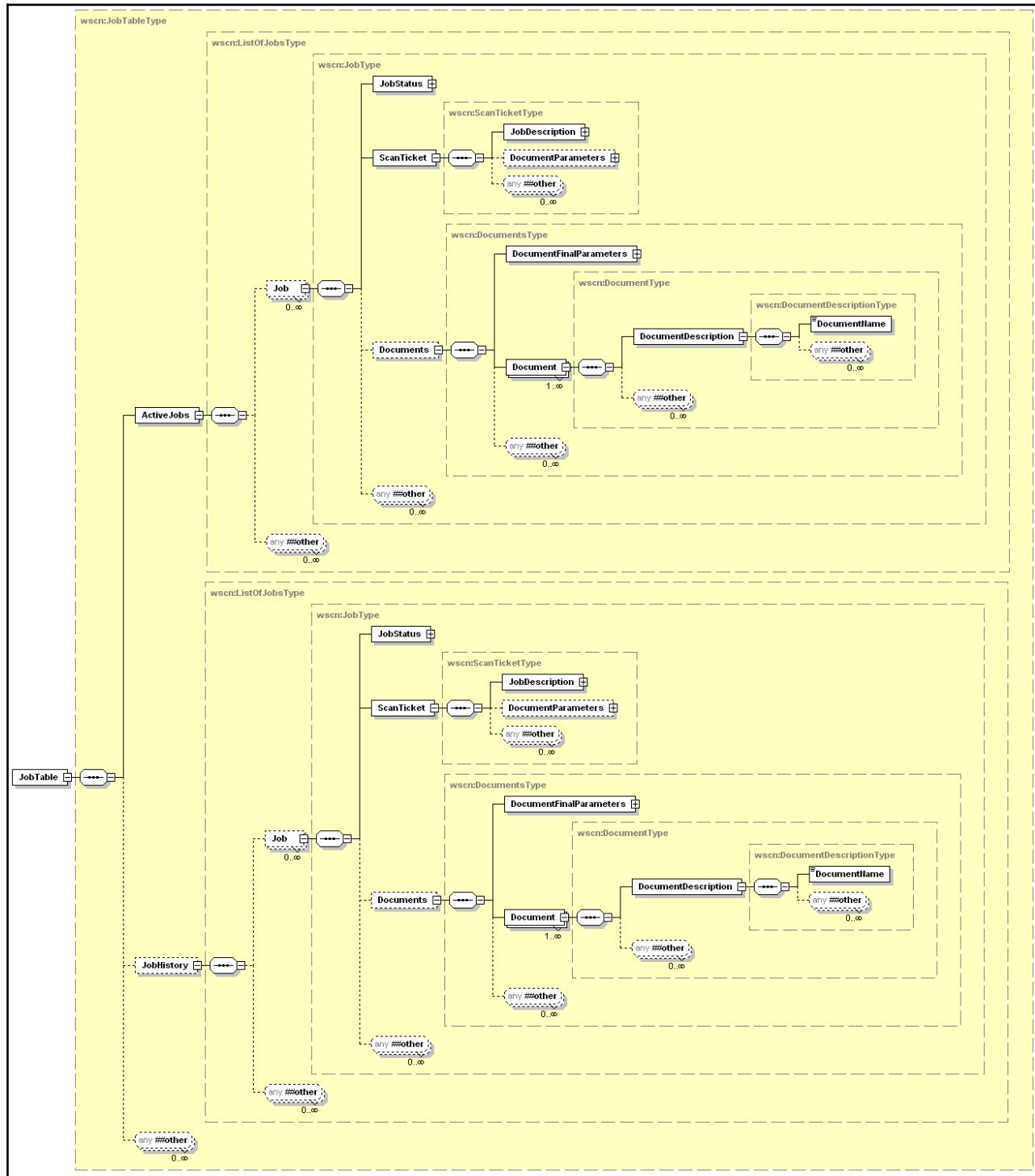


Figure 15 - JobTable Elements

1379

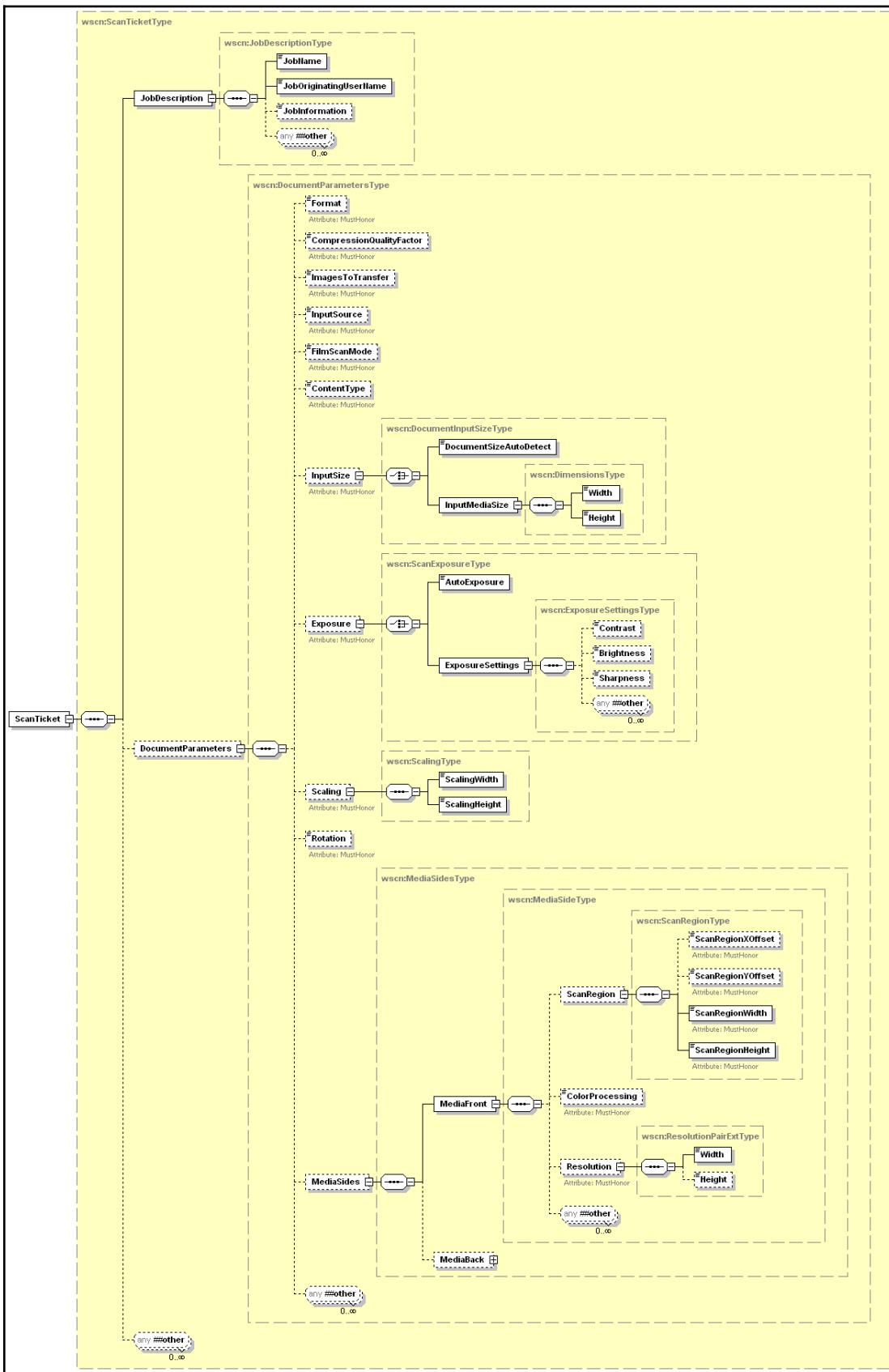
1380

1381 **4.8. ScanTicket**

1382 The *ScanTicket* is an instance document conforming to a proper subset of the scan job schema supported by the scanner.
 1383 The *ScanTicket* contains the values that the CP has selected for the scanner settings for the current job. The *ScanTicket* is
 1384 composed of these subsections:

1385 *JobDescription* – This section of the *ScanTicket* contains general job information.

- 1386 *DocumentParameters*— This section specifies the image processing functions and their values that will be applied
1387 against the job/document.
- 1388 Figure 16 below illustrates the member elements of the *ScanTicket* element. Note that the member elements directly map to
1389 an instance of a Job and they are exactly what are required to be sent in a Job Creation operation.

**Figure 16 – ScanTicket Elements**

1392

4.8.1. Example ScanTicket

```

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

1426

4.9. Default Values and Allowed Values for Job Submission

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

1433

4.9.1. DefaultScanTicket

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

1437

4.9.2. Example DefaultScanTicket

```

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

```

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

```

1482 5. Eventing

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

1486 5.1. Event Model

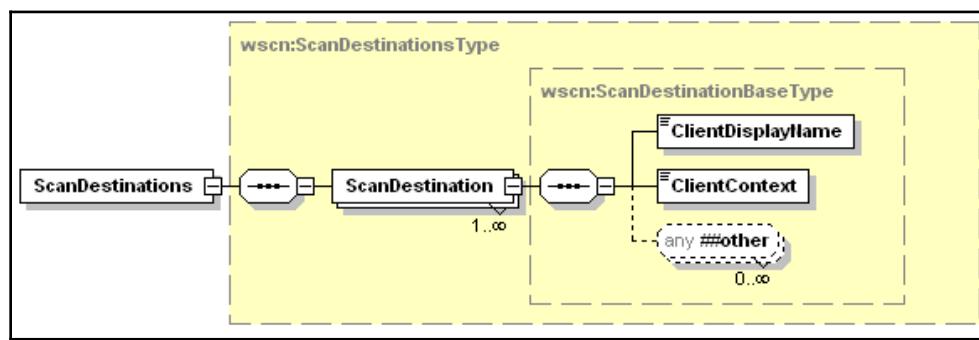
1487 The eventing model for the scan service serves three main purposes: First is to inform the CP when the Configuration
 1488 changes on the scan device. This could include changes in the ADF capabilities or changes in storage available, etc. Second
 1489 is to inform the CP when there is a change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

1495 5.2. ScanAvailableEvent

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

1500 5.2.1. Subscribe Extensions

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

**Figure 17 - ScanDestinations Elements****5.2.1.1. ScanDestinations**

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

5.2.1.1.1. ScanDestination

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

5.2.1.1.1.1. ClientDisplayName

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

Allowed Values: any character string

5.2.1.1.1.2. ClientContext

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

Allowed Values: any character string

5.2.2. Example ScanAvailableEvent Subscribe

```

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

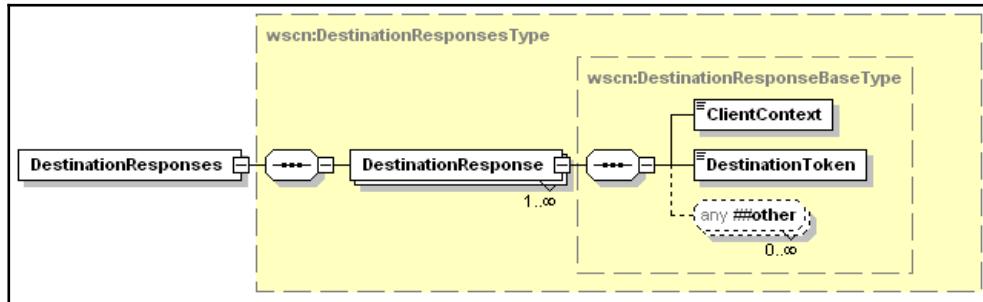
```

1550 <wscn:ScanDestination>
1551     <wscn:ClientDisplayString>Den Computer</wscn:ClientDisplayString>
1552     <wscn:ClientContext>App1ScanID2345</wscn:ClientContext>
1553 </wscn:ScanDestination>
1554 </wscn:ScanDestinations>
1555 </wse:Subscribe>
1556 </soap:Body>
1557 </soap:Envelope>

```

1558 5.2.3. SubscribeResponse Extensions

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



1561
1562 **Figure 18 - DestinationResponses Elements**

1563 5.2.3.1. DestinationResponses

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

1566 5.2.3.1.1. DestinationResponse

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

1570 5.2.3.1.1.1. ClientContext

1571 This element is a copy of the data sent in a *ScanDestination* element in the **Subscribe** operation. There is a one-to-one
1572 match of *ClientContext*(s) between a *ScanDestination* element and a *DestinationResponse* element. See Section 5.2.1.1.1.1.
1573 for a detailed description of this data element.

1574 5.2.3.1.1.2. DestinationToken

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

1578 Allowed Values: any character string

1579 5.2.4. Example ScanAvailableEvent SubscribeResponse

```

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

```

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

1609 5.2.5. Event Elements

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

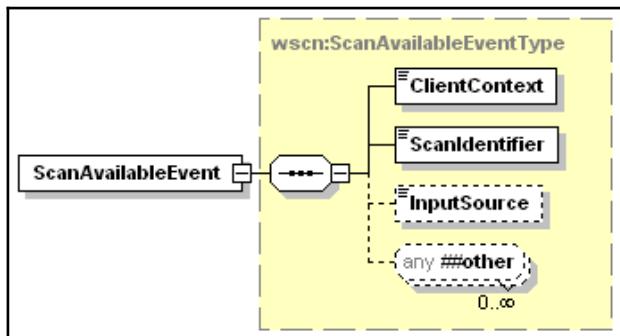


Figure 19 – ScanAvailableEvent Elements

1614 5.2.5.1. ClientContext

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

1617 5.2.5.2. ScanIdentifier

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

1622 Allowed Values: any character string

1623 5.2.5.3. InputSource

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

1627 5.2.6. Example ScanAvailableEvent

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

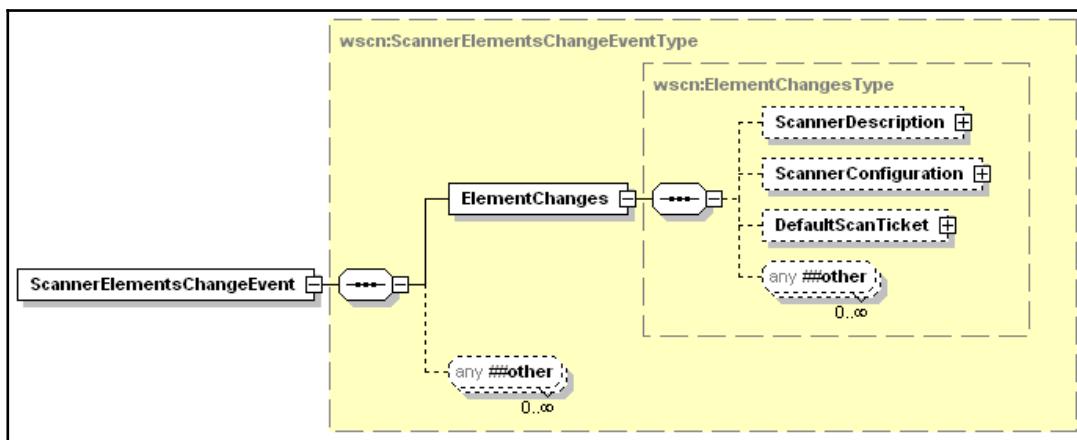
```

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

```

1648 5.3. ScannerElementsChangeEvent

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



1655

1656

Figure 20 - ScannerElementsChangeEvent Elements

1657 5.3.1. ElementChanges

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

1662 5.3.2. Example ScannerElementsChangeEvent

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

```

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

```

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

```
1756 <wsxn:ColorEntry>RGa32</wsxn:ColorEntry>
1757 <wsxn:ColorEntry>RGa64</wsxn:ColorEntry>
1758 </wsxn:PlatenColor>
1759 <wsxn:PlatenMinimumSize>
1760 <wsxn:Width>250</wsxn:Width>
1761 <wsxn:Height>250</wsxn:Height>
1762 </wsxn:PlatenMinimumSize>
1763 <wsxn:PlatenMaximumSize>
1764 <wsxn:Width>11000</wsxn:Width>
1765 <wsxn:Height>14000</wsxn:Height>
1766 </wsxn:PlatenMaximumSize>
1767 </wsxn:Platen>
1768 <wsxn:ADF>
1769 <wsxn:ADFSupportsDuplex>false</wsxn:ADFSupportsDuplex>
1770 <wsxn:ADFFront>
1771 <wsxn:ADFOpticalResolution>
1772 <wsxn:Width>600</wsxn:Width>
1773 <wsxn:Height>600</wsxn:Height>
1774 </wsxn:ADFOpticalResolution>
1775 <wsxn:ADFResolutions>
1776 <wsxn:Widths>
1777 <wsxn:Width>150</wsxn:Width>
1778 <wsxn:Width>204</wsxn:Width>
1779 <wsxn:Width>300</wsxn:Width>
1780 <wsxn:Width>600</wsxn:Width>
1781 </wsxn:Widths>
1782 <wsxn:Heights>
1783 <wsxn:Height>96</wsxn:Height>
1784 <wsxn:Height>150</wsxn:Height>
1785 <wsxn:Height>204</wsxn:Height>
1786 <wsxn:Height>300</wsxn:Height>
1787 <wsxn:Height>600</wsxn:Height>
1788 </wsxn:Heights>
1789 </wsxn:ADFResolutions>
1790 <wsxn:ADFColor>
1791 <wsxn:ColorEntry>BlackAndWhite1</wsxn:ColorEntry>
1792 <wsxn:ColorEntry>Grayscale4</wsxn:ColorEntry>
1793 <wsxn:ColorEntry>RGB24</wsxn:ColorEntry>
1794 </wsxn:ADFColor>
1795 <wsxn:ADFMinimumSize>
1796 <wsxn:Width>4000</wsxn:Width>
1797 <wsxn:Height>6000</wsxn:Height>
1798 </wsxn:ADFMinimumSize>
1799 <wsxn:ADFMaximumSize>
1800 <wsxn:Width>8500</wsxn:Width>
1801 <wsxn:Height>11000</wsxn:Height>
1802 </wsxn:ADFMaximumSize>
1803 </wsxn:ADFFront>
1804 </wsxn:ADF>
1805 <wsxn:Film>
1806 <wsxn:FilmScanModesSupported>
1807 <wsxn:FilmScanModeValue>
1808 <ColorSlideFilm>
1809 </wsxn:FilmScanModeValue>
1810 <wsxn:FilmScanModeValue>
1811 <ColorNegativeFilm>
1812 </wsxn:FilmScanModeValue>
1813 <wsxn:FilmScanModeValue>
1814 <BlackandWhiteNegativeFilm>
1815 </wsxn:FilmScanModeValue>
1816 </wsxn:FilmScanModesSupported>
1817 <wsxn:FilmOpticalResolution>
1818 <wsxn:Width>600</wsxn:Width>
1819 <wsxn:Height>600</wsxn:Height>
1820 </wsxn:FilmOpticalResolution>
1821 <wsxn:FilmResolutions>
1822 <wsxn:Widths>
1823 <wsxn:Width>150</wsxn:Width>
1824 <wsxn:Width>300</wsxn:Width>
1825 <wsxn:Width>600</wsxn:Width>
1826 </wsxn:Widths>
1827 <wsxn:Heights>
1828 <wsxn:Height>150</wsxn:Height>
```

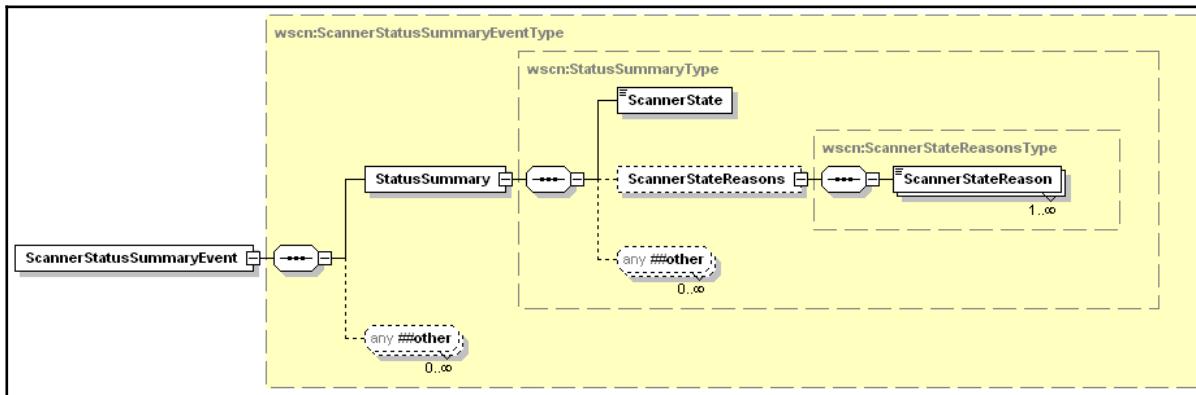
```

1829                               <wsxn:Height>300</wsxn:Height>
1830                               <wsxn:Height>600</wsxn:Height>
1831                         </wsxn:Heights>
1832                     </wsxn:FilmResolutions>
1833                     <wsxn:FilmColor>
1834                         <wsxn:ColorEntry>BlackAndWhite1</wsxn:ColorEntry>
1835                         <wsxn:ColorEntry>Grayscale4</wsxn:ColorEntry>
1836                         <wsxn:ColorEntry>RGB24</wsxn:ColorEntry>
1837                         <wsxn:ColorEntry>RGa32</wsxn:ColorEntry>
1838                     </wsxn:FilmColor>
1839                     <wsxn:FilmMinimumSize>
1840                         <wsxn:Width>1378</wsxn:Width>
1841                         <wsxn:Height>1378</wsxn:Height>
1842                     </wsxn:FilmMinimumSize>
1843                     <wsxn:FilmMaximumSize>
1844                         <wsxn:Width>2756</wsxn:Width>
1845                         <wsxn:Height>10000</wsxn:Height>
1846                     </wsxn:FilmMaximumSize>
1847                 </wsxn:Film>
1848             </wsxn:ScannerConfiguration>
1849         </wsxn:ElementChanges>
1850     </wsxn:ScannerElementsChangeEvent>
1851     </soap:Body>
1852 </soap:Envelope>

```

1853 5.4. ScannerStatusSummaryEvent

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



1856 1857 Figure 21 - ScannerStatusSummaryEvent Elements

1858 5.4.1. StatusSummary

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

1860 5.4.1.1. ScannerState

1861 This data element is described in Section 4.4.2

1862 5.4.1.2. ScannerStateReasons

1863 This data element is described in Section 4.4.3

1864 5.4.1.2.1. ScannerStateReason

1865 This data element is described in Section 4.4.3.1.

1866 5.4.2. Example ScannerStatusSummaryEvent

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

```

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

```

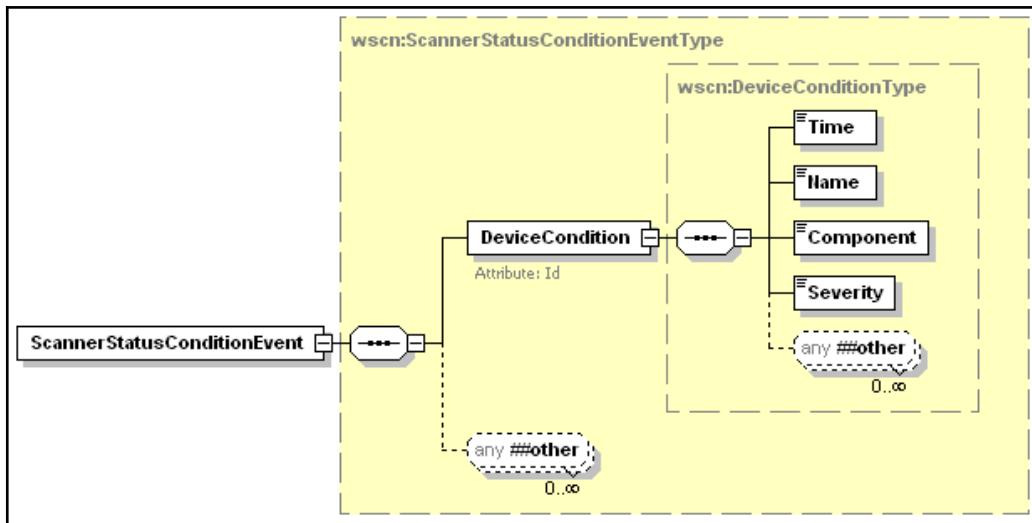
```

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

```

1892 5.5. ScannerStatusConditionEvent

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



1896 **Figure 22 - ScannerStatusCondition Event**

1898 5.5.1. DeviceCondition

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

1901 5.5.2. Example ScannerStatusConditionEvent

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

```

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

```

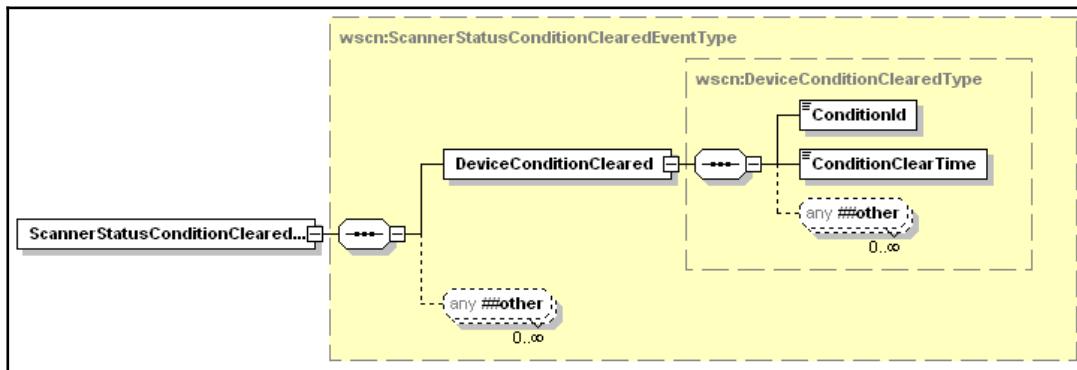
```

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

```

1926 5.6. ScannerStatusConditionClearedEvent

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



1930
 1931 Figure 23 - ScannerStatusConditionCleared Event

1932 5.6.1. DeviceConditionCleared

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

1934 5.6.1.1. ConditionId

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

1937 5.6.1.2. ConditionClearTime

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

1940 5.6.2. Example ScannerStatusConditionClearedEvent

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

```

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

```

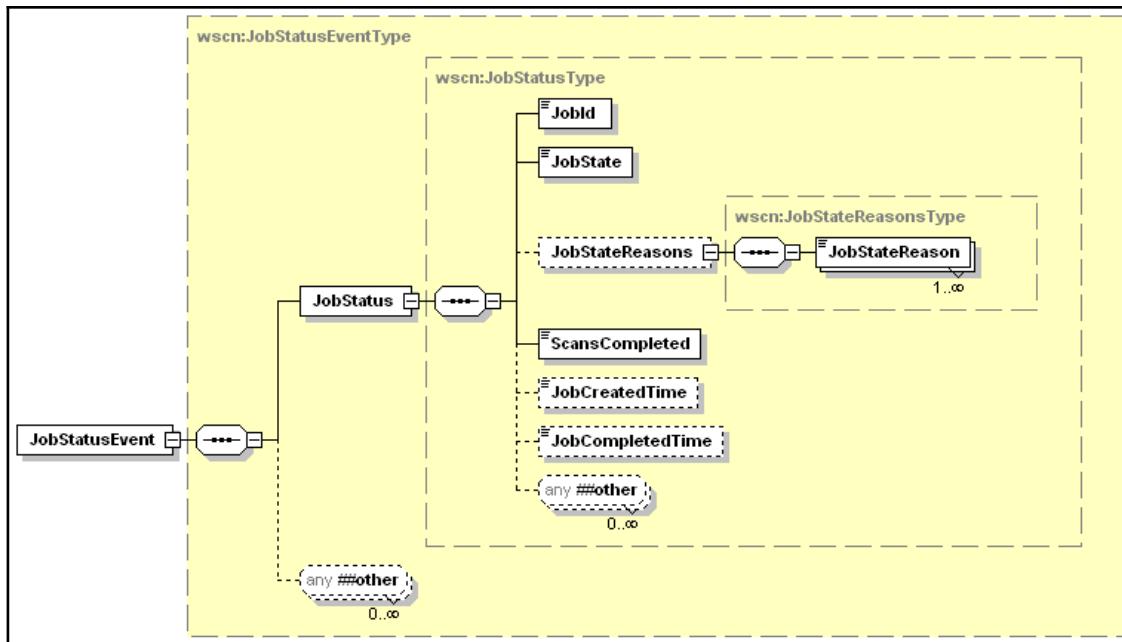
```

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

```

1963 5.7. JobStatusEvent

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



1967

Figure 24 - JobStatus Event

1969 5.7.1. JobStatus

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

1971 5.7.2. Example JobStatusEvent

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

```

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

```

```

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

```

1999 5.8. JobEndStateEvent

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

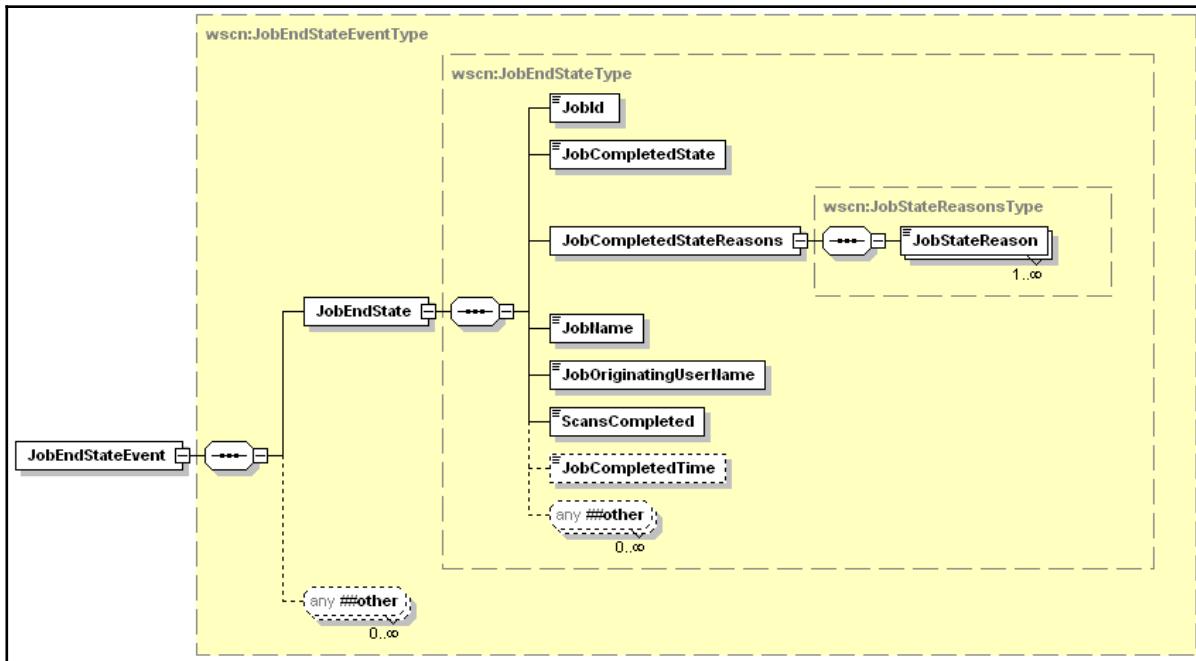


Figure 25 - JobEndState Event

2001

2002

2003 5.8.1. JobEndState

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

2005 5.8.1.1. JobId

2006 This data element is described in Section 4.5.1.1

2007 5.8.1.2. JobCompletedState

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

2010 5.8.1.2.1. JobCompletedStateReasons

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

2012 5.8.1.2.1.1. JobStateReason

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

2015 5.8.1.3. JobName

2016 This data element is described in Section 4.5.2.1.1

2017 **5.8.1.4. JobOriginatingUser**

2018 This data element is described in Section 4.5.2.1.2

2019 **5.8.1.5. ScansCompleted**

2020 This data element is described in Section 4.5.1.6

2021 **5.8.1.6. JobCompletedTime**

2022 This data element is described in Section 4.5.1.5

2023 **5.8.2. Example JobEndStateEvent**

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

```

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

2053 **6. Operations**2054 Immediately following this table is detailed information about these operations, including short descriptions of the
2055 operations, the effects of the operations on state, and error codes defined by the operations.

2056

Table 2 - Operations

Name	Req. or Opt. 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

2057 ¹ R = REQUIRED, O = Optional, X = Non-standard.

2058 6.1. Operation Error Reporting

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

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

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

2067

2068 The definitions of faults use the following properties:

[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.

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

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

2090

2091 Example SOAP Fault:

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

2113 </soap:Envelope>

2114 **6.1.1. Common Operation Faults**

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

2117 **6.1.1.1. wsa:ActionNotSupported**

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

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

2119 **6.1.1.2. InvalidArgs**

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

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

2122 **6.1.1.3. OperationFailed**

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

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

2124 **6.1.1.4. ServerErrorTemporaryError**

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

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

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

2129 **6.1.1.5. ServerErrorInternalError**

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

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

2133

2134 **6.2. CreateScanJob**

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

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

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

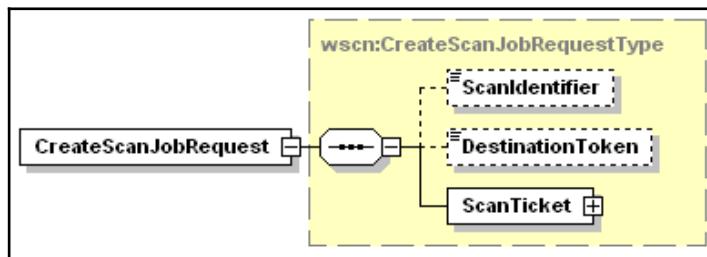
2145 The allowed values returned in a **GetScannerElements(ScannerConfiguration)** (see section 4.3) indicate the values of the
 2146 arguments that the Scan Service instance (scanner) supports (see section 4.9) for a Job creation operation. The scanner
 2147 performs the following validation in the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

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

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

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

2171 6.2.1. Request Elements



2172

2173

Figure 26 - CreateScanJobRequest Elements

2174 6.2.1.1. ScanIdentifier

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

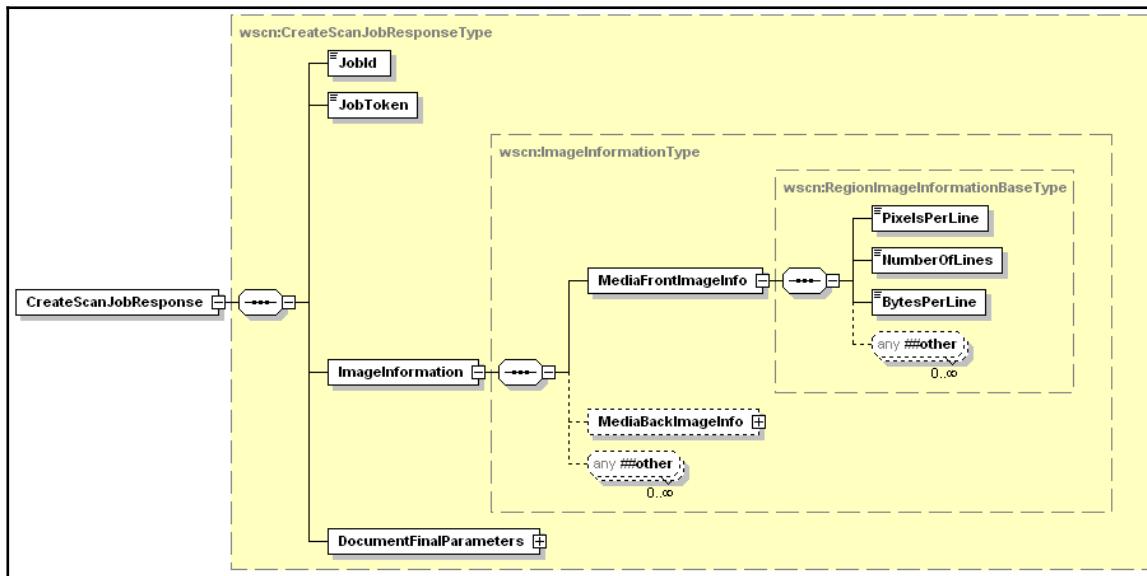
2178 6.2.1.2. DestinationToken

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

2182 6.2.1.3. ScanTicket

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

2186 **6.2.2. Response Elements**



2187

Figure 27 - CreateScanJobResponse Elements

2188 **6.2.2.1. JobId**

2189 This element is the device created identifier for the new scan job. This Id can be used in subsequent operations like
 2190 **CancelJob** and **GetJobElements** to modify the job or retrieve job information. This data element is described in Section
 2191 4.5.1.1.

2192 **6.2.2.2. JobToken**

2193 This element is the device created token for the new scan job. This element is paired with the *JobId* to uniquely represent
 2194 the scan job. It will be passed to the device in the **RetrieveImage** command to allow the scan device to verify the requester
 2195 actually created the scan job.

2196 **6.2.2.3. ImageInformation**

2197 This element contains information about the resulting image data from a scan made with the *ScanTicket* that is currently
 2198 being validated. This data is valuable to scan applications for decoding the image within an image file.

2199 **6.2.2.3.1. MediaFrontImageInfo**

2200 This element contains the *ImageInformation* for a simplex scan, or the front side of an ADFDuplex scan.

2201 **6.2.2.3.1.1. PixelsPerLine**

2202 This element describes the exact width, in pixels, of the final image that would be scanned from this document side using
 2203 the current *ScanTicket* settings that are being validated. This width should include rotation and any adjustment done by the
 2204 scanner on the final images transferred to the client.

2205 Values: 1 – 2147483647

2206 **6.2.2.3.1.2. NumberOfLines**

2207 This element describes the exact height, in pixels (or: number of lines) of the final output image that would be generated for
 2208 the current *ScanTicket*, including rotation and any adjustment the scanner may perform on the scanned image before to
 2209 transfer it to the client.

2210 Values: 1 – 2147483647

2211 **6.2.2.3.1.3. BytesPerLine**

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

2216 Values: 0 – 2147483647

2217 6.2.2.3.2. MediaBackImageInfo

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

2219 6.2.2.4. DocumentFinalParameters

2220 This section of the schema contains the actual *DocumentParameters* which were used by the scan device for this scan job.
 2221 This data element is described in Section 4.6.1.1

2222 6.2.3. Example Request – Device Initiated

```

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

2269 6.2.4. Example Response

```

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

```

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

```

2337 6.2.5. Example Request – Client Initiated

```

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

```

```

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

```

2378 6.2.6. Errors

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

2381 6.2.6.1. ServerErrorNotAcceptingJobs

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

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

2386 6.2.6.2. ClientErrorFormatNotSupported

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

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

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

2388 6.2.6.3. ClientErrorInvalidScanIdentifier

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

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

2390 6.2.6.4. ClientErrorInvalidDestinationToken

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

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

2392 6.2.6.5. ClientErrorConflictingRequiredParameters

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

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

2396 6.3. RetrieveImage

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

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

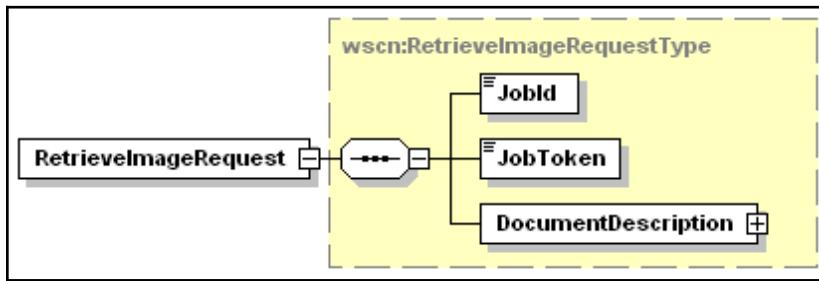
2400 Mechanism [MTOM] to efficiently send the binary image data. The example below indicates how to create a valid
 2401 response.

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

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

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

2417 6.3.1. Request Elements



2418 **Figure 28 - RetrieveImageRequest Elements**

2420 6.3.1.1. JobId

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

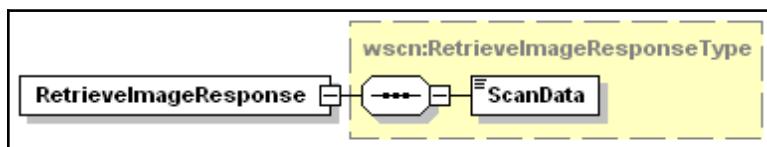
2423 6.3.1.2. JobToken

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

2425 6.3.1.3. DocumentDescription

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

2428 6.3.2. Response Elements



2429 **Figure 29 - RetrieveImageResponse Elements**

2431 6.3.2.1. ScanData

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

2434

6.3.3. Example Request

```

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

2457

6.3.4. Example Response

```

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

2502 **6.3.5. Errors**

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

2505 **6.3.5.1. ClientErrorJobIdNotFound**

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

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

2508 **6.3.5.2. ClientErrorNoImagesAvailable**

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

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

2510 **6.3.5.3. ClientErrorInvalidJobToken**

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

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

2512 **6.3.5.4. ClientErrorJobCancelled**

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

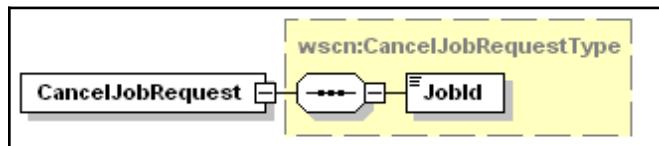
[Code]	soap:Sender
[Subcode]	wscn:ClientErrorJobCancelled
[Reason]	The current Scan job has been cancelled.

[Detail]	<i>None</i>
----------	-------------

2514 6.4. CancelJob

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

2517 6.4.1. Request Elements



2518

2519 6.4.1.1. JobId

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

2521 6.4.2. Request

```

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

2540 6.4.3. Response

```

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

2558 6.4.4. Errors

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

2561 **6.4.4.1. ClientErrorJobIdNotFound**

2562 This fault is sent when the scanner can not find a job matching the *JobId* argument (including when the argument is not in
 2563 the range: 1 to $2^{31}-1$).

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

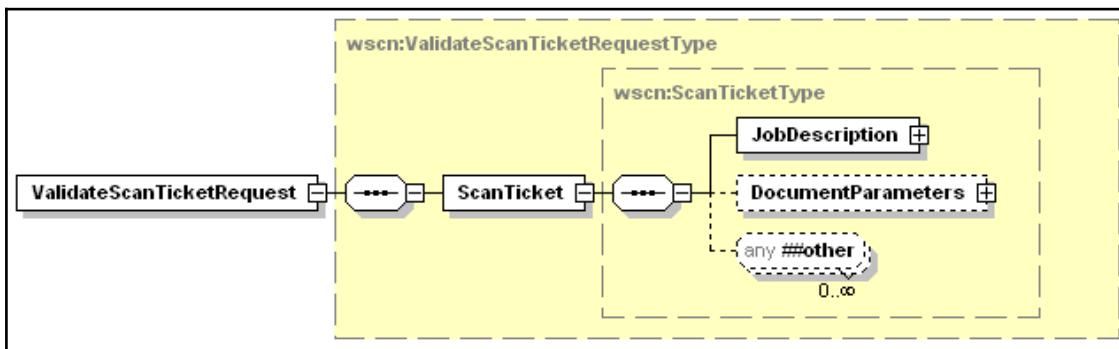
2564 **6.4.5. Effect on State**

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

2567 **6.5. ValidateScanTicket**

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

2570 **6.5.1. Request Elements**



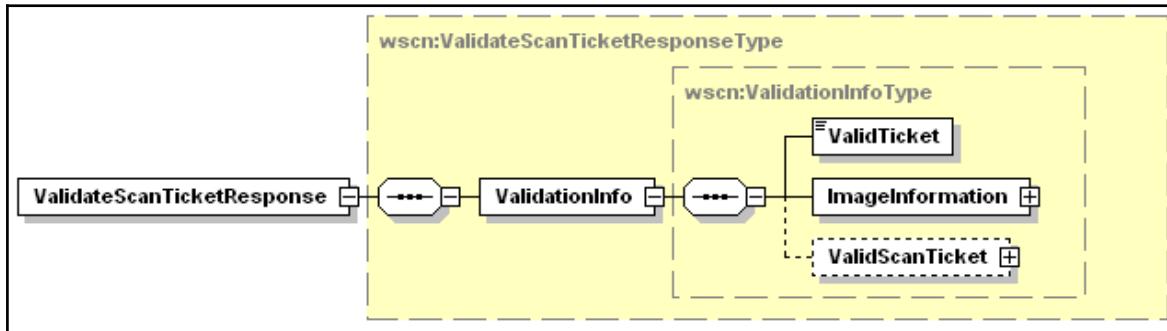
2571
2572 **Figure 30 - ValidateScanTicketRequest Elements**

2573 **6.5.1.1. ScanTicket**

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

2577

6.5.2. Response Elements



2578

Figure 31 - ValidationInfo elements

6.5.2.1. ValidationInfo

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

6.5.2.1.1. ValidTicket

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

Values: 0, 1, true, false

6.5.2.1.2. ImageInformation

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

6.5.2.1.3. ValidScanTicket

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

6.5.3. Example Request – Valid Ticket

```

<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope>
  <soap:Header>
    <wsa:To>AddressofScannerService</wsa:To>
    <wsa:Action>
      http://schemas.microsoft.com/windows/2006/08/wdp/scan/ValidateScanTicket
    </wsa:Action>
    <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
  </soap:Header>
  <soap:Body>
    <wscn:ValidateScanTicketRequest>
      <wscn:ScanTicket>
        <wscn:JobDescription>
          <wscn:JobName>Photo Scan</wscn:JobName>
          <wscn:JobOriginatingUserName>RogerSmith</JobOriginatingUserName>
        </wscn:JobDescription>
        <wscn:DocumentParameters>
          <wscn:Format>dib</wscn:Format>
          <wscn:InputSource>Platen</wscn:InputSource>
          <wscn:ContentType>Auto</wscn:ContentType>
          <wscn:InputSize>
            <wscn:InputMediaSize>
              <wscn:Width>3000</wscn:Width>
              <wscn:Height>5000</wscn:Height>
            </wscn:InputMediaSize>
          </wscn:InputSize>
        </wscn:DocumentParameters>
      </wscn:ScanTicket>
    </wscn:ValidateScanTicketRequest>
  </soap:Body>
</soap:Envelope>
  
```

```

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

```

2641 6.5.4. Example Response – Valid Ticket

```

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

```

2672 6.5.5. Example Request – Invalid Ticket

```

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

```

```

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

```

2716 6.5.6. Example Response – Invalid Ticket

```

2716 <?xml version="1.0" encoding="utf-8"?>
2717 <soap:Envelope
2718     xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
2719     xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
2720     xmlns:wscn="http://schemas.microsoft.com/windows/2006/01/wdp/scan">
2721     <soap:Header>
2722         <wsa:To>
2723             http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous
2724         </wsa:To>
2725         <wsa:Action>
2726             http://schemas.microsoft.com/windows/2006/08/wdp/scan/ValidateScanTicketResponse
2727         </wsa:Action>
2728         <wsa:MessageID>uuid:UniqueMsgId</wsa:MessageID>
2729         <wsa:RelatesTo>uuid:MsgIdOfTheValidateScanTicketRequest</wsa:RelatesTo>
2730     </soap:Header>
2731     <soap:Body>
2732         <wscn:ValidateScanTicketResponse>
2733             <wscn:ValidationInfo>
2734                 <wscn:ValidTicket>false</wscn:ValidTicket>
2735                 <wscn:ImageInformation>
2736                     <wscn:MediaFrontImageInfo>
2737                         <wscn:PixelsPerLine>0</wscn:PixelsPerLine>
2738                         <wscn:NumberOfLines>0</wscn:NumberOfLines>
2739                         <wscn:BytesPerLine>0</wscn:BytesPerLine>
2740                     </wscn:MediaFrontImageInfo>
2741                 </wscn:ImageInformation>
2742             <wscn:ValidScanTicket>
2743                 <wscn:JobDescription>
2744                     <wscn:JobName>Photo Scan</wscn:JobName>
2745                     <wscn:JobOriginatingUserName>RogerSmith</JobOriginatingUserName>
2746                 </wscn:JobDescription>
2747                 <wscn:DocumentParameters>
2748                     <wscn:Format>jfif</wscn:Format>
2749                     <wscn:InputSource>Platen</wscn:InputSource>
2750                     <wscn:ContentType>Auto</wscn:ContentType>
2751                     <wscn:InputSize>
2752                         <wscn:DocumentSizeAutoDetect>true</wscn:DocumentSizeAutoDetect>
2753                     </wscn:InputSize>
2754                     <wscn:Scaling>
2755                         <wscn:ScalingWidth>1000</wscn:ScalingWidth>
2756                         <wscn:ScalingHeight>1000</wscn:ScalingHeight>
2757                     </wscn:Scaling>
2758                     <wscn:MediaSides>
2759                         <wscn:MediaFront>
2760                             <wscn:Resolution>
2761                             <wscn:Width>300</wscn:Width>

```

```

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

```

2773 6.5.7. Errors

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

2776 6.5.7.1. ClientErrorConflictingRequiredParameters

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

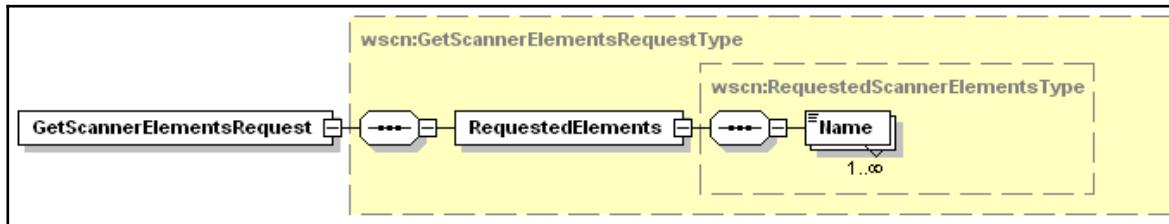
[Code]	soap:Sender
[Subcode]	wscn: ClientErrorConflictingRequiredParameters
[Reason]	Multiple elements in the <i>DocumentParameters</i> element have <i>MustHonor</i> set to <code>true</code> but applying all settings causes a conflict in the scanner device.
[Detail]	<i>None</i>

2780 6.6. GetScannerElements

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

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

2785 6.6.1. Request Elements



2787 Figure 32 - GetScannerElementsRequest Elements

2788 6.6.1.1. RequestedElements

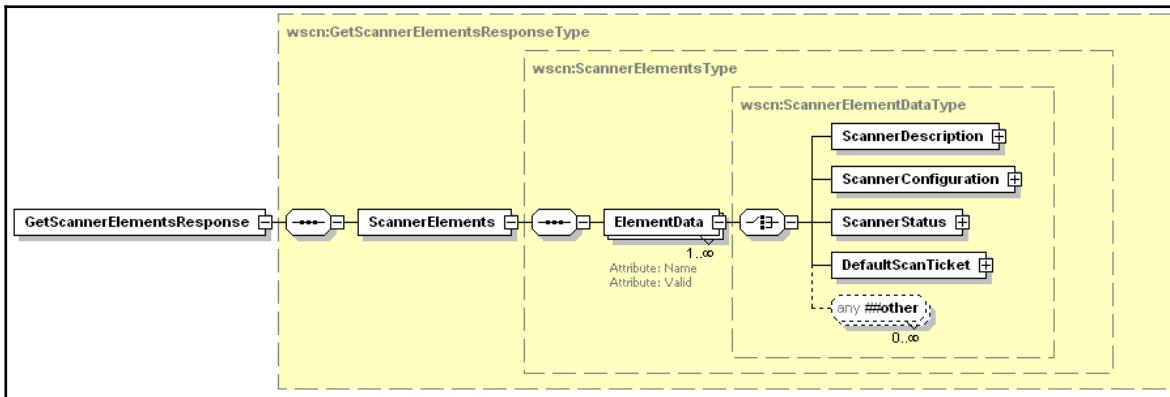
2789 This data element is a collection of elements that describes the data in which the CP is interested.

2790 6.6.1.2. Name

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

2794 Allowed Values:

2795 wscn:ScannerDescription— Get all the descriptive information for the scan device.
 2796 wscn:ScannerConfiguration— Get all the configuration information for the scan device.
 2797 wscn:ScannerStatus – Entire status section including all ActiveConditons and the ConditionHistory
 2798 wscn:DefaultScanTicket – The current default values for Job creation and processing
 2799 xmlns:VendorSection– A Vendor defined extension to the Scanner Schema

2800 **6.6.2. Response Elements**2801 **Figure 33 - GetScannerElementsResponse Elements**2803 **6.6.2.1. ScannerElements**

2804 This data element is a collection of all the responses generated by the scan device for the schema queries in the
 2805 **GetScannerElements** request.

2806 **6.6.2.2. ElementData**

2807 This data element contains the data returned for one of the schema requests. There will be the same number of *ElementData*
 2808 elements in the response as there were *Name* elements in the request.

2809 **6.6.2.3. Name**

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

2811 REQUIRED Attribute

2813 **6.6.2.4. Valid**

2814 This attribute indicates whether the schema query value was for a valid or invalid schema keyword within the device
 2815 schema. This attribute will be *false* if the requested schema keyword does not map to a valid schema section in the
 2816 Scanner schema supported by the device.

2817 REQUIRED Attribute

2818 **6.6.3. Request - ScannerDescription**

```

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

```

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

2839 6.6.4. Response – ScannerDescription

```

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

2873 6.6.5. Request - ScannerStatus

```

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

2895 6.6.6. Response – ScannerStatus

```

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

```

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

2940 6.6.7. Request – ScannerConfiguration and Invalid entry

```

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

2963 6.6.8. Response – ScannerConfiguration and Invalid entry

```

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

```

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

```

```
3042 </wscn:Widths>
3043 <wscn:Heights>
3044 <wscn:Height>96</wscn:Height>
3045 <wscn:Height>150</wscn:Height>
3046 <wscn:Height>204</wscn:Height>
3047 <wscn:Height>300</wscn:Height>
3048 <wscn:Height>600</wscn:Height>
3049 <wscn:Height>900</wscn:Height>
3050 <wscn:Height>1200</wscn:Height>
3051 </wscn:Heights>
3052 </wscn:PlatenResolutions>
3053 <wscn:PlatenColor>
3054 <wscn:ColorEntry>BlackAndWhite1</wscn:ColorEntry>
3055 <wscn:ColorEntry>Grayscale4</wscn:ColorEntry>
3056 <wscn:ColorEntry>Grayscale8</wscn:ColorEntry>
3057 <wscn:ColorEntry>RGB24</wscn:ColorEntry>
3058 <wscn:ColorEntry>RGB48</wscn:ColorEntry>
3059 <wscn:ColorEntry>RGBA32</wscn:ColorEntry>
3060 <wscn:ColorEntry>RGBA64</wscn:ColorEntry>
3061 </wscn:PlatenColor>
3062 <wscn:PlatenMinimumSize>
3063 <wscn:Width>250</wscn:Width>
3064 <wscn:Height>250</wscn:Height>
3065 </wscn:PlatenMinimumSize>
3066 <wscn:PlatenMaximumSize>
3067 <wscn:Width>11000</wscn:Width>
3068 <wscn:Height>14000</wscn:Height>
3069 </wscn:PlatenMaximumSize>
3070 </wscn:Platen>
3071 <wscn:ADF>
3072 <wscn:ADFSupportsDuplex>false</wscn:ADFSupportsDuplex>
3073 <wscn:ADFFront>
3074 <wscn:ADFOpticalResolution>
3075 <wscn:Width>600</wscn:Width>
3076 <wscn:Height>600</wscn:Height>
3077 </wscn:ADFOpticalResolution>
3078 <wscn:ADFResolutions>
3079 <wscn:Widths>
3080 <wscn:Width>150</wscn:Width>
3081 <wscn:Width>204</wscn:Width>
3082 <wscn:Width>300</wscn:Width>
3083 <wscn:Width>600</wscn:Width>
3084 </wscn:Widths>
3085 <wscn:Heights>
3086 <wscn:Height>96</wscn:Height>
3087 <wscn:Height>150</wscn:Height>
3088 <wscn:Height>204</wscn:Height>
3089 <wscn:Height>300</wscn:Height>
3090 <wscn:Height>600</wscn:Height>
3091 </wscn:Heights>
3092 </wscn:ADFResolutions>
3093 <wscn:ADFCColor>
3094 <wscn:ColorEntry>BlackAndWhite1</wscn:ColorEntry>
3095 <wscn:ColorEntry>Grayscale4</wscn:ColorEntry>
3096 <wscn:ColorEntry>RGB24</wscn:ColorEntry>
3097 </wscn:ADFCColor>
3098 <wscn:ADFMinimumSize>
3099 <wscn:Width>4000</wscn:Width>
3100 <wscn:Height>6000</wscn:Height>
3101 </wscn:ADFMinimumSize>
3102 <wscn:ADFMaximumSize>
3103 <wscn:Width>8500</wscn:Width>
3104 <wscn:Height>11000</wscn:Height>
3105 </wscn:ADFMaximumSize>
3106 </wscn:ADFFront>
3107 </wscn:ADF>
3108 <wscn:Film>
3109 <wscn:FilmScanModesSupported>
3110 <wscn:FilmScanModeValue>
3111 ColorSlideFilm
3112 </wscn:FilmScanModeValue>
3113 <wscn:FilmScanModeValue>
3114 ColorNegativeFilm
```

```

3115                                     </wsxn:FilmScanModeValue>
3116                                     <wsxn:FilmScanModeValue>
3117                                         BlackandWhiteNegativeFilm
3118                                         </wsxn:FilmScanModeValue>
3119                                     </wsxn:FilmScanModesSupported>
3120                                     <wsxn:FilmOpticalResolution>
3121                                         <wsxn:Width>600</wsxn:Width>
3122                                         <wsxn:Height>600</wsxn:Height>
3123                                     </wsxn:FilmOpticalResolution>
3124                                     <wsxn:FilmResolutions>
3125                                         <wsxn:Widths>
3126                                         <wsxn:Width>150</wsxn:Width>
3127                                         <wsxn:Width>300</wsxn:Width>
3128                                         <wsxn:Width>600</wsxn:Width>
3129                                     </wsxn:Widths>
3130                                     <wsxn:Heights>
3131                                         <wsxn:Height>150</wsxn:Height>
3132                                         <wsxn:Height>300</wsxn:Height>
3133                                         <wsxn:Height>600</wsxn:Height>
3134                                     </wsxn:Heights>
3135                                     </wsxn:FilmResolutions>
3136                                     <wsxn:FilmColor>
3137                                         <wsxn:ColorEntry>BlackAndWhite1</wsxn:ColorEntry>
3138                                         <wsxn:ColorEntry>Grayscale4</wsxn:ColorEntry>
3139                                         <wsxn:ColorEntry>RGB24</wsxn:ColorEntry>
3140                                         <wsxn:ColorEntry>RGBA32</wsxn:ColorEntry>
3141                                     </wsxn:FilmColor>
3142                                     <wsxn:FilmMinimumSize>
3143                                         <wsxn:Width>1378</wsxn:Width>
3144                                         <wsxn:Height>1378</wsxn:Height>
3145                                     </wsxn:FilmMinimumSize>
3146                                     <wsxn:FilmMaximumSize>
3147                                         <wsxn:Width>2756</wsxn:Width>
3148                                         <wsxn:Height>10000</wsxn:Height>
3149                                     </wsxn:FilmMaximumSize>
3150                                     </wsxn:Film>
3151                                     </wsxn:ScannerConfiguration>
3152                                 </wsxn:ElementData>
3153                                 <wsxn:ElementData Name="ihv:InvalidRequestEntry" Valid="false"/>
3154                             </wsxn:ScannerElements>
3155                         </wsxn:GetScannerElementsResponse>
3156                     </soap:Body>
3157                 </soap:Envelope>

```

3158 6.6.9. Errors

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

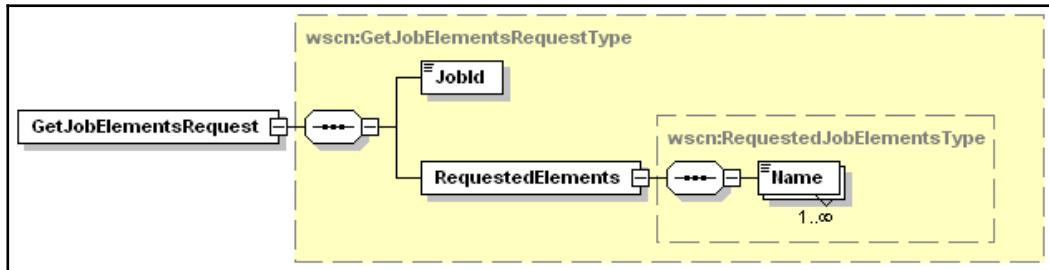
3160 6.7. GetJobElements

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

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

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

3166 6.7.1. Request Elements



3167

Figure 34 - GetJobElementsRequest Elements

3169 6.7.1.1. JobId

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

3172 6.7.1.2. RequestedElements

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

3174 6.7.1.3. Name

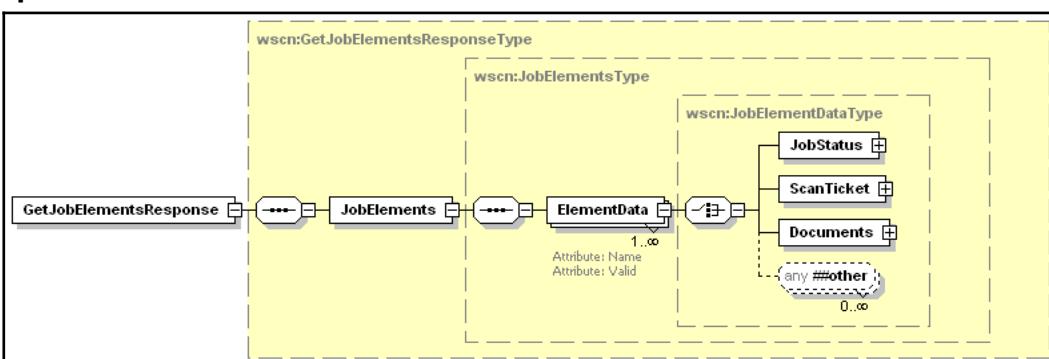
3175 This data element is a QName that represents a location within the Job schema. The keyword represents a top level section
3176 of the Job schema such as the *JobStatus* or *ScanTicket*.

3177

3178 Allowed Values:

- 3179 *wscn:JobStatus* – Get the current *JobStatus* element for the specified Job.
- 3180 *wscn:ScanTicket* – Get the *ScanTicket* element for the specified Job
- 3181 *wscn:Documents* - Get the *Documents* element for the specified Job
- 3182 *xmlns:VendorSection*– A Vendor defined extension to the Job Schema

3183 6.7.2. Response Elements



3184

3185

Figure 35 - GetJobElementsResponse Elements

3186 6.7.2.1. JobElements

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

3189 6.7.2.2. ElementData

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

3192 6.7.2.3. Name

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

3194 **6.7.2.4. Valid**

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

3198 **6.7.3. Request**

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

3220

3221 **6.7.4. Response**

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

3249 **6.7.5. Errors**

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

3252 **6.7.5.1. ClientErrorJobIdNotFound**

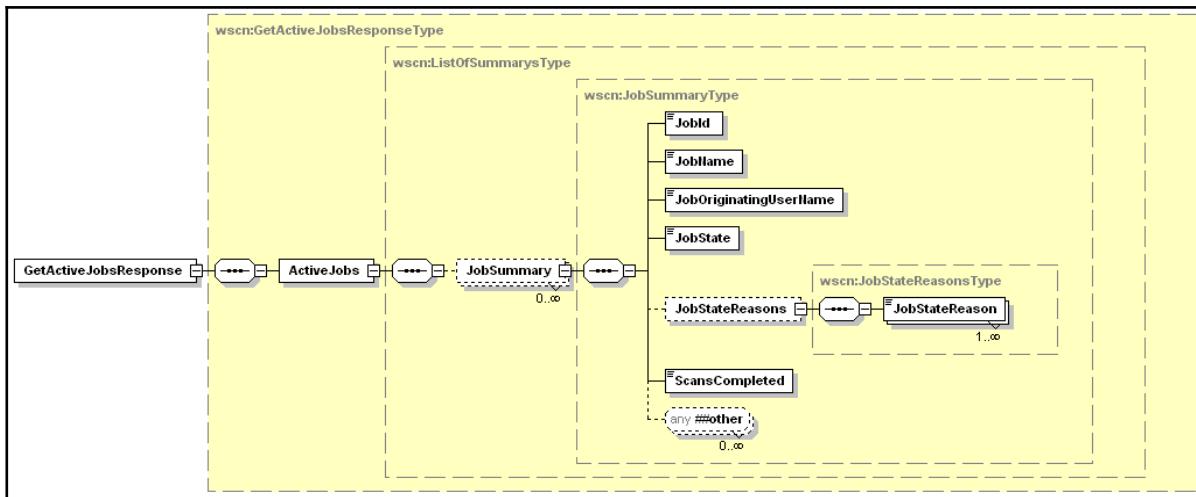
3253 This fault is sent when the scanner can not find a job matching the `JobId` argument (including when the argument is not in
 3254 the range: 1 to $2^{31}-1$).

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

3255 6.8. GetActiveJobs

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

3259 6.8.1. Response Elements



3260

Figure 36 - GetActiveJobsResponse Elements

3262 6.8.1.1. ActiveJobs

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

3264 6.8.1.1.1. JobSummary

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

3267 6.8.1.1.1.1. JobId

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

3269 6.8.1.1.1.2. JobName

3270 This data element is described in Section 4.5.2.1.1

3271 6.8.1.1.1.3. JobOriginatingUserName

3272 This data element is described in Section 4.5.2.1.2

3273 6.8.1.1.1.4. JobState

3274 This data element is described in Section 4.5.1.2

3275 **6.8.1.1.5. JobStateReasons**

3276 This data element is described in Section 4.5.1.3

3277 **6.8.1.1.5.1. JobStateReason**

3278 This data element is described in Section 4.5.1.3.1

3279 **6.8.1.1.6. ScansCompleted**

3280 This data element is described in Section 4.5.1.6

3281 **6.8.2. Example Request**

```

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

```

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

```

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

```

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

```

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

```

```

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

```

3360 6.8.5. Errors

3361 All the Codes described in section 6.1.1 - Common Operation Error Codes could be returned from this operation.

3362 6.9. GetJobHistory

3363 The **GetJobHistory** operation allows a client (CP) to retrieve a list containing a summary of some of the recently
 3364 previously completed jobs. The list of Jobs returned contains information such as *JobId*, *JobOriginatingUserName* and the
 3365 *JobName*. To retrieve more detailed information on a Job use the **GetJobElements** operation (section 6.7)

3366 How much Job history the device keeps is completely device specific. Each device can keep as much or as little history as it
 3367 deems useful/practical.

3368 6.9.1. Response Elements

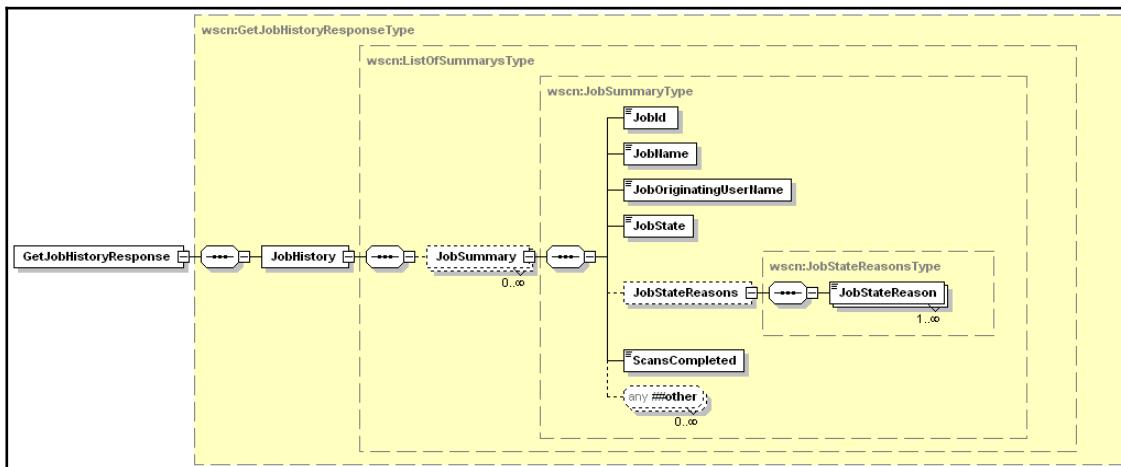


Figure 37 - GetJobHistoryResponse Elements

3371 6.9.1.1. JobHistory

3372 This data element is a collection of *JobSummary* elements that describes the most recently completed jobs in the scan
 3373 device.

3374 6.9.1.2. JobSummary

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

3377 6.9.2. Example Request

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

3394 6.9.3. Example Response – No Job History

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

3414 6.9.4. Example Response – 2 Completed Jobs

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

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

3455 6.9.5. Errors

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

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

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

3460 Appendix A. WSDL Service Description

3461 Scan Device WSDL

```

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

```

3484 Scanner Service WSDL

```

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

```

```

3529 <message name="CancelJobRequestMsg">
3530     <part name="body" element="wscn:CancelJobRequest"/>
3531 </message>
3532 <message name="CancelJobResponseMsg">
3533     <part name="body" element="wscn:CancelJobResponse"/>
3534 </message>
3535 <message name="ValidateScanTicketRequestMsg">
3536     <part name="body" element="wscn:ValidateScanTicketRequest"/>
3537 </message>
3538 <message name="ValidateScanTicketResponseMsg">
3539     <part name="body" element="wscn:ValidateScanTicketResponse"/>
3540 </message>
3541 <message name="GetScannerElementsRequestMsg">
3542     <part name="body" element="wscn:GetScannerElementsRequest"/>
3543 </message>
3544 <message name="GetScannerElementsResponseMsg">
3545     <part name="body" element="wscn:GetScannerElementsResponse"/>
3546 </message>
3547 <message name="GetJobElementsRequestMsg">
3548     <part name="body" element="wscn:GetJobElementsRequest"/>
3549 </message>
3550 <message name="GetJobElementsResponseMsg">
3551     <part name="body" element="wscn:GetJobElementsResponse"/>
3552 </message>
3553 <message name="GetActiveJobsRequestMsg">
3554     <part name="body" element="wscn:GetActiveJobsRequest"/>
3555 </message>
3556 <message name="GetActiveJobsResponseMsg">
3557     <part name="body" element="wscn:GetActiveJobsResponse"/>
3558 </message>
3559 <message name="GetJobHistoryRequestMsg">
3560     <part name="body" element="wscn:GetJobHistoryRequest"/>
3561 </message>
3562 <message name="GetJobHistoryResponseMsg">
3563     <part name="body" element="wscn:GetJobHistoryResponse"/>
3564 </message>

3565 <message name="ScanAvailableEventMsg">
3566     <part name="body" element="wscn:ScanAvailableEvent"/>
3567 </message>
3568 <message name="ScannerElementsChangeEventMsg">
3569     <part name="body" element="wscn:ScannerElementsChangeEvent"/>
3570 </message>
3571 <message name="ScannerStatusSummaryEventMsg">
3572     <part name="body" element="wscn:ScannerStatusSummaryEvent"/>
3573 </message>
3574 <message name="ScannerStatusConditionEventMsg">
3575     <part name="body" element="wscn:ScannerStatusConditionEvent"/>
3576 </message>
3577 <message name="ScannerStatusConditionClearedEventMsg">
3578     <part name="body" element="wscn:ScannerStatusConditionClearedEvent"/>
3579 </message>
3580 <message name="JobStatusEventMsg">
3581     <part name="body" element="wscn:JobStatusEvent"/>
3582 </message>
3583 <message name="JobEndStateEventMsg">
3584     <part name="body" element="wscn:JobEndStateEvent"/>
3585 </message>

3586 <portType name="ScannerServiceType" wse:EventSource="true">
3587     <operation name="CreateScanJob">
3588         <input message="wscn:CreateScanJobRequestMsg"
3589             wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/CreateScanJob" />
3590         <output message="wscn:CreateScanJobResponseMsg"
3591             wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3592 CreateScanJobResponse" />
3593         </operation>
3594         <operation name="RetrieveImage">
3595             <input message="wscn:RetrieveImageRequestMsg"
3596                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/RetrieveImage" />
3597             <output message="wscn:RetrieveImageResponseMsg"
3598                 wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3599 RetrieveImageResponse" />
3600 
```

```

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

```
3675 </operation>
3676     <operation name="JobEndStateEvent">
3677         <output message="wscn:JobEndStateEventMsg"
3678             wsa:Action="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
3679 JobEndStateEvent" />
3680     </operation>
3681 </portType>
3682 <binding name="ScannerServiceBinding" type="wscn:ScannerServiceType">
3683     <wsoap12:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
3684     <wsp:PolicyReference URI="#ServicePolicy" />
3685     <operation name="CreateScanJob">
3686         <wsoap12:operation
3687             soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/CreateScanJob"
3688             soapActionRequired="true" />
3689         <input>
3690             <wsoap12:body use="literal" />
3691         </input>
3692         <output>
3693             <wsoap12:body use="literal" />
3694         </output>
3695     </operation>
3696     <operation name="RetrieveImage">
3697         <wsoap12:operation
3698             soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/RetrieveImage"
3699             soapActionRequired="true" />
3700         <input>
3701             <wsoap12:body use="literal" />
3702         </input>
3703         <output>
3704             <wsoap12:body use="literal" />
3705         </output>
3706     </operation>
3707     <operation name="CancelJob">
3708         <wsoap12:operation
3709             soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/CancelJob"
3710             soapActionRequired="true" />
3711         <input>
3712             <wsoap12:body use="literal" />
3713         </input>
3714         <output>
3715             <wsoap12:body use="literal" />
3716         </output>
3717     </operation>
3718     <operation name="ValidateScanTicket">
3719         <wsoap12:operation
3720             soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/ValidateScanTicket"
3721             soapActionRequired="true" />
3722         <input>
3723             <wsoap12:body use="literal" />
3724         </input>
3725         <output>
3726             <wsoap12:body use="literal" />
3727         </output>
3728     </operation>
3729     <operation name="GetScannerElements">
3730         <wsoap12:operation
3731             soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetScannerElements"
3732             soapActionRequired="true" />
3733         <input>
3734             <wsoap12:body use="literal" />
3735         </input>
3736         <output>
3737             <wsoap12:body use="literal" />
3738         </output>
3739     </operation>
3740     <operation name="GetJobElements">
3741         <wsoap12:operation
3742             soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetJobElements"
3743             soapActionRequired="true" />
3744         <input>
3745             <wsoap12:body use="literal" />
3746         </input>
3747         <output>
```

```
3748         <wsoap12:body use="literal" />
3749     </output>
3750 </operation>
3751 <operation name="GetActiveJobs">
3752     <wsoap12:operation
3753         soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetActiveJobs"
3754         soapActionRequired="true" />
3755     <input>
3756         <wsoap12:body use="literal" />
3757     </input>
3758     <output>
3759         <wsoap12:body use="literal" />
3760     </output>
3761 </operation>
3762 <operation name="GetJobHistory">
3763     <wsoap12:operation
3764         soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/GetJobHistory"
3765         soapActionRequired="true" />
3766     <input>
3767         <wsoap12:body use="literal" />
3768     </input>
3769     <output>
3770         <wsoap12:body use="literal" />
3771     </output>
3772 </operation>
3773 <operation name="ScanAvailableEvent">
3774     <wsoap12:operation
3775         soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/ScanAvailableEvent"
3776         soapActionRequired="true" />
3777     <output>
3778         <wsoap12:body use="literal" />
3779     </output>
3780 </operation>
3781 <operation name="ScannerElementsChangeEvent">
3782     <wsoap12:operation
3783         soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
ScannerElementsChangeEvent"
3784         soapActionRequired="true" />
3785     <output>
3786         <wsoap12:body use="literal" />
3787     </output>
3788 </operation>
3789 <operation name="ScannerStatusSummaryEvent">
3790     <wsoap12:operation
3791         soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
ScannerStatusSummaryEvent"
3792         soapActionRequired="true" />
3793     <output>
3794         <wsoap12:body use="literal" />
3795     </output>
3796 </operation>
3797 <operation name="ScannerStatusConditionEvent">
3798     <wsoap12:operation
3799         soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
ScannerStatusConditionEvent"
3800         soapActionRequired="true" />
3801     <output>
3802         <wsoap12:body use="literal" />
3803     </output>
3804 </operation>
3805 <operation name="ScannerStatusConditionClearedEvent">
3806     <wsoap12:operation
3807         soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/
ScannerStatusConditionClearedEvent"
3808         soapActionRequired="true" />
3809     <output>
3810         <wsoap12:body use="literal" />
3811     </output>
3812 </operation>
3813 <operation name="JobStatusEvent">
3814     <wsoap12:operation
3815         soapAction="http://schemas.microsoft.com/windows/2006/08/wdp/scan/JobStatusEvent"
3816         soapActionRequired="true" />
```

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

3840 Appendix B. Windows Vista™ Support Requirements

3841 1. PnP-X installation support

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

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

3849 1.1. PnP-X Namespace

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

3852 1.2. PnP-X CompatibleId definition and value

3853 The current definition of the CompatibleId element is:

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

3867
 3868 The value of this field in a supported Metadata section is:
 3869 <http://schemas.microsoft.com/windows/2006/08/wdp/scan/ScannerServiceType>

3870 1.3. Sample Device Metadata response

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

3891 2. Network Explorer category support

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

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

3900 2.1. PnP-X Namespace

3901 The current required namespace for all PNP-X related elements is:

<http://schemas.microsoft.com/windows/pnpx/2005/10>

3903 2.2. PnP-X Category definition and value

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

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

3924 2.3. Sample Device Metadata response

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

3934 3. Scan Device discoverability

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

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

3941 3.1. Local subnet Discovery support

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

3945 3.1.1. WSD Scan Namespace

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

3948 3.1.2. WSD Scan Device porttype

3949 The Device Type is defined as: "ScanDeviceType".

3950 3.1.3. Device Hello example

```
3951 <?xml version="1.0" encoding="utf-8"?>
3952 <soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
3953   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
3954   xmlns:wsdisco="http://schemas.xmlsoap.org/ws/2005/04/discovery"
3955   xmlns:wsdp="http://schemas.xmlsoap.org/ws/2006/02/devprof"
3956   xmlns:wscn="http://schemas.microsoft.com/windows/2006/08/wdp/scan">
3957     <soap:Header>
3958       <wsa:MessageID>urn:uuid:ac8523ee-6813-498c-8c1b-6272a22353f7</wsa:MessageID>
3959       <wsa:Action>
3960         http://schemas.xmlsoap.org/ws/2005/04/discovery>Hello
3961       </wsa:Action>
3962       <wsa:To>urn:schemas-xmlsoap-org:ws:2005:04:discovery</wsa:To>
3963       <wsdisco:AppSequence InstanceId="3094203799" MessageNumber="1" />
3964     </soap:Header>
3965     <soap:Body>
3966       <wsdisco>Hello>
3967         <wsa:EndpointReference>
3968           <wsa:Address>uuid:D10000D1-ca45-5fee-a376-112233445555</wsa:Address>
3969         </wsa:EndpointReference>
3970         <wsdisco:Types>wsdp:Device wscn:ScanDeviceType</wsdisco:Types>
3971         <wsdisco:XAddrs>http://IPAddress:80/TestDevice</wsdisco:XAddrs>
3972         <wsdisco:MetadataVersion>1</wsdisco:MetadataVersion>
3973       </wsdisco>Hello>
3974     </soap:Body>
3975   </soap:Envelope>
```

3976 3.1.4. Device ProbeMatches example

```
3977 <?xml version="1.0" encoding="utf-8"?>
3978 <soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
3979   xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
3980   xmlns:wsdisco="http://schemas.xmlsoap.org/ws/2005/04/discovery"
3981   xmlns:wsdp="http://schemas.xmlsoap.org/ws/2006/02/devprof"
3982   xmlns:wscn="http://schemas.microsoft.com/windows/2006/08/wdp/scan">
3983     <soap:Header>
3984       <wsa:MessageID>urn:uuid:147823ee-83f7-498c-8c1b-6272a22353f7</wsa:MessageID>
3985       <wsa:RelatesTo>urn:uuid:0a6dc791-2be6-4991-9af1-454778a1917a</wsa:RelatesTo>
3986       <wsa:Action>
3987         http://schemas.xmlsoap.org/ws/2005/04/discovery/ProbeMatches
3988       </wsa:Action>
3989       <wsa:To>http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</wsa:To>
3990       <wsdisco:AppSequence InstanceId="3094203799" MessageNumber="2" />
3991     </soap:Header>
3992     <soap:Body>
3993       <wsdisco:ProbeMatches>
3994         <wsdisco:ProbeMatch>
3995           <wsa:EndpointReference>
3996             <wsa:Address>uuid:D10000D1-ca45-5fee-a376-112233445555</wsa:Address>
3997           </wsa:EndpointReference>
3998           <wsdisco:Types>wsdp:Device wscn:ScanDeviceType</wsdisco:Types>
3999           <wsdisco:XAddrs>http://IPAddress:80/TestDevice</wsdisco:XAddrs>
4000           <wsdisco:MetadataVersion>1</wsdisco:MetadataVersion>
4001         </wsdisco:ProbeMatch>
4002       </wsdisco:ProbeMatches>
```

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

4005 **3.2. Directed Discovery support**

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

4010 **3.2.1. Directed Discovery URL**

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

4012 **3.2.2. Secure Directed Discovery URL**

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

4014 **4. WSD Scan WIA Driver required capabilities**

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

4018 **4.1. InputSource values supported**

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

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

4021 **4.2. ColorEntry values required**

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

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

4027 **4.3. Document file formats required**

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

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

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

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

4037

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

4042

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

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

4047
4048 The file formats xps and pdf-a are used as multi-page image file formats with no specified internal compression for
4049 image data. WSD scanners are allowed to choose the compression mode appropriate with the scanned images. The WSD
4050 Scan WIA Driver will treat only WIA_COMPRESSION_NONE as supported for these formats, meaning the application
4051 cannot change the default compression mode selected by the scanner.

4052 **4.4. Duplex scanning support**

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

4055