

**Manufacturer Disclosure Statement for Medical Device Security – MDS<sup>2</sup>**

**DEVICE DESCRIPTION**

Device Category 16512	Manufacturer Carestream Health Inc.	Document ID 6K9385	Document Release Date 26-Jun-17
Device Model DRX-Revolution, DRX-Evolution, DRX-Systems(DRX-1, Mobile, Transportable, Ascend)	Software Revision 5.7 and later		Software Release Date Oct-15
Manufacturer or Representative Contact Information	Company Name Carestream Health Inc. Representative Name/Position Technical Support	Manufacturer Contact Information Telephone #: 1-800-328-2910 e-mail: health.imaging.tsc@carestreamhealth.com	

**Intended use of device** in network-connected environment:

**MANAGEMENT OF PRIVATE DATA**

		Yes, No, N/A, or See Note	Note #
Refer to Section 2.3.2 of this standard for the proper interpretation of information requested in this form.			
A	Can this <b>device</b> display, transmit, or maintain <b>private data</b> (including <b>electronic Protected Health Information [ePHI]</b> )?	Yes	—
B	Types of <b>private data</b> elements that can be maintained by the <b>device</b> :		
B.1	Demographic (e.g., name, address, location, unique identification number)?	Yes	—
B.2	Medical record (e.g., medical record #, account #, test or treatment date, <b>device</b> identification number)?	Yes	—
B.3	Diagnostic/therapeutic (e.g., photo/radiograph, test results, or physiologic data with identifying characteristics)?	Yes	—
B.4	Open, unstructured text entered by <b>device user/operator</b> ?	Yes	—
B.5	<b>Biometric data</b> ?	No	—
B.6	Personal financial information?	No	—
C	Maintaining <b>private data</b> - Can the <b>device</b> :		
C.1	Maintain <b>private data</b> temporarily in volatile memory (i.e., until cleared by power-off or reset)?	No	—
C.2	Store <b>private data</b> persistently on local media?	Yes	—
C.3	Import/export <b>private data</b> with other systems?	Yes	—
C.4	Maintain <b>private data</b> during power service interruptions?	Yes	—
D	Mechanisms used for the transmitting, importing/exporting of <b>private data</b> – Can the <b>device</b> :		
D.1	Display private data (e.g., video display, etc.)?	Yes	—
D.2	Generate hardcopy reports or images containing <b>private data</b> ?	Yes	9
D.3	Retrieve <b>private data</b> from or record <b>private data</b> to <b>removable media</b> (e.g., disk, DVD, CD-ROM, tape, CF/SD card, memory stick, etc.)?	Yes	—
D.4	Transmit/receive or import/export <b>private data</b> via dedicated cable connection (e.g., IEEE 1073, serial port, USB, FireWire, etc.)?	Yes	—
D.5	Transmit/receive <b>private data</b> via a wired network connection (e.g., LAN, WAN, VPN, intranet, Internet, etc.)?	Yes	—
D.6	Transmit/receive <b>private data</b> via an integrated wireless network connection (e.g., WiFi, Bluetooth, infrared, etc.)?	Yes	1
D.7	Import <b>private data</b> via scanning?	Yes	—
D.8	Other?	N/A	—

Management of Private Data notes:

1. The DRX-Revolution, DRX-Mobile Retrofit, and DRX-Transportable products can be configured to transmit ePHI data over a wireless connection. The system can be configured with a Bluetooth 2D Barcode Scanner to allow reading of patients wristband.

9. The system can print film with private data in text box.

Device Category 16512	Manufacturer Carestream Health Inc.	Document ID 6K9385	Document Release Date 42912
Device Model DRX-Revolution, DRX-	Software Revision 5.7 and later	Software Release Date 42278	

**SECURITY CAPABILITIES**

Refer to Section 2.3.2 of this standard for the proper interpretation of information requested in this form.		Yes, No, N/A, or See Note	Note #
<b>1</b>	<b>AUTOMATIC LOGOFF (ALOF)</b> The <b>device's</b> ability to prevent access and misuse by unauthorized <b>users</b> if <b>device</b> is left idle for a period of time.		
1-1	Can the <b>device</b> be configured to force reauthorization of logged-in <b>user(s)</b> after a predetermined length of inactivity (e.g., auto-logoff, session lock, password protected screen saver)?	Yes	—
1-1.1	Is the length of inactivity time before auto-logoff/screen lock <b>user</b> or administrator configurable? (Indicate time [fixed or configurable range] in notes.)	Yes	—
1-1.2	Can auto-logoff/screen lock be manually invoked (e.g., via a shortcut key or proximity sensor, etc.) by the <b>user</b> ?	Yes	2
ALOF notes:	2. The auto logout feature is provided but can be disabled by the local security administrator.		
<b>2</b>	<b>AUDIT CONTROLS (AUDT)</b> The ability to reliably audit activity on the <b>device</b> .		
2-1	Can the <b>medical device</b> create an <b>audit trail</b> ?	Yes	—
2-2	Indicate which of the following events are recorded in the audit log:		
2-2.1	Login/logout	Yes	—
2-2.2	Display/presentation of data	Yes	—
2-2.3	Creation/modification/deletion of data	Yes	—
2-2.4	Import/export of data from <b>removable media</b>	Yes	—
2-2.5	Receipt/transmission of data from/to external (e.g., network) connection	Yes	—
2-2.5.1	<b>Remote service</b> activity	Yes	—
2-2.6	Other events? (describe in the notes section)	No	—
2-3	Indicate what information is used to identify individual events recorded in the audit log:		
2-3.1	<b>User ID</b>	Yes	—
2-3.2	Date/time	Yes	—
AUDT notes:			
<b>3</b>	<b>AUTHORIZATION (AUTH)</b> The ability of the device to determine the authorization of users.		
3-1	Can the <b>device</b> prevent access to unauthorized <b>users</b> through <b>user</b> login requirements or other mechanism?	Yes	—
3-2	Can <b>users</b> be assigned different privilege levels within an application based on 'roles' (e.g., guests, regular <b>users</b> , power <b>users</b> , administrators, etc.)?	Yes	—
3-3	Can the <b>device</b> owner/ <b>operator</b> obtain unrestricted administrative privileges (e.g., access operating system or application via local root or admin account)?	No	3
AUTH notes:	3. The device owner/operator does not have access to the system desktop, limiting access to the Windows Operating System. Valid Digital Certificate is required for service access (e.g. system modification, loading additional software, use of CD/DVD or USB drives etc.)		

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<b>4</b>	<b>CONFIGURATION OF SECURITY FEATURES (CNFS)</b>			
	The ability to configure/re-configure <b>device security capabilities</b> to meet <b>users'</b> needs.			
4-1	Can the <b>device</b> owner/operator reconfigure product <b>security capabilities</b> ?		No	
CNFS notes:				
<b>5</b>	<b>CYBER SECURITY PRODUCT UPGRADES (CSUP)</b>			
	The ability of on-site service staff, remote service staff, or authorized customer staff to install/upgrade <b>device's</b> security patches.			
5-1	Can relevant OS and <b>device</b> security patches be applied to the <b>device</b> as they become available?		Yes	—
5-1.1	Can security patches or other software be installed remotely?		Yes	—
CSUP notes:				
<b>6</b>	<b>HEALTH DATA DE-IDENTIFICATION (DIDT)</b>			
	The ability of the <b>device</b> to directly remove information that allows identification of a person.			
6-1	Does the <b>device</b> provide an integral capability to de-identify <b>private data</b> ?		Yes	—
DIDT notes:				
<b>7</b>	<b>DATA BACKUP AND DISASTER RECOVERY (DTBK)</b>			
	The ability to recover after damage or destruction of <b>device</b> data, hardware, or software.			
7-1	Does the <b>device</b> have an integral data backup capability (i.e., backup to remote storage or <b>removable media</b> such as tape, disk)?		Yes	4
DTBK notes:	4. The systems have the capability to complete a backup of configuration data via removable media. The systems do not provide a mechanism to backup exam and image, the systems are intended to be capture and forward devices.			
<b>8</b>	<b>EMERGENCY ACCESS (EMRG)</b>			
	The ability of <b>device users</b> to access <b>private data</b> in case of an emergency situation that requires immediate access to stored <b>private data</b> .			
8-1	Does the <b>device</b> incorporate an <b>emergency access</b> ("break-glass") feature?		Yes	5
EMRG notes:	5. The customer has the option of creating an emergency access user account. This is accomplished by creating a user account and safeguarding the password such that it can be used for emergency situations.			
<b>9</b>	<b>HEALTH DATA INTEGRITY AND AUTHENTICITY (IGAU)</b>			
	How the <b>device</b> ensures that data processed by the <b>device</b> has not been altered or destroyed in an unauthorized manner and is from the originator.			
9-1	Does the <b>device</b> ensure the integrity of stored data with implicit or explicit error detection/correction technology?		Yes	—
IGAU notes:				

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<b>10 MALWARE DETECTION/PROTECTION (MLDP)</b>					
The ability of the <b>device</b> to effectively prevent, detect and remove malicious software ( <b>malware</b> ).					
10-1	Does the <b>device</b> support the use of <b>anti-malware</b> software (or other <b>anti-malware</b> mechanism)?			Yes	—
10-1.1	Can the <b>user</b> independently re-configure <b>anti-malware</b> settings?			No	—
10-1.2	Does notification of <b>malware</b> detection occur in the <b>device user</b> interface?			No	—
10-1.3	Can only manufacturer-authorized persons repair systems when <b>malware</b> has been detected?			Yes	—
10-2	Can the device owner install or update <b>anti-virus software</b> ?			No	—
10-3	Can the device owner/ <b>operator</b> (technically/physically) update virus definitions on manufacturer-installed <b>anti-virus software</b> ?			No	6
MLDP notes:	6. Carestream Health DR products are designed to include Intrusion Detection and Prevention System software (Symantic Critical System Protection) superior to anti-virus in terms of network protection. Customers should not load anti-virus software on these systems as they are already protected and the anti-virus software may interfere with performance.				
<b>11 NODE AUTHENTICATION (NAUT)</b>					
The ability of the <b>device</b> to authenticate communication partners/nodes.					
11-1	Does the <b>device</b> provide/support any means of node authentication that assures both the sender and the recipient of data are known to each other and are authorized to receive transferred information?			Yes	—
NAUT notes:					
<b>12 PERSON AUTHENTICATION (PAUT)</b>					
Ability of the <b>device</b> to authenticate <b>users</b>					
12-1	Does the <b>device</b> support <b>user/operator</b> -specific username(s) and password(s) for at least one <b>user</b> ?			Yes	—
12-1.1	Does the device support unique <b>user/operator</b> -specific IDs and passwords for multiple users?			Yes	—
12-2	Can the <b>device</b> be configured to authenticate <b>users</b> through an external authentication service (e.g., MS Active Directory, NDS, LDAP, etc.)?			No	—
12-3	Can the <b>device</b> be configured to lock out a <b>user</b> after a certain number of unsuccessful logon attempts?			No	—
12-4	Can default passwords be changed at/prior to installation?			No	—
12-5	Are any shared <b>user</b> IDs used in this system?			Yes	—
12-6	Can the <b>device</b> be configured to enforce creation of <b>user</b> account passwords that meet established complexity rules?			See Note	7
12-7	Can the <b>device</b> be configured so that account passwords expire periodically?			Yes	—
PAUT notes:	7. The device can be configured to enforce a minimum password length up to 64 characters, a minimum number of letters, forced mixed case letters, and a minimum number of digits.				
<b>13 PHYSICAL LOCKS (PLOK)</b>					
Physical locks can prevent unauthorized <b>users</b> with physical access to the <b>device</b> from compromising the integrity and confidentiality of <b>private data</b> stored on the <b>device</b> or on <b>removable media</b> .					
13-1	Are all <b>device</b> components maintaining <b>private data</b> (other than <b>removable media</b> ) physically secure (i.e., cannot remove without tools)?			Yes	—
PLOK notes:					

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<b>14 ROADMAP FOR THIRD PARTY COMPONENTS IN DEVICE LIFE CYCLE (RDMP)</b>					
Manufacturer's plans for security support of 3rd party components within <b>device</b> life cycle.					
14-1	In the notes section, list the provided or required (separately purchased and/or delivered) operating system(s) - including version number(s).			See Note	8
14-2	Is a list of other third party applications provided by the manufacturer available?			Yes	—
8. Windows Embedded Standard 7 64 bit					
RDMP notes:					
<b>15 SYSTEM AND APPLICATION HARDENING (SAHD)</b>					
The <b>device's</b> resistance to cyber attacks and <b>malware</b> .					
15-1	Does the <b>device</b> employ any hardening measures? Please indicate in the notes the level of conformance to any industry-recognized hardening standards.			No	—
15-2	Does the <b>device</b> employ any mechanism (e.g., release-specific hash key, checksums, etc.) to ensure the installed program/update is the manufacturer-authorized program or software update?			Yes	—
15-3	Does the <b>device</b> have external communication capability (e.g., network, modem, etc.)?			Yes	—
15-4	Does the file system allow the implementation of file-level access controls (e.g., New Technology File System (NTFS) for MS Windows platforms)?			No	—
15-5	Are all accounts which are not required for the <b>intended use</b> of the <b>device</b> disabled or deleted, for both <b>users</b> and applications?			Yes	—
15-6	Are all shared resources (e.g., file shares) which are not required for the <b>intended use</b> of the <b>device</b> , disabled?			Yes	—
15-7	Are all communication ports which are not required for the <b>intended use</b> of the <b>device</b> closed/disabled?			Yes	—
15-8	Are all services (e.g., telnet, file transfer protocol [FTP], internet information server [IIS], etc.), which are not required for the <b>intended use</b> of the <b>device</b> deleted/disabled?			Yes	—
15-9	Are all applications (COTS applications as well as OS-included applications, e.g., MS Internet Explorer, etc.) which are not required for the <b>intended use</b> of the <b>device</b> deleted/disabled?			Yes	—
15-10	Can the <b>device</b> boot from uncontrolled or <b>removable media</b> (i.e., a source other than an internal drive or memory component)?			Yes	9
15-11	Can software or hardware not authorized by the <b>device</b> manufacturer be installed on the device without the use of tools?			No	—
9. The systems have boot capability via the CD/DVD drive					
SAHD notes:					
<b>16 SECURITY GUIDANCE (SGUD)</b>					
The availability of security guidance for <b>operator</b> and administrator of the system and manufacturer sales and service.					
16-1	Are security-related features documented for the <b>device user</b> ?			Yes	—
16-2	Are instructions available for <b>device</b> /media sanitization (i.e., instructions for how to achieve the permanent deletion of personal or other sensitive data)?			Yes	—
SGUD notes:					

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<b>17 HEALTH DATA STORAGE CONFIDENTIALITY (STCF)</b>				
The ability of the <b>device</b> to ensure unauthorized access does not compromise the integrity and confidentiality of <b>private data</b> stored on <b>device</b> or <b>removable media</b> .				
17-1	Can the <b>device</b> encrypt data at rest?		No	—
STCF notes:				
<b>18 TRANSMISSION CONFIDENTIALITY (TXCF)</b>				
The ability of the <b>device</b> to ensure the confidentiality of transmitted <b>private data</b> .				
18-1	Can <b>private data</b> be transmitted only via a point-to-point dedicated cable?		Yes	—
18-2	Is <b>private data</b> encrypted prior to transmission via a network or <b>removable media</b> ? (If yes, indicate in the notes which encryption standard is implemented.)		No	—
18-3	Is <b>private data</b> transmission restricted to a fixed list of network destinations?		Yes	10
10. The system limits transfer of ePHI through defined DICOM associations, which requires defined IP addresses and AE titles.				
TXCF notes:				
<b>19 TRANSMISSION INTEGRITY (TXIG)</b>				
The ability of the <b>device</b> to ensure the integrity of transmitted <b>private data</b> .				
19-1	Does the <b>device</b> support any mechanism intended to ensure data is not modified during transmission? (If yes, describe in the notes section how this is achieved.)		No	—
TXIG notes:				
<b>20 OTHER SECURITY CONSIDERATIONS (OTHR)</b>				
Additional security considerations/notes regarding <b>medical device</b> security.				
20-1	Can the <b>device</b> be serviced remotely?		Yes	—
20-2	Can the <b>device</b> restrict remote access to/from specified devices or <b>users</b> or network locations (e.g., specific IP addresses)?		Yes	—
20-2.1	Can the <b>device</b> be configured to require the local <b>user</b> to accept or initiate remote access?		Yes	11
11. Once properly configured, the local user can enable or disable the ability for remote service to connect to the device.				
OTHR notes:				