



Supported System Requirements for BEACON Online Testing

Effective October–February 2019

This document describes the current system requirements for the DRC INSIGHT Online Learning System, including student-testing devices and Central Office Services (COS) service devices. These requirements cover the following items:

- Hardware devices
- Accessories and peripherals
- Operating systems and levels
- Processor, disk space, and memory
- Screen size and resolution
- Certain testing accommodations

DRC aggressively seeks out, validates, and adopts new technology to offer the best testing solutions to our customers while keeping pace with constantly changing and evolving technology standards. In general, DRC software applications offer Best Effort Support of new versions of a supported operating system within one month of public availability of the new version and Full Support within three months of public availability of the new version, or by the next release date of the DRC application, whichever duration is greater.

Current Update: October 8, 2018

Next Update: February 2019

This document is updated three times each calendar year.

DRC INSIGHT Supported System Requirements

Table of Contents

UPDATE: Support Starting and Ending.....	1
Minimum vs. Recommended.....	1
UPDATE: What’s New or Coming Soon.....	2
DRC Device Support Policy.....	3
DRC INSIGHT Testing Device Requirements	4
Important Notes.....	5
Additional DRC INSIGHT Device Specifications.....	6
DRC Testing Site Manager (TSM) Device Requirements.....	7
DRC Central Office Services (COS) Service Device Requirements	7
DRC Software Support Policy.....	9
DRC INSIGHT Software: Supported Operating System Levels and Support Timeline	10
iOS Release Strategy Note	12
DRC COS Service Device Software/Network Requirements.....	12
Trademarks	13

UPDATE: Support Starting and Ending

The following is a quick overview of upcoming changes to the hardware and software supported for DRC INSIGHT and COS. For details, see the appropriate section.

Device Support Beginning

DRC does not list specific supported devices for Windows and Chrome OS. DRC will support devices (including touch-screen devices) that meet the minimum system requirements.

Device Support Ending

NA

Device Support Ended

iPad 4th Generation (July 2018)*

**The device is not capable of running iOS 11.x or newer releases. Apple ended support for iOS 10.x in September of 2017. DRC Support for iOS 10.x ended in July of 2018, resulting in the end of support for this device.*

Minimum vs. Recommended

Throughout this document, the Minimum level of requirements represents a low compliance threshold. DRC advises using the Recommended level or above. The Recommended level is required for testing with accommodations such as Human Voice Audio (HVA), Text To Speech (TTS), and Video Sign Language (VSL).

Software Support Beginning

Mac OS X 10.14 (anticipated October 2018)

iOS 12.x (anticipated October 2018)

Windows 10 in S mode (pending final testing)

Software Support Ending

Mac OS X 10.11 (July 2019)

Ubuntu 14.04 (July 2019)

Software Support Ended

Mac OS X 10.10 (July 2018)

iOS 10.3.x (July 2018)

UPDATE: What's New or Coming Soon

The following is a snapshot of significant DRC software and hardware updates and enhancements, available now or planned for the near future.

Central Office Services (COS)

The Central Office Services (COS) software is available and highly recommended for the 2018–2019 testing year. COS is a powerful, integrated software tool that allows users to easily install, configure, and manage their online testing environment from a central location. The COS software includes the following items:

- The COS - Device Toolkit interface offers a visual dashboard of the COS configurations. The dashboard displays status information about the devices associated with each configuration and provides links for more information about these devices. Users access the COS - Device Toolkit interface through the web-based eDIRECT portal.
- The COS service device software replaces the TSM software for content caching. The service device software is installed locally on dedicated service devices at one or more testing sites.

For more information regarding COS and/or the COS – Device Toolkit interface, refer to the *DRC INSIGHT Technology User Guide*.

DRC Device Support Policy

Typically, when a hardware vendor, such as Dell or Lenovo, discontinues a hardware device, the software vendor that provides the operating system support for that device continues supporting the device for a period of time. Therefore, for any device that DRC adds to its fully supported device list, DRC will continue to support the device until the software vendor officially discontinues support for the device.

Device Categories

DRC's approach is to test and certify our software on the devices most commonly used in the classroom. As a result of its testing, DRC groups devices into the three categories described in the table below.

Device Category	Description
Fully Supported	DRC has evaluated and tested the device. It is suitable for testing with DRC INSIGHT and COS service devices.*
Not Suitable For Online Testing	DRC has evaluated and tested the device. For various reasons, it is unacceptable for testing with DRC INSIGHT and/or COS service devices.
Other	Any device that does not fit into the other categories falls into this category. DRC has neither evaluated nor tested the device—it may or may not be suitable for testing with DRC INSIGHT and/or COS service devices. Device manufacturers use different methods to implement touch-enabled screens for their devices, with the technology evolving over time. DRC typically tests DRC INSIGHT with touch devices made by the most common manufacturers for educational settings. Generally speaking, DRC INSIGHT will operate effectively on similar touch-screen models and DRC will provide best effort support for these models.

*Certain devices, such as iPad devices or Chrome devices, can be used for DRC INSIGHT, but not for COS service devices.

DRC INSIGHT Testing Device Requirements

The table below indicates the current DRC INSIGHT testing device requirements, as well as the testing devices that DRC fully supports and the devices that are known to be unsuitable for online testing.

Fully Supported Devices	Processor	Available Memory	Unused Disk Space	Screen Size	Resolution
<p><u>Windows</u> Both touch-screen and non-touch-screen devices that meet the requirements in this table</p>	<p><u>Minimum</u> Intel 4th Generation Core i3 4005U (or AMD equivalent)</p>	<p><u>Minimum</u> 2 GB RAM</p>	<p><u>Minimum</u> 10 GB</p>	<p><u>Minimum</u> 9.5"</p>	<p><u>Minimum</u> 1024 x 768</p>
<p><u>Mac (OS X and macOS) and Linux</u> Non-touch-screen devices only</p>	<p>Intel 5th Generation Celeron N3050 (or AMD equivalent)</p> <p><u>Recommended</u> Intel 6th generation product family or greater (or AMD equivalent)</p>	<p><u>Recommended</u> 4 GB RAM</p>	<p><u>Recommended</u> 20 GB or more</p>		
<p><u>Chrome OS</u> Both touch-screen and non-touch-screen devices that meet the requirements in this table</p>	<p><u>Minimum</u> Intel 4th Generation Celeron 2955U (or AMD equivalent)</p> <p><u>Recommended</u> Intel 6th generation product family or greater (or AMD equivalent)</p>	<p><u>Minimum</u> 2 GB RAM or more</p> <p><u>Recommended</u> 4 GB RAM or more</p>	<p>NA—See the Important Notes that follow the table</p>		
<p><u>Apple iOS</u> iPad 2017 iPad 2018 iPad Air devices iPad Pro Devices: 9.7", 10.5", and 12.9"</p> <p>Note: iPad mini devices <u>are not</u> supported.</p>	<p>NA</p>	<p>NA—See the Important Notes that follow the table</p>	<p>NA—See the Important Notes that follow the table</p>	<p><u>Minimum</u> 9.7" or greater</p>	

Important Notes

Tablet/Netbook/Chromebook Devices

Because tablet/Netbook/Chromebook devices are not easily configurable for memory and storage (disk space) upgrades, DRC recommends that these devices be streamlined for the DRC INSIGHT App when used for testing.

To achieve this goal, all applications and features that are unnecessary for testing should be removed, turned off, or disabled to ensure that the maximum amount of device memory is available for testing. This includes services such as Bluetooth (unless a Bluetooth keyboard or mouse is needed), GPS, and power saving modes that reduce performance to maximize battery life. DRC also recommends rebooting these devices before testing. These activities help free available memory. Devices that lack sufficient memory during testing may experience issues.

IPA Software

Intelligent personal assistant (IPA) software, such as Siri for iOS and macOS, or Cortana for Windows 10, should be disabled during testing for the appropriate devices. In some cases, this functionality can be disabled automatically using administrator controls such as Mobile Device Management (MDM) software. If IPA software is not disabled, the testing site is responsible for ensuring the security and integrity of the test by actively monitoring that students are not using this capability during the test.

Chrome OS Support and Chrome Devices

DRC offers the following levels of support for Chrome OS for the 2018–2019 testing season:

- Full Support for the current stable channel level
- Best Effort Support for stable channel levels between level 66 and the current stable channel level
- End of Support (no support) for stable channel levels below 66

Based on these support levels, DRC recommends replacing any Chrome devices that have reached, or will reach, End of Life (EOL) within the 2018-2019 school year. For reference, use the following link to help determine the EOL of a specific Chrome device:

<https://support.google.com/chrome/a/answer/6220366>

Automatic Operating System Updates and Other Background Processes

Operating system vendors such as Google, Microsoft, and Apple are moving to a model where operating system updates occur automatically in the background. Update processes running in the background on testing devices consume CPU and memory, and can affect the testing experience—audio playback may be choppy and Speaking test responses may be distorted. To avoid this situation, verify that no background processes are running on testing devices during testing. Also, if a testing device is set to accept operating system updates automatically, verify that it has the most current DRC-supported version of the operating system *before* the test session starts.

Additional DRC INSIGHT Device Specifications

Supported Accessories	
<ul style="list-style-type: none"> ○ Mouse ○ English language keyboard (internal and external, wired and wireless) ○ Touchpad ○ Headphones ○ Microphone 	<ul style="list-style-type: none"> ○ Earphones ○ Earbuds ○ Stylus for touch devices ○ Other input devices as supported for accommodations (determined in conjunction with each state department of education)
<p>The input device must allow students to select and deselect; drag items; highlight text, objects, and areas; enter letters, numbers, and symbols; use the Shift, Tab, Return, Delete, and Backspace keys.</p>	
Other	
<p>Smart Board interfaces are not supported</p>	
Internet Connectivity	
<p>Devices must be able to connect to the Internet using wired or wireless networks</p>	
Wi-Fi Recommendations	
<p>The maximum number of devices a Wireless Access Point (WAP) can support varies depending on the manufacturer and model of the WAP device being used for testing. DRC recommends never exceeding 80% of the maximum capacity of the WAP specified by the manufacturer. For example, for a WAP device with a maximum capacity of 20 concurrently connected devices, DRC recommends that no more than 16 devices be connected concurrently. If the number of concurrently connected devices is expected to exceed this threshold, additional WAPs should be implemented. Note that all other networking hardware must be able to accommodate the maximum number of devices that could potentially be connected to the wireless network concurrently.</p> <p>If you plan to test using a wireless network, complete a wireless site survey to ensure that there is sufficient wireless coverage in testing areas. This survey should address coverage, and verify that students can take the test in the same area of the building at one time (device density). The survey should account for Internet bandwidth and other traffic in the building at the time of testing, including LAN (wireless and wired) traffic and WAN traffic.</p>	
Power Supply	
<p><u>Minimum</u> For battery devices, a fully charged battery with a two-hour life</p>	<p><u>Recommended</u> Device connected to a plugged-in power supply</p>
Accommodations	
<p>A COS service device is required for HVA, TTS, and VSL, which have increased memory and disk space requirements (see DRC Central Office Services (COS) Service Device Requirements)</p>	

DRC Testing Site Manager (TSM) Device Requirements

For 2018–2019, the majority of sites will test using COS service devices. During this time, sites that still have a need to test using a TSM should refer to the *Supported System Requirements for the Testing Site Manager (TSM)*.

DRC Central Office Services (COS) Service Device Requirements

The table on the following page describes the processor, available memory (RAM), available LAN bandwidth, and available disk space requirements for a COS service device (available in 64-bit only) based on the number of testers testing concurrently. The Recommended level is required for testing with accommodations such as HVA, TTS, and VSL because of the size of video and audio files.

The 64-bit COS service device software works with non-touch Windows desktop and laptop devices, non-touch Mac (OS X and macOS) desktop and laptop devices, and Linux desktop and laptop devices. The COS service device software is not available for 32-bit operating systems.

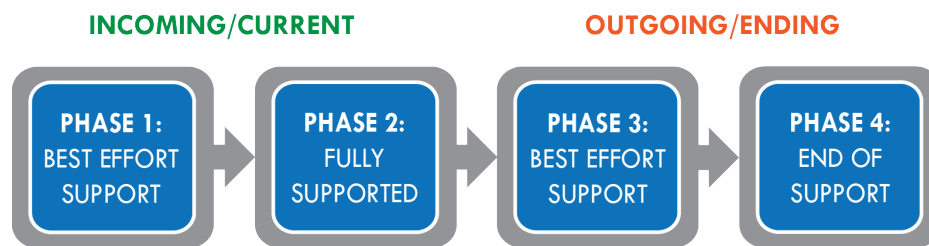
DRC Central Office Services (COS) Service Device Requirements (cont.)

COS Service Device (64-bit)					
Supported OS/Devices	Number of Concurrent Testers	Processor	Available Memory	Minimum Available LAN Bandwidth	Available Disk Space
64-bit Windows	Up to 450	<u>Minimum</u> Dual-core i3 at 2.4 GHz or equivalent <u>Recommended</u> Dual-core i5 at 2.4 GHz or equivalent	<u>Minimum</u> 2 GB RAM <u>Recommended and Audio Accommodations</u> 4 GB RAM	200 Mb	<u>Minimum</u> 10 GB <u>Recommended and Audio Accommodations</u> 20 GB or more
	Up to 900	<u>Minimum</u> 2x dual-core i5 at 2.4 GHz or equivalent <u>Recommended</u> 2x dual-core i5 at 2.4 GHz or equivalent		400 Mb	
	Over 900	4x dual-core i5 at 2.4 GHz or equivalent	8 GB RAM	800 Mb	
64-bit macOS (10.11, 10.12, and 10.13)	Up to 400	<u>Minimum</u> Dual-core i3 at 2.4 GHz or equivalent <u>Recommended</u> Dual-core i5 at 2.4 GHz or equivalent	<u>Minimum</u> 2 GB RAM <u>Recommended and Audio Accommodations</u> 4 GB RAM	200 Mb	<u>Minimum</u> 10 GB <u>Recommended and Audio Accommodations</u> 20 GB or more
	Up to 900	<u>Minimum</u> 2x dual-core i5 at 2.4 GHz or equivalent <u>Recommended</u> 2x dual-core i5 at 2.4 GHz or equivalent		400 Mb	
64-bit Linux 14.04, 16.04, and 18.04	Up to 450	<u>Minimum</u> Dual-core i3 at 2.4 GHz or equivalent <u>Recommended</u> Dual-core i5 at 2.4 GHz or equivalent	<u>Recommended</u> 7.5 GB RAM for 14.04 3.6 GB RAM for 16.04	400 Mb	<u>Minimum</u> 10 GB <u>Recommended and Audio Accommodations</u> 20 GB or more
	Up to 600	<u>Minimum</u> 2x dual-core i5 at 2.4 GHz or equivalent <u>Recommended</u> 2x dual-core i5 at 2.4 GHz or equivalent		400 Mb	

DRC Software Support Policy

When a software vendor, such as Microsoft or Apple, ends support for an operating system (or level), they discontinue free security updates for that software. This can present large and immediate security and support risks to the software's users. As a result, DRC strongly recommends that all clients affected by the end of support process begin the transition as soon as possible to allow sufficient time for the process.

Support Timeline



To accomplish the dual goals of minimizing security risks to DRC clients while making necessary software changes, DRC has established a multi-phase support timeline for the transition from an unsupported operating system or level to a supported operating system or level.

Note: DRC assumes no responsibility or liability for software transition processes at testing sites.

Phases 1 and 3: Best Effort Support

The DRC Support team will help troubleshoot issues reported concerning the operating system or level and DRC software applications as best we can, but DRC cannot guarantee a resolution.

If a problem is uncovered, DRC Support will report the issue to DRC Development. Again, we cannot guarantee a fix, software update, or resolution timeline for software fixes or updates. If DRC determines that an issue is related to a client's network, hardware, or third-party software, the client must obtain support directly from the software vendor or the hardware manufacturer.

Best Effort Support occurs at both ends of the software lifecycle.

- *Phase 1: After DRC software testing begins and before the software is fully supported by DRC. DRC offers Best Effort Support for any new version of a supported operating system (OS) product within 30 days of public availability of the OS product version, or by the next planned common or client-specific release date of the DRC application, whichever duration is greater.*
- *Phase 3: After the software is no longer supported by the vendor and before the end of DRC support. Once the OS product version has reached the end of vendor support, DRC offers Best Effort Support until the next planned common or client-specific release date of the DRC application, at which point it is restricted from use unless DRC chooses to extend support.*

Phase 2: Fully Supported

When an OS product is on the DRC supported product list, DRC performs application testing for all major versions of the product publicly supported by the product vendor and for all minor versions of the product when DRC deems testing is necessary. Any new version of a supported OS product will be Fully Supported by all DRC applications within 90 days of public availability of the version of the OS product, or by the next planned common or client-specific release date of the DRC application, whichever duration is greater.

Phase 4: End of Support

The next release of DRC software applications will not work with the unsupported operating system or level. It is restricted from use.

The table that follows indicates the current supported operating system levels for DRC INSIGHT. It also provides a timeline for changes in terms of the various support phases.

DRC INSIGHT Software: Supported Operating System Levels and Support Timeline

Operating System	Level	Incoming/Current		Outgoing/Ending	
		Phase 1: Best Effort Support	Phase 2: Fully Supported (1)	Phase 3: Best Effort Support	Phase 4: End of Support (2)
Windows	Windows 7, SP1		X (3)		
	Windows 8.1		X		
	Windows 10 Semi-Annual Channel servicing options (4)		X (5)		
	Windows 10 in S mode (6)		X		
	Windows Server 2008, R2 SP1		X		
	Windows Server 2012		X		
	Windows Server 2012, R2		X		
	Windows Server 2016		X		

(1) DRC recommends using operating system levels that are Fully Supported.

(2) When End of Support occurs during a typical testing cycle, DRC will continue to provide Best Effort Support until the testing cycle ends. DRC recommends that sites upgrade to a fully supported level before the testing cycle begins.

(3) **X** indicates the current level of support.

(4) DRC currently supports the Home, Pro, Enterprise, and Education editions of Windows 10.

(5) DRC fully supports the most recent version of Windows 10 available for the Semi-Annual Channel servicing options within 90 days of public availability of the new version. DRC will offer Best Effort support for previous versions of Windows 10 available for the Semi-Annual Channel servicing options that Microsoft maintains support for with servicing updates. For details, see the [Microsoft Windows 10 version support website](https://support.microsoft.com/en-us/help/13853/windows-lifecycle-fact-sheet) and <https://support.microsoft.com/en-us/help/13853/windows-lifecycle-fact-sheet>.

(6) DRC anticipates a fully supported Windows App for Windows 10 in S mode to be available, pending final testing.

DRC INSIGHT Software: Supported Operating System Levels and Support Timeline (cont.)

Operating System	Level	Incoming/Current		Outgoing/Ending	
		Phase 1: Best Effort Support	Phase 2: Fully Supported (1)	Phase 3: Best Effort Support	Phase 4: End of Support (2)
Mac (OS X and macOS) Note: Mac server software is not supported.	OS X 10.11			X (3)	July 2019
	macOS 10.12		X		
	macOS 10.13		X (4)		
	macOS 10.14	X			
Linux Note: Linux server software is not supported.	Ubuntu 14.04, LTS version, with 64-bit Gnome 3.4, Unity Shell		X	April 2019	July 2019
	Ubuntu 16.04, LTS version, with 64-bit Gnome 3.4, Unity Shell		X		
	Ubuntu 18.04, LTS version with Gnome Shell		X		
iOS	11.x latest version (5)		X	November 2018 (anticipated)	
	12.x latest version	X	November 2018 (anticipated)		
Chrome	Chrome OS recent stable channel		X		

(1) DRC recommends using operating system levels that are Fully Supported.

(2) When End of Support occurs during a typical testing cycle, DRC will continue to provide Best Effort Support until the testing cycle ends. DRC recommends that sites upgrade to a fully supported level before the testing cycle begins.

(3) **X** indicates the current level of support.

(4) The macOS 10.13 software is currently Fully Supported for testing devices. To use a TSM with macOS 10.13, you must use the URL <https://localhost:8443> to access the TSM.

(5) See the iOS Release Strategy Note that follows.

iOS Release Strategy Note

The iOS release strategy provides both major and minor release versions.

- Major release versions are indicated by the number to the left of the decimal point. For example, release 11.x and release 12.x are major release versions.
- Minor release versions are indicated by the number to the right of the decimal point. For example, release 11.1 and release 11.2 are minor release versions of major release version 11.

DRC supports both types of release versions.

- DRC fully supports the most recent **major release version** of iOS within 90 days of public availability of the new version. During the 90 days of testing/verification, DRC provides Best Effort Support of the new major release version.
- DRC provides Best Effort Support for **minor release versions** of iOS as soon as they are made available to the public and will fully support these versions as soon as DRC completes testing/verification. DRC will attempt to fully support minor release versions within 30 days of their release.

Note: DRC will offer Best Effort Support for any previous versions of iOS for which Apple maintains support.

DRC COS Service Device Software/Network Requirements

The DRC COS service device software requirements are generally the same as the DRC INSIGHT software requirements with the exceptions listed below:

- The COS service device software **cannot** be installed on an iOS or Chrome device. The COS service device software will work with INSIGHT software installed on these devices.
- The COS service device software **should not** be installed on mobile or touch-screen devices.
- The COS service device **should** be connected to the network through a wired connection.

Trademarks

The following are trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries:

Internet Explorer
Microsoft
Microsoft Edge
Windows
Windows Vista
Windows XP
Windows 7
Windows 8
Windows 10
Windows 10 S

The following are trademarks or registered trademarks of Apple Corporation in the United States and/or other countries:

Apple
iOS*
iPad
Macintosh
Mac
OS X and macOS
Safari

*iOS is a trademark or registered trademark of Cisco in the United States and other countries and is used under license.

The following are trademarks or registered trademarks of Google Corporation in the United States and/or other countries:

Chrome
Chrome OS
Chromebook
Google Play

Firefox is a trademark or registered trademark of Mozilla Corporation in the United States and/or other countries.

Linux is a registered trademark of Linus Torvalds.
Ubuntu and Canonical are registered trademarks of Canonical Ltd.
Gnome is a trademark of the Gnome Foundation.