

Wacom Components Driver Specification



Version 7.6

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Purpose

The Wacom Components Driver is the tool for customizing the functionality of integrated Wacom Pen sensors on Windows Computers

Supported Operating Systems

The Wacom Components Driver supports:

- Windows 10 RS3
- Windows 10 RS4
- Future Windows 10 versions

Supported Languages

The following languages are supported by the Wacom Components Driver:

English	Italian	Spanish	French	German	Dutch	Portuguese
Russian	Swedish	Chinese – Simplified	Korean	Polish	Czech	Hungarian
Slovak	Danish	Finnish	Norwegian	Greek	Turkish	Chinese – Traditional
Japanese						

D/H/C/U Compliance

The Wacom Components Driver is D/H/C/U Compliant

Components Driver Elements

The Wacom Components Driver consists of the following elements:

- Wacom Components Installation Package – An installer application that detects compatible hardware and installs the Kernel and Service pieces.
 - The distributed zip file Wacom_Components_7.5.1-X contains Setup.exe that can be run when the contents are extracted. The program requires the “local” and “App” folders to be extracted as well as the correct platform subfolder, “32” or “64”.
 - The distributed exe file Wacom_Components_7.5.1-X_win10_32_64.exe will self-extract the needed components and perform the installation.
 - This will also install the App
- Wacom Components Kernel Driver – A KMDF minidriver that provides access to the Wacom Components Pen sensor data and allows for advanced control over the data.
 - WacHIDRouter_ISD.sys
 - WacHIDRouter_ISD.inf
 - WacHIDRouter_ISD.cat
- Wacom Components Service – A User mode Windows Service that enables end user customization of Pen data as well as provides data to Wintab applications.
 - WTabletServiceISD.exe
 - Wintab32.dll
 - ISD_Tablet.dll
 - WacomI18N.dll

- Wacom Components Hardware Support App – A UWP application that allows the end user to customize their Pen experience.
 - Located at: <https://www.microsoft.com/en-us/store/p/wacom-pen/9p32cf64v70c>
 - Preinstall-capable using the files included in the “app\” directory included in OEM specific distribution package.

Components Driver Versioning

The individual pieces of the Wacom Components Driver will be versioned in the following manner:

- Wacom Components Installation Package – 7.5.1-[RELEASE_VERSION]
- Wacom Components Service – 7.5.1.[SERVICE_RELEASE_VERSION]
- Wacom Components Kernel Driver – 7.5.2.[KERNEL_RELEASE_VERSION]
- Wacom Components Customization Packages – 7.5.5-19.[CUSTOMIZATION_RELEASE_VERSION]
 - The actual value in the range 5-19 is dependent on the OEM
- Wacom Components Hardware Support App – 7.5.[APP_RELEASE_VERSION].0
 - App Release version starts at 7.5.20 to avoid conflict with other components

The [XX_RELEASE_VERSION] parts of the version are independent from each other and will only change between releases if the specific component is changed.

Components Driver Functionality

Installation Procedure

- To install for the current user, simply run Wacom_Components_7.5.1-X_win10_32_64.exe, then install the App from the store using the “Wacom Pen” start menu link
 - For customized OEM builds, the start menu link may have the customized name requested by the OEM
- For system image creation, use DISM or Powershell to preinstall the app and DISM to install all 3 INFs contained in the package. Order is not important.
 - A .bat file is included in the root of the distribution called ImageSetup.bat. Running this will perform all the pre-installation steps necessary to install the Wacom driver.
 - If “ImageSetup.bat apponly” is executed, it will install only the Settings App.
 - An entry in layoutmodification.xml file is required for the app to be recognized as preinstalled by the OS. An example is located in the \docs folder of the installation package.

***Note: ImageSetup.bat is intended for an online image creation, so it calls ‘Dism /online’ for App preinstall and ‘pnputil.exe’ for INF install. If different tools are required or an offline image is being created, the script can be adapted as necessary.**

Installation Methods

- The Wacom Components Driver can be installed via:
 - Self-extracting installer (Wacom_Components_7.5.1-X.exe)
 - Run Wacom_Components_7.5.1-X_win10_32_64.exe
 - This will also install the App for the current user
 - Zip based Installation using Setup.exe
 - Extract the contents of the Wacom_Components_7.5.1-X.zip file to a local folder
 - Setup.exe and the “local” folder must be extracted as well as the correct platform subfolder, “32” or “64”.
 - execute Setup.exe as Administrator to install.
 - This will also install the App for the current user
 - INF-Only installation
 - Extract the contents of the Wacom_Components_7.5.1-X.zip file to a local folder
 - Using DISM, PNPUtl or another comparable tool to perform INF installation, install the INF components (order is suggested but not required)

- WacExtension_OEMNAME.inf
 - WacHIDRouterISD.inf
 - WTabletServiceISD.inf
- Example using PnpUtil:
 - PnpUtil.exe /add-driver WacExtension_OEMNAME.inf /i
 - PnpUtil.exe /add-driver WacHIDRouterISD.inf /i
 - PnpUtil.exe /add-driver WTabletServiceISD.inf /i
- The Wacom Components Hardware Support App can be preloaded on the target system or installed through the store (Note: the store page is not discoverable by searching the Windows Store)
 - Windows Store Installation
 - The app can be downloaded and installed for the current user from the Windows Store Website (<https://www.microsoft.com/en-us/store/p/wacom-pen/9p32cf64v70c>) or by using a URI (<ms-windows-store://pdp/?productid=9p32cf64v70c>) to access the Store directly
 - This location may be different for OEMs with customized Apps
 - App Preloading
 - Preloading the Wacom Components Hardware Support App causes the App to be automatically installed during any new user creation, like during the OOBE process.
 - Extract the contents of the 'app' folder in Wacom_Components_7.5.1-X.zip file to a local folder (for the examples, assume 'c:\app')
 - **Important Do not modify the folder once you have extracted the package files. If you change, add, or remove any files in the folder, the app will fail either during installation or launch. Even browsing the folder may cause problems.**
 - The App can then be preloaded using either DISM or PowerShell (More information can be found [online](#))
 - For the below examples, replace [packageguid] with the current app package GUID
 - DISM Example (Offline Image):


```
Dism /Image:c:\test\offline /Add-ProvisionedAppxPackage /PackagePath:c:\app\[packageguid].appxbundle
/LicensePath:c:\app\[packageguid]_License1.xml
/DependencyPackagePath:c:\app\Microsoft.NET.Native.Framework.1.3_1.3.24201.0_x86_8wekyb3d8bbwe.appx
/DependencyPackagePath:c:\app\Microsoft.NET.Native.Runtime.1.4_1.4.24201.0_x86_8wekyb3d8bbwe.appx
/DependencyPackagePath:c:\app\Microsoft.VCLibs.140.00_14.0.24123.0_x86_8wekyb3d8bbwe.appx
/DependencyPackagePath:c:\app\Microsoft.NET.Native.Framework.1.3_1.3.24201.0_x64_8wekyb3d8bbwe.appx
/DependencyPackagePath:c:\app\Microsoft.NET.Native.Runtime.1.4_1.4.24201.0_x64_8wekyb3d8bbwe.appx
/DependencyPackagePath:c:\app\Microsoft.VCLibs.140.00_14.0.24123.0_x64_8wekyb3d8bbwe.appx
```
 - DISM Example (Online Image):


```
Dism /Online /Add-ProvisionedAppxPackage /PackagePath:c:\app\[packageguid].appxbundle
/LicensePath:c:\app\[packageguid]_License1.xml
/DependencyPackagePath:c:\app\Microsoft.NET.Native.Framework.1.3_1.3.24201.0_x86_8wekyb3d8bbwe.appx
/DependencyPackagePath:c:\app\Microsoft.NET.Native.Runtime.1.4_1.4.24201.0_x86_8wekyb3d8bbwe.appx
/DependencyPackagePath:c:\app\Microsoft.VCLibs.140.00_14.0.24123.0_x86_8wekyb3d8bbwe.appx
/DependencyPackagePath:c:\app\Microsoft.NET.Native.Framework.1.3_1.3.24201.0_x64_8wekyb3d8bbwe.appx
/DependencyPackagePath:c:\app\Microsoft.NET.Native.Runtime.1.4_1.4.24201.0_x64_8wekyb3d8bbwe.appx
/DependencyPackagePath:c:\app\Microsoft.VCLibs.140.00_14.0.24123.0_x64_8wekyb3d8bbwe.appx
```
 - Powershell Example (Online Image Only):


```
Add-AppxProvisionedPackage -Online -PackagePath c:\app\[packageguid].appxbundle -LicensePath
c:\app\[packageguid]_License1.xml -DependencyPackagePath
c:\app\Microsoft.NET.Native.Framework.1.3_1.3.24201.0_x86_8wekyb3d8bbwe.appx,c:\app\Microsoft.NET.Nati
ve.Runtime.1.4_1.4.24201.0_x86_8wekyb3d8bbwe.appx,c:\app\Microsoft.VCLibs.140.00_14.0.24123.0_x86_8
wekyb3d8bbwe.appx,c:\app\Microsoft.NET.Native.Framework.1.3_1.3.24201.0_x64_8wekyb3d8bbwe.appx,c:\ap
p\Microsoft.NET.Native.Runtime.1.4_1.4.24201.0_x64_8wekyb3d8bbwe.appx,c:\app\Microsoft.VCLibs.140.00_
14.0.24123.0_x64_8wekyb3d8bbwe.appx
```
 - Note: For Windows to recognize this app as a preinstalled App it must have a link pinned to the start menu with layoutmodification.xml (<https://docs.microsoft.com/en-us/windows/configuration/start-layout-xml-desktop>)
 - An example layoutmodification.xml is located in the \Docs folder of the installation .zip file
 - App Sideload
 - Sideload the app is not officially supported but is possible for testing purposes

- Extract the contents of the 'app' folder in Wacom_Components_7.5.1-X.zip file to a local folder (for the examples, assume 'c:\app')
- Double-click the c:\app\[packageguid].appxbundle file to install
- The App can also be installed via PowerShell using the Add-AppxPackage cmdlet.

```
Add-AppxPackage -Path c:\app\[packageguid].appxbundle -DependencyPath  
c:\app\Microsoft.NET.Native.Framework.1.3_1.3.24201.0_x86__8wekyb3d8bbwe.appx,c:\app\Microsoft.NET.Nati  
ve.Runtime.1.4_1.4.24201.0_x86__8wekyb3d8bbwe.appx,c:\app\Microsoft.VCLibs.140.00_14.0.24123.0_x86__8  
wekyb3d8bbwe.appx,c:\app\Microsoft.NET.Native.Framework.1.3_1.3.24201.0_x64__8wekyb3d8bbwe.appx,c:\ap  
p\Microsoft.NET.Native.Runtime.1.4_1.4.24201.0_x64__8wekyb3d8bbwe.appx,c:\app\Microsoft.VCLibs.140.00_  
14.0.24123.0_x64__8wekyb3d8bbwe.appx
```

Windows Update

The Wacom Components driver can be uploaded to Windows update for optional distribution to target machines. A posting to WU requires the Wacom sensor hardware IDs as well as the CHIDs for the targeted platforms. This can be utilized in the following ways:

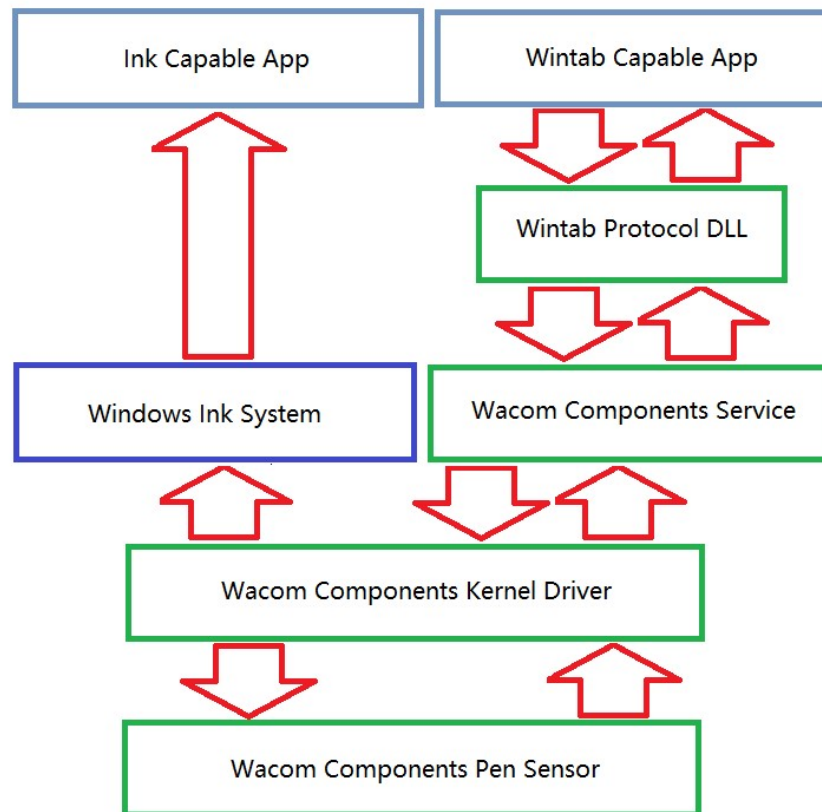
- Optional posting only – The default distribution method of WU does not allow for automatic download of the driver because there is a Windows Inbox driver that handles HID data. This method will allow a system image to pass the “MDA Audit Tool” test if needed.
- Critical Posting – This will allow the driver to be automatically downloaded by the Windows Update system after targeting. This requires additional testing by Wacom and involves a lengthy application process to Microsoft for approval. NRE may apply.
- [FUTURE]Wacom Automatic Download – If the Wacom Components Service is installed on a system, it can periodically check Windows Update to determine if there is an updated Optional Posting of the Service or Kernel pieces that are targeted to the specific machine that it is running on. If there is a newer version, it will request that WU download and install it.

Uninstallation

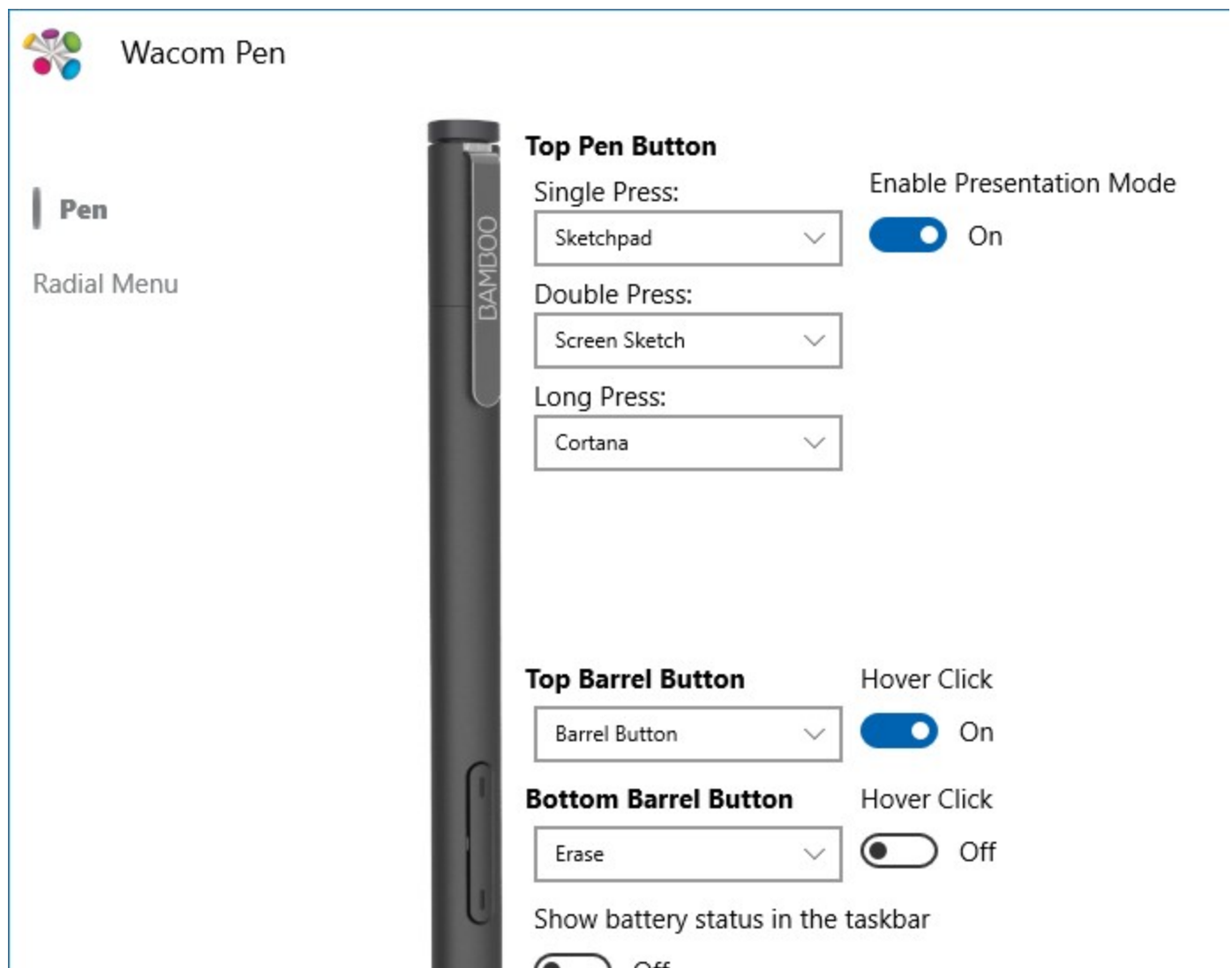
Regardless of installation method, the Wacom Components Driver (Service, Kernel, App & Customizations) can be uninstalled through the Windows “Apps & Features” settings app. The Wacom Components Hardware Support App can be uninstalled separately through the Windows “Apps & Features” settings app.

Driver Data Flow

The Wacom Components Driver is a multi-tiered multi-protocol solution that processes data from a compatible Wacom Components Pen Sensor and simultaneously provides that data to the Windows Ink System and processes it to perform customized functions and inking for Wintab-capable applications and Wacom Signature & Inking Platforms.



Components Settings App Functionality



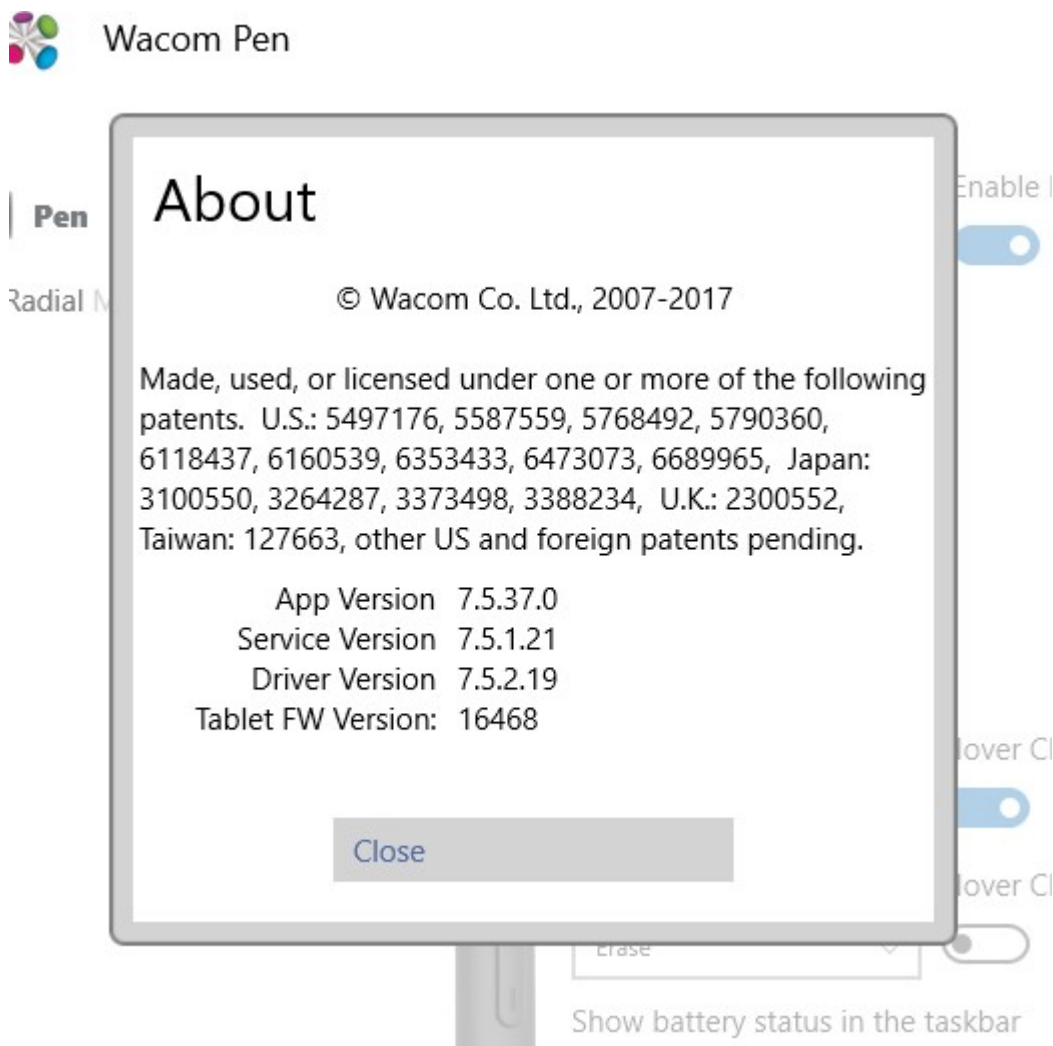
Note: For testing purposes the Wacom Components Settings App can be downloaded and installed from <https://www.microsoft.com/en-us/store/p/wacom-pen/9p32cf64v70c>, though this location is hidden from users. It must be preinstalled on a production system. OEM-specific App installation locations may vary.

Windows Settings Integration



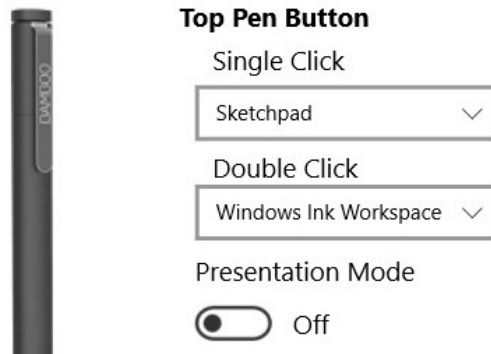
The app is registered as a preinstall package so it can be pre-installed on a system image and will integrate with the Windows Pen & Ink Settings page by being included as a link in the “Related Settings” section of the page.

About Box



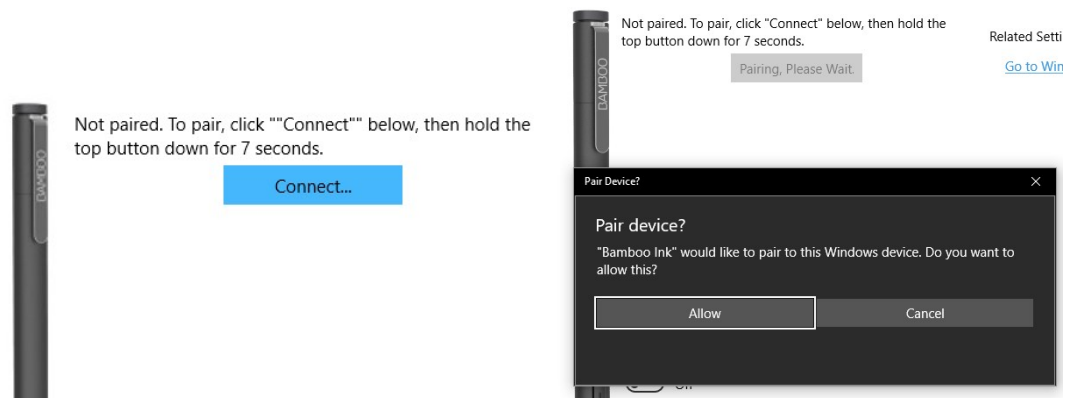
Clicking on the Wacom “Bug” logo in the top left corner will bring up the About box which displays the component versions present on the system.

Top Pen Button Settings (Bluetooth)



If the installed Wacom Components Pen sensor uses the AES technology and the Pen in use includes a Bluetooth-capable Top Pen Button, these settings will be visible.

Pairing



If there are no BT Button devices paired with the system clicking the “Connect...” button will search for supported BLE devices in pairing mode and connect them to the system after the user gives consent.

Button Press Options

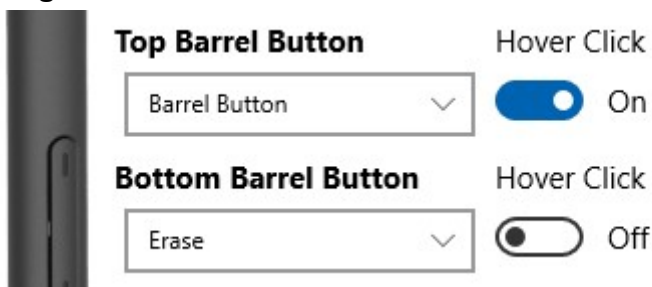
Single Press:	Double Press:	Long Press:
<ul style="list-style-type: none"> OneNote Sketchpad Screen Sketch Sticky Notes Ink Workspace Open/Run... Keystrokes... Page Up * Page Down * Play/Pause * Next Track * Previous Track * Volume Up * Volume Down * Mute * Disabled 	<ul style="list-style-type: none"> Screenshot Sent to OneNote Sketchpad Screen Sketch Sticky Notes Ink Workspace Open/Run... Keystrokes... Page Up * Page Down * Play/Pause * Next Track * Previous Track * Volume Up * Volume Down * Mute * Disabled 	<ul style="list-style-type: none"> Sketchpad Screen Sketch Sticky Notes Ink Workspace Cortana Open/Run... Keystrokes... Page Up * Page Down * Play/Pause * Next Track * Previous Track * Volume Up * Volume Down * Mute * Wacom Settings * Disabled

note – these settings synchronize with the Windows “Pen & Windows Ink” settings except for those marked with an “*”. When selected, those items will leave the drop down in the Windows settings blank.

Presentation Mode

If “ON”, the driver will automatically send a Page Down when the button is Single Pressed and a Page Up when the button is Double Pressed if Microsoft PowerPoint is presenting.

Barrel Button Settings



Button Functions

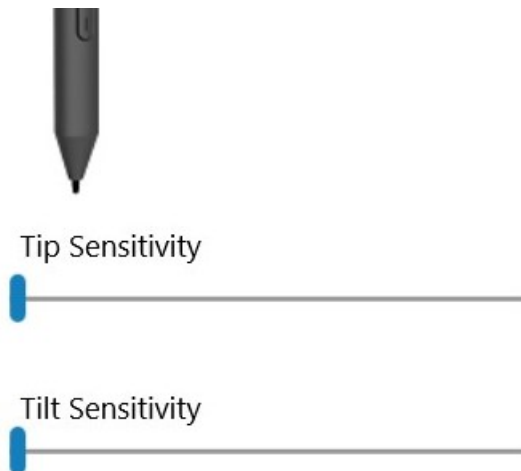
The functionality of the side pen buttons (Upper and Lower Barrel Buttons) can be configured by selecting an option in the dropdown, the possible options are:

- Radial Menu – Displays the radial menu at the cursor location
- Erase – Sends erase commands to the system to make the button behave as an eraser
- Barrel Button – Sends a “Barrel Button” command to the system to invoke the system or app defined behavior. Most apps treat this as a right click.
- Keystrokes – Allows the user to record keystrokes for playback later.
- Open/Run App – Allows the user to choose an executable, document or other file to be opened/ran.
- Ink Workspace (Win 10 1607) – Opens the Ink Workspace sidebar
- Sticky Notes (Win 10 1607) – Opens the Sticky Notes app
- Sketchpad (Win 10 1607) – Opens the Sketchpad app
- Screen Sketch (Win 10 1607) – Opens the Screen Sketch app
- Cortana – Invokes the Cortana speech recognition app
- Page Up – Sends a Page Up keystroke to the system
- Page Down – Sends a Page Down keystroke to the system
- Back
- Forward
- Copy
- Paste
- Undo
- Redo
- Switch Apps
- Open Wacom Settings App
- Launch Browser
- Launch Email
- Play/Pause
- Next Track
- Previous Track
- Volume Up
- Volume Down
- Mute
- Disabled

Hover Click

Each Barrel button has an associated option to enable/disable Hover Click. If disabled, the chosen Barrel Button function is executed when the button is pressed while tapping the Pen tip against the screen. If enabled, the chosen Barrel Button function is executed immediately when the button is pressed. For compatibility with the Windows System HLK Pen Eraser Test, Hover Click is disabled by default on the bottom side switch.

Sensitivity Settings



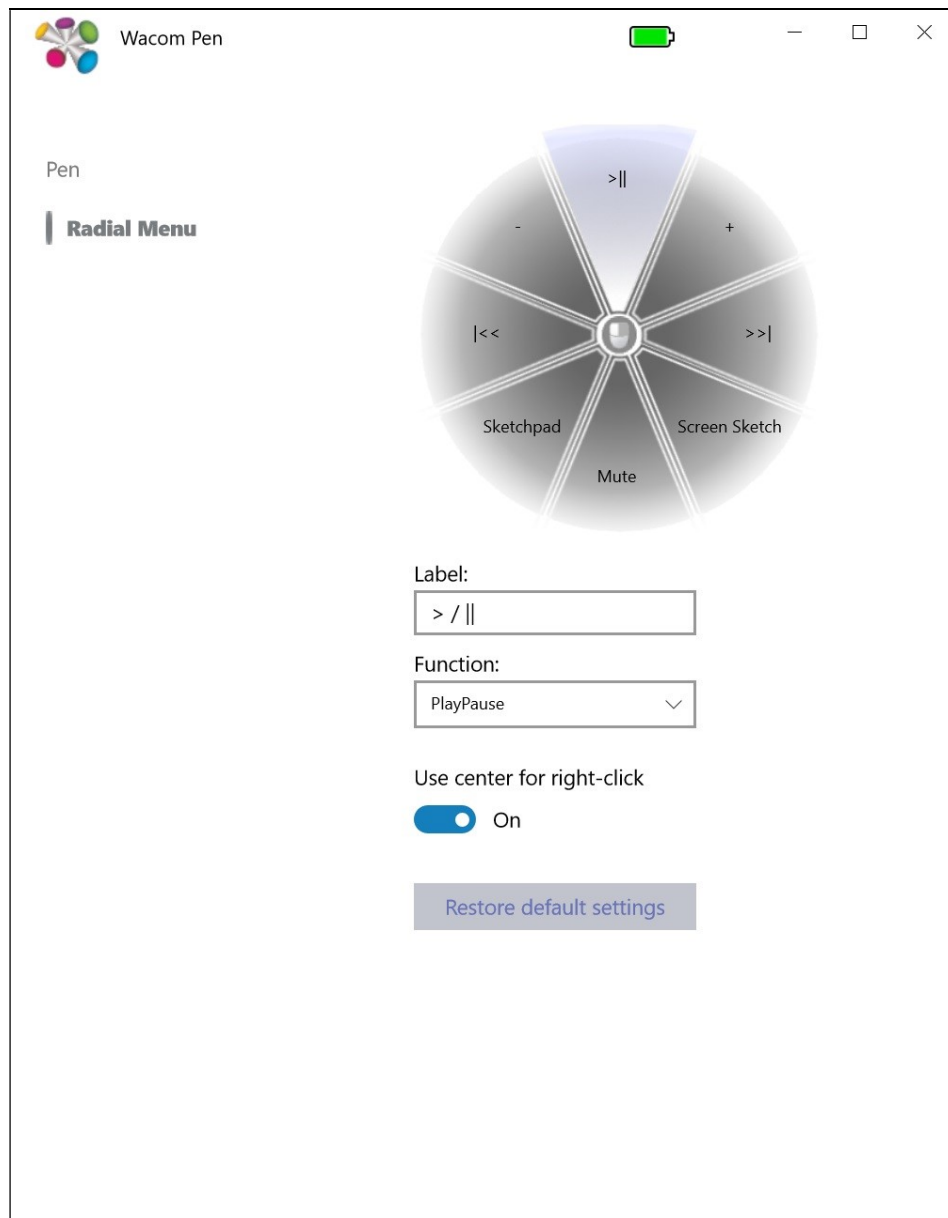
Tip & Eraser Sensitivity

Eraser and Tip sensitivity are controlled by sliders in the control panel. This applies a curve to the pressure data to modify the values reported to the system. Softer settings will report higher pressure with less force used, Firmer settings will require more force on the pen tip to report higher pressure levels.

Tilt Sensitivity

Tilt Sensitivity can be modified to provide higher or lower tilt values to the system on Pen sensors that have support for tilt.

Radial Menu Settings



The Radial Menu is a function that can be triggered by a Barrel Button. It will display a floating popup menu on the user's screen that can provide customized functionality with a single click and tap.

Radial Wedges

Each Radial Wedge can be programmed for a different function:

- Open/Run App – Allows the user to choose an executable, document or other file to be opened/ran.
- Default Web Browser – Launches the default web browser.
- Default Email App – Launches the default E-Mail app
- Play/Pause – Sends a Play/Pause media keystroke to the system
- Next Track – Sends a next track media keystroke to the system
- Previous Track – Sends a previous track media keystroke to the system
- Volume Up – Turns the volume up one click
- Volume Down – Turns the volume down one click
- Settings – Launches the Wacom CPL App
- Switch Application – performs a application switch
- Ink Workspace (Win 10 1607) – Opens the Ink Workspace sidebar

- Sticky Notes (Win 10 1607) – Opens the Sticky Notes app
- Sketchpad (Win 10 1607) – Opens the Sketchpad app
- Screen Sketch (Win 10 1607) – Opens the Screen Sketch app
- Cortana – Invokes the Cortana speech recognition app
- Page up
- Page Down
- Back
- Forward
- Copy
- Paste
- Undo
- Redo

By default, the 8 pie pieces are set to the following values (from top, clockwise):

- Play/Pause
- Volume Up
- Next Track
- Screen Sketch
- Mute
- Sketchpad
- Previous Track
- Volume Down

Center Right Click

If this is enabled, clicking in the middle of the Radial Menu will send a right-click to the application behind the Radial menu.

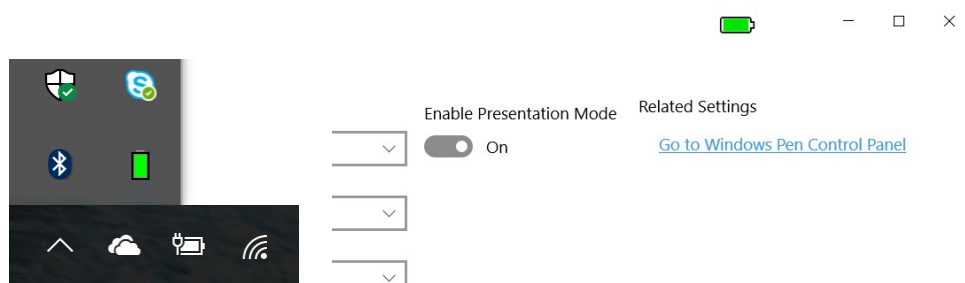
Calibration

Calibration executes the Windows system utility that will align the cursor to more accurately match the position of the pen on the screen. The calibration button will only display for EMR tablets that require parallax correction.

Configure Displays

Configure Displays will launch the Windows system utility that matches the pen sensor with a display. The default setting maps the pen to the primary monitor.

AES Battery Status



For AES pens, there will be a battery status icon in the system tray and another status icon in the settings app.

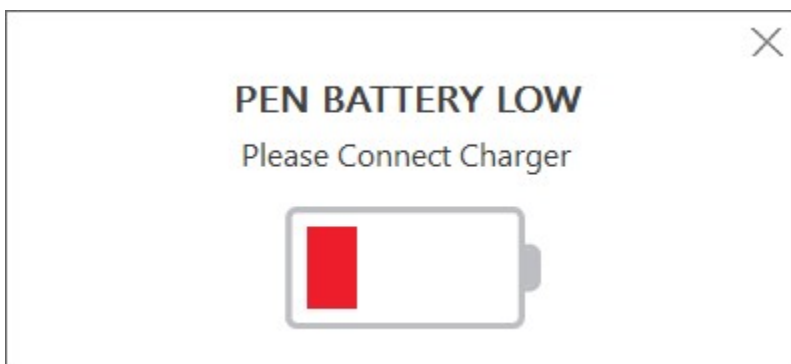
The driver converts the reported values from the firmware into percentages and displays the appropriate icon for the remaining battery level as in the table below.

Note: AES Battery status will only be updated by using pen to touch panel.

Icon	Reported Value Range	Percentage Range
	192 - 255	75% - 100%
	96 - 191	37% - 74%
	48 - 95	17% - 36%
	24 - 47	8% - 16%
	0 - 23	0% - 7%

Note: the specific voltages that correspond to the reported values varies from pen to pen.

Low Battery Notification



When the battery level reaches 7%, the Low Battery Notification popup will be displayed to the user. If the pen is rechargeable, the message will read “Please Connect Charger”, otherwise it will read “Low battery warning: For continuous operation of your Active Pen, replace the battery immediately.”

Restore Default Settings Button

Load Default Setting will change all setting to default at both “Pen” and “Redial Menu” page.

OEM Customizable Driver Elements

The Wacom Components driver can be easily customized for OEM Branding or Defaults.

Customization Persistence

If the Wacom Components Driver is included on an OEM system image, the customizations will persist through upgrades, even if the upgraded driver is downloaded from the Wacom Website or Windows Update.

Custom Driver Functions & Defaults

The basic functionality of the driver can be customized in the following ways:

- Defaults for all the Driver functions can be modified to any of the possible functions listed above.
- Custom applications can be inserted as Button functions and will display in the Top Pen Button or Barrel Button dropdowns.
- All strings can be replaced with an OEM specified string, including localizations for all supported languages.

Custom OEM Branding

The Branding of the Wacom Components Driver can be modified to suit the OEMs specific needs. The following elements can be customized:

- Uninstall Link Name – Defaults to “Wacom Pen”
- Uninstall Link Icon
- Wacom Components Hardware Support App Layout – The layout and visibility of the items can be modified in any way that can be expressed using XAML.
- Wacom Components Hardware Support App Graphics – Graphics such as the Pen image and Logo can be modified with OEM provided Graphics.
- Wacom Components Hardware Support App Name – Defaults to “Wacom Pen”