



Intel® Connectivity Performance Suite

&

Intel® Connectivity Manager

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INTEL® CONNECTIVITY PERFORMANCE SUITE

USER GUIDE

OVERVIEW

The Intel® Connectivity Performance Suite (ICPS) is a software solution that improves PC networking performance by creating a personalized network experience based on each user's unique situation. It automatically prioritizes high priority traffic over lower priority traffic to ensure that the user's most critical applications get the best networking performance. It also monitors several key wireless metrics and works to make sure users are always connected to the healthiest available access point and Wi-Fi band. If a problem cannot be automatically fixed, then ICPS will provide targeted recommendations that will help users improve their networking performance. Optimizing the network performance for each user's situation will provide a best-in-class networking experience and will directly address issues that cause PC users significant frustration.

NETWORK HEALTH PAGE

By default, the first page that you will see when you open ICPS is the Network Health Page. This page gives you real-time information about what access point you are connected to, the score of each access point and recommendations and notifications for your network.

The screenshot displays the Intel Connectivity Performance Suite interface. At the top, there is a navigation bar with 'Network Health', 'Prioritization', and 'Advanced Connection Manager'. Below this is the 'NETWORK SCORE' section, which includes a toggle for 'Only show authorized networks'. The main content is a table with the following data:

Type	Connect	Network	Band	Wi-Fi Score	Status
	<input checked="" type="radio"/>	Intel(R) XMM(TM) 756...		60	
	<input checked="" type="radio"/>	Realtek USB 2.5GbE Fa...		47	
	<input checked="" type="radio"/>	AX11000	5	93	
	<input checked="" type="radio"/>	AX11000 MAC: 7C:10:C9:61:68:84	5	93	
	<input checked="" type="radio"/>	AX11000 MAC: 7C:10:C9:61:68:80	2.4	75	

Below the table is a section titled 'Recommendations to improve your network experience' with two tabs: 'Recommendations' and 'Notifications'. The 'Recommendations' tab is active and shows the message: 'No recommendations at this time.'

NETWORK SCORE

The score is based on 7 key metrics used by ICPS to come up with an overall network score that takes into account the most important drivers of network performance. Good scores will be shown in green, medium in yellow and poor in red. The Smart Access Point Selection feature looks at the scores and if there is a score delta of greater than 20%, ICPS will automatically switch the user to the better Access Point if it has the same SSID or will suggest a better Access Point if it is a different SSID (the suggestion will come as a pop-up notification and will also be available in the Recommendations section of the UI).

RECOMMENDATION

This section will display recommendations that the user may perform in order to improve their networking experience. The user can also dismiss the recommendation by using the trash icon, in which the recommendation will not show again for that network. The recommendation can be restored from the setting page by checking the Reset Recommendation Preferences option.

The following recommendations are available:

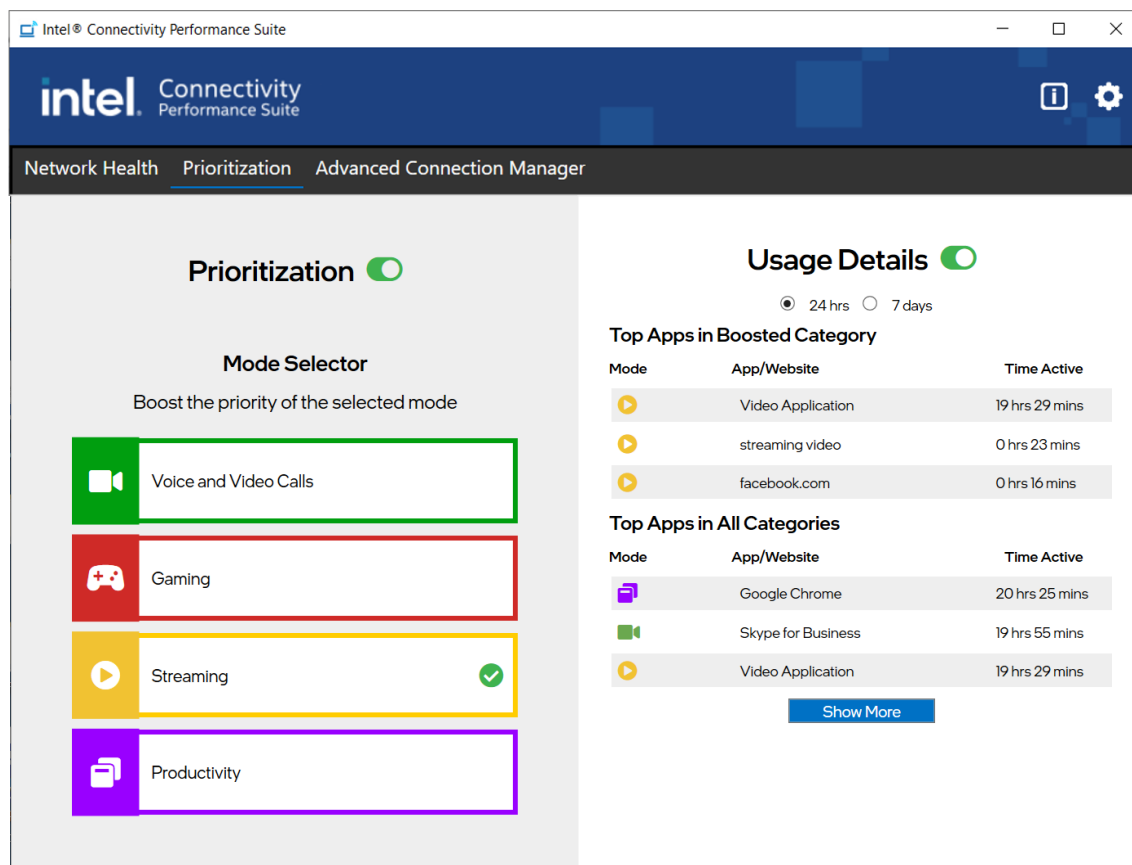
Recommendations
Your computer has more advanced Wi-Fi capabilities (Wi-Fi generation) than your access point (Wi-Fi generation). Consider upgrading your access point.
Network xx offers significantly better connectivity than your current network.
Your computer has a faster ethernet link rate than your network equipment. Consider checking/updating your ethernet switch, router, or network cables.
The current network does not have internet access. Check network equipment for issues.

NOTIFICATIONS

Notifications will display important messages to notify the user why their PC may not allow multiple network operations. The following notifications are available:

Notifications
A corporate access point has been detected. Advanced Connection Manager is limited to one broadband network.
The use of multiple network interfaces has been disabled in the operating system (typically done by IT). Advanced Connection Manager is limited to one network interface.
To avoid any disruptions to the current VPN session, AP Switching has been disabled. AP Switching can be enabled in the advanced settings.
Intel® Connectivity service is disconnected.
Cellular usage is set to "Always" therefore Advanced Connection Manager is disabled. To change this setting go to Windows settings.

PRIORITIZATION PAGE



PRIORITIZATION

When the “Prioritization” button is turned on, high priority traffic will automatically be prioritized to give users the best networking experience. Every application and website that ICPS detects is automatically put into one of five categories (+ one custom category), prioritized by how important that traffic is. Below is the list of categories in priority order:

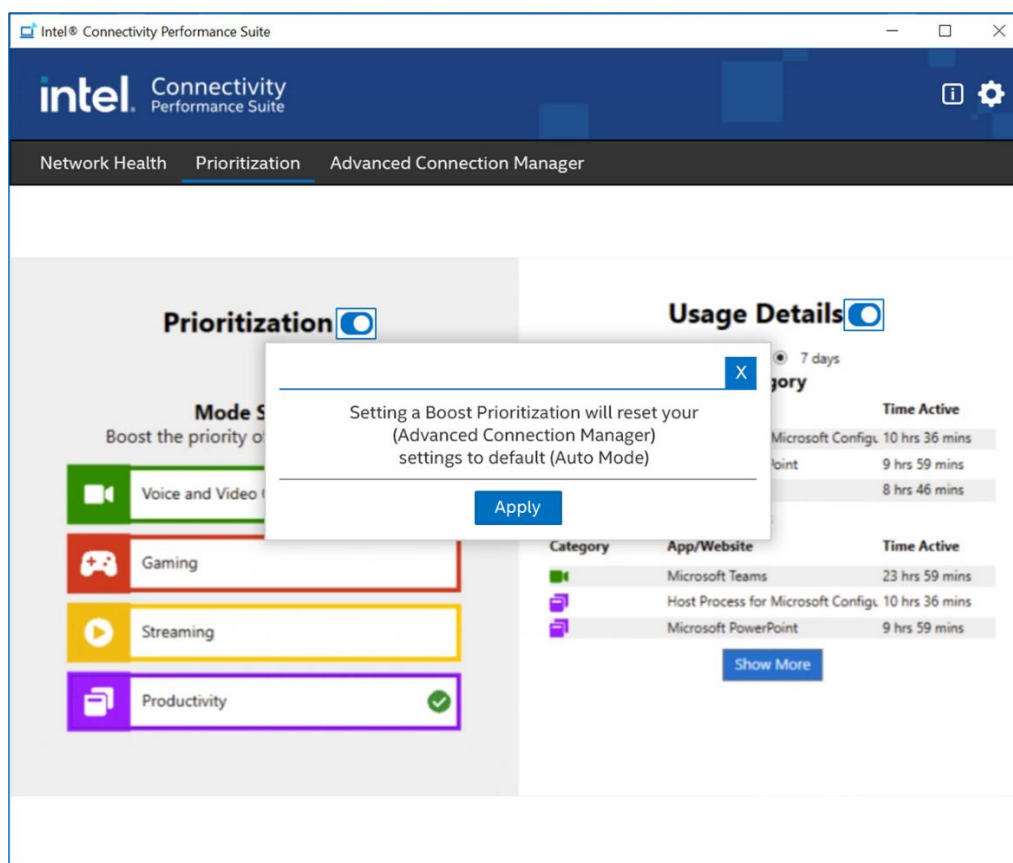
1. **Voice and Video Calls:** usually VOIP applications like Teams, Skype, or Discord, are put into this category by default.
2. **Gaming:** game traffic is prioritized to provide the lowest possible latency.
3. **Streaming:** services for streaming video like Netflix, YouTube, and Twitch.
4. **Productivity:** includes standard productivity applications and is the default category for standard web traffic
5. **Downloads:** large downloads that consume a large amount of bandwidth

Custom (Admin. Defined): An application that has been overridden by your system administrator to a different priority. (only available on vPro products)

MODE SELECTOR

The user can Boost the priority of the mode that they feel is the most important for their user experience. By clicking on a mode, the green arrow will appear beside that mode displaying that category has been boosted. Boosting a mode is not required to get good performance, but it will provide extra priority to the selected category of traffic. Please note that ICPS does not allow the user to boost downloads as that can have a very negative impact on other traffic. For vPro systems only, the “Gaming” mode will not display as a boost-able category, however, gaming traffic is still being prioritized based on the traffic priority detailed above.

If the Advanced Connection Manager is available, because the user has more than one network connected to the PC, and the user has manually configured the traffic, selecting the Mode will prompt the following pop-up message:



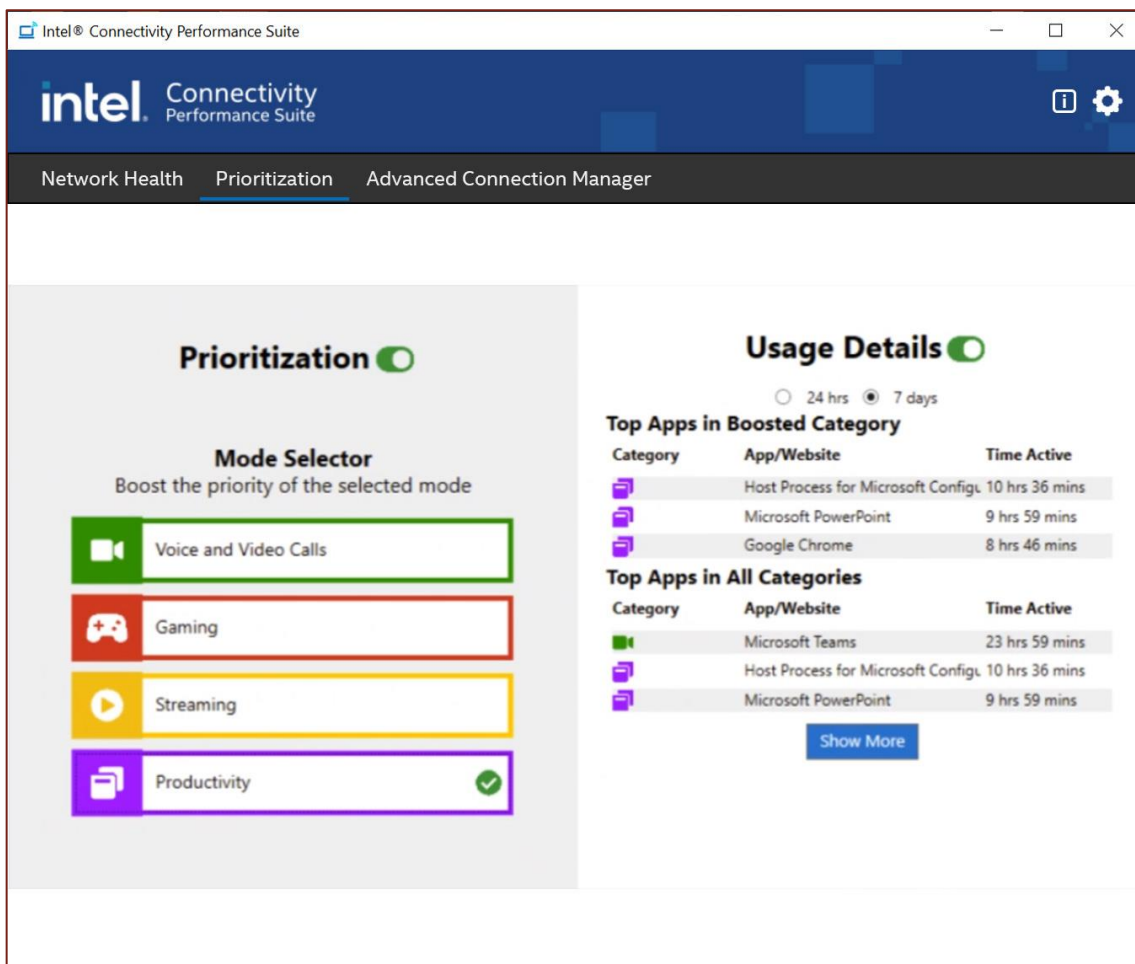
If the user continues, the manual traffic configuration will be reset to default and the chosen traffic category can be boosted.

USAGE DETAILS

When “Usage Details” is turned on the user will see usage data for the most used apps. The usage data can be shown as the last 24 hours or last 7 days, depending on which radio button is chosen.

The data will be shown in two categories: Top Apps in Boosted Category and Top Apps in All Categories. The data will show which Mode the app is placed in, the name of the app, and the time that it is connected to the network within the time period chosen.

The data shown is not displayed real time, rather it is collected and when the application exits the data is stored locally. Once stored it is read and then displayed by the UI in the Usage Details section.



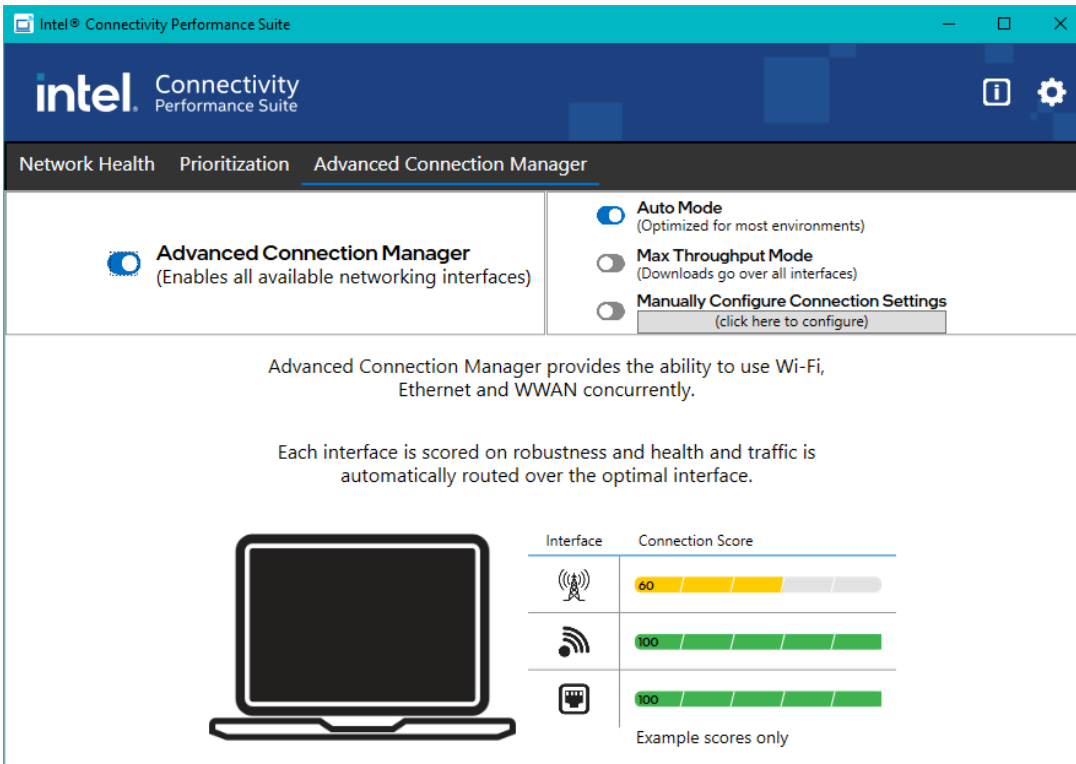
If the Usage Details radio button is switched off/on, the usage details will reset and the counter will start over.

The “Show More” button will display the top 15 apps in a separate window, giving the user a larger view of the apps being used.

Category	App/Website	Time Active
	Microsoft Outlook	26 hrs 32 mins
	VPN Agent Service	19 hrs 15 mins
	Microsoft Teams	18 hrs 25 mins
	Microsoft PowerPoint	15 hrs 40 mins
	MicrosoftSearchInBing	10 hrs 51 mins
	Microsoft OneNote	4 hrs 32 mins
	Microsoft OneDrive	2 hrs 22 mins
	Host Process for Windows Services	2 hrs 7 mins
	SharePoint, Team Collaboration Software Tools	2 hrs 6 mins
	Microsoft Edge WebView2	2 hrs 4 mins
	it-servicecontroller	1 hrs 23 mins
	NT Kernel & System	1 hrs 22 mins
	ServiceHub.SettingsHost.exe	1 hrs 22 mins
	Google Chrome	1 hrs 21 mins
	it-autoupdate-service	1 hrs 10 mins

ADVANCED CONNECTION MANAGER

The Advanced Connection Manager allows the user to manage the traffic categories across each of the connected networks. If more than one network is connected to the PC, the Advanced Connection Manager tab will appear. If only one network connection has been connected the Advanced Connection Manager will not show until a second connection has been connected. Once a second connection has been used, the Advanced Connection Manager will stay persistent on the PC to remind the user that they can use multiple connections. The user can choose three options when using this feature: Auto Mode, Max Throughput Mode and Manual Mode. Auto mode will automatically make the best network determination depending on the network score and traffic category. Max throughput mode will allow a download to concurrently use all available networks and manual mode will allow the user to choose which traffic category uses which network.



Intel® Connectivity Performance Suite

intel Connectivity Performance Suite

Network Health Prioritization **Advanced Connection Manager**

Advanced Connection Manager
(Enables all available networking interfaces)




Auto Mode
(Optimized for most environments)

Max Throughput Mode
(Downloads go over all interfaces)

Manually Configure Connection Settings
(click here to configure)

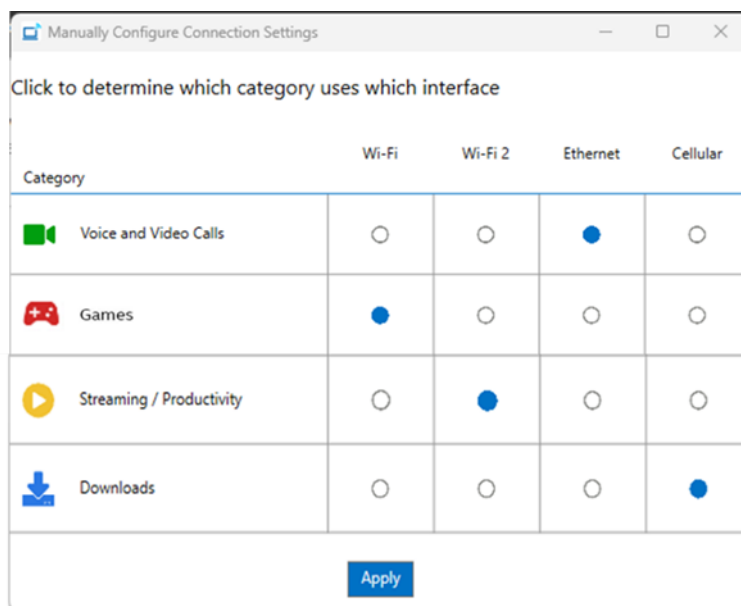
Advanced Connection Manager provides the ability to use Wi-Fi, Ethernet and WWAN concurrently.

Each interface is scored on robustness and health and traffic is automatically routed over the optimal interface.

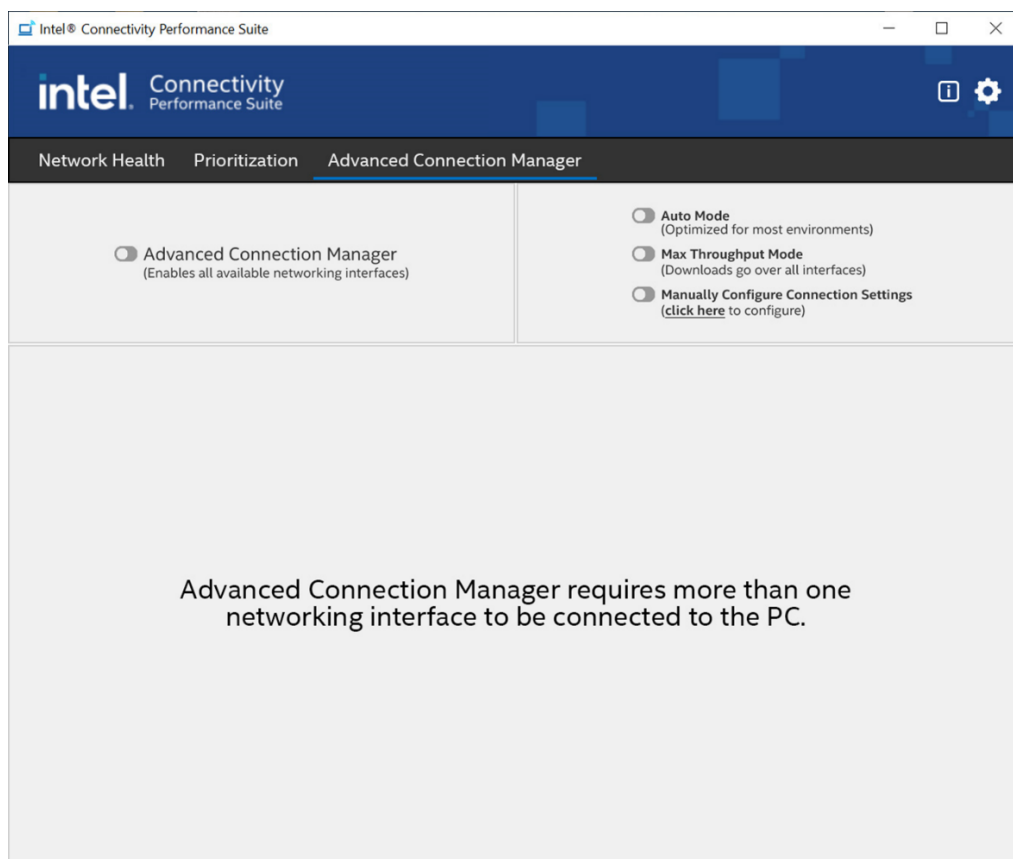
Interface	Connection Score
	60
	100
	100

Example scores only

Manual Mode:

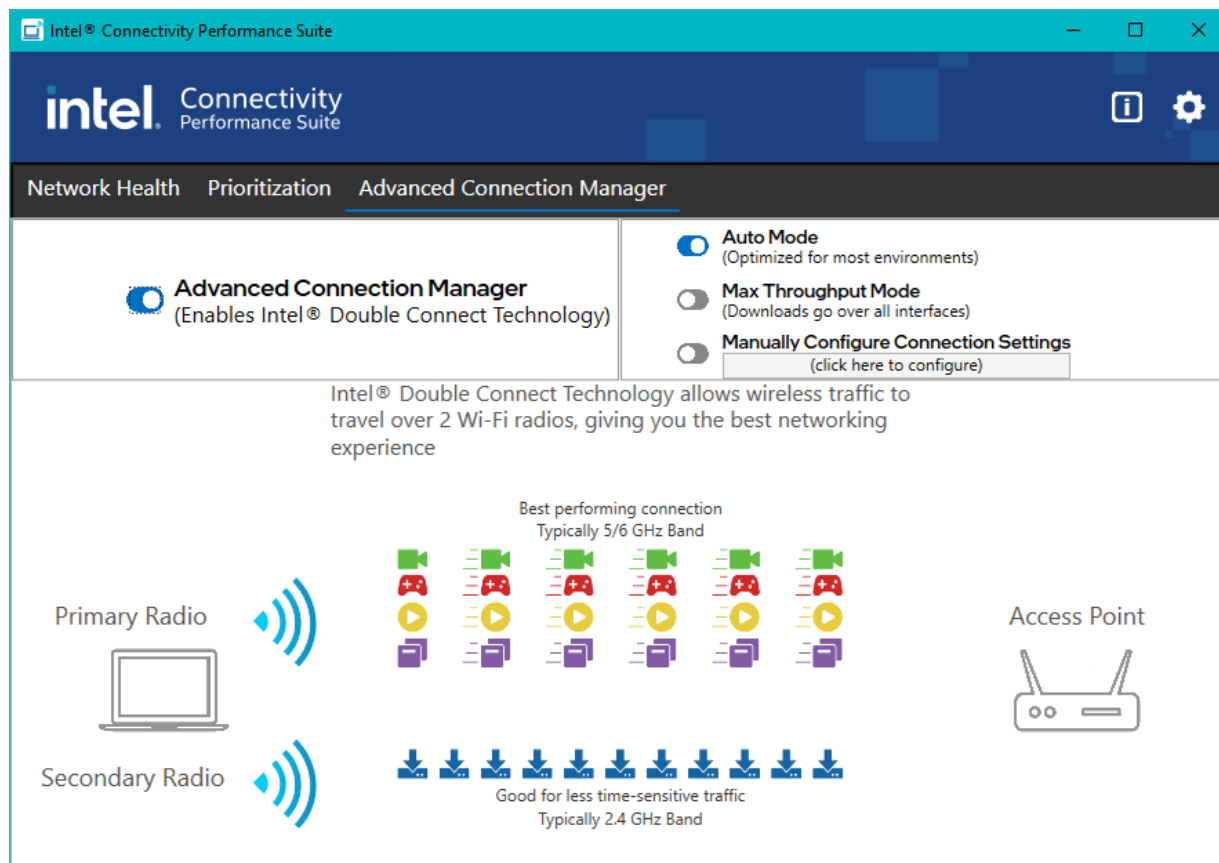


If the user has connected more than one network in the past, the Advanced Connection Manager tab will appear, but will remind the user that it requires more than one network be connected to use.



INTEL DOUBLE CONNECT TECHNOLOGY

Intel® Double Connect Technology takes advantage of the two radios on the Intel® Wi-Fi 6E AX411 and intelligently routes traffic to the optimal Wi-Fi radio. This enables the simultaneous use of both the 5/6GHz and 2.4GHz bands with the same SSID. This will lead to better application performance and a theoretical max throughput of 3Gbps.



Intel Double Connect Technology will identify each radio and send traffic over the radio that is most effective. ICPS will automatically detect if the appropriate Wi-Fi module is installed to make use of Intel® Double Connect Technology without requiring any user intervention. If Double Connect is turned off, the second radio is still enabled however no traffic will be routed over the second radio.

ADVANCED SETTINGS PAGE

This page is accessed by clicking on the icon in the upper right corner.

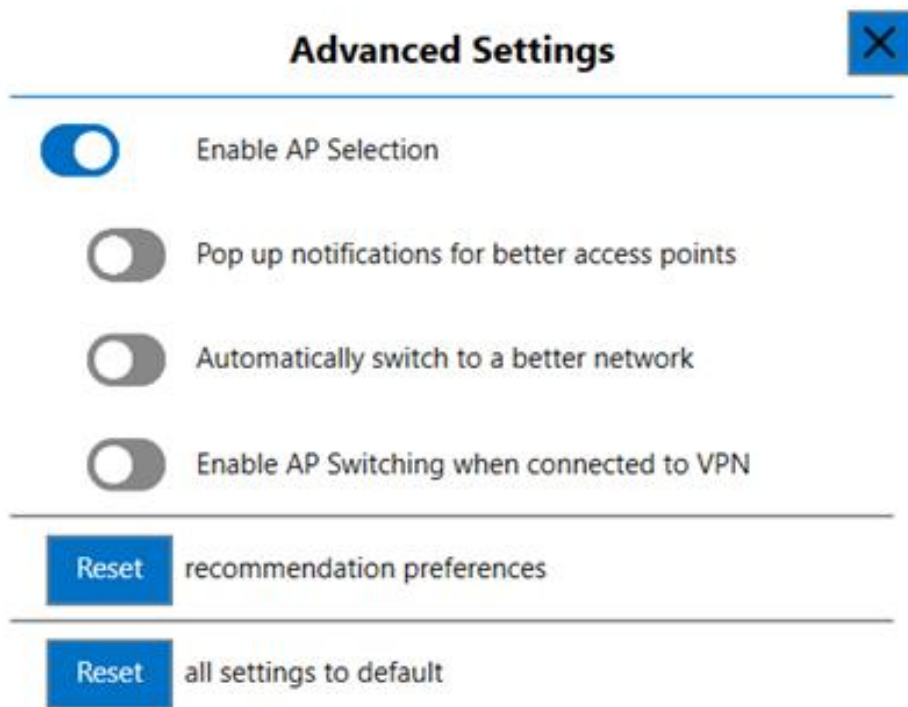


This page contains three options that can be toggled on or off.

1. Pop up notification for better access points: This enables a pop-up notification to be displayed if there is a significantly better access point than the one you are currently using. The pop up will have a button on it that will allow to quickly switch to the better access point.
2. Automatically switch to a better network: This enables automatic switching to a better network if one is available and if the Wi-Fi score is 20% better than the one the users is connected to. The user must also have permission to connect to the better network.
3. Enable AP Switching when connected to VPN: This will enable the user to automatically switch to a better access point even if the user is currently connected to a VPN. By default, ICPS will not auto switch when a user is connected to a VPN.

There are also two reset buttons for resetting preferences and defaults.

1. Reset Recommendation preferences: This button can be used to once again show the recommendations on the Network Health page.
2. Reset all settings to default: This button can be used to restore all custom settings back to defaults.



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IT CONTROLS

The Intel® Connectivity Performance Suite offers the IT Department the ability to control the user settings for the software that is deployed to their user base. This is done with a Command Line Tool and needs to be run as Admin. This feature is only available with vPro products.

ICPSCMD CLI

Usage

ICPSCMD [Get/Set] [Command] [Arguments]

Global options

--version	Display ICPSCMD version
--help, -h	Display help documentation

Available Commands

Get Commands

enableuserchanges	Returns current setting of Allows user to change settings
apselection	Returns current setting of APSelection (On or Off)
notifications	Returns current setting of notification popups (On or Off)
betternetwork	Returns current setting of "Always Select Better Network" (On or Off)
vpnapselection	Returns current setting of "Allow AP Selection when VPN is active" (On or Off)
acm	Returns current setting of ACM (Manual, Auto, MAX or Off)
acmcorp	Returns whether ACM is enabled on corporate networks(On or Off)
displaygames	Returns status of display games (On or Off)
rule [website domain/.exe]	Return the priority of the website or .EXE

Set Commands

enableuserchanges [on/off]	Allows user to change settings
apselection [on/off]	Turns on or off APSelection
notifications [on/off]	Turns on or off pop-up notifications
betternetwork [on/off]	Turns on or off always select better network
vpnapselection [on/off]	Allows AP Selection when VPN is active
acm [on/off] [auto/max]	Turn Advanced Connection Manager to on in Auto/Max mode or off
acmcorp [on/off]	Turns on/off ACM on corporate networks
displaygames [on/off]	Turns on/off display games
defaults	Puts all settings back to defaults
rule [web domain/.exe] [priority] [% Bandwidth]	Sets a rule for Priority and Percent Bandwidth on a website domain or .EXE

INTEL® CONNECTIVITY MANAGER

USER GUIDE

OVERVIEW

The Intel® Connectivity Manager (ICM) is a subset of the Intel® Connectivity Performance Suite. It provides basic PC networking performance enhancements by creating a personalized network experience based on each user's unique situation. It automatically prioritizes high priority traffic over lower priority traffic to ensure that the user's most critical applications get the best networking performance. If a problem cannot be automatically fixed, then ICM will provide targeted recommendations that will help users improve their networking performance. Optimizing the network performance for each user's situation will provide a best-in-class networking experience and will directly address issues that cause PC users significant frustration.

PRIORITIZATION PAGE

PRIORITIZATION

When the “Prioritization” button is turned on, high priority traffic will automatically be prioritized to give users the best networking experience. Every application and website that ICM detects is automatically put into one of five categories (+ one custom category), prioritized by how important that traffic is. Below is the list of categories in priority order:
















1. **Voice and Video Calls:** usually VOIP applications like Teams, Skype, or Discord, are put into this category by default.
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5. **Downloads:** large downloads that consume a large amount of bandwidth

Custom (Admin. Defined): An application that has been overridden by your system administrator to a different priority. (only available on vPro products)

The screenshot displays the Intel Connectivity Manager interface. The top navigation bar includes the Intel logo and 'Connectivity Performance Suite'. The main content area is split into two panels: 'Prioritization' and 'Usage Details'. The 'Prioritization' panel features a 'Mode Selector' with four options: 'Voice and Video Calls' (selected), 'Gaming', 'Streaming', and 'Productivity'. The 'Usage Details' panel shows radio buttons for '24 hrs' and '7 days', and two tables of application usage data. The first table, 'Top Apps in Boosted Category', lists Microsoft Teams with 40 hrs 25 mins active. The second table, 'Top Apps in All Categories', lists Microsoft Outlook (40 hrs 58 mins), Microsoft Teams (40 hrs 25 mins), and VPN Agent Service (39 hrs 0 mins). A 'Show More' button is located below the second table. At the bottom, a 'Recommendations to improve your network experience' section shows 'No recommendations at this time.'

If the Usage Details radio button is switched off/on, the usage details will reset and the counter will start over.

The “Show More” button will display the top 15 apps in a separate window, giving the user a larger view of the apps being used.

Category	App/Website	Time Active
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	Microsoft OneNote	4 hrs 32 mins
	Microsoft OneDrive	2 hrs 22 mins
	Host Process for Windows Services	2 hrs 7 mins
	SharePoint, Team Collaboration Software Tools	2 hrs 6 mins
	Microsoft Edge WebView2	2 hrs 4 mins
	it-servicecontroller	1 hrs 23 mins
	NT Kernel & System	1 hrs 22 mins
	ServiceHub.SettingsHost.exe	1 hrs 22 mins
	Google Chrome	1 hrs 21 mins
	it-autoupdate-service	1 hrs 10 mins

RECOMMENDATIONS

This section will display recommendations that the user may perform in order to improve their networking experience. The user can also dismiss the recommendation by using the trash icon, in which the recommendation will not show again for that network. The recommendation can be restored from the setting page by checking the Reset Recommendation Preferences option.

The following recommendations are available:

Recommendations
Your computer has a faster ethernet link rate than your network equipment. Consider checking/updating your ethernet switch, router, or network cables.
The current network does not have internet access. Check network equipment for issues.

NOTIFICATIONS

Notifications will display important messages to notify the user why their PC may not allow network operations. The following notifications are available:

Notifications
Intel® Connectivity service is disconnected.

IT CONTROLS

The Intel® Connectivity Manager offers the IT Department the ability to control the user settings for the software that is deployed to their user base. This is done with a Command Line Tool and needs to be run as Admin. This feature is only available with vPro products.

ICM command line support

Command	ICM mode
EnableUserChanges	- <On Off> - Allows user to change settings
DisplayGames	- Returns status of display games (On Off)
Defaults	- Puts all settings back to defaults.
Rule	- <Website domain or .EXE> - Will return the priority of the website or .EXE.

Note: IT must have either entered a rule or run the app/website otherwise it will return “No Rule”. This is because ICM determines the priority based on the resources/DLLs used as well as the actual name. Once it is evaluated, the result is cached.