



Microsoft 게임 접근성 리소스를 사용하여 손쉽게 게임의 접근성 향상

Brannon Zahand

He/Him

안건

- 게임 접근성 기초 학습 경로
- Xbox 접근성 지침
- 게임 및 장애인 플레이어 경험 가이드
- 접근성 기능 태그
- Microsoft 게임 접근성 테스트 서비스
- Xbox Accessibility Insider League



 **Gaming accessibility fundamentals**

3 hr 49 min • Learning Path • 5 Modules

Beginner Developer Xbox



Gaming is a staple of modern-day culture. It has the power to bring people together as part of a community and connect them through shared experiences. With nearly 400 million players with disabilities in the world, it's important to create gaming experiences that are inclusive and accessible by design for as many players as possible.

Prerequisites
None

[Start >](#) [!\[\]\(1d970b3e7cbfdacb236da6349ad0cf38_img.jpg\) Save](#)

게임 접근성 기초 학습 경로

aka.ms/gamea11ycourse

게임 접근성 기초 학습 경로

- 무료, 4시간 온라인 과정
- 게임 접근성을 처음 접하는 사용자를 위해 설계됨
- 접근성에 영향을 미치는 핵심 게임 요소에 대해 다룸
- 이수 완료 시 배지 제공





Introduction to gaming and disability

1 hr 1 min • Module • 7 Units

★★★★★ 4.9 (77)

This module introduces accessibility concepts for game titles, gaming platforms, and gaming hardware. You'll learn about the core elements in gaming experiences that influence accessibility and how those elements can affect the experiences of gamers with visual, hearing, mobility, and cognitive disabilities.

Start >

Overview ^

- Introduction 3 min
- Approach gameplay through the lens of accessibility 8 min
- Visual accessibility fundamentals 12 min
- Audio accessibility fundamentals 11 min
- Cognitive accessibility fundamentals 13 min
- Input accessibility fundamentals 12 min
- Summary and resources 2 min

Save

Unit 4 of 7

Audio accessibility fundamentals

11 minutes

You've learned about the portrayal of important game information through visual means and how players can become blocked from game progress if this visual information isn't accessible.

In this unit, you'll learn about the relationship between audio and gaming, and the unintentional barriers inaccessible audio elements can introduce to players with disabilities.

Audio and gaming

Similar to visual elements, gaming experiences also use audio-based elements to portray information needed to navigate the experience. When this audio-based information isn't represented in an accessible way, players with hearing-related disabilities might be excluded from using this information.

In the following video, you'll learn more about the relationship between audio and game experiences. You'll also learn how to identify common audio-based elements that can pose unintentional barriers for players.

Kaitlyn Jones, Program Manager
Gaming Accessibility Team, Xbox

Hearing and disability

When you explore audio accessibility, it's important to understand that the experiences of players with hearing-related disabilities can also largely differ when playing games. Players who can't hear any audio provided by a game, platform, or hardware device will have different experiences than players who might have varying levels of hearing that can differ in each ear, or differ based on the frequency or volume of sounds presented.

Consult with an array of players with hearing-related disabilities to help you create effective solutions that address each of these unique experiences.

게임 접근성 기초 예시



Xbox Accessibility Guidelines V2.5

Article • 10/01/2021 • 3 minutes to read

Is this page helpful?

Version 2.5 was published on July 29, 2021. A version history can be found in [the change log](#).

Introduction

The Xbox Accessibility Guidelines (XAGs) are a set of best practices that have been developed in partnership with industry experts and members of the Gaming & Disability Community.

These guidelines are intended for designers as a catalyst for generating ideas, for developers as guardrails when developing their games, and for test teams as a checklist to validate the accessibility of their titles. The XAGs aren't intended to act as a checklist to validate any type of compliance or legal requirements. Rather, they seek to ensure that the user experience in a game is enjoyable and playable for everyone. When everyone plays, we all win.

Xbox 접근성 지침
aka.ms/xags

Xbox 접근성 지침(XAG)

- 플랫폼에 구매받지 않는 23개 게임 접근성 모범 사례
- 초보자와 전문가 모두에게 유용
- 개발 수명 주기 동안 여러 번 사용
- 범위를 지정하는 질문, 예시, 리소스, 도구 등 포함
- 주기적으로 업데이트됨



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Game Stack Docs / Accessibility / Guidelines / 101 - Text display

Filter by title

Game Stack Docs

Accessibility

Accessibility

Gaming and Disability Player Experience Guide

Gaming Accessibility Fundamentals Learning Path

Microsoft Gaming Accessibility Testing Service

Accessibility Feature Tags

Xbox Accessibility Guidelines

Guidelines

101 - Text display

102 - Contrast

103 - Additional channels for visual and audio cues

104 - Subtitles and captions

105 - Audio customization

106 - Screen narration

107 - Input

108 - Game difficulty options

109 - Objective clarity

110 - Haptic feedback

111 - Audio description

112 - UI navigation

113 - UI focus handling

114 - UI context

115 - Error messages and destructive actions

116 - Time limits

117 - Visual distractions

118 - Photosensitivity

119 - STT / TTS chat

120 - Communication experiences

121 - Accessible feature documentation

122 - Accessible customer support

123 - Advanced best practices

Xbox Accessibility Guideline 101: Text display

Article • 05/12/2021 • 9 minutes to read

Is this page helpful?

In this article

- Goal
- Overview
- Scoping questions
- Background and foundational information
- Key areas where accessible text display is important
- Implementation guidelines
- Gamer personas
- Resources and tools

Goal

The goal of this Xbox Accessibility Guideline (XAG) is to ensure that text readability is optimized for all players, including players with low vision. This can be achieved by displaying text at minimum default sizes and spacings and providing configurable style and color options.

Overview

There are approximately 2.9 billion people in the world with some degree of low vision. The term *low vision* can refer to a broad spectrum of visual disabilities, including blurriness of content (even with glasses or contacts) or conditions that make a person's view darker, cloudy, or incomplete.

There are also situational circumstances that can make text hard to read, such as playing on a screen that's far away or playing on a small mobile screen. Sometimes when players are in a situation in which their TV volume should be muted, or conversely, when their environment is very noisy, they rely on screen text to obtain information that they can't hear.

If a player can't read menu text, they might be excluded before they can even enter the gameplay experience itself.

Key information in a game can also be expressed via text-based methods that, when inaccessible, block a player from experiencing a game to its fullest. This can include experiences like non-player communications expressed via text, heads up display (HUD) elements, written on screen objectives or instructions, and communications with other players via text chat.

Scoping questions

Is the ability to read text a requirement in your game?

- Are the navigable menus in your game text-based?
- Is text displayed on screen during game play?
 - In the HUD?
 - Objectives or instructions written on screen?
 - Waypoints, markers, or other hints that are text-based?
 - Written communications from non-player characters?
- Does your game provide players the option to communicate with one another?
 - Text chat?
 - Chat wheels?
 - Alternative communication methods like speech-to-text and text-to-speech features?

Background and foundational information

What is text display?

Text display is made up of several aspects, including:

- **Size:** How large or small can the player adjust the text size?
- **Face:** Can the player make text bold, italic, or light?
- **Weight:** Can the player increase the thickness of text?
- **Style:** Can the player choose different font types?
- **Spacing:** Can the player adjust the spacing between letters and words?
- **Alignment:** Can the player adjust the horizontal alignment of text?
- **Case:** Can the player choose the case in which they want sentences presented?
- **Color:** Is the color of the text visible against its background? For more information, see XAG 102: contrast for detailed information on accessible text color.

Note

The best approach to ensuring that text is accessible for as many players as possible is by providing players with choices to configure the UI to best address

Text case and alignment

- **Font case:** Provide the ability to display text in proper sentence case rather than in full caps or full lowercase (if used).

Note

This requirement refers to lines of text. A one- or two-word label is exempt from this guideline.

- **Alignment:** Text is left/right-aligned based on the player language preference (not centered or fully justified)—or players can adjust the text to meet these guidelines.

Gamer personas

The guidelines in this XAG can help reduce barriers for the following gamers.

Persona

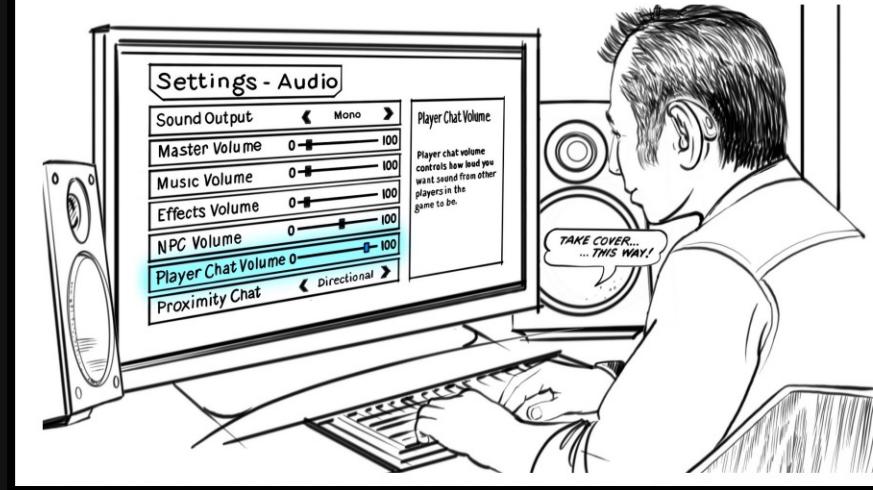
Gamers with low vision	X
Gamers with little or no color perception	X
Gamers without hearing	X
Gamers with limited hearing	X
Gamers with limited cognitive skills	X
Other: gamers who are reading text on a small screen, sitting far away from the screen, on a screen with glare, or on a low-contrast display	X

Resources and tools

Resource type	Link to source
Article	Clear Text (external)
Article	Distinguish This From That (external)
Article	Allow the font size to be adjusted (external)
Article	Provide a choice of text colour, low/high contrast as a minimum (external)
Article	Use simple clear text formatting (external)
Microsoft Game Development Kit API	XGameStreamingGetStreamPhysicalDimensions (This link require sign-in credentials provided by an NDA Xbox program.)

XAG 예시

Barrier: This game supports spatial audio output. For this player who is deaf in his right ear and wears a hearing aid in the other, game sounds being channeled through his right speaker are missed. Additionally, multiple sounds are occurring including weapons firing, explosions in the background, and other effects like the sounds of leaves rustling. As a result, the player may miss important cues from the game like a non-player character shouting "take cover, this way!" to the player to inform him where to go next.



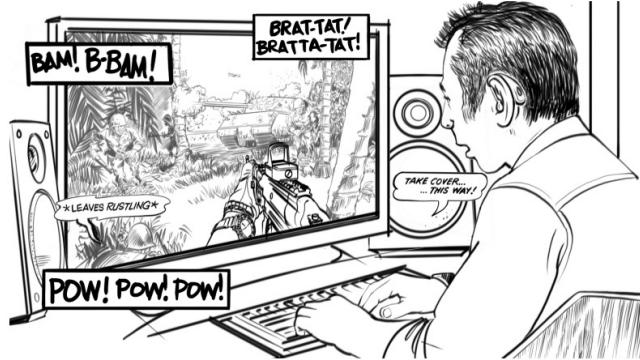
게임 및 장애인 플레이어 경험 가이드

aka.ms/gadpeg

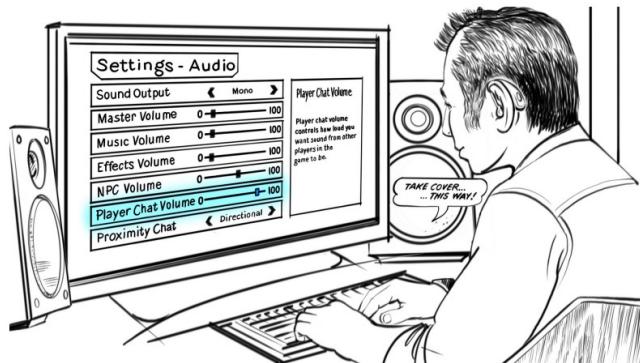
게임 및 장애인 플레이어 경험 가이드

- Xbox 접근성 지침을 지원하는 52 페이지 보충 자료
- 중간 수준에서 고급 수준의 게임 접근성 경험에 적합
- 게임플레이 중에 존재하는 장벽에 대해 보다 총체적인 이해 제공
- 일반적인 게임 장벽을 장애 유형별로 구성하여 보조 기능 제안

Hearing and Gaming – Barriers and Facilitators in Action



Barrier: This game supports spatial audio output. For this player who is deaf in his right ear and wears a hearing aid in the other, game sounds being channeled through his right speaker are missed. Additionally, multiple sounds are occurring including weapons firing, explosions in the background, and other effects like the sounds of leaves rustling. As a result, the player may miss important cues from the game like a non-player character shouting "take cover, this way!" to the player to inform him where to go next.



Facilitator: The player adjusts his audio output settings from "stereo" to "mono" so all game sounds are provided through both speakers. Additionally, he individually adjusts the volume for each class of sound from the game to lower noises like effects and music volume and raise the volume of non-player character dialogue volume.

No Hearing

Players who cannot hear any game audio that informs gameplay may experience barriers when auditory information critical to informing gameplay is not represented by additional, non-aural sources such as visual cues, text labels, subtitles and captions, or haptic affordances.

Audio-based information in games can help inform players of things like enemy footsteps approaching, explosions or incoming enemy fire, important dialog spoken by characters in the game, and online speech-based multiplayer communication from other players. Audio cues like the sound one's health bar depleting, or a "ding" when an interactable object is present may seem like minor, background embellishments. However, the absence of these cues can block a player from successfully participating in gameplay. When a player is not able to perceive key information from the game because it is provided solely through auditory means, that player must navigate through gameplay without the same cues and support that other players have. When audio affordances are also represented through additional channels like vision and haptics, players who cannot hear game audio can leverage this information during gameplay.

Barriers

- **Providing cues or other essential information through audio channels alone**

This applies to game areas like key informative sounds including the presence of impending danger (example: enemy fire, footsteps, chatter), sounds related to player status (example: audio cues regarding low player health or hunger), key events (example: a "ping" when an objective is completed, or an interactive object is nearby).

- **The use of spatial audio cues alone to inform where a sound is coming from**

The use of spatial audio alone for an off-screen cue that blocks players from deriving the direction of where the cue is located.

- **Full-motion video (FMV) and cutscene dialogue that provides key game information through audio channels alone**

This applies to dialogue from non-player characters in FMVs and cutscenes that relays essential information about game objectives or storyline to the player through audio alone.

- **Player-to-player communication channels that only support speech-based input and output**

This applies to party chats and any other online voice channels.

Facilitators

* Please refer to the following sections of the [Xbox Accessibility Guidelines](#) for detailed guidance on facilitator implementation

- **Represent audio cues through additional channels (visual, and haptic)**
[XAG 103: Additional Channels](#)
[XAG 110: Haptic Feedback](#)

- **Support subtitles and captions for character dialogue and in-game sounds**
[XAG 104: Subtitles and Captions](#)

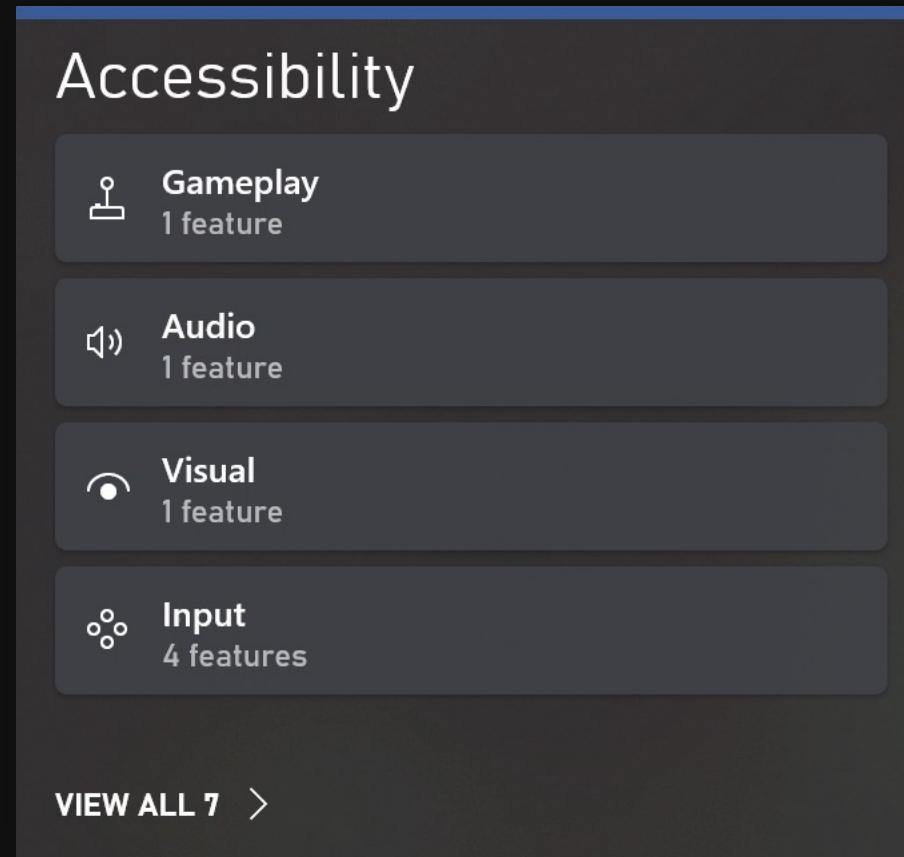
- **Provide directional indications of where an audio cue or dialogue is coming from**
[XAG 104: Subtitles and Captions](#)

- **Provide text-to-speech and speech-to-text transcription**
[XAG 120: Communication Experiences](#)

- **Provide player-to-player communication platforms that are not speech-based such as text-chat**
[XAG 120: Communication Experiences](#)

- **Provide full transcripts of game narration and dialogue online for player reference**
[XAG 120: Communication Experiences](#)

GADPEG 예시



접근성 기능 태그

aka.ms/afts

접근성 기능 태그

- 개발자가 주요 접근성 기능을 나타내기 위해 사용할 수 있는 20개 태그
- 구체적인 기준으로 고객을 위한 일관성 및 품질 보장
- Microsoft가 정확도 확인
- 접근성별 추가 게임 정보로 이동할 수 있는 URL 링크 포함



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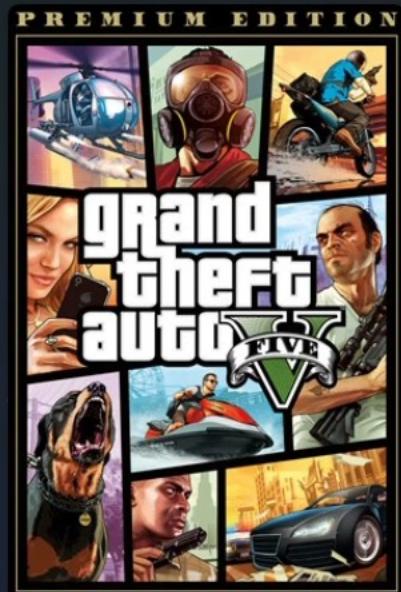
Deals

Accessibility spotlight

Subscriptions



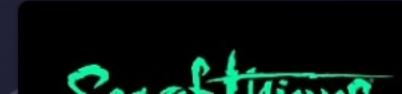
Top free games



Top paid games



Optimized for Xbox Series X|S



Accessibility spotlight

Most tagged

Explore select games with accessibility features. Some developers have tagged their games for supporting accessible gameplay, audio, visuals, and input features based on required criteria. These games stand out for having 4 or more accessibility features.

[Learn about the required criteria](#) 



PLAY TO  XS

\$19.79 **-67%**



PLAY TO  XS

\$20.99 **-70%**



PLAY TO  XS

\$53.99 **-10%**
with EA Play



PLAY TO  XS

\$62.99 **-10%**
with EA Play



Cyberpunk 2077

 Owned



STAR WARS SQUADRONS

EA Play XS

Installed



Trailer

SERIES
XS

GAME
PASS

Sea of Thieves

Microsoft Studios • Action & adventure • ★★★★☆ 1131



7 Accessibility features

LB ⋯ ⋯ ⋯ RB

INSTALL
You own this

PLAY
with Cloud Gaming

-OR-

BUY AS GIFT
\$39.99 \$26.79*



TEEN

Use of Alcohol, Crude Humor, Violence



Online Interactions Not Rated by the ESRB, *Contains in-app purchases.

Game requires Xbox Live Gold to play on Xbox (subscription sold separately).



Add-ons for this game
Official Club



Official Club

Details

Accessibility

Gameplay
1 feature

Audio
1 feature

Visual
1 feature

Input
4 features

[VIEW ALL 7 >](#)

Supported Languages

LANGUAGE	INTERFACE	AUDIO	SUBTITLE
English (United States)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Arabic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Chinese (Simplified)	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>
Chinese (Traditional)	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>
Czech	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Danish	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dutch	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
English (United Kingdom)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Finnish	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

[VIEW ALL 27 >](#)

More info

[Installation terms](#)

[Sea of Thieves we](#)

[Photosensitive se](#)

[Sea of Thieves sup](#)

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Videos



Ratings and reviews

XBOX SERIES X/S

XBOX ONE

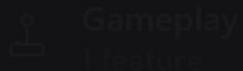
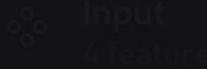
PC



Official Club

Details

Accessibility

**Gameplay**
1 feature**Audio**
1 feature**Visual**
1 feature**Input**
4 features

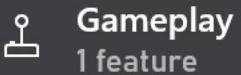
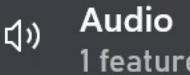
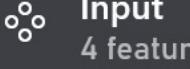
VIEW ALL 7 >

Videos

Ratings and reviews

Accessibility

Sea of Thieves has 7 accessibility features. These features enable people to play the games they love the way they want.

**Gameplay**
1 feature**Audio**
1 feature**Visual**
1 feature**Input**
4 features**Learn More**

Show feature definitions

**Sea of Thieves accessibility**

Discover available features



XBOX ONE

PC

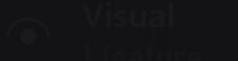
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Official Club

Details

Accessibility

Gameplay
1 featureAudio
1 featureVisual
1 featureInput
4 features

VIEW ALL 7 >

Videos

Ratings and reviews

XBOX ONE

PC

Accessibility >

Input

FULL KEYBOARD SUPPORT**NO BUTTON HOLDS****SINGLE STICK GAMEPLAY****TEXT-TO-SPEECH/SPEECH-TO-TEXT COMMUNICATIONS**

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Microsoft 게임 접근성 테스트 서비스

- 선택 사항, Xbox 및 PC 게임용 유료 테스트 서비스
- 접근성 SME 및 장애가 있는 게이머가 수행
- 안전하게 보안을 유지하면서 게임의 XAG 준수 여부 테스트
- 하이라이트, 우려 사항, 피드백, 태그, 개발자 리소스 보고
- Xbox 게임 접근성 SME와 함께 보고서를 검토할 수 있는 기회



Xbox Insider

Xbox Accessibility Insider League

Info

Announcements (3)

Welcome to the Xbox Accessibility Insider League! We're on a mission to make the Xbox ecosystem a place where everyone can have fun, and we need your help to ensure our products are as accessible and inclusive as possible. Members of this program will get access to previews such as game betas and surveys aimed at gathering feedback on the accessibility of Xbox products and experiences. If you are a player with a disability or an ally of the community and would like to provide feedback on the accessibility of Xbox products, please join today!

Manage



Xbox Accessibility Insider League

aka.ms/xailfordevs

Xbox Accessibility Insider League(XAIL)

- Xbox/PC 개발자 및 게시자에게 제공되는 플라이팅 프로그램
- 사용자가 접근성 피드백을 제공할 수 있는 옵트인 프로그램
- 편리한 사용을 위해 Xbox Insider Program의 기능 활용
- 사전 작성된 접근성 설문조사를 사용하거나 자체 설문 작성
- 시작하려면 Microsoft Publishing Partner 관리자에게 문의



Info

Announcements



Gaming & Accessibility

Help us learn from your experiences!

Store Accessibility Features

New accessibility features now in the Store!

Visual Audio Feedback for Minecraft

Check it out on Windows 10!

결론

유용한 6가지 리소스

- 게임 접근성 기초 학습 경로
- Xbox 접근성 지침
- 게임 및 장애인 플레이어 경험 가이드
- 접근성 기능 태그
- Microsoft 게임 접근성 테스트 서비스
- Xbox Accessibility Insider League

질문이 있으십니까?

추가 정보:
<https://aka.ms/xga>

질문:
xaccess@microsoft.com

