

Module 2: Installing and Configuring OBS

In Module 1, you gained a foundational understanding of broadcasting in the UK, the OBS Studio interface, streaming terminology, compliance basics, and hardware requirements. In this module, we move into practical configuration. Proper installation and optimisation of OBS Studio are essential for stable, professional broadcasts. A poorly configured system can lead to dropped frames, distorted audio, pixelated video, and viewer dissatisfaction.

This module will guide you step by step through downloading OBS Studio, installing it on Windows and macOS, using the Auto-Configuration Wizard, manually configuring settings, optimising video and audio, selecting appropriate output resolutions and bitrates for UK audiences, understanding encoder options, and testing stream stability.



Downloading and Installing OBS Studio on Windows and macOS

OBS Studio is free, open-source software developed by the OBS Project. Always download OBS Studio from its official website to avoid security risks.

System Requirements

Before downloading, confirm that your system meets minimum requirements.

For Windows (Windows 10 or 11 recommended):

- 64-bit processor
- DirectX 10.1 compatible GPU
- At least 8GB RAM (16GB recommended for professional streaming)

For macOS:

- macOS 11 (Big Sur) or later recommended
- Apple Silicon (M1/M2) or Intel processor
- 8GB RAM minimum

Streaming is resource-intensive. If your system barely meets minimum specifications, you may experience performance issues.

Installing on Windows

1. Visit the official OBS Studio website.
2. Select the Windows version (64-bit).
3. Download the installer file (.exe).
4. Run the installer.
5. Follow the installation prompts.
6. Choose installation location (default is recommended).

7. Complete installation and launch OBS.

Windows users should ensure that GPU drivers (NVIDIA, AMD, or Intel) are updated before configuring OBS. Updated drivers significantly improve encoding performance.

Installing on macOS

1. Download the macOS version (.pkg file).
2. Open the installer.
3. Follow installation prompts.
4. Move OBS to Applications folder.
5. Launch OBS.

On first launch, macOS may require granting permissions:

- Microphone access
- Camera access
- Screen recording access

These permissions must be enabled in System Settings → Privacy & Security.

Without proper permissions, OBS will not capture audio or display.

Auto-Configuration Wizard and Manual Setup

When you first open OBS Studio, you are prompted to run the Auto-Configuration Wizard. This tool analyses your system and recommends optimal settings.

Auto-Configuration Wizard

The wizard asks:

- Is this for streaming, recording, or both?
- What is your base resolution?
- What is your desired frame rate?
- Which streaming platform will you use?

OBS then performs a short bandwidth and encoding test to determine suitable bitrate and encoder settings.

For beginners, this is a useful starting point. However, professional streamers often refine settings manually.

When to Use Auto-Configuration

Use it if:

- You are new to OBS.
- You are unsure about bitrate and encoder settings.
- You want a quick setup.

Avoid relying solely on it if:

- You require precise control.
 - You stream specialised content (gaming, webinars, hybrid events).
 - You need to optimise for specific UK audience conditions.
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Manual Setup Overview

Manual configuration allows granular control over:

- Output resolution
- Encoder type
- Bitrate
- Audio sample rate
- Advanced buffering settings

You can access these options through Settings → Output, Settings → Video, and Settings → Audio.

Understanding each category is essential for professional broadcasting.

Video and Audio Settings Optimisation

Optimisation ensures a balance between visual clarity, system performance, and internet reliability.

Video Settings

Navigate to Settings → Video.

Base (Canvas) Resolution

This is your working resolution inside OBS. It should match your monitor resolution (commonly 1920x1080).

Output (Scaled) Resolution

This is the resolution viewers see. For UK streaming audiences:

- 1280x720 (720p) is widely compatible and stable.

- 1920x1080 (1080p) provides higher quality but requires stronger upload speeds.

If your system struggles, reduce output resolution before lowering bitrate.

Downscale Filter

Options include:

- Bilinear (fastest, lowest quality)
- Bicubic (balanced)
- Lanczos (sharpest, more CPU-intensive)

Lanczos is recommended if your system can handle it.

Common FPS Values

- 30fps (standard for webinars and talking-head content)
- 60fps (recommended for gaming and fast movement)

UK corporate and educational broadcasts typically use 30fps.

Audio Settings

Navigate to Settings → Audio.

Sample Rate

- 44.1 kHz or 48 kHz
- 48 kHz is preferred for professional broadcasting

Ensure your microphone and audio interface match this sample rate to avoid desynchronisation.

Channels

- Stereo is standard.

In the Audio Mixer, apply filters:

- Noise Suppression
- Compressor
- Limiter

These tools improve vocal clarity and maintain consistent audio levels.

Poor audio quality is one of the primary reasons viewers abandon streams.

Output Resolution and Bitrate for UK Audiences

Internet infrastructure in the UK varies by region. Urban areas typically have fibre broadband with high upload speeds, while rural areas may have more limited connections.

Your configuration should consider audience accessibility.

Recommended Bitrate Guidelines

For streaming platforms:

720p at 30fps

- 3,000–4,000 kbps

720p at 60fps

- 4,500–5,000 kbps

1080p at 30fps

- 4,500–6,000 kbps

1080p at 60fps

- 6,000–9,000 kbps

Before selecting a bitrate:

- Test your upload speed.
- Use no more than 70% of your maximum upload speed.
- Leave bandwidth for system stability.

For example:

If your upload speed is 10 Mbps, your maximum safe streaming bitrate is approximately 6–7 Mbps.

Adaptive Considerations

Many UK viewers access streams via:

- Fibre broadband
- 4G mobile
- 5G mobile

Higher bitrates may cause buffering for mobile users. If your audience includes mobile viewers, consider 720p streaming for broader accessibility.

Professional broadcasters such as the BBC utilise adaptive bitrate streaming. While OBS itself does not automatically create multiple quality levels, streaming platforms often handle transcoding.

However, smaller channels may not receive automatic transcoding. Therefore, conservative bitrate selection is wise.

Encoder Options (x264 and Hardware Encoding)

Encoding converts raw video into compressed digital format.

OBS offers:

- x264 (software encoding)
 - Hardware encoding (GPU-based)
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x264 (CPU Encoding)

Advantages:

- High compression efficiency
- Excellent quality at lower bitrates

Disadvantages:

- Heavy CPU usage
- May cause dropped frames if CPU is overloaded

Best for:

- High-end CPUs
 - Static content (webinars, presentations)
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Hardware Encoding

Modern GPUs include dedicated encoding chips:

- NVIDIA NVENC
- AMD AMF
- Apple VideoToolbox (macOS)
- Intel Quick Sync

Advantages:

- Lower CPU usage
- Stable performance during gaming or multitasking

Disadvantages:

- Slightly lower compression efficiency compared to x264 (though modern NVENC is very competitive)

For most UK streamers using mid-range gaming PCs or Apple Silicon Macs, hardware encoding is recommended.

Choosing the Right Encoder

Choose x264 if:

- You have a powerful multi-core CPU.
- You are not gaming while streaming.
- You prioritise compression efficiency.

Choose hardware encoding if:

- You game while streaming.
 - You want lower system strain.
 - You prioritise stability.
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Advanced Output Settings

Switch Output Mode to “Advanced” for additional control.

Key settings include:

Keyframe Interval

- Set to 2 seconds (standard requirement for most platforms)

Preset (for hardware encoding)

- Quality or Max Quality (depending on GPU power)

Profile

- High

B-frames

- 2 is standard

Incorrect configuration here can lead to rejected streams or unstable performance.

Testing Stream Stability and Performance

Before going live publicly, conduct thorough testing.

Local Recording Test

1. Start recording.
2. Record 5–10 minutes of content.
3. Review playback.

Look for:

- Dropped frames
 - Audio desynchronisation
 - Pixelation
 - Stuttering
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Private Stream Test

Many platforms allow unlisted or private streams. Use this to:

- Check bitrate stability
 - Monitor dropped frame percentage
 - Observe CPU usage
 - Review viewer-side playback quality
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OBS Stats Panel

Access via View → Stats.

Monitor:

- CPU Usage
- Dropped Frames
- Skipped Frames
- Render Time

Dropped frames often indicate network instability.

Skipped frames often indicate encoding overload.

Internet Stability Testing

Use wired Ethernet.

Close background applications.

Disable automatic updates during streams.

If instability persists:

- Lower bitrate
- Reduce resolution
- Switch encoder
- Reduce FPS

Redundancy and Backup Planning

Professional streamers prepare contingency plans:

- Secondary internet connection (mobile hotspot)
- Backup scene with static image
- Spare microphone
- Pre-recorded fallback content

Even independent creators benefit from basic redundancy.

Troubleshooting Common Issues

Issue: Dropped Frames

- Lower bitrate
- Use wired connection

Issue: Audio Delay

- Adjust sync offset in Advanced Audio Properties

Issue: High CPU Usage

- Switch to hardware encoding
- Lower output resolution

Issue: Stream Blurry

- Increase bitrate
- Ensure correct encoder preset

Workflow Best Practice Before Every Stream

1. Restart computer.
2. Check internet speed.
3. Confirm correct encoder selected.
4. Verify microphone levels.
5. Test scene transitions.
6. Perform short private stream.

Consistency builds reliability.

Module Summary

In this module, you learned how to download and install OBS Studio on Windows and macOS, configure permissions, and use the Auto-Configuration Wizard as a starting point. You explored manual setup for precise control over video, audio, output resolution, bitrate, and encoder selection, ensuring compatibility with UK audience connectivity conditions.