

A man and a woman are laughing and embracing in a modern living room. The man is wearing a white long-sleeved shirt and tan pants, and the woman is wearing a pink hoodie and blue jeans. They are standing in front of a large window with light-colored curtains. A small potted plant is visible on a wooden surface to the right.

10

**SMART HOME
INTEGRATION MISTAKES**
AND HOW TO AVOID THEM

DO YOU FEEL OVERWHELMED WITH SMART HOME TECHNOLOGY?

You're not alone. Many builders, architects, designers, and homeowners struggle to seamlessly integrate smart technology into their designs and construction projects.

Between selecting the right products to match your client's taste and budget, coordinating countless subcontractors, ensuring compliance with local regulations, and preserving the integrity of your aesthetic vision, it's easy for things to fall through the cracks. Designing luxury homes should be exciting – but instead, you're caught up in a multitude of options, countless decisions, project delays, and issues that drain your passions.

At **AudioVisions**, we've helped thousands of builders, design consultants, and homeowners effortlessly incorporate smart home systems into their projects. The secret? Bringing us in early in the planning phase to ensure technology enhances—not disrupts—your designs.

This eBook Will Help You Avoid Common Smart Home Technology Mistakes

We believe refinement is key when designing luxury smart homes. That's why we created this guide – to help you avoid costly mistakes and create exceptional spaces with integrated technology that works beautifully.

By the time you've worked through this book, you'll be equipped to:

- Spot common missteps before they become costly problems.
- Make informed decisions that protect your design intent.
- Coordinate more smoothly with trades and technology partners.
- Deliver spaces that function as beautifully as they look.
- Feel more confident in conversations around technology and design.

Ready to take your luxury projects to the next level?

Let's get started.

1

Inadequate Network Infrastructure

The voice control doesn't respond, the video doorbell goes offline, and the whole-home audio goes out of sync, all because the network was an afterthought.

The invisible foundation of every smart home is a rock-solid network. We all know that good wi-fi pays for the party!

A home filled with smart technology needs more than just a basic router tucked away in a closet. It needs a robust, scalable network that can handle dozens (or hundreds) of connected devices without slowing to a crawl.

The Pitfalls

- **Misplaced Access Points = Weak Signals** - No one wants to see an ugly access point on their ceiling, but tucking it behind a TV or inside a closet strangles signal strength. Smart doesn't work when signal can't spread.
- **Certain Surprising Materials Block Wi-Fi** - Certain drywall materials like those containing metal mesh or high-density insulation, or wall coverings with woven metals can block or severely weaken Wi-Fi signals. These design choices, while beautiful, need to be considered early to ensure uninterrupted connectivity throughout the home.
- **Forgetting About Wired Connections** - Everyone loves wireless technology, but access points still need a wired connection to function properly. When the infrastructure isn't planned early, it's harder (and costlier) to retrofit.

The Remedies

- Use heat map coverage on floor plans to determine ideal access point placement, ensuring full, even coverage.
- Disguise access points creatively while preserving performance, e.g. recessed ceiling mounts, paintable covers, or integration into existing design features.
- Upgrade to high-speed fiber, enterprise-grade routers, and dedicated IoT networks.
- Set up separate networks like a dedicated smart home network, a guest Wi-Fi or a secure personal network for sensitive data.

A poorly designed network turns high-tech dreams into laggy, frustrating nightmares. The best smart home isn't just about flashy automation, it's about seamless, invisible connectivity that just works.

THE FIX

Before finalizing that perfect smart home blueprint, ask yourself: Is the network strong enough to handle it all? If not, it's time to rethink the foundation. Psst. AudioVisions wi-fi heat maps are prepared for free!



2

Failing to Create a Unified Ecosystem

So, you finally have a brand-new, beautifully designed residence outfitted with the latest in smart technology—gorgeous layered lighting, whisper-quiet motorized shades, a private cinema, and voice-controlled everything. It's a modern homeowner's dream... until they actually try to use it.

Suddenly, the lighting won't respond from the same interface as the shades. Voice commands work for the music but not the climate. The surveillance system? Only accessible through a completely different app. Welcome to the Frankenstein Smart Home—where each system speaks a different language, and the homeowner is left juggling multiple apps, remotes, and commands just to settle in for the evening.

One of the most common and costly missteps in luxury home technology is treating each system as a stand-alone feature rather than part of a unified experience. Without early alignment across platforms and professionals, even the most beautifully designed homes end up with technology that competes rather than cooperates.

The Pitfalls

- **App Overload** - When lighting, climate, surveillance, music and entertainment all require separate apps or remotes, the experience becomes overwhelming, not elegant.
- **Cross-Talk Conflicts** - Mixing too many brands with incompatible protocols (KNX, Zigbee, proprietary APIs, etc.) results in systems that don't communicate, or worse, interfere with one another.
- **No Central Control Hub** - If homeowners have to rely solely on apps, (and stable wi-fi,) they lose the convenience of wall-mounted keypads, voice control, or remote access.

The Remedies

- Choose one central automation platform (Savant, Crestron, or Control4) to unify all devices under a single, easy-to-use interface.
- Pick a smart home ecosystem and stick with compatible brands. Focus on manufacturers and partners whose products are purpose-built for high-end integration, not just the next tech start-up with a flashy app.
- Install physical smart home controllers that allow users to control everything in one place. Voice, touchscreen and app control are all great, but sometimes, a homeowner just wants to hit a keypad on a wall. Enable true control with the power of choice!

THE FIX

Engage all design consultants early. Ensure the architect, builder, interior designer, lighting designer and technology integrator are aligned on which systems will be used. Decisions about lighting control, audio, networking infrastructure, and automation protocols should be made before walls go up—not after.



3

Not Planning for Scalability

Picture this: A sleek, modern home outfitted with state-of-the-art smart features: automated lighting, voice-controlled climate, even a luxury home theater. The architect nailed the design. The homeowner is thrilled.

Until they try to expand the system. One of the most common (and costly) mistakes in luxury home design is treating technology as a one-time install rather than a living, evolving ecosystem. Today's client might be satisfied with a few connected features. But what about tomorrow, when they want to add motorized shades, solar battery backup, or enhanced energy monitoring?

Without proper planning, upgrades become invasive and expensive. Worse, resale value suffers when potential buyers see tech that's already obsolete.

The Pitfalls

- **Insufficient Network Infrastructure** – A single wi-fi router won't cut it. Scalable systems need wired backbones and multiple access points.
- **No Unified Control** – If every device needs its own app, frustration sets in fast. Even worse, many off-the-shelf systems don't always work together. Homeowners often assume a smart thermostat, speaker, or camera will integrate seamlessly—but without centralized control, they're stuck juggling incompatible platforms, multiple remotes and too many apps.
- **Missed Pre-Wire Opportunities** – Walls are sealed before low-voltage wiring is run for future shade pockets, speakers, or surveillance systems.
- **Power Strain** – High-performance AV, home theaters, automation, and surveillance systems need dedicated circuits. Without thoughtful planning, even the most elegant homes can struggle to support their energy needs as technology demands grow.

The Remedies

- Design with growth in mind: allow for new devices, expanded zones, and emerging platforms.
- Pre-wire even if the tech isn't needed yet. This is especially important in key areas like window treatments, wireless access points, and landscape lighting and audio. It saves significant money to have the wiring in place verses trying to add it once walls and ceilings are sealed.
- Use a scalable control platform to allow for technology as you need it now, and as you may need it in the future.
- Think resale: A well-designed infrastructure adds tangible value to the home.

THE FIX

Architects and designers who plan for long-term smart home growth don't just create beautiful spaces—they create homes that evolve with their owners.



4

Underestimating the Importance of Customization

One-Size-Fits-All? Think again! Many people assume that smart home systems are “plug and play,” and that every manufacturer plays nice with one another.

Spoiler alert: they’re not, and they don’t. While popular consumer platforms like Alexa and Apple HomeKit promise easy setup, true smart home integration requires personalization. Without it, you end up with an overpriced gadget collection rather than a seamless technology experience.

Think about it... your lifestyle, habits, and preferences are unique, so why should your technology function like everyone else’s? A customized system ensures that automation works for your client and enhances their life.

The Pitfalls

- **Assuming It’s “Plug and Play”** – Smart home tech may seem simple: buy, plug in, and go. However, real integration and true customization requires much more than a quick setup. Off-the-shelf systems may offer basic functionality, but without thoughtful planning and integration mapping they rarely deliver the seamless experience clients expect.
- **Security Gaps** – Generic settings won’t always account for how your household operates. A properly customized system ensures that cameras, motion detectors, and smart locks function to fit your routines—not just factory presets.
- **Inefficient Energy Use** – Without proper setup, smart homes can waste energy. Cooling empty rooms, leaving shades up in an empty house letting sunlight in, or running lights all day. And without solar battery backup, you risk losing power when you need it most.

The whole point of automation is to make life easier. A poorly customized setup will have you constantly fixing automations, manually adjusting settings, and yelling at your voice assistant more than you’d like to admit.

The Remedies

- Adapt to your lifestyle – Morning person? Night owl? Your system should work on your schedule.
- Integrate with your design aesthetic. No bulky hubs cluttering your counters and ceilings, or awkward placement of code-required motion sensors.
- Future-proof your home! With proper customization, your smart home grows with your needs and technology advancements.
- With a unified ecosystem, there’s no more fighting between apps, brands, or devices—everything should flow effortlessly.

THE FIX

To avoid smart home headaches, work with a technology integrator who understands your habits, needs, space, and manufacturers’ ecosystems.



5

Properly Balancing Form & Function: Aesthetic Integration

You finally have the home of your dreams: automated lighting, motorized shades, surveillance systems, and even a voice controlled washing machine and an app for your oven. It's high-tech, futuristic... and kind of ugly. Wait, what?

That's right, one of the biggest unintentional mistakes with smart home design is neglecting aesthetic integration. Sure, you've got amazing technology, but if your walls are cluttered with mismatched keypads, a wireless access point in the middle of your living room ceiling, and there's a giant black speaker sitting next to your handcrafted hearth, is it really that smart? Technology should complement, not clash a well-designed space. It should feel seamless. Unfortunately, too often the balance between form and functionality is overlooked, and solutions end up 'Frankensteined' as opposed to a thoughtfully designed living space.

The Pitfalls

- **The "Wall Acne" Effect** – Motion sensors, thermostats, keypads, touch screens, switches – without planning, your walls end up having multiple, mismatched control stations instead of an intentional designer keypad.
- **The Tech-Dump Dilemma** – When speakers, routers, and smart devices are treated as an afterthought, the result is often a cluttered collection of gadgets scattered across surfaces. Instead of integrated, invisible design (think invisible speakers behind drywall or TV's concealed with artwork) you're left with a countertop or closet dominated by hubs, routers, wires, that confuse the user and/or kill the vibe.
- **Too Late to Hide the Wires** – A lack of early planning can leave you scrambling to add wires where they should've already been. The result? Lack of functionality, visible wire runs, and a design that falls short of its potential.

The Remedies

- Work with a smart home consultant to consolidate controls and hide unnecessary clutter. (Bonus, planning early helps save money by avoiding duplicate devices and/or adding technology too late in the project.)
- Use built-in shelves, concealed cabinets, or custom furniture to integrate tech without ruining your vibe.
- Plan pre-wired solutions and wi-fi network coverage early. It's easier to have concealed wiring available and not use it, than try to add it after construction's complete.
- Source design-friendly products created with tech-integration in mind.

THE FIX

Work with your technology integrator early on in the design phase to find creative solutions to hide tech and avoid running into unexpected product needs that clash with your aesthetic vision.



6

Overlooking Intelligent Lighting

There's something magical about walking into a space where the lighting just feels right: natural, effortless, and perfectly in tune with the moment. That's the promise of intelligent lighting. However, it's one of the areas that's undervalued, under appreciated, and often under-budgeted.

Smart lighting is one of the fastest-growing segments in home technology... and for good reason. It's more than a convenience upgrade; it's a lifestyle game-changer. Once you have it, you won't want to live without it. From enhancing comfort and ambiance to improving energy efficiency and security, intelligent lighting brings your home to life and keeps it working in sync with your needs.

The Pitfalls

- **A Static Home in a Dynamic World** – Without smart lighting, your home operates on a fixed setting, regardless of the time of day or activity. Bright white light may be great for tasks but jarring in the evening, while dim lighting can leave you sluggish during the day.
- **One-Dimensional Design** – Most homes rely on basic overhead fixtures or single-bulb solutions, limiting both function and atmosphere. Without layers of light or adaptive control, spaces often feel flat, underlit, or overly harsh.
- **Outdated Infrastructure** – Traditional fixtures are locked into fixed wiring and single-function switches. This makes adapting your space a challenge, especially as your lighting needs or room layouts change over time.

The Remedies

- Lighting that follows the sun.. Automated lighting shifts throughout the day, mirroring natural sunlight to support your circadian rhythm and enhance well-being, from morning brightness to evening warmth.
- Control to your preference. Adjust your lights with a touch, a voice command, a wall keypad, or an app. Whether you're home or away, intelligent lighting puts comfort at your fingertips.
- Smart lighting can integrate with your home's security system. If an alarm is triggered, interior and exterior lights can flash or turn on to help alert neighbors and assist first responders in locating your home quickly. When you're traveling, 'smart away' features automatically alternate lights on and off to create the illusion of someone being home, adding a powerful layer of deterrence without any extra effort.

Intelligent lighting doesn't just illuminate your home, it elevates it. It's not just about seeing better, but living and feeling better.

THE FIX

Speak with a smart home technology consultant, who can collaborate with or guide you to a local lighting designer who can enhance the light in your life.



7

Overlooking Privacy and Security

Ah, the modern smart home: lights that adjust to your mood, thermostats that learn your schedule, and voice assistants that seem to anticipate your every need. It's sleek, seamless, and incredibly convenient. But there's one thing many forget: is it thoughtfully designed for real-life scenarios?

When security and privacy aren't considered from the outset, even the most advanced systems can fall short. A well-designed smart home doesn't just look good, it knows when you're home, when you're away, and how to respond appropriately.

The Pitfalls

- **Uncoordinated Devices = Missed Opportunities** – Motorized doors, windows, shades, and digital locks are just some of the powerful options available, but only when they're working together. If the shades are down at the wrong time or doors aren't auto-locking when you leave, convenience can quickly become a liability.
- **No Emergency Protocols** – Many homes overlook scenario-based programming. In a moment of panic, what good is smart lighting if it doesn't react? Without a plan, your system won't know how to respond in high-stakes situations.
- **No Pattern Awareness** – Modern systems can now recognize lifestyle patterns: when you usually come home, how long the dog walker stays, or if a window is usually left open. When your system understands what's normal, it can alert you when something isn't.
- **Cameras Without Context** – High-end surveillance cameras offer more than recordings, they can be proactive. But when they're added as an afterthought, they often lack the coverage, integration, and accessibility to be as useful as the technology allows.

The Remedies

- Ensure your lighting, shades, locks, sensors and security system are part of a connected system. Automate behaviors like lowering shades when the home is unoccupied or locking doors after a set time.
- Incorporate features like panic buttons that instantly turn all interior lights to 100% and flash exterior lights. These protocols provide clarity, safety, and peace of mind when it matters most.
- Choose surveillance solutions that include app control, remote access, and intelligent alerts. Position cameras strategically for maximum visibility and integration—not just for security, but also convenience and awareness.

THE FIX

Privacy and security aren't afterthoughts—they should be baked into the design from the very beginning.



Forgetting Battery Back-up: Protect What You've Powered

You've designed a stunning smart home: automated lighting, hidden speakers, perfect wifi coverage, intuitive controls, a gorgeous theater, and solar panels soaking up the sun.

But without the right infrastructure behind it, that solar setup might be doing less than you think. Solar alone isn't enough. And if battery backup and system design aren't part of the conversation early, your clients might be throwing money (and sunlight) out the window.

The Pitfalls

- **Not Maximizing Your Solar Investment** – In states like California, solar is required by code. But homeowners often stop at the panels, skipping backup systems that protect their investment.
- **Undersized Battery Backup** – Streamlined backup battery brands rarely offer enough output to support a full customized home. Many systems require two, three, or even four units to deliver adequate power, whereas a properly specified solution could do the job with one.
- **The Grid Isn't Ready** – Utility companies and aging infrastructure can't keep up with modern energy demands. Power outages are more frequent, and rate hikes are inevitable. Without a system designed for independence, homeowners stay tied to an unreliable grid. This is especially an issue with climate events (e.g. wildfires,) when utilities proactively cut power and gas.

The Remedies

- Design solar-ready homes with battery storage in mind. A smart inverter and scalable backup system offer control with all energy sources and allows for ultimate energy independence.
- View solar as a long-term asset that protects residential systems to keep the lights and energy flowing, even when the grid fails.
- Utilize all technology in tandem for ultimate energy savings: automate temperature and lighting based on occupancy and time of day. Use shades, sensors, and routines to reduce load usage without sacrificing comfort or style.
- Coordinate scope with all trades early: the integrator, the electrical contractor, and the solar installer should be aligned to ensure streamlined communication, roles & responsibilities.

Smart homes aren't just about the latest tech – they're about staying powered, protected, and prepared. Solar is just the beginning. The real value lies in how you control and preserve that power, now and for years to come.

THE FIX

Powering a home with sunlight is only smart if you protect and optimize that power. True luxury isn't just having solar, it's having total control over how and when it works for you.



Ignoring Outdoor and Specialty Spaces

Congratulations, you've designed the perfect smart home—automated lighting, motorized shades, a killer home theater, voice-controlled everything. But step outside, and... nothing.

The backyard is just basic. The patio? Not a single smart feature. The home gym, wine cellar, and outdoor kitchen? Totally ignored. Oops. One of the biggest mistakes people make in smart home projects is focusing only on indoor spaces, forgetting that outdoor areas and specialty rooms deserve smart technology too! After all, a smart home shouldn't stop at the front door—it should extend to everywhere homeowners live, work, and entertain.

The Pitfalls

- **The Backyard is Still Part of the Home!** Outdoor areas are often just as important as indoor spaces. Think integrated smart landscape lighting, invisible in-ground speakers, automated irrigation and pool controls, motorized patio shades and televisions, and Wi-Fi coverage that extends beyond the back door.
- **The Garage: More Than Just a Car Cave** – Garages are usually treated as storage afterthoughts, but they're prime for tech upgrades: geofenced doors that tie into interior scenes, exterior motion-triggered or time-clock based lighting, or housing the EV and solar battery back-up systems.
- **Skipping Spaces That Inspire Daily Life** – Specialty rooms like home gyms and golf simulators feel incomplete without smart features: voice-activated playlists, digital coaching mirrors, air quality monitoring, and full AV integration turn them into luxury spaces.
- **The Forgotten Smart Wine Cellar** – A high-end wine collection deserves more than a dark closet; smart cellars manage temperature and humidity, track inventory, and offer secure, app-controlled access for peace of mind.

The Remedies

- Plan for full-property Wi-Fi coverage and outdoor tech early in the project.
- Treat exterior patios, landscaping, garages, gyms, and recreation rooms like part of the living space.
- Use smart features to elevate the experience of each specialty room.

Every space in a home serves a purpose—whether it's for relaxing, recharging, entertaining, or improving well-being. Start by understanding how the client will use a space, then consider the technology to enhance that experience.

THE FIX

From immersive sound in a golf simulator to climate control in a home gym or intuitive lighting in a wine cellar, thoughtful technology and integration transforms functional rooms into unforgettable spaces.



Skipping the Walkthrough or Forgetting Service Plans

Today's smart homes are more powerful than ever: lighting that adapts to your lifestyle, climate control that adjusts automatically, sophisticated sound throughout the home and exterior, and security systems that protect with precision. But even the most advanced systems can fall short if homeowners don't feel confident using it.

In many homes, you'll find multiple generations living or visiting under one roof, each with different levels of comfort around technology. Without training and ongoing support, features go unused, frustration builds, and the full value of the system is never realized. Without proper training and ongoing support, even the most intuitive smart home can become a daily struggle instead of a seamless experience.

The Pitfalls

- **Homeowners Get Overwhelmed... and Stop Using Features** – If a smart home feels too complicated, homeowners won't use half the features, or worse, they'll manually override the system and defeat its entire purpose.
- **Endless "Tech Support" Calls** – Without proper onboarding and service plans, homeowners will call the architect, builder, or interior designer every time something glitches, lags, or acts strangely.
- **No One Maintains the System** – Smart home systems need updates, maintenance, and sometimes troubleshooting, but if no one explains this, devices can become outdated or stop working.
- **"I Regret Getting a Smart Home" Syndrome** – The worst outcome? A homeowner who hates their technology because it feels like a burden instead of a benefit.

The Remedies

- Ensure there's a walkthrough scheduled during turn-over so homeowners can understand key features, how to work their systems, and who to call if they need support.
- Provide a maintenance plan that includes firmware updates, troubleshooting tips, and contacts for professional support.
- Review service plans and select the one that works best. For example, AudioVisions' plans include 24/7 support by phone or email, proactive system monitoring, quarterly on-site tech reviews, and more!

When you hand off a home with a plan, a user-friendly guide, and professional support behind it, you're not just delivering a beautiful design, you're delivering a lifestyle upgrade they'll actually enjoy.

THE FIX

Don't let a lack of support turn a smart home into a missed opportunity. Handoff and ongoing service aren't optional, they're what ensure the system performs as beautifully as it was designed.



YOU DON'T HAVE TO BUILD SMART TECHNOLOGY ON YOUR OWN

Get in contact with the team,
we're here to help you!

By addressing these overlooked aspects, you can create smarter, more efficient, and user-friendly homes. Would you like examples or guidance on implementing any of these ideas?

Bonus Resource: Project Technology Assessment

1. Review Project Technology Checklist on the next page
2. Select areas/amenities of interest for your project
3. Contact one of our dedicated technology experts to help you with your smart home integration



PROJECT TECHNOLOGY ASSESSMENT

Goal:

1. Read through this comprehensive list of smart home features
2. Place a check mark next to each home amenity of interest
3. Reach out to your qualified home technology advisor for a consultation

Timing:

Make sure to include a technology integrator as early as the schematics design phase for architects and designers; and before getting framing, electrical, and HVAC bids for builders.

Benefits:

1. A technology integrator can create technical drawings for collaboration with the design team and affected subcontractors.
2. Early design collaboration significantly minimizes and eliminates costly change orders that will disrupt the project's completion time. Plus, design collaboration will eliminate aesthetics and performance compromises that happen when home technologies are considered too late.

PROJECT NAME:

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Infrastructure / Tech Foundation

- ☐ **Prewire** (at minimum to include network, TV locations, surveillance cameras, music locations. May also include smart home amenities such as lighting, motorized shading, access controls, home theater, outdoor entertainment etc.)
- ☐ **Energy Management** (including backup power)
- ☐ **Whole House Surge Protection**

Security / Safety

- ☐ **Alarm System**
- ☐ **Fire Detection System**
- ☐ **Front Door Camera**
- ☐ **Perimeter Surveillance Cameras**
- ☐ **Cybersecurity**
- ☐ **Access Controls** (front gate entry, conditional access to property)
- ☐ **Safety Lighting**

Environment

- ☐ **Hidden Technology** (may include invisible speakers, motorized TV lifts or panel lifts etc.)
- ☐ **Design-Enhanced Controls** (includes luxury lighting, shading, and home control keypads in a variety of architectural / design styles & materials)
- ☐ **Digital / New Media Arts** (video displays of any size that displays still & motion artwork)
- ☐ **Wellness** (includes water & air filtration)
- ☐ **Acoustic Comfort** (acoustic design & treatment to address excessive echo in interior spaces)
- ☐ **Sound Isolation** (minimize or eliminate loud external sounds from adjacent rooms such as kitchen or a home theater and also isolation from outdoor sounds)

Communications

- ☐ **Network / WI-FI** (size of home)
- ☐ **Phone / Intercom**

Convenience & Control



- ☐ **Remote Temperature Control** (smart thermostat)
- ☐ **Lighting Controls**
- ☐ **Intelligent Lighting Fixtures** (color-changing, circadian rhythm lighting, digitally addressable)
- ☐ **Outdoor Lighting**
- ☐ **Motorized Shading & Drapery**
- ☐ **Motorized Windows / Doors / Skylights Control**
- ☐ **Pool & Spa Control**
- ☐ **Garage Door Control**
- ☐ **Voice Control**

Entertainment

- ☐ **TVs**
- ☐ **Outdoors TV**
- ☐ **Home Theater** (a dedicated room designed for best theatric experience, a very large screen, projectors)
- ☐ **Media Room** (a smaller scale home entertainment system, modeled after a home theater though in a dual-purpose room)
- ☐ **Whole House Music** (including outdoor speakers)
- ☐ **High-Performance Music System** (audiophile)
- ☐ **Golf / Sports simulators / gaming**

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