

Proposal for Reclassifying the Balinese Script

I. Proposal Identity

- Script Name: [Balinese](#)
- Unicode Script Code: [Bali](#)
- Current Identifier Type in UAX #31: [Limited_Use](#)
- Proposed Identifier Type: [Recommended](#)

II. Proposal Summary

This proposal seeks to elevate the status of the Balinese script from [Limited_Use](#) to [Recommended](#) based on evidence of active, widespread, and everyday use by the Balinese-speaking community, especially in digital and online contexts. The script is currently used in formal education, social media, official government documentation, and community-driven digital platforms. The evidence demonstrates that Balinese script is actively employed in communication and information processing by a sizable and engaged user base.

III. Introduction

Language is an essential aspect of human life, enabling more effective and meaningful communication. It serves as a medium for expressing thoughts, emotions, spirituality, behaviour, ethnic identity, civilization, art, and much more.

Bali, one of Indonesia's many islands, is internationally recognized for its rich, diverse, and deeply rooted cultural heritage. As of 2023, Bali's population was approximately 4.3 million, with an annual growth rate of around 1.01%. That same year, the number of students enrolled in elementary, middle, and high schools—including vocational and special education schools—reached 758,174, across nearly 3,200 schools on the island.

The Balinese language is a compulsory subject in all schools across Bali as part of the local content curriculum (Beratha et al., 2017). Students begin learning and practicing the Balinese language from elementary through high

school, with instruction provided in both the Latin alphabet and the traditional Balinese script.

The Balinese script, a member of the Brahmic family of scripts, is a cornerstone of Balinese culture and heritage, deeply intertwined with the island's religious, literary, and artistic traditions. Historically, the script has served as the primary medium for documenting sacred Hindu texts, philosophical treatises, historical records, and traditional knowledge in the form of palm-leaf manuscripts (*lontar*). These documents form an invaluable archive of Balinese identity, reflecting the island's spiritual depth and intellectual history.

Despite its historical significance, the Balinese script continues to play a vital role in contemporary Balinese life. It is evident in public signage, ceremonial practices, educational curricula, and official documents, serving as a symbol of Balinese identity and pride. The script bridges the past and present, showcasing the richness of Balinese culture in an increasingly modern and digitalized world.

To ensure the sustainability of the Balinese language and script, the government has implemented significant regulations. Bali Regulation No. 1 of 2018 strengthens the position of the Balinese language and script as a core identity of the Balinese people (Bali, 2018a), Bali Governor Regulation Number 80 of 2018 (Bali, 2018b) mandates the use of Balinese language and script in public signage and educational contexts, while Bali Regulation Number 4 of 2020 (Bali, 2020) emphasizes the strengthening and advancement of Balinese culture. These policies underscore the government's commitment to preserving the script as a living part of Balinese heritage for generations to come.

While the Balinese script has been included in the Unicode standard, its current identifier as "Limited Use" does not fully capture its cultural importance or its growing digital adoption. This proposal seeks to elevate the Balinese script to "Recommended" status within the Unicode standard, reflecting its significance and fostering greater investment in its development and use. By doing so, it will bridge the gap between cultural preservation and technological

innovation, ensuring that the Balinese script thrives in the digital age and continues to serve as a key element of Balinese identity.

This proposal outlines the cultural, historical, and modern relevance of the Balinese script, supported by government regulations, technical readiness, and community enthusiasm. Elevating its Unicode status will promote its broader adoption and integration into global digital systems, safeguarding its legacy while ensuring its accessibility and relevance in the future.

IV. Background and Current Usage

The Balinese script, part of the Brahmic family of scripts, has an extensive history and remains actively used in multiple domains:

- 1. Traditional Manuscripts and Religious Texts:** Balinese *lontar* manuscripts, written in the Balinese script, play a crucial role in Hindu-Balinese ceremonies, religious rituals, and cultural education (see Figure 1). These manuscripts serve as repositories of ancient wisdom, preserving traditional narratives, philosophical teachings, and essential cultural knowledge that shape Balinese society. As illustrated in Figure 1, *Lontar Aji Pangasih* is one such manuscript within the Balinese literary tradition. It imparts teachings on attraction, authority, and the ways in which individuals can cultivate affection and respect from others. The term *Aji Pangasih* itself derives from the words *aji* (knowledge or teaching) and *pangasih* (affection or charm).



Figure 1. Traditional manuscript in Balinese Script

- 2. Public Signage:** The incorporation of Balinese script in public signage—whether in temples, museums, cultural landmarks, or commercial

establishments—demonstrates its continued relevance in contemporary society (see Figure 2). These signs not only preserve linguistic heritage but also enhance cultural visibility in everyday life, reinforcing a sense of identity among Balinese residents while offering an immersive cultural experience for tourists.



Figure 2. The use of Balinese Script in Institution Marker/Name

In today's globalized world, where modernization often overshadows local traditions, the use of Balinese script in both institutional markers and commercial branding (such as fast-food chains like KFC and McDonald's) reflects a conscious effort to maintain cultural authenticity amidst international influences as shown in Figure 3. This trend highlights the adaptability of traditional scripts in modern visual communication, ensuring that local identity remains strong even in a rapidly evolving landscape.



Figure 3. Balinese Script Utilized to Write KFC and McDonalds at the American Fast Food in Bali

- 3. Official letterhead:** The official letterhead of the Bali Provincial Government prominently displays the traditional Balinese script alongside the national script, in accordance with Governor Regulation Number 80 of 2018. This regulation underscores the commitment to continuing and promoting the Balinese language, script, and literature as integral parts of the region's cultural identity. The inclusion of Balinese script in official

government documents, such as the circular letter shown in, reflects an institutional effort to reinforce cultural heritage within administrative practices. In an era where digital communication dominates, this initiative ensures that Balinese script remains visible and relevant in formal and governmental contexts, strengthening its role in public life.



Figure 4. Bali Province Instructed to Use Balinese Script on Every Official Letterhead

4. Education and Cultural Institutions: The Balinese script is actively integrated into the school curriculum across various educational levels, complemented by workshops and programs conducted by cultural institutions. These efforts play a crucial role in ensuring that the script remains relevant, accessible, and widely practiced by younger generations.

To support formal education, the *Kusuma Sastra* book (see Figure 4), designed for high school students (*SMA/SMK*), provides structured learning materials that make the study of Balinese language and script more engaging and practical. Additionally, in 2023, the Balinese government published a comprehensive reference book (see Figure 5) outlining proper Balinese script writing for both academic settings and public use. This initiative not only standardizes script usage but also encourages broader participation, ensuring that the Balinese script continues to thrive in contemporary society.

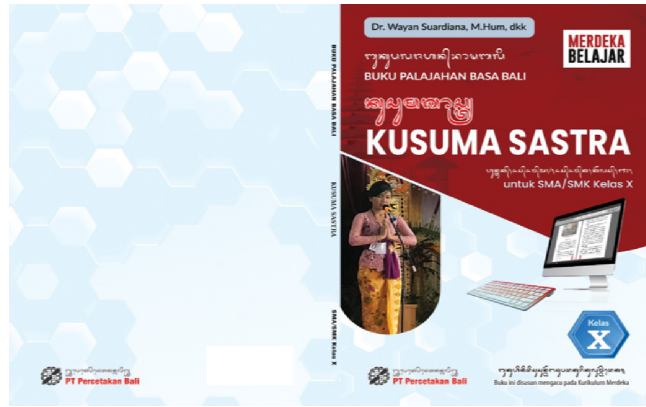


Figure 4. Book for Student at High School Level

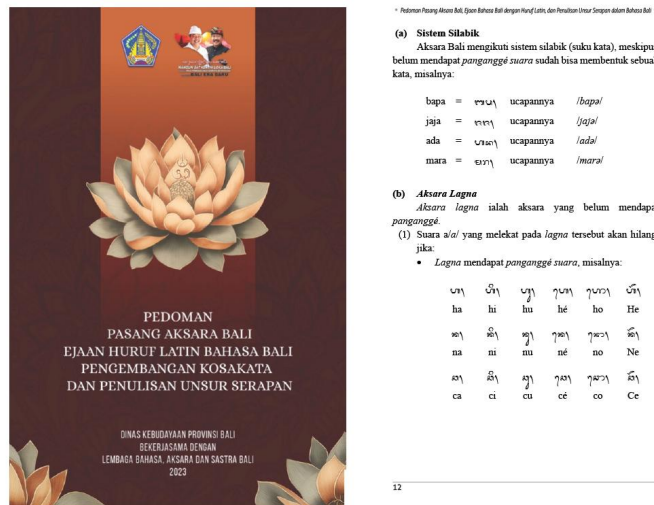


Figure 5. Recent Reference Book for Writing Balinese Script (Antara et al., 2023)

5. Digital Media and Online Platforms: Increasingly, digital tools are integrating the Balinese script. For example, digital dictionaries and Unicode-enabled keyboards have made it easier for users to write in the Balinese script on smartphones and computers. Here are the example of digital media and online platforms that utilised the Balinese script:

1. On-going digitalisation of ancient literature Balinese script project <https://palmleaf.org/wiki/Bali>
2. On-going digital Balinese language and script dictionary project <https://bali.cirhss.org>
3. Online forum discussion platform <https://bali.oss.web.id>
4. On-going program to collect metadata and cataloguing Balinese palm-leaf manuscript in Bali https://meta.m.wikimedia.org/wiki/Balinese_WikiLontar/id

5. Social media group such Facebook on how to learn Balinese script with a 32,800 active members

https://www.facebook.com/groups/244754527362890/?hoisted_section_header_type=recently_seen&multi_permaLinks=880308813807455

6. **Government statement:** The elected Governor of Bali for the 2025–2030 term, Wayan Koster, [stated to the media that he will intensify the use of Balinese script across all sectors in Bali](#). Both conventional and digital forms of the Balinese script will be implemented in government institutions, private entities, schools, and culturally based activities in villages throughout the island.

The script's relevance across these domains underscores its significance and warrants its elevation within Unicode.

V. Justification for Elevation

Elevating the Balinese script to Recommended status is justified based on:

1. **Government support and regulation:** The Balinese language, along with its script and literary traditions, represents the intellectual property of the Balinese people, permeating every aspect of their cultural and religious life. As a language with dignity and a well-established grammatical structure, it serves as a reliable medium for fostering the character and identity of the Balinese people. This cultural significance is reinforced by Bali Governor Regulation Number 80 of 2018 (Bali, 2018b) and Balinese Government Regulation Number 1 of 2018 (Bali, 2018a) and Regulation Number 4 of 2020 (Bali, 2020), both of which highlight the importance of continuing the use and promoting the Balinese language and its script.
2. **Cultural and Historical Importance:** The Balinese script is an integral part of Indonesia's cultural heritage. It connects the Balinese people to their history and traditions, serving as a medium for transmitting their spiritual and cultural knowledge.

3. Modern Relevance:

- **Digital Keyboards:** Research has shown significant progress in digital tools for the Balinese script. Pramatha et al. (2014) developed a Non-Qwerty Keyboard for Balinese Script (see Figure 6), enabling users to write in Balinese script effectively. Follow-up studies, such as Pramatha et al. (2021), Iswara et al. (2019) and Pramatha et al. (2024), demonstrate the successful development of Balinese digital tools, including mobile (see Figure 7 and Figure 8) and desktop applications. More information can be found at this hyperlink <https://tamiang.oss.web.id>



Figure 6. Balinese Script Keyboard

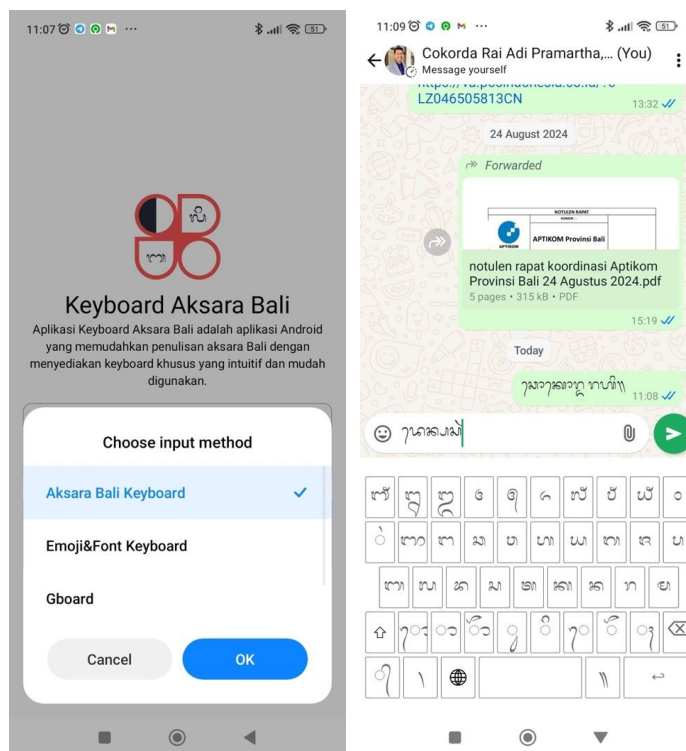


Figure 7. Balinese Script Keyboard for Mobile (Android)

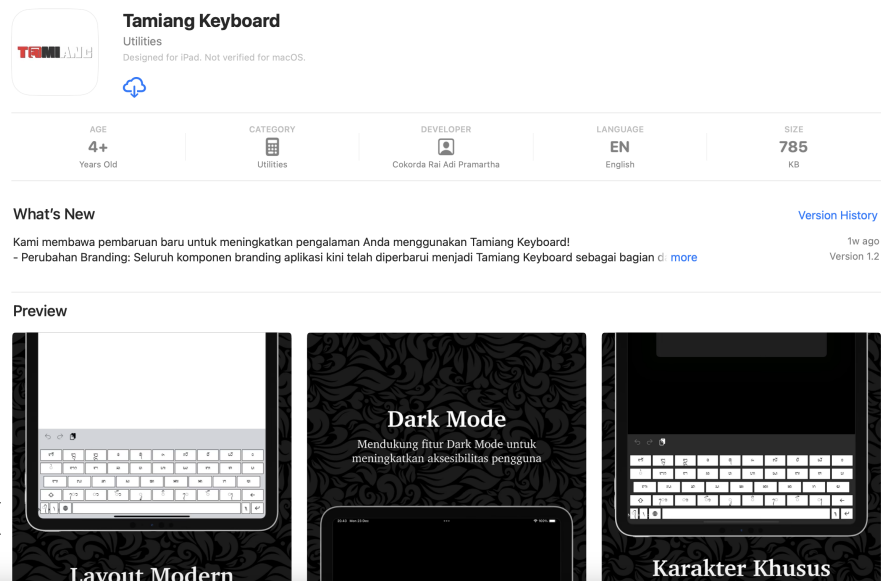


Figure 8. Balinese Script Keyboard for Mobile (iOS)

- **Balinese Digital Dictionaries:** The Balinese script is increasingly being used in digital dictionaries, supported by semantic ontology frameworks (Ardyaningtyas, 2023; Pramatha et al., 2022; Pramatha, Mahendra, et al., 2023). Pramatha et al. emphasize the importance of Unicode in developing practical digital Balinese dictionaries that include semantic search capabilities, promoting both traditional and modern usages.

- **Balinese Script Fonts:**

Developed by Aditya and David Kamholz

1. [Vimala](#) = ᮘᮞ᮪
2. [Kadiri](#) = ᮘᮞ᮪

Developed by Google:

3. [Noto Sans Balinese](#) = ᮘᮞ᮪

Developed by [I Wayan Sukanta](#) and David Kamholz:

4. [Natya](#) = ᮘᮞ᮪

Developed by Balinese Language instructors in Bali¹:

5. Bali Banat = ᮘᮞ᮪
6. Bali Raung = ᮘᮞ᮪
7. Mangusastra = ᮘᮞ᮪
8. Narada = ᮘᮞ᮪
9. Sapuh Luih = ᮘᮞ᮪
10. Sudamala = ᮘᮞ᮪
11. Tutud Bali = ᮘᮞ᮪
12. Urdhasastra = ᮘᮞ᮪
13. Singhambara = ᮘᮞ᮪

All fonts can be downloaded from this link
<https://tamiang.oss.web.id/fonts-aksara-bali/>

4. **Indonesian National Standard:** Highlights the development and implementation of the Indonesian National Standard (SNI) for the Balinese script, focusing on its application to digital systems, including keyboards and Unicode integration.
 - Figure 9: Represents the Indonesian National Standard for the structure and organization of the Balinese script. It illustrates the formal guidelines for script representation, ensuring uniformity and adherence to linguistic and cultural conventions.
 - Figure 10: Displays the Indonesian National Standard for digital keyboards designed to facilitate the use of the Balinese script in modern digital interfaces. The keyboard layout ensures accessibility

¹ <https://tatkala.co/2022/12/29/penyuluh-bahasa-bali-luncurkan-font-baru-aksara-bali-ada-9-pilihan-font/>

and ease of use for writing in the Balinese script on various platforms.



KEPUTUSAN KEPALA BADAN STANDARDISASI NASIONAL
NOMOR 545/KEP/BSN/11/2021
TENTANG
PENETAPAN SNI 9047:2021 FON (*FONT*) AKSARA NUSANTARA

KEPALA BADAN STANDARDISASI NASIONAL,

Figure 9. Indonesian National Standard for Indonesian Script



KEPUTUSAN KEPALA BADAN STANDARDISASI NASIONAL
NOMOR 546/KEP/BSN/11/2021
TENTANG
PENETAPAN SNI 9048:2021 TATA LETAK PAPAN TOMBOL AKSARA
NUSANTARA

KEPALA BADAN STANDARDISASI NASIONAL,

Figure 10. Indonesian National Standard for Keyboard

5. **Global Digital Inclusion:** Elevating the Balinese script's Unicode status aligns with global efforts to ensure equitable representation and usability of all scripts in digital systems. This enhanced status would promote widespread adoption and facilitate the integration of the Balinese script into digital content, domain name systems, and creative media. As of November 14, 2024, ICANN has announced and published the Second-Level Reference LGR's for the Balinese script².
6. **Digital and Online Usage:** The digital and online usage of the Balinese script has seen significant advancements, driven by various ongoing projects and initiatives. Efforts include the digitization of ancient Balinese literature

² <https://www.icann.org/en/announcements/details/icann-publishes-three-additional-second-level-reference-label-generation-rules-14-11-2024-en>

through the Balinese Script Project at Palmleaf.org and the development of a comprehensive digital Balinese language and script dictionary at CIRHSS. An online forum platform, [Bali OSS](http://BaliOSS), facilitates discussions on the script, while metadata collection and cataloging of Balinese palm-leaf manuscripts are underway through the WikiLontar initiative. Social media platforms also play a crucial role, with a Facebook group dedicated to learning the Balinese script boasting over 32,800 active members (Facebook Group). These initiatives highlight the growing integration of the Balinese script into digital and online platforms, ensuring its accessibility and relevance in the modern era.

- 7. Community Support:** Grassroots movements in Bali, supported by academic research and government initiatives, demonstrate strong local enthusiasm for promoting the Balinese script.

VI. Technical Aspects of Unicode Integration

The Balinese script is technically robust and already encoded in Unicode, ensuring compatibility with modern digital environments. Key advancements include:

1. Keyboard Development

The development of non-QWERTY keyboards using a composition-based approach has greatly enhanced the accessibility of the Balinese script. Subsequent advancements, as documented by Pramatha et al. (Pramatha et al., 2024; Pramatha et al., 2021; Pramatha, Putra, et al., 2023), have refined and expanded this approach, further optimizing usability and supporting the script's adoption in modern digital contexts.

2. Semantic Digital Tools

Recent developments in Balinese digital dictionaries have leveraged Unicode for encoding and integration (Pramatha, Mahendra, et al., 2023). These tools support multilingual translations and semantic searches, demonstrating the script's adaptability in modern technologies.

3. Rendering and Display Issues

While the script is well-supported on Unicode-compliant systems, elevating its status would encourage developers to improve its rendering and expand compatibility across applications, including graphic design tools, social media, and messaging platforms.

Elevating the script to Recommended will further catalyse its adoption in various digital contexts, ensuring its future relevance.

VII. Stakeholders Support

The proposal to elevate the Balinese script has garnered strong support from various stakeholders:

1. Government Institutions: Local governments in Bali actively promote the Balinese script through cultural and educational policies. Programs supporting the inclusion of Balinese script in public life reflect governmental commitment to its preservation.

Bali Governatorial Regulation Number 80 of 2018 (Bali, 2018b). Balinese Government Regulation Number 1 of 2018 on the Balinese language and script as a core identity of the Balinese people (Bali, 2018a) and Balinese Government Regulation Number 4 of 2020 on the Strengthening and Advancement of Balinese Culture (Bali, 2020).

2. Cultural Organizations: Related entities are actively engaged in preserving the script through workshops, community programs, and digital tools.

3. Educational Institutions: Schools and universities in Bali have incorporated Balinese script instruction in their curricula, demonstrating their dedication to ensuring young generations learn and use the script.

4. Digital Creators: Developers, researchers, and content creators are increasingly integrating the script into digital applications, as evidenced by the successful adoption of Unicode-based tools.

VIII. EGIDS Justification and Language Use

This appendix provides a justification for classifying the Balinese language as EGIDS Level 2 (Provincial Language) based on localized analysis of its institutional support, formal use in government, education, and public life. While Ethnologue currently assigns Balinese an EGIDS Level 3 (Wider Communication), we present contextual evidence that supports elevating its classification to Level 2 within the Province of Bali.

Key Supporting Factors:

- The Balinese language is mandated in public education as a compulsory subject from elementary to high school, as stipulated in regional curriculum policy. It is not treated as an elective or minority subject.
- Balinese Government Regulation such as Bali Governor Regulation No. 80/2018 and Balinese Government Regulation No 1/2018 and No. 4/2020 explicitly require the use of Balinese language and script in public signage, government communication, and cultural programming.
- Official documents, circulars, and letterheads from the Bali Provincial Government include Balinese script alongside the national script, demonstrating institutional endorsement.
- The Balinese language is used in public festivals, community media, traditional and modern ceremonies, and signage in temples, museums, and schools, highlighting its role in civic and public life.
- Balinese script is embedded in digital tools, school textbooks, and online dictionaries. It has also been included in national digital standards (SNI), ensuring technical consistency across applications.

Taken together, these facts support a localized EGIDS Level 2 classification: the Balinese language is used extensively at the provincial level, with government enforcement, educational integration, and cultural embodiment. This meets the EGIDS definition of a 'Provincial Language'—one that is used by government institutions, recognized officially in a region, and actively promoted across formal domains.

IX. Analysis of Alternative Scripts

While the **Latin script** is used in Bali for general administration, national education, and mobile communication, this usage **does not replace or diminish the Balinese language and script as a core identity of the Balinese people, cultural, ceremonial, and local communicative functions of the Balinese script**. Instead, the two scripts coexist, with Balinese serving distinctive purposes in:

- Religious ceremonies and traditional manuscripts
- Public signage and local branding
- School curricula and learning materials
- Community engagement, festivals, and digital heritage tools

The presence of Latin is therefore **functional and technical**, while **Balinese remains the core script of cultural and identity expression**, especially as promoted by government regulations and community initiatives. This **complementary usage** reinforces the claim that the Balinese script is actively used, not as a symbolic relic, but as a living, functional system that supports the language in meaningful everyday contexts.

X. Confusables Analysis

As part of this proposal, we conducted a confusables analysis in accordance with UTS #39: Unicode Security Mechanisms. The objective is to evaluate whether any characters in the Balinese script could be visually confused with characters from other scripts (inter-script), or with each other (intra-script), potentially causing ambiguity or spoofing risks in identifiers.

1. Inter-Script Confusables

We systematically compared Balinese script characters (U+1B00-U+1B7F) against Latin, Greek, Cyrillic, and other major scripts. No significant visual similarities were found. The Balinese script features distinctive looped and stacked structures, traditional diacritics, and syllabic patterns that are visually dissimilar to characters in Latin-based identifiers. Therefore, **we conclude that there is no risk of cross-script spoofing involving Balinese script characters**.

2. Intra-Script Confusables (Internal)

However, we acknowledge that several **intra-script confusables** are listed in Unicode’s official [confusables.txt](#):

Table 1. Intra-script Confusables

Source Character	Target	Unicode Name
o (U+1B5C)	o (U+1B50)	BALINESE WINDU → BALINESE DIGIT ZERO
ꦱ (U+1B52)	ꦱ (U+1B0D)	DIGIT TWO → LETTER LA LENGA
ꦲ (U+1B53)	ꦲ (U+1B11)	DIGIT THREE → LETTER OKARA
ꦸ (U+1B58)	ꦸ (U+1B28)	DIGIT EIGHT → LETTER PA KAPAL
ꦲꦶꦱꦶ (U+1B5F)	ꦲꦶꦱꦶ (U+1B5E U+1B5E)	PAREREN → SIKI + SIKI

These confusables involve numerals and punctuation-like symbols that are generally **not part of typical identifiers** (such as domain names, usernames, or variables). Their presence does not create a security risk across scripts.

3. Mitigation Strategy

To ensure identifier safety:

- These internal confusables **can be filtered or restricted** in practical implementations (e.g., domain name LGR, software input sanitization).
- Fonts such as **Noto Sans Balinese** help disambiguate visual forms.
- **Script separation policies** and validation rules further reduce risk.

4. Conclusion

While intra-script confusables exist, they are limited in scope and usage. We assert that the Balinese script poses **no substantial risk of**

identifier confusion or spoofing, and mitigation measures are both available and implementable. We welcome any additional guidance from the Properties and Algorithms Group (PAG) or the Unicode Technical Committee (UTC).

XI. Checklist Summary of Supporting Evidence for Balinese Script

This checklist summarizes the supporting evidence submitted in the proposal to elevate the Balinese script from Limited_Use to Recommended status in Unicode UAX #31. Each category is accompanied by examples and the relevant page references in the main proposal document.

Table 2. Checklist Summary of Supporting Evidence for Balinese Script

Category	Evidence Provided	Correct Page Reference
Education	Use in school curriculum (Kusuma Sastra book, exam papers, video lessons)	p.5–6
Media & Community	Active social media usage, Facebook group with 32,800+ members	p.6–7, 12
Government Use	Official letters and signage (Governor Regulation No. 80/2018)	p.2–5, 13
Online Tools & Apps	Mobile apps, keyboards (GBoard, local), GitHub development	p.6–9
Fonts & Rendering	13+ Unicode-compliant Balinese fonts (e.g., Vimala, Noto Sans)	p.10
ICANN/LGR Readiness	Balinese script Second-Level LGR published by ICANN (2024)	p.12

Confusables Analysis	Table of intra-script confusables, mitigation strategies	p.15–17
Corpus Evidence	WikiLontar, digital dictionary, blog articles in Balinese script	p.6–7, 12
Cultural Visibility	Festival, public branding, identity signage in Aksara Bali	p.3–4

The Balinese script is a fundamental element of Indonesia’s cultural and historical heritage, representing the identity and traditions of the Balinese people. Elevating its status from "Limited Use" to "Recommended" within the Unicode standard is a crucial step in ensuring its continuity and adaptability in modern digital environments. This proposal not only acknowledges the script's cultural and historical significance but also emphasizes its growing role in global communication and technology.

This initiative aligns with ICANN guidelines and is strongly supported by both local and national government regulations, including Bali Governor Regulation Number 80 of 2018 and Bali Government Regulation Number 1 of 2018 and Number 4 of 2020. Additionally, the enthusiasm of the Balinese community further strengthens the foundation for this elevation. Addressing technical challenges, fostering innovation through digital tools, and ensuring equitable representation of the Balinese script in global digital systems will expand its reach and usability.

By advancing the Unicode status of the Balinese script, this effort connects cultural continuity with technological advancement, ensuring that the script remains an integral part of both Balinese identity and the broader digital landscape.

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