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Irish Standard
I.S. EN ISO 9241-161:2016

Ergonomics of human-system interaction - Part 161: Guidance on visual user-interface elements (ISO 9241-161:2016)

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161: Éléments de l'interface utilisateur (ISO 9241-
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Ergonomie der Mensch-System-Interaktion - Teil 161:
Leitfaden zu visuellen User-Interface Elementen (ISO
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EN ISO 9241-161:2016 (E)

| Contents | Page |
|-------------------------------|-------------|
| European foreword..... | 3 |

European foreword

This document (EN ISO 9241-161:2016) has been prepared by Technical Committee ISO/TC 159 "Ergonomics" in collaboration with Technical Committee CEN/TC 122 "Ergonomics" the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2016, and conflicting national standards shall be withdrawn at the latest by September 2016.

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Contents

| | Page |
|---|-----------|
| Foreword | ix |
| Introduction | xi |
| 1 Scope | 1 |
| 2 Normative references | 1 |
| 3 Terms and definitions | 1 |
| 4 Accessibility | 4 |
| 5 Relationship of input methods and visual user-interface elements | 4 |
| 6 States of visual user-interface elements | 5 |
| 7 Describing visual user-interface elements | 5 |
| 8 Visual user-interface elements | 6 |
| 8.1 Accordion..... | 6 |
| 8.1.1 Description..... | 6 |
| 8.1.2 Components..... | 6 |
| 8.1.3 States..... | 7 |
| 8.1.4 When to use an accordion..... | 7 |
| 8.1.5 How to use an accordion..... | 8 |
| 8.2 Analogue form element/slider..... | 8 |
| 8.2.1 Description..... | 8 |
| 8.2.2 Components..... | 8 |
| 8.2.3 States..... | 8 |
| 8.2.4 When to use an analogue form element..... | 8 |
| 8.2.5 How to use an analogue form element..... | 9 |
| 8.3 Carousel/Carrousel..... | 9 |
| 8.3.1 Description..... | 9 |
| 8.3.2 Components..... | 9 |
| 8.3.3 States..... | 10 |
| 8.3.4 When to use a carousel..... | 10 |
| 8.3.5 How to use a carousel..... | 10 |
| 8.4 Check box/check button..... | 10 |
| 8.4.1 Description..... | 10 |
| 8.4.2 Components..... | 10 |
| 8.4.3 States..... | 11 |
| 8.4.4 When to use a check box..... | 11 |
| 8.4.5 How to use a check box..... | 11 |
| 8.5 Collapsible container..... | 12 |
| 8.5.1 Description..... | 12 |
| 8.5.2 Components..... | 12 |
| 8.5.3 States..... | 13 |
| 8.5.4 When to use a collapsible container..... | 13 |
| 8.5.5 How to use a collapsible container..... | 13 |
| 8.6 Colour picker..... | 13 |
| 8.6.1 Description..... | 13 |
| 8.6.2 Components..... | 13 |
| 8.6.3 States..... | 13 |
| 8.6.4 When to use a colour picker..... | 13 |
| 8.6.5 How to use a colour picker..... | 13 |
| 8.7 Combination box/combo box..... | 14 |
| 8.7.1 Description..... | 14 |
| 8.7.2 Components..... | 14 |
| 8.7.3 States..... | 15 |
| 8.7.4 When to use a combination box..... | 15 |

ISO 9241-161:2016(E)

| | | | |
|------|--------|--|----|
| | 8.7.5 | How to use a combination box..... | 16 |
| 8.8 | | Cursor..... | 16 |
| | 8.8.1 | Description..... | 16 |
| | 8.8.2 | Components..... | 16 |
| | 8.8.3 | States..... | 16 |
| | 8.8.4 | When to use a cursor..... | 16 |
| | 8.8.5 | How to use a cursor..... | 16 |
| 8.9 | | Date picker..... | 17 |
| | 8.9.1 | Description..... | 17 |
| | 8.9.2 | Components..... | 17 |
| | 8.9.3 | States..... | 17 |
| | 8.9.4 | When to use a date picker..... | 18 |
| | 8.9.5 | How to use a date picker..... | 18 |
| 8.10 | | Dialogue box..... | 18 |
| | 8.10.1 | Description..... | 18 |
| | 8.10.2 | Components..... | 18 |
| | 8.10.3 | States..... | 19 |
| | 8.10.4 | When to use a dialogue box..... | 19 |
| | 8.10.5 | How to use a dialogue box..... | 19 |
| 8.11 | | Dropdown list box..... | 19 |
| | 8.11.1 | Description..... | 19 |
| | 8.11.2 | Components..... | 20 |
| | 8.11.3 | When to use a dropdown list box..... | 20 |
| | 8.11.4 | How to use a dropdown list box..... | 21 |
| 8.12 | | Entry field/input field..... | 21 |
| | 8.12.1 | Description..... | 21 |
| | 8.12.2 | Components..... | 21 |
| | 8.12.3 | States..... | 21 |
| | 8.12.4 | When to use an entry field..... | 22 |
| | 8.12.5 | How to use an entry field..... | 22 |
| 8.13 | | Entry field with dialogue button..... | 22 |
| | 8.13.1 | Description..... | 22 |
| | 8.13.2 | Components..... | 22 |
| | 8.13.3 | States..... | 22 |
| | 8.13.4 | When to use an entry field with dialogue button..... | 22 |
| | 8.13.5 | How to use an entry field with dialogue button..... | 23 |
| 8.14 | | Geographical map..... | 23 |
| | 8.14.1 | Description..... | 23 |
| | 8.14.2 | Components..... | 23 |
| | 8.14.3 | States..... | 23 |
| | 8.14.4 | When to use a geographical map..... | 23 |
| | 8.14.5 | How to use a geographical map..... | 24 |
| 8.15 | | Group/group box..... | 24 |
| | 8.15.1 | Description..... | 24 |
| | 8.15.2 | Components..... | 24 |
| | 8.15.3 | States..... | 24 |
| | 8.15.4 | When to use a group..... | 24 |
| | 8.15.5 | How to use a group..... | 25 |
| 8.16 | | Handle..... | 25 |
| | 8.16.1 | Description..... | 25 |
| | 8.16.2 | Components..... | 25 |
| | 8.16.3 | States..... | 25 |
| | 8.16.4 | When to use a handle..... | 26 |
| | 8.16.5 | How to use a handle..... | 26 |
| 8.17 | | Hierarchical list/tree view/tree lists..... | 26 |
| | 8.17.1 | Description..... | 26 |
| | 8.17.2 | Components..... | 26 |
| | 8.17.3 | States..... | 27 |

| | | |
|--------|--|----|
| 8.17.4 | When to use a hierarchical list..... | 27 |
| 8.17.5 | How to use a hierarchical list..... | 27 |
| 8.18 | Implicit designator | 27 |
| 8.18.1 | Description..... | 27 |
| 8.18.2 | Components | 27 |
| 8.18.3 | States..... | 28 |
| 8.18.4 | When to use an implicit designator..... | 28 |
| 8.18.5 | How to use an implicit designator | 28 |
| 8.19 | Instructive information | 28 |
| 8.19.1 | Description..... | 28 |
| 8.19.2 | Components | 28 |
| 8.19.3 | States..... | 29 |
| 8.19.4 | When to use instructive information..... | 29 |
| 8.19.5 | How to use instructive information..... | 29 |
| 8.20 | Input tokenizer | 29 |
| 8.20.1 | Description..... | 29 |
| 8.20.2 | Components | 30 |
| 8.20.3 | States..... | 30 |
| 8.20.4 | When to use an input tokenizer..... | 30 |
| 8.20.5 | How to use an input tokenizer..... | 30 |
| 8.21 | Label..... | 31 |
| 8.21.1 | Description..... | 31 |
| 8.21.2 | Components | 31 |
| 8.21.3 | States..... | 31 |
| 8.21.4 | When to use a label..... | 31 |
| 8.21.5 | How to use a label..... | 31 |
| 8.22 | Legend/chart key..... | 31 |
| 8.22.1 | Description..... | 31 |
| 8.22.2 | Components | 32 |
| 8.22.3 | States..... | 32 |
| 8.22.4 | When to use a legend..... | 32 |
| 8.22.5 | How to use a legend | 32 |
| 8.23 | Link/hyperlink..... | 32 |
| 8.23.1 | Description..... | 32 |
| 8.23.2 | Components | 33 |
| 8.23.3 | States..... | 33 |
| 8.23.4 | When to use a link..... | 33 |
| 8.23.5 | How to use a link..... | 33 |
| 8.24 | List box..... | 34 |
| 8.24.1 | Description..... | 34 |
| 8.24.2 | Components | 34 |
| 8.24.3 | States..... | 34 |
| 8.24.4 | When to use a list box..... | 35 |
| 8.24.5 | How to use a list box..... | 35 |
| 8.25 | List button/menu button | 35 |
| 8.25.1 | Description..... | 35 |
| 8.25.2 | Components | 35 |
| 8.25.3 | States..... | 36 |
| 8.25.4 | When to use a list button..... | 36 |
| 8.25.5 | How to use a list button..... | 36 |
| 8.26 | Menu/menu bar..... | 36 |
| 8.26.1 | Description..... | 36 |
| 8.26.2 | Components | 37 |
| 8.26.3 | States..... | 37 |
| 8.26.4 | When to use a menu..... | 37 |
| 8.26.5 | How to use a menu..... | 38 |
| 8.27 | Output pane | 38 |
| 8.27.1 | Description..... | 38 |

ISO 9241-161:2016(E)

| | | |
|--------|---|----|
| 8.27.2 | Components | 38 |
| 8.27.3 | States | 38 |
| 8.27.4 | When to use an output pane | 38 |
| 8.27.5 | How to use an output pane | 38 |
| 8.28 | Pointer | 39 |
| 8.28.1 | Description | 39 |
| 8.28.2 | Components | 39 |
| 8.28.3 | States | 39 |
| 8.28.4 | When to use a pointer | 39 |
| 8.28.5 | How to use a pointer | 39 |
| 8.29 | Pop-up menu/contextual menu | 40 |
| 8.29.1 | Description | 40 |
| 8.29.2 | Components | 40 |
| 8.29.3 | States | 40 |
| 8.29.4 | When to use a pop-up menu | 40 |
| 8.29.5 | How to use a pop-up menu | 40 |
| 8.30 | Progress indicator | 41 |
| 8.30.1 | Description | 41 |
| 8.30.2 | Components | 41 |
| 8.30.3 | States | 41 |
| 8.30.4 | When to use a progress indicator | 41 |
| 8.30.5 | How to use a progress indicator | 41 |
| 8.31 | Prompt | 41 |
| 8.31.1 | Description | 41 |
| 8.31.2 | Components | 41 |
| 8.31.3 | States | 42 |
| 8.31.4 | When to use a prompt | 42 |
| 8.31.5 | How to use a prompt | 42 |
| 8.32 | Push button/command button | 42 |
| 8.32.1 | Description | 42 |
| 8.32.2 | Components | 42 |
| 8.32.3 | States | 43 |
| 8.32.4 | When to use a push button | 43 |
| 8.32.5 | How to use a push button | 43 |
| 8.33 | Radio button | 43 |
| 8.33.1 | Description | 43 |
| 8.33.2 | Components | 44 |
| 8.33.3 | States | 44 |
| 8.33.4 | When to use a radio button | 44 |
| 8.33.5 | How to use a radio button | 45 |
| 8.34 | Read only field/protected field | 45 |
| 8.34.1 | Description | 45 |
| 8.34.2 | Components | 45 |
| 8.34.3 | States | 46 |
| 8.34.4 | When to use a read only field | 46 |
| 8.34.5 | How to use a read only field | 46 |
| 8.35 | Scroll bar | 46 |
| 8.35.1 | Description | 46 |
| 8.35.2 | Components | 46 |
| 8.35.3 | States | 47 |
| 8.35.4 | When to use a scroll bar | 47 |
| 8.35.5 | How to use a scroll bar | 47 |
| 8.36 | Scroll handle/elevator/scroll box/thumb | 47 |
| 8.36.1 | Description | 47 |
| 8.36.2 | Components | 48 |
| 8.36.3 | States | 48 |
| 8.36.4 | When to use scroll handle | 48 |
| 8.36.5 | How to use scroll handle | 48 |

| | | |
|--------|---|----|
| 8.37 | Selection cursor..... | 48 |
| 8.37.1 | Description..... | 48 |
| 8.37.2 | Components..... | 48 |
| 8.37.3 | States..... | 49 |
| 8.37.4 | When to use a selection cursor..... | 49 |
| 8.37.5 | How to use a selection cursor..... | 49 |
| 8.38 | Selection indication..... | 49 |
| 8.38.1 | Description..... | 49 |
| 8.38.2 | Components..... | 49 |
| 8.38.3 | States..... | 50 |
| 8.38.4 | When to use a selection indication..... | 50 |
| 8.38.5 | How to use a selection indication..... | 50 |
| 8.39 | Selection list/choice list..... | 50 |
| 8.39.1 | Description..... | 50 |
| 8.39.2 | Components..... | 51 |
| 8.39.3 | States..... | 51 |
| 8.39.4 | When to use a selection list..... | 51 |
| 8.39.5 | How to use a selection list..... | 51 |
| 8.40 | Status information..... | 52 |
| 8.40.1 | Description..... | 52 |
| 8.40.2 | Components..... | 52 |
| 8.40.3 | States..... | 52 |
| 8.40.4 | When to use status information..... | 52 |
| 8.40.5 | How to use status information..... | 52 |
| 8.41 | Stepper/spin button..... | 52 |
| 8.41.1 | Description..... | 52 |
| 8.41.2 | Components..... | 53 |
| 8.41.3 | States..... | 53 |
| 8.41.4 | When to use a stepper..... | 53 |
| 8.41.5 | How to use a stepper..... | 53 |
| 8.42 | System message..... | 53 |
| 8.42.1 | Description..... | 53 |
| 8.42.2 | Components..... | 54 |
| 8.42.3 | States..... | 54 |
| 8.42.4 | When to use a system message..... | 54 |
| 8.42.5 | How to use system message..... | 54 |
| 8.43 | Tab set..... | 55 |
| 8.43.1 | Description..... | 55 |
| 8.43.2 | Components..... | 55 |
| 8.43.3 | States..... | 55 |
| 8.43.4 | When to use a tab set..... | 55 |
| 8.43.5 | How to use a tab set..... | 56 |
| 8.44 | Table..... | 56 |
| 8.44.1 | Description..... | 56 |
| 8.44.2 | Components..... | 56 |
| 8.44.3 | States..... | 57 |
| 8.44.4 | When to use a table..... | 57 |
| 8.44.5 | How to use a table..... | 57 |
| 8.45 | Text field..... | 57 |
| 8.45.1 | Description..... | 57 |
| 8.45.2 | Components..... | 58 |
| 8.45.3 | States..... | 58 |
| 8.45.4 | When to use a text field..... | 58 |
| 8.45.5 | How to use a text field..... | 58 |
| 8.46 | Time picker..... | 58 |
| 8.46.1 | Description..... | 58 |
| 8.46.2 | Components..... | 58 |
| 8.46.3 | States..... | 59 |

ISO 9241-161:2016(E)

| | | |
|--|-----------------------------------|-----------|
| 8.46.4 | When to use a time picker | 59 |
| 8.46.5 | How to use a time picker | 60 |
| 8.47 | Title | 60 |
| 8.47.1 | Description | 60 |
| 8.47.2 | Components | 60 |
| 8.47.3 | States | 60 |
| 8.47.4 | When to use a title | 60 |
| 8.47.5 | How to use title | 61 |
| 8.48 | Toggle button | 61 |
| 8.48.1 | Description | 61 |
| 8.48.2 | Components | 61 |
| 8.48.3 | States | 61 |
| 8.48.4 | When to use a toggle button | 61 |
| 8.48.5 | How to use a toggle button | 61 |
| 8.49 | Tool bar | 62 |
| 8.49.1 | Description | 62 |
| 8.49.2 | Components | 62 |
| 8.49.3 | States | 62 |
| 8.49.4 | When to use a tool bar | 62 |
| 8.49.5 | How to use a tool bar | 62 |
| 8.50 | Tool tip | 62 |
| 8.50.1 | Description | 62 |
| 8.50.2 | Components | 63 |
| 8.50.3 | States | 63 |
| 8.50.4 | When to use a tool tip | 63 |
| 8.50.5 | How to use a tool tip | 63 |
| 8.51 | Window | 63 |
| 8.51.1 | Description | 63 |
| 8.51.2 | Components | 63 |
| 8.51.3 | States | 64 |
| 8.51.4 | When to use a window | 64 |
| 8.51.5 | How to use window | 64 |
| Annex A (informative) Choosing visual user interface elements | | 65 |
| Bibliography | | 69 |

Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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The committee responsible for this document is ISO/TC 159, *Ergonomics*, Subcommittee SC 4, *Ergonomics of human-system interaction*.

ISO 9241 consists of the following parts, under the general title *Ergonomic requirements for office work with visual display terminals (VDTs)*:

- *Part 1: General introduction*
- *Part 2: Guidance on task requirements*
- *Part 5: Workstation layout and postural requirements*
- *Part 6: Guidance on the work environment*
- *Part 11: Guidance on usability*
- *Part 12: Presentation of information*
- *Part 13: User guidance*
- *Part 14: Menu dialogues*
- *Part 15: Command dialogues*
- *Part 16: Direct manipulation dialogues*

ISO 9241 also consists of the following parts, under the general title *Ergonomics of human-system interaction*:

- *Part 20: Accessibility guidelines for information/communication technology (ICT) equipment and services*
- *Part 100: Introduction to standards related to software ergonomics [Technical Report]*
- *Part 110: Dialogue principles*

ISO 9241-161:2016(E)

- *Part 129: Guidance on software individualization*
- *Part 143: Forms*
- *Part 151: Guidance on World Wide Web user interfaces*
- *Part 154: Interactive voice response (IVR) applications*
- *Part 161: Guidance on visual user-interface elements*
- *Part 171: Guidance on software accessibility*
- *Part 210: Human-centred design for interactive systems*
- *Part 300: Introduction to electronic visual display requirements*
- *Part 302: Terminology for electronic visual displays*
- *Part 303: Requirements for electronic visual displays*
- *Part 304: User performance test methods for electronic visual displays*
- *Part 305: Optical laboratory test methods for electronic visual displays*
- *Part 306: Field assessment methods for electronic visual displays*
- *Part 307: Analysis and compliance test methods for electronic visual displays*
- *Part 308: Surface-conduction electron-emitter displays (SED) [Technical Report]*
- *Part 309: Organic light-emitting diode (OLED) displays [Technical Report]*
- *Part 310: Visibility, aesthetics and ergonomics of pixel defects [Technical Report]*
- *Part 331: Optical characteristics of autostereoscopic displays [Technical Report]*
- *Part 391: Requirements, analysis and compliance test methods for the reduction of photosensitive seizures*
- *Part 392: Ergonomic recommendations for the reduction of visual fatigue from stereoscopic images*
- *Part 400: Principles and requirements for physical input devices*
- *Part 410: Design criteria for physical input devices*
- *Part 411: Evaluation methods for the design of physical input devices [Technical Specification]*
- *Part 420: Selection of physical input devices*
- *Part 910: Framework for tactile and haptic interaction*
- *Part 920: Guidance on tactile and haptic interactions*
- *Part 940: Evaluation of tactile and haptic interactions*
- *Part 960: Framework and guidance for gesture interactions*



Introduction

In different communities in the interactive system development ecosystem, the use, the names and the understanding of user-interface elements differs significantly. One of the results is that users have to cope with elements which differ in terms of keyboard entry and control, mouse behaviour, visual presentation of functionality and different options to control elements. **Consistent element behaviour, functionality and rendering is crucial for the usability of user interfaces.** This causes added efforts in all stakeholders in human-centred design activities, since this multitude needs to be managed in order to ensure high-quality collaboration of various specialists. Especially in the light of new emerging user-interface concepts and designs, a common definition of visual user-interface elements and the rationale for their selection, as well as their use can be regarded as an effort to sustain cooperation and ensure a sound basis for professional conversation. It is also of importance to state that this part of ISO 9241 of visual user-interface elements in no ways predetermines a visual style of the elements themselves, thus avoiding to impress determinants in creation, brand usage and style development. In addition, this part of ISO 9241 is laid out in an independent of platform specifics, so that no specific industrial user-interface styleguide, implementation technology or development process needs to be observed in order to be compliant with this part of ISO 9241.

This part of ISO 9241 aims to provide information on visual user-interface elements to help those responsible for managing software design and re-design processes, create user interface specifications, styleguides and visual concepts to identify, plan and design effective, efficient and satisfactory interactive systems.

Visual user-interface elements described in this part of ISO 9241 complements existing systems design approaches, methods or processes. They can be referenced in any kind of user interface strategy, regardless of the technology used for the user interface.

Table 1 — Overview of different visual user interface properties that are used to build a user interface design

| User Interface Design | | | | |
|------------------------|---|------------------------|---|-----------------------|
| Interactive Properties |  | Informative Properties |  | Decorative Properties |

Ergonomics of human-system interaction —

Part 161:

Guidance on visual user-interface elements

1 Scope

This part of ISO 9241 describes visual user-interface elements presented by software and provides requirements and recommendations on when and how to use them. This part of ISO 9241 is concerned with software components of interactive systems to make human-system interaction usable as far as the basic interaction aspects are concerned.

This part of ISO 9241 provides a comprehensive list of *generic* visual user-interface elements, regardless of a specific input method, visualization, and platform or implementation technology. The guidance given in this part of ISO 9241 is intended to be used in conjunction with ISO 9241 guidance on dialogue techniques. It recognizes that additional elements can evolve. It also addresses *derivates*, *compositions* (assemblies) and *states* of user-interface elements. It gives requirements and recommendations on selection, usage and dependencies of user-interface elements and their application. It is applicable regardless of a fixed, portable or mobile interactive system.

It does not provide detailed coverage of the methods and techniques required for design of user-interface elements. This part of ISO 9241 does not address implementation (e.g. graphical design of elements) and interaction details for specific input methods or technologies. It does not cover decorative user-interface elements that are intended to address solely aesthetic (hedonic) qualities in the user interface, e.g. background images.

The information in this part of ISO 9241 is intended for use by those responsible for the selection and implementation of visual user-interface elements in interactive systems and for evaluating user interfaces. It is intended for use by those planning and managing platform specific aspects of user interface screen design. It also provides guidance for human factors/ergonomics and usability professionals involved in human-centred design. It addresses technical issues only to the extent necessary to allow users of this part of ISO 9241 to understand the relevance and importance of a consistent interface element usage and selection in the design process as a whole.

[Annex A](#) provides a guide to selection of different visual user interface elements depending of their appropriate application.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 9241-143:2012, *Ergonomics of human-system interaction — Part 143: Forms*

ISO 9241-171:2008, *Ergonomics of human-system interaction — Part 171: Guidance on software accessibility*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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