

Design & Develop Windows Widgets via Generative AI

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- Microsoft MVP for .NET & Windows Development
- Packages for Assets & Toolkits – comentsys.com
- Posts, Articles & Podcast – rogueplanetoid.com
- Tutorials, Talks & Workshops – tutorialr.com
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Agenda

Windows Widgets

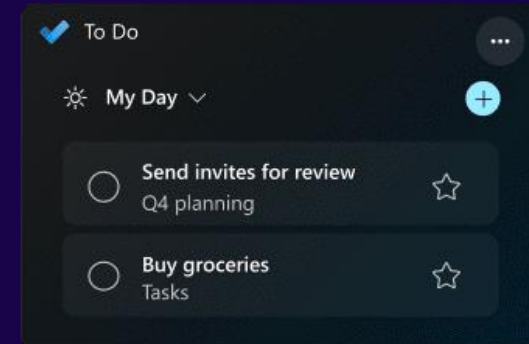
Adaptive Cards

Widget Provider

Generative AI

Demo

Summary



Windows Widgets



Windows 11

Optimised for Productivity

Microsoft's latest & most powerful operating system helping users get things done such as snap-assist to organise windows

Elevated for Entertainment

Improved Microsoft Store for easy access to movies, TV shows or games & focus sessions to minimise distractions integrating Spotify

Capable with Copilot

Microsoft Copilot enhances with AI to kickstart creativity or act as an intelligent assistant and more with Copilot + PCs

Wizardly with Widgets

Quick at-a-glance access to news, weather, share prices and more without having to switch between apps with Widgets

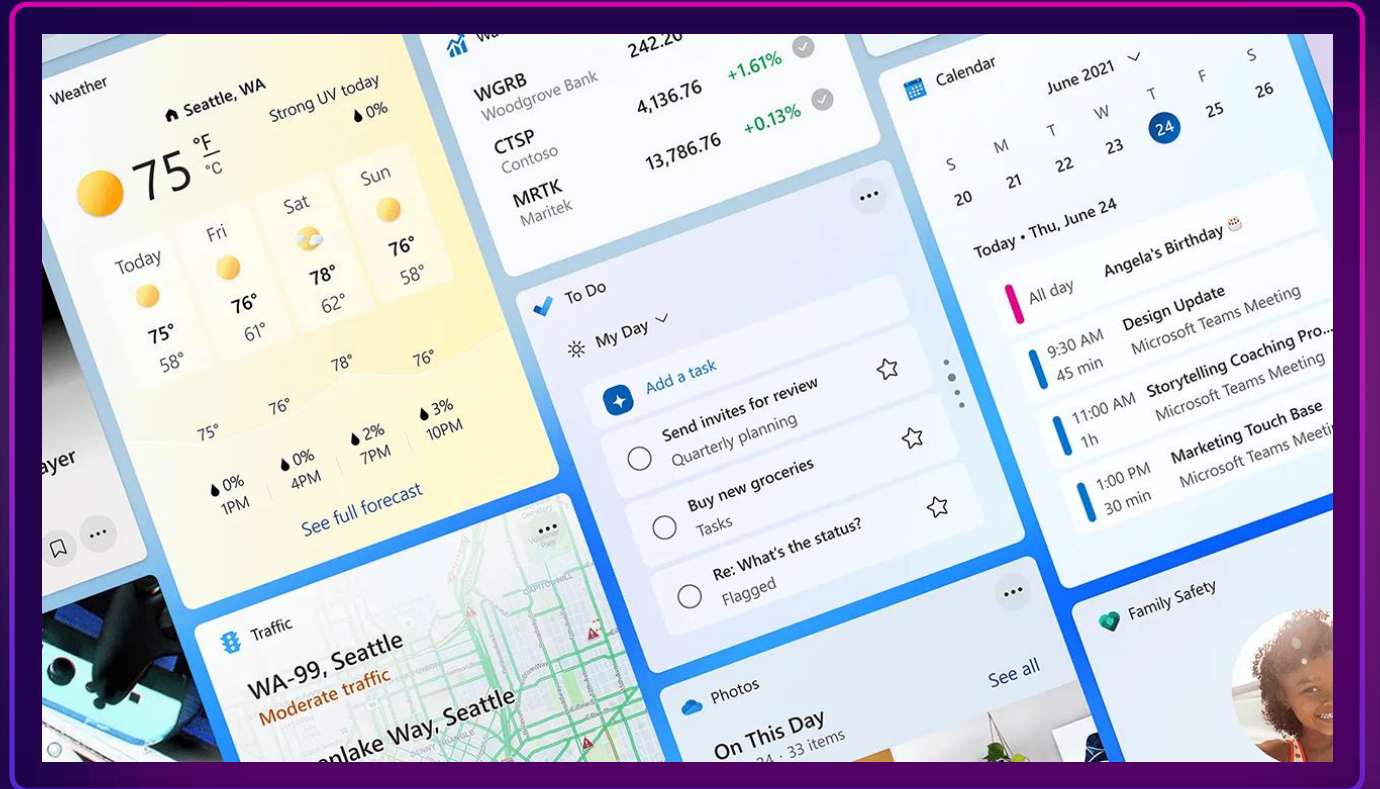
windows.com



Widgets

Quick-and-easy access at-a-glance

- Customise or personalise the information that is important to you
- Interactive or dynamic content supporting text & images
- Easy-to-understand data visualisation & notifications
- Partial or complete updates with Adaptive Cards



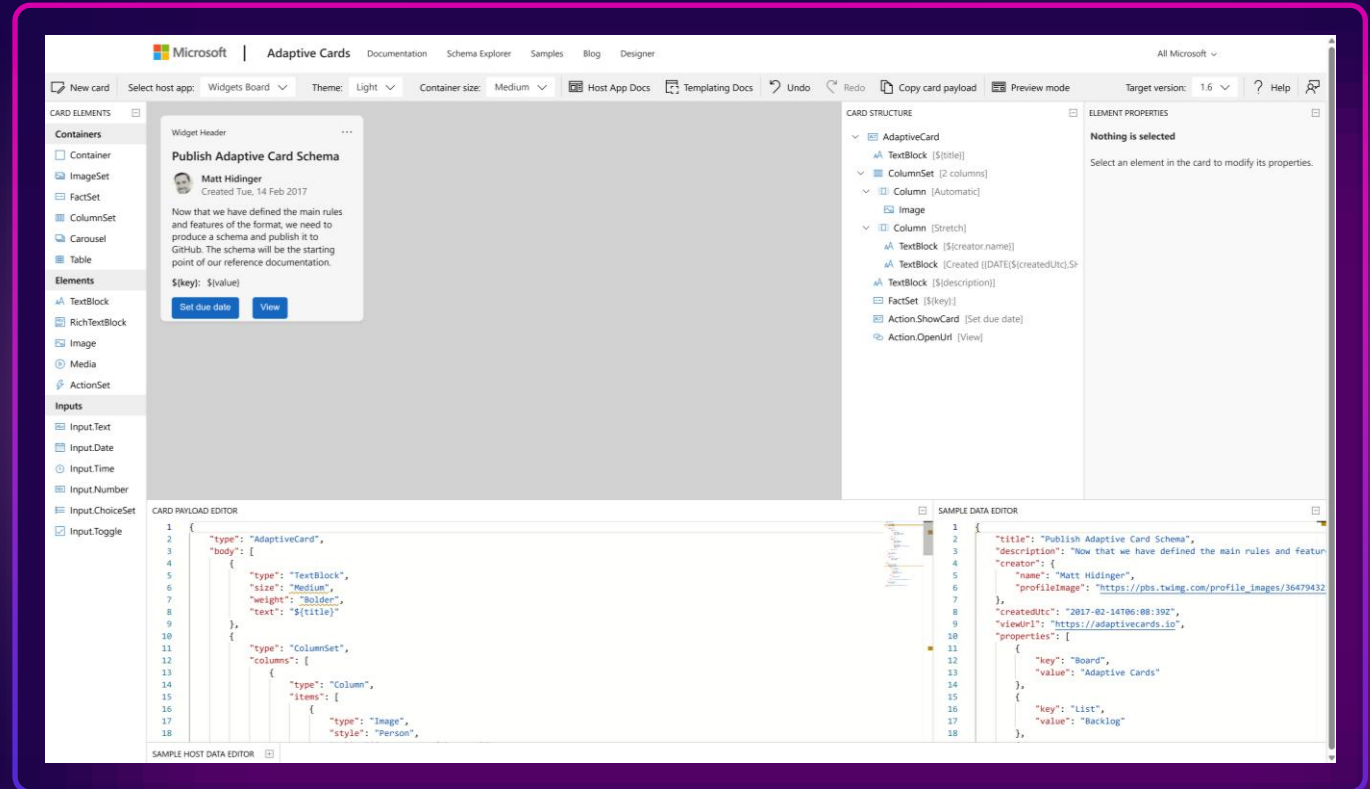
Adaptive Cards



Adaptive Cards

Flexible Interactive UI Elements

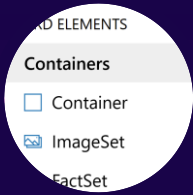
- Platform-agnostic snippets of UI in JSON for rich & interactive content
- Exchange at-a-glance content supporting text, images and layout
- Update dynamically based on user actions or data changes
- Design with drag-and-drop designer or JSON schema



adaptivecards.io



Designer



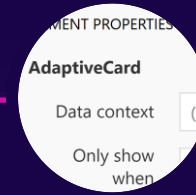
Card Elements

Card Structure including Containers, Elements & Inputs



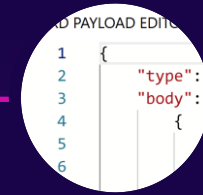
Select Host App

Widgets Board, Light or Dark & Small, Medium or Large



Element Properties

Set Properties, Data Context, Layout, Styling & Content



Editors

Card Payload Editor for JSON & Sample Data Editor for Data

adaptivecards.io/designer

Schema

Card Elements	Containers	Actions	Inputs	Types
TextBlock	ActionSet	OpenUrl	Text	BackgroundImage
Image	Container	Submit	Number	Refresh
Media	ColumnSet	ShowCard	Date	Authentication
MediaSource	Column	ToggleVisibility	Time	TokenExchangeResource
CaptionSource	FactSet	TargetElement	Toggle	AuthCardButton
RichTextBlock	Fact	Execute	ChoiceSet	MetaData
TextRun	Table		Choice	
	TableCell		Data.Query	

adaptivecards.io/explorer

Widget Provider



Windows App SDK

Modern Marvels

Develop modern native Windows desktop applications using WinUI 3 leveraging the latest functionality such as Widgets

Decoupled Delivery

Decoupled from Windows and delivered via NuGet with new features & functionality every six months

Worthwhile Workload

Install Windows application development workload for Visual Studio to create WinUI 3 in Desktop apps

Legendary Languages

Choose to develop applications using languages such as C++ with Win32 or C# with .NET

aka.ms/winappsdk



Microsoft.Windows.Widgets.Providers

Widget Provider Interfaces

- Activate & Deactivate for when Widgets Board is interested in updates or not from a Widget
- CreateWidget & DeleteWidget when Widget has been added or removed from Widgets Board
- OnActionInvoked & OnWidgetContextChanged when Action has occurred, or Size changed
- OnCustomizationRequested for supporting "Customise widget" in the Widgets board

IWidgetProvider	IWidgetProvider2
Activate(WidgetContext)	OnCustomizationRequested (WidgetCustomizationRequestedArgs)
Deactivate(String)	
CreateWidget(WidgetContext)	
DeleteWidget(String, String)	
OnActionInvoked (WidgetActionInvokedArgs)	
OnWidgetContextChanged (WidgetContextChangedArgs)	

aka.ms/widgetdevdocs

Comentsys.Toolkit.WindowsAppSdk

WidgetProviderBase

Activate(WidgetContext)

Deactivate(widgetId)

CreateWidget(WidgetContext)

DeleteWidget(widgetId, customState)

OnActionInvoked(WidgetActionInvokedArgs)

OnWidgetContextChanged(WidgetContextChangedEventArgs)

OnCustomizationRequested(WidgetCustomizationRequestedArgs)

UpdateWidget(widgetId, customState)

AddWidget(widgetName, widgetCreateDelegate)

comentsys.com/packages/toolkits



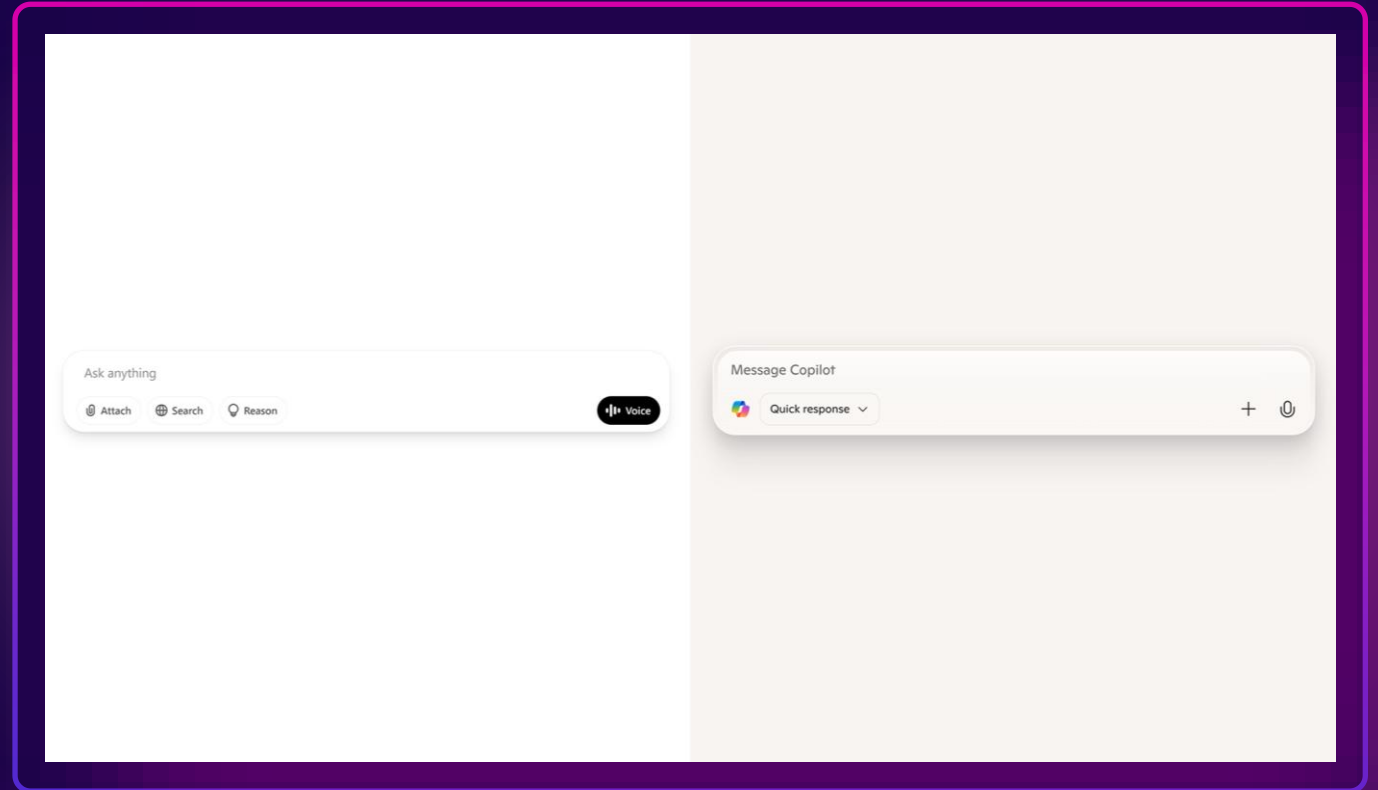
Generative AI



ChatGPT & Microsoft Copilot

Natural Language AI

- Leverage models trained on large datasets & can learn patterns or structure of content
- Generate creative ideas & content types tailored to specific themes or audiences
- Simplify complex tasks by breaking them down into manageable steps
- Design Adaptive Cards templates for Windows Widgets



chatgpt.com

copilot.microsoft.com



Developer



OpenAI Platform

API access to powerful models
for AI-driven capabilities

openai.com/api



Azure OpenAI Service

Leverage OpenAI models & fine-
tune with Azure AI Foundry

aka.ms/aoaiservice



GitHub Models

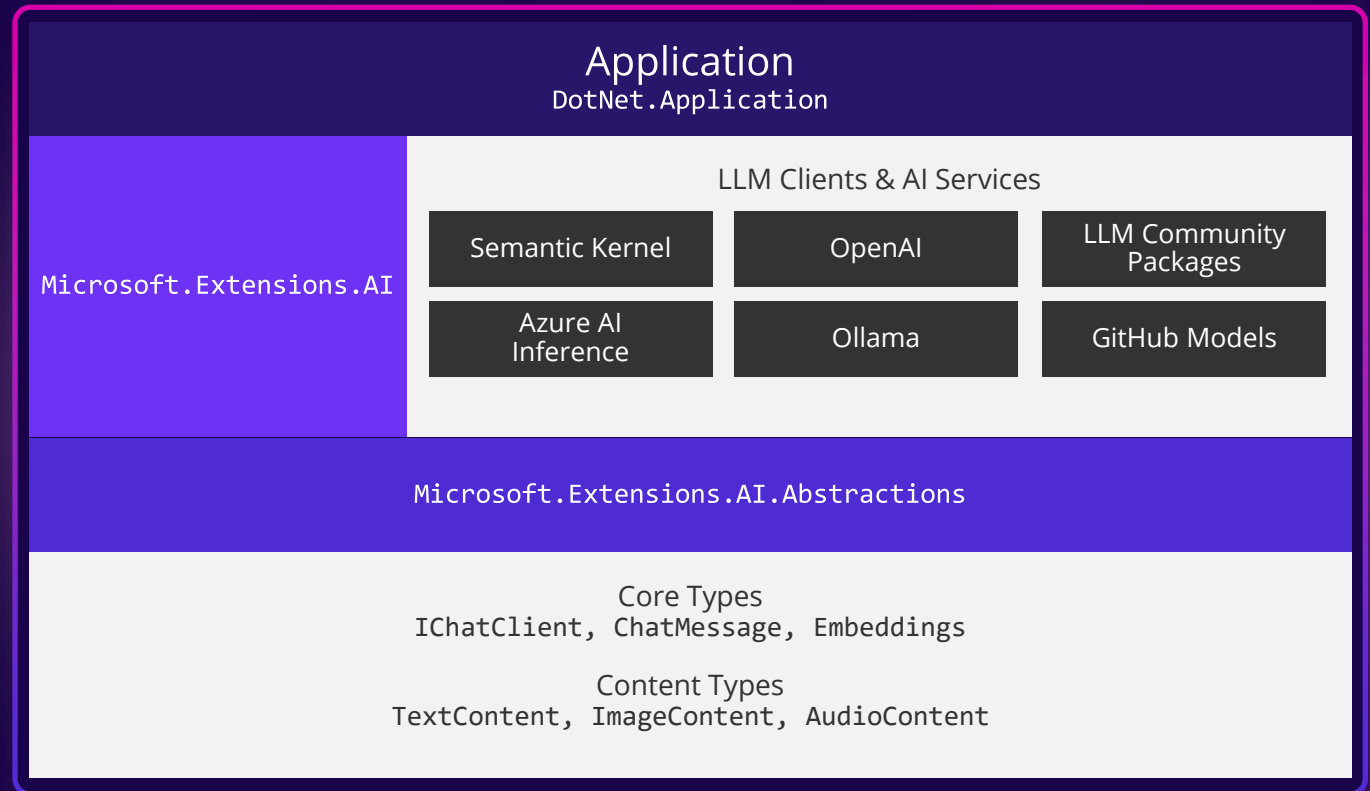
Experiment with OpenAI &
other models for free

github.com/models

Microsoft.Extensions.AI

.NET AI Integration

- Standardises integration of AI services such as language models for .NET developers
- Provides standard API interactions that can work with any AI service provider
- Implementations for abstractions include OpenAI, Azure AI Inference and Ollama
- Library authors are encouraged to implement abstractions for other AI services





Demo

Design & Develop Windows Widgets via Generative AI

Summary



Widget

Provide easy-to-use access to at-a-glance information



Adaptive Cards

Design, use JSON schema or Generative AI for Widgets



Widget Provider

Create in Windows App SDK and can use Generative AI



Generative AI

Use in .NET applications with Microsoft.Extensions.AI

Q&A

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Windows App SDK Code & Documentation

github.com/rogueplanetoid/designdevelopwindowswidgets

Presentation Slides, Demo & Links

aka.ms/widgetdevdocs

Widget Provider Code & Documentation

Thank you!

