

# Action Reminder Service - Windows Service Setup Guide

**Version:** 1.0 **Date:** 2025-11-14 **Target Framework:** .NET 10.0 **Service Type:** Windows Background Service

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## Overview

The **IkeaDocuScan Action Reminder Service** is a .NET 10.0 Windows background service that automatically sends daily email notifications for documents with upcoming action dates.

### Key Features

☐ **Scheduled Daily Execution** - Runs once per day at configured time (default: 08:00) ☐ **Database Integration** - Fetches due actions from SQL Server database ☐ **Email Notifications** - Sends formatted HTML emails to configured recipients ☐ **Database-Driven Configuration** - Supports dynamic configuration without restarts ☐ **Custom Email Templates** - Customizable templates with placeholder support ☐ **Windows Event Log Integration** - Logs to Windows Event Log for centralized monitoring ☐ **Automatic Retry** - Resilient error handling with automatic retry logic

### How It Works

1. Service starts and waits for configured schedule time
  2. Checks database for documents with `ActionDate` = today (or today + `DaysAhead`)
  3. If reminders found, loads email template from database (or uses default)
  4. Sends email to configured recipients with list of due actions
  5. Waits until next day to repeat
- 

## Prerequisites

### Server Requirements

- **Windows Server 2019 or later** (or Windows 10/11 for development)
- **.NET 10.0 Runtime** installed
- **SQL Server** (2017 or later) accessible from the server
- **SMTP Server** access (for sending emails)

### Required Permissions

- **File System:** Write permissions in C:\IkeaDocuScan\ActionReminder\
- **Database:** Read access to IkeaDocuScan database
- **SMTP:** Ability to connect to SMTP server
- **Event Log:** Permission to write to Windows Event Log (automatic with Local Service account)
- **Windows Service:** Administrator rights to install/manage services

## Software Requirements on Deployment Machine

- Visual Studio 2022 or .NET SDK 10.0
  - SQL Server Management Studio (for database verification)
  - Administrator access to target server
- 

## Publishing the Service

### Step 1: Open Project in Visual Studio 2022

1. Open the solution: IkeaDocuScanV3.sln
2. Locate project: IkeaDocuScan.ActionReminderService
3. Set build configuration to **Release**

### Step 2: Publish the Project

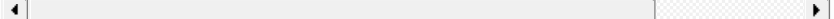
#### Option A: Using Visual Studio

1. Right-click IkeaDocuScan.ActionReminderService project → **Publish**
2. Choose **Folder** as target
3. Set folder path: C:\Publish\ActionReminder\
4. Click **Publish**

#### Option B: Using Command Line

```
# Navigate to project directory
cd IkeaDocuScanV3\IkeaDocuScan.ActionReminderService

# Publish for Windows x64
dotnet publish -c Release -r win-x64 --self-contained false -o C:\Publish\
```



### Step 3: Verify Published Files

Check that the following files exist in the publish folder:

- ☐ IkeaDocuScan.ActionReminderService.exe (main executable)
  - ☐ IkeaDocuScan.ActionReminderService.dll
  - ☐ IkeaDocuScan.Infrastructure.dll
  - ☐ IkeaDocuScan.Shared.dll
  - ☐ appsettings.json (configuration file)
  - ☐ All dependency DLLs (MailKit, Microsoft.EntityFrameworkCore, etc.)
- 

## Installation as Windows Service

### Step 1: Copy Files to Target Location

1. Create target directory on server:

```
New-Item -Path "C:\IkeaDocuScan\ActionReminder" -ItemType Directory -Fc
```



2. Copy all published files to C:\IkeaDocuScan\ActionReminder\
3. Verify files copied successfully:

```
Get-ChildItem "C:\IkeaDocuScan\ActionReminder\" | Select-Object Name, L
```

## Step 2: Configure appsettings.json

Before installing the service, update the configuration file:

1. Navigate to: C:\IkeaDocuScan\ActionReminder\appsettings.json
2. Edit with Notepad or preferred editor:

```
notepad "C:\IkeaDocuScan\ActionReminder\appsettings.json"
```

3. Update critical settings (see [Configuration](#) section for details):
  - ConnectionStrings:DefaultConnection - SQL Server connection string
  - ActionReminderService:RecipientEmails - Email recipients
  - Email:SmtpHost - SMTP server address
  - Email:FromAddress - Sender email address

### Example Configuration:

```
{
  "ConnectionStrings": {
    "DefaultConnection": "Server=SQLSERVER01;Database=IkeaDocuScan;Integra
  },
  "ActionReminderService": {
    "Enabled": true,
    "ScheduleTime": "08:00",
    "CheckIntervalMinutes": 60,
    "RecipientEmails": [
      "docuscan-admin@ikea.com",
      "legal-team@ikea.com"
    ],
    "EmailSubject": "Action Reminders Due Today - {Count} Items",
    "SendEmptyNotifications": false,
    "DaysAhead": 0
  },
  "Email": {
    "SmtpHost": "smtp.ikea.com",
    "SmtpPort": 587,
    "SecurityMode": "StartTls",
    "SmtpUsername": "docuscan@ikea.com",
    "SmtpPassword": "YourPassword",
    "FromAddress": "noreply-docuscan@ikea.com",
    "FromDisplayName": "IKEA DocuScan Action Reminder Service",
    "EnableEmailNotifications": true,
    "TimeoutSeconds": 30
  }
}
```

## Step 3: Create Windows Service

### Using PowerShell (Recommended):

```
# Run as Administrator
New-Service `
    -Name "IkeaDocuScanActionReminder" `
    -BinaryPathName "C:\IkeaDocuScan\ActionReminder\IkeaDocuScan.ActionRem
    -DisplayName "IKEA DocuScan Action Reminder Service" `
    -Description "Sends daily email notifications for documents with upcom
    -StartupType Automatic `
    -Credential (Get-Credential)
```

### Using SC.exe:

```
REM Run as Administrator
sc create IkeaDocuScanActionReminder ^
binPath= "C:\IkeaDocuScan\ActionReminder\IkeaDocuScan.ActionReminderService
displayname= "IKEA DocuScan Action Reminder Service" ^
start= auto ^
obj= "NT AUTHORITY\LocalService"
```

## Step 4: Configure Service Account (Important)

The service account needs: - ☐ Read access to SQL Server database - ☐ Network access to SMTP server - ☐ Read/Write access to C:\IkeaDocuScan\ActionReminder\

### Option A: Use Local Service Account (Recommended for simplicity)

```
# Service runs as NT AUTHORITY\LocalService
# Configure SQL Server to allow this account
```

### Option B: Use Domain Service Account (Recommended for production)

```
# Configure service to run as domain service account
sc config IkeaDocuScanActionReminder obj= "DOMAIN\svc_docuscan" password=

# Grant database access to this account in SQL Server
```

## Step 5: Configure Service Recovery

Set automatic restart on failure:

```
sc failure IkeaDocuScanActionReminder reset= 86400 actions= restart/60000/
```

This configures: - Reset failure count after 24 hours (86400 seconds) - 1st failure: Restart after 60 seconds - 2nd failure: Restart after 2 minutes - 3rd failure: Restart after 5 minutes

## Step 6: Start the Service

```
Start-Service -Name "IkeaDocuScanActionReminder"

# Verify service is running
Get-Service -Name "IkeaDocuScanActionReminder" | Select-Object Status, Sta
```

Expected output:

```
Status StartType DisplayName
-----
Running Automatic IKEA DocuScan Action Reminder Service
```

## Configuration

## Configuration File Structure

The service uses `appsettings.json` located in the service directory:  
`C:\IkeaDocuScan\ActionReminder\appsettings.json`

## Configuration Sections

### 1. Connection Strings

```
"ConnectionStrings": {  
  "DefaultConnection": "Server=YOUR_SQL_SERVER;Database=IkeaDocuScan;Integ  
}
```

**Parameters:** - Server - SQL Server hostname or IP address - Database - Database name (should be IkeaDocuScan) - Integrated Security=true - Use Windows Authentication - OR use User Id=sa;Password=YourPassword for SQL Authentication - TrustServerCertificate=true - Required for self-signed certificates

### 2. Action Reminder Service Configuration

```
"ActionReminderService": {  
  "Enabled": true,  
  "ScheduleTime": "08:00",  
  "CheckIntervalMinutes": 60,  
  "RecipientEmails": [  
    "admin1@company.com",  
    "admin2@company.com"  
  ],  
  "EmailSubject": "Action Reminders Due Today - {Count} Items",  
  "SendEmptyNotifications": false,  
  "DaysAhead": 0  
}
```

#### Parameter Details:

Parameter	Type	Default	Description
Enabled	bool	true	Master switch - set to false to disable the service
ScheduleTime	string	"08:00"	Time of day to send reminders (24-hour format HH:mm)
CheckIntervalMinutes	int	60	How often to check if it's time to run (in minutes)
RecipientEmails	string[]	[]	Array of email addresses to receive notifications
EmailSubject	string	"Action Reminders Due Today - {Count} Items"	Email subject line. Use {Count} placeholder for number of reminders
SendEmptyNotifications	bool	false	Send email even when no reminders are due
DaysAhead	int	0	Look ahead X days (0 = today only, 1 = today + tomorrow, etc.)

#### Examples:

```
// Send reminders at 7:30 AM
"ScheduleTime": "07:30"

// Look ahead 2 days (today, tomorrow, day after)
"DaysAhead": 2

// Send to multiple recipients
"RecipientEmails": [
  "legal@ikea.com",
  "finance@ikea.com",
  "admin@ikea.com"
]
```

### 3. Email (SMTP) Configuration

```
"Email": {
  "SmtpHost": "smtp.company.com",
  "SmtpPort": 587,
  "SecurityMode": "StartTls",
  "SmtpUsername": "docuscan@company.com",
  "SmtpPassword": "YourPassword",
  "FromAddress": "noreply-docuscan@company.com",
  "FromDisplayName": "IKEA DocuScan Action Reminder Service",
  "EnableEmailNotifications": true,
  "TimeoutSeconds": 30
}
```

#### Parameter Details:

Parameter	Type	Default	Description
SmtpHost	string	Required	SMTP server hostname
SmtpPort	int	25	SMTP server port (25=plain, 587=TLS, 465=SSL)
SecurityMode	string	“Auto”	Options: Auto, None, StartTls, SslOnConnect
SmtpUsername	string	“”	SMTP authentication username (if required)
SmtpPassword	string	“”	SMTP authentication password (if required)
FromAddress	string	Required	Sender email address
FromDisplayName	string	“”	Sender display name
EnableEmailNotifications	bool	true	Master switch for email sending
TimeoutSeconds	int	30	SMTP operation timeout

**Security Mode Options:** - Auto (Recommended) - Automatically selects based on port: Port 25→None, Port 587→StartTls, Port 465→SslOnConnect - None - No encryption (use only for internal servers) - StartTls - Upgrade to TLS after connecting (common for port 587) - SslOnConnect - SSL from connection start (common for port 465)

#### Common SMTP Configurations:

##### Microsoft 365 / Outlook:

```
{
  "SmtpHost": "smtp.office365.com",
  "SmtpPort": 587,
  "SecurityMode": "StartTls",
  "SmtpUsername": "docuscan@yourcompany.com",
  "SmtpPassword": "YourPassword"
}
```

##### Gmail (requires App Password):

```
{
  "SmtpHost": "smtp.gmail.com",
  "SmtpPort": 587,
  "SecurityMode": "StartTls",
  "SmtpUsername": "your-email@gmail.com",
  "SmtpPassword": "YourAppPassword"
}
```

#### Internal Exchange Server:

```
{
  "SmtpHost": "mail.yourcompany.local",
  "SmtpPort": 25,
  "SecurityMode": "None",
  "SmtpUsername": "",
  "SmtpPassword": ""
}
```

#### 4. Logging Configuration

```
"Logging": {
  "LogLevel": {
    "Default": "Information",
    "Microsoft": "Warning",
    "IkeaDocuScan.ActionReminderService": "Information"
  }
}
```

**Log Levels:** - Trace - Very detailed logs (for debugging) - Debug - Debugging information  
- Information - General informational messages (recommended) - Warning - Warning  
messages - Error - Error messages only - Critical - Critical failures only - None - No  
logging

#### Updating Configuration

After changing appsettings.json, you **MUST** restart the service:

```
Restart-Service -Name "IkeaDocuScanActionReminder"
```

---

## Service Management

### Common Service Commands

#### Start Service:

```
Start-Service -Name "IkeaDocuScanActionReminder"
```

#### Stop Service:

```
Stop-Service -Name "IkeaDocuScanActionReminder"
```

#### Restart Service:

```
Restart-Service -Name "IkeaDocuScanActionReminder"
```


#### Check Service Status:

```
Get-Service -Name "IkeaDocuScanActionReminder" | Select-Object Status, Sta
```



#### View Service Properties:

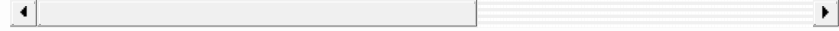
```
Get-WmiObject Win32_Service | Where-Object {$_.Name -eq "IkeaDocuScanActio
```



## Changing Service Account

```
# Using PowerShell
$cred = Get-Credential
$service = Get-WmiObject Win32_Service -Filter "Name='IkeaDocuScanActionRe
$service.Change($null,$null,$null,$null,$null,$null,$cred.UserName,$cred.G

# Then restart service
Restart-Service -Name "IkeaDocuScanActionReminder"
```



## Uninstalling the Service

```
# Stop the service first
Stop-Service -Name "IkeaDocuScanActionReminder"

# Remove the service
Remove-Service -Name "IkeaDocuScanActionReminder"

# Or using SC.exe
sc delete IkeaDocuScanActionReminder
```

---

## Troubleshooting

### Service Won't Start

**Check Event Viewer:** 1. Open Event Viewer (eventvwr.msc) 2. Navigate to: **Windows Logs** → **Application** 3. Look for errors from source: **IkeaDocuScan Action Reminder**

#### Common Issues:

**Issue:** “Service did not start due to logon failure” - **Cause:** Service account doesn't have correct password or permissions - **Solution:** Verify service account credentials and permissions

**Issue:** “Could not connect to database” - **Cause:** Connection string incorrect or service account lacks database access - **Solution:** Test connection string and grant database permissions

**Issue:** “File not found” - **Cause:** Missing DLL files or incorrect path - **Solution:** Verify all published files are present in service directory

### Service Starts but No Emails Sent

#### Check 1: Verify Configuration

```
# View current configuration
Get-Content "C:\IkeaDocuScan\ActionReminder\appsettings.json"
```

Verify: - ☐ Enabled is set to true - ☐ RecipientEmails contains valid email addresses - ☐ EnableEmailNotifications is true - ☐ SMTP settings are correct

#### Check 2: View Service Logs

```
# View recent Application event log entries
Get-EventLog -LogName Application -Source "IkeaDocuScan Action Reminder" -
```



#### Check 3: Verify Schedule Time

The service runs once per day at the configured ScheduleTime. If it's not time yet, it won't send emails.



```
// Runs at 8:00 AM
"ScheduleTime": "08:00"
```

To test immediately, temporarily change to current time + 1 minute, restart service.

#### Check 4: Test SMTP Connection

From the server, test SMTP connectivity:

```
# Test SMTP port connectivity
Test-NetConnection -ComputerName smtp.company.com -Port 587

# Should show: TcpTestSucceeded: True
```

#### No Action Reminders Found

##### Check Database:

Run this query in SQL Server Management Studio:

```
-- Check for documents with action dates due today
SELECT
    BarCode,
    DocumentNo,
    ActionDate,
    ActionDescription
FROM Documents
WHERE ActionDate = CAST(GETDATE() AS DATE)
    AND ActionDate >= ReceivingDate
ORDER BY ActionDate, BarCode;
```

If no results, there are no action reminders due today.

#### Testing the Service

##### Method 1: Reduce Check Interval

Temporarily set check interval to 1 minute for testing:

```
"CheckIntervalMinutes": 1
```

Restart service and monitor Event Viewer.

##### Method 2: Set Schedule Time to Near Future

Set schedule time to 2 minutes from now:

```
// If current time is 14:30, set to 14:32
"ScheduleTime": "14:32"
```

Restart service and wait.

##### Method 3: Enable Debug Logging

```
"Logging": {
  "LogLevel": {
    "Default": "Debug",
    "IkeaDocuScan.ActionReminderService": "Debug"
  }
}
```

Restart service and check Event Viewer for detailed logs.

---

## Monitoring

## Windows Event Log

The service logs to Windows Event Log under source: **IkeaDocuScan Action Reminder**

**View Logs:** 1. Open Event Viewer (eventvwr.msc) 2. Navigate to: **Windows Logs → Application** 3. Filter by source: **IkeaDocuScan Action Reminder**

**Key Log Messages:**

Message	Type	Meaning
“Action Reminder Worker started”	Information	Service started successfully
“Found X action reminder(s) due”	Information	Reminders found and will be sent
“No action reminders due today”	Information	No reminders found
“Successfully sent action reminder emails”	Information	Emails sent successfully
“Error processing action reminders”	Error	Something went wrong
“SMTP connection test failed”	Error	Cannot connect to SMTP server

## Daily Health Check

Create a scheduled task to verify service is running:

```
# Save as: Check-ActionReminderService.ps1
$serviceName = "IkeaDocuScanActionReminder"
$service = Get-Service -Name $serviceName -ErrorAction SilentlyContinue

if ($service -eq $null) {
    Write-EventLog -LogName Application -Source "HealthCheck" -EventId 100
    exit 1
}

if ($service.Status -ne "Running") {
    Write-EventLog -LogName Application -Source "HealthCheck" -EventId 100
    Start-Service -Name $serviceName
    exit 2
}

Write-EventLog -LogName Application -Source "HealthCheck" -EventId 1000 -E
exit 0
```

Schedule this script to run every hour.

## Summary

- **Installation:** Service installed at C:\IkeaDocuScan\ActionReminder\ □
- **Configuration:** Edit appsettings.json and restart service □
- **Service Name:** IkeaDocuScanActionReminder □
- **Runs:** Once daily at configured ScheduleTime □
- **Logging:** Windows Event Log → Application → Source: “IkeaDocuScan Action Reminder” □
- **Management:** Use standard Windows service commands

For configuration and email template customization, see:  
**ACTION\_REMINDER\_CONFIGURATION\_GUIDE.md**

## Quick Reference

### Service Installation:

```
New-Service -Name "IkeaDocuScanActionReminder" -BinaryPathName "C:\IkeaDoc
```

### Start/Stop/Restart:

```
Start-Service -Name "IkeaDocuScanActionReminder"  
Stop-Service -Name "IkeaDocuScanActionReminder"  
Restart-Service -Name "IkeaDocuScanActionReminder"
```

### Check Status:

```
Get-Service -Name "IkeaDocuScanActionReminder"
```

### View Logs:

```
Get-EventLog -LogName Application -Source "IkeaDocuScan Action Reminder" -
```

### Test SMIP:

```
Test-NetConnection -ComputerName smtp.company.com -Port 587
```

---

**For issues or questions, check Event Viewer logs first. Most issues are related to configuration, permissions, or SMIP connectivity.**