

<https://www.halvorsen.blog>



ASP.NET Core RFID Application

Hans-Petter Halvorsen

Contents

- In this Tutorial we will create an RFID Web Application in ASP.NET Core that can scan RFID Tags
- The Application will also Add, Edit and Delete Tag Information stored in a SQL Server Database

RFID System

Desktop Reader NEO 2



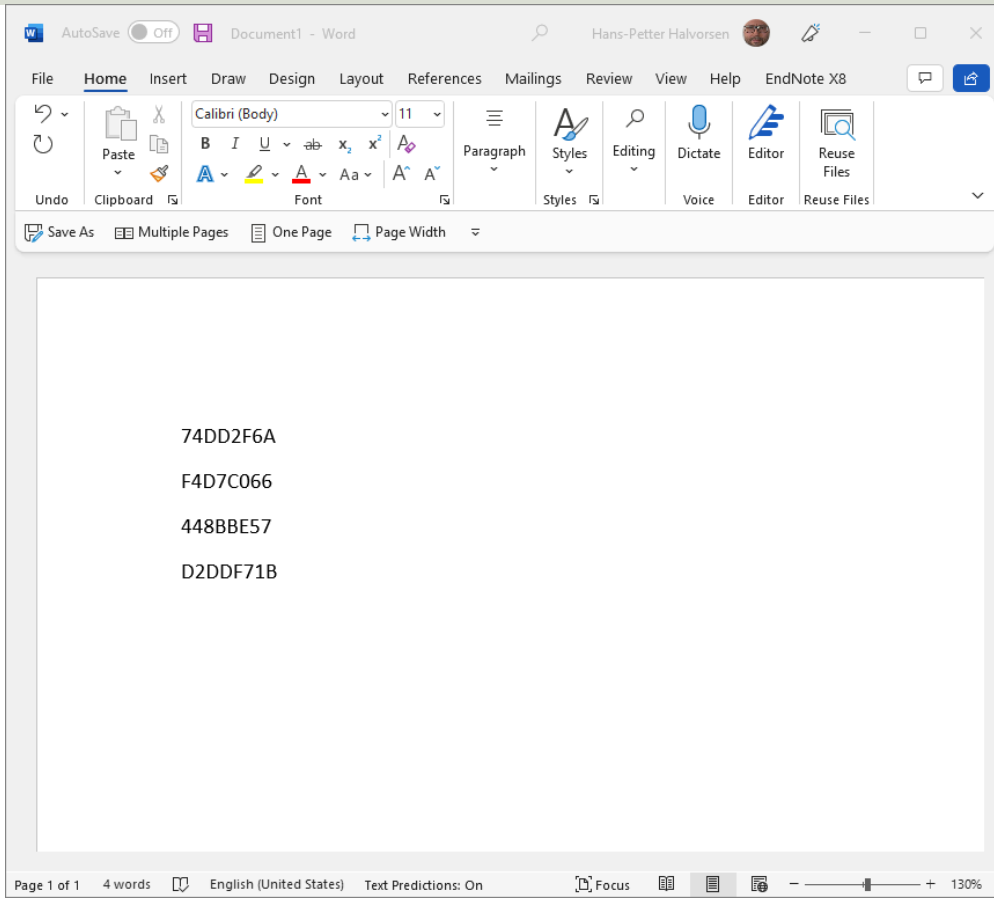
MIFARE Classic 1K (ISO 14443A) Tags



<https://en.idtronic-rfid.com/rfid-readers/rfid-hf-readers/desktop-reader-neo-2/>

<https://www.elfadistelec.no/en/rfid-tag-hf-red-13-56mhz-nxp-mifare-idtronic-kf-mfs50-rd/p/30182163?trackQuery=RFID&pos=30&origPos=30&origPageSize=50&track=true>

Testing



- Plug in the RFID Reader into your PC
- Open MS Word, Notepad, etc.
- Put a RFID Tag on top of the Reader
- Observe that the unique Tag UID is written into MS Word



ASP.NET Application

ASP.NET Application

Hardware Store Scan Tool Management

RFID Application

Please Scan the RFID Tag on the Tool:

Tool Information

TagId **74DD2F6A** is Tool: **Red Tool**

ASP.NET Application

[Hardware Store](#) [Scan](#) [Tool Management](#)

Tool Management

Below you see all the Tools in the Hardware Store:

ToolId	ToolName	TagId	Action
1	Green Tool	448BBE57	Delete
2	Red Tool	74DD2F6A	Delete
3	Blue Tool	F4D7C066	Delete
4	Yellow Tool	D2DDF71B	Delete
8	Black Tool	A4E82A85	Delete

[New Tool](#)

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[Hardware Store](#) [Home](#) [Tool Management](#)

New Tool

TagId:

Tool Name:

[Save](#)

[Hardware Store](#) [Scan](#) [Tool Management](#)

Edit Tool

Tool Name:

TagId:

[Save](#)

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Step by Step

1. Scanning RFID Tags into a Textbox
2. Retrieve Information based on the scanned Tag
3. Retrieve Information from Database based on the scanned Tag
4. Get List of available Tools in the Database
5. Add New Tools into the Database
6. Edit Existing Tool in the Database
7. Delete Existing Tool in the Database



Step 1

Scanning RFID Tags into a Textbox

Hans-Petter Halvorsen

[Table of Contents](#)

Step by Step

- 1. Scanning RFID Tags into a Textbox**
2. Retrieve Information based on the scanned Tag
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RFID Application

TagId:

74DD2F6A
448BBE57
D2DDF71B
F4D7C066
A4E82A85



Step 2

Retrieve Information based on the scanned Tag

Step by Step

1. Scanning RFID Tags into a Textbox
- 2. Retrieve Information based on the scanned Tag**
3. Retrieve Information from Database based on the scanned Tag
4. Get List of available Tools in the Database
5. Add New Tools into the Database
6. Edit Existing Tool in the Database
7. Delete Existing Tool in the Database

ASP.NET Application

RfidApp [Home](#) [Privacy](#)

RFID Application

TagId:

Tag Information

TagId **74DD2F6A** has color: **Red**



Step 3

Retrieve Information from **Database** based on the scanned Tag

Step by Step

1. Scanning RFID Tags into a Textbox
2. Retrieve Information based on the scanned Tag
- 3. Retrieve Information from Database based on the scanned Tag**
4. Get List of available Tools in the Database
5. Add New Tools into the Database
6. Edit Existing Tool in the Database
7. Delete Existing Tool in the Database

ASP.NET Application

RfidApp [Home](#) [Privacy](#)

RFID Application

Please Scan the RFID Tag on the Tool:

Tool Information

TagId **448BBE57** is Tool: **Green Tool**

Database

```
CREATE TABLE [TOOL]  
(  
  [ToolId]      int NOT NULL IDENTITY (1,1) Primary Key,  
  [ToolName]   varchar(100) NOT NULL UNIQUE,  
  [TagId]      varchar(10) NULL UNIQUE  
)  
go
```



Step 4

Get List of available Tools in the Database

Step by Step

1. Scanning RFID Tags into a Textbox
2. Retrieve Information based on the scanned Tag
3. Retrieve Information from Database based on the scanned Tag
4. **Get List of available Tools in the Database**
5. Add New Tools into the Database
6. Edit Existing Tool in the Database
7. Delete Existing Tool in the Database

ASP.NET Application

[Hardware Store](#) [Home](#) [Tool Management](#)

RFID Application

Please Scan the RFID Tag on the Tool:

Tool Information

TagId **74DD2F6A** is Tool: **Red Tool**

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[Hardware Store](#) [Home](#) [Tool Management](#)

Tools

Below you see all the Tools in the Hardware Store:

ToolId	ToolName	TagId
1	Green Tool	448BBE57
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5	Black Tool	A4E82A85

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Step 5

Add New Tools into the Database

Step by Step

1. Scanning RFID Tags into a Textbox
2. Retrieve Information based on the scanned Tag
3. Retrieve Information from Database based on the scanned Tag
4. Get List of available Tools in the Database
- 5. Add New Tools into the Database**
6. Edit Existing Tool in the Database
7. Delete Existing Tool in the Database

ASP.NET Application

Hardware Store Home Tool Management

Tools

Below you see all the Tools in the Hardware Store:

ToolId	ToolName	ToolColor
1	Green Tool	Green
2	Red Tool	Red
3	Blue Tool	Blue
4	Yellow Tool	Yellow
5	Black Tool	Black

New Tool

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Hardware Store Home Tool Management

New Tool

TagId:

Tool Name:

Save

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Database

```
CREATE PROCEDURE CreateTool
@ToolName varchar(100),
@TagId varchar(10)
AS

if not exists (select * from TOOL where TagId = @TagId)
    INSERT INTO TOOL (ToolName, TagId) VALUES (@ToolName,@TagId)

GO
```



Step 6

Edit Existing Tool in the Database

Step by Step

1. Scanning RFID Tags into a Textbox
2. Retrieve Information based on the scanned Tag
3. Retrieve Information from Database based on the scanned Tag
4. Get List of available Tools in the Database
5. Add New Tools into the Database
- 6. Edit Existing Tool in the Database**
7. Delete Existing Tool in the Database

ASP.NET Application

Hardware Store Scan Tool Management

Tool Management

Below you see all the Tools in the Hardware Store:

ToolId	ToolName
1	Green Tool
2	Red Tool
3	Blue Tool
4	Yellow Tool
5	Black Tool
6	Test Tool
7	Test Tool2

New Tool

Hardware Store Scan Tool Management

Edit Tool

Tool Name:

TagId:

Save

Database

```
CREATE PROCEDURE EditTool
```

```
@ToolId int,  
@ToolName varchar(100),  
@TagId varchar(10)
```

```
AS
```

```
UPDATE TOOL SET ToolName=@ToolName, TagId=@TagId WHERE ToolId=@ToolId
```

```
GO
```



Step 7

Delete Existing Tool in the Database

Step by Step

1. Scanning RFID Tags into a Textbox
2. Retrieve Information based on the scanned Tag
3. Retrieve Information from Database based on the scanned Tag
4. Get List of available Tools in the Database
5. Add New Tools into the Database
6. Edit Existing Tool in the Database
7. **Delete Existing Tool in the Database**

ASP.NET Application

Hardware Store Scan Tool Management

Tool Management

Below you see all the Tools in the Hardware Store:

ToolId	ToolName	TagId	Action
1	Green Tool	448BBE57	Delete
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3	Blue Tool	F4D7C066	Delete
4	Yellow Tool	D2DDF71B	Delete
8	Black Tool	A4E82A85	Delete

New Tool

Database

```
CREATE PROCEDURE DeleteTool  
@ToolId int  
AS  
  
DELETE FROM TOOL WHERE ToolId=@ToolId  
  
GO
```



Final Application

ASP.NET Application

Hardware Store Scan Tool Management

RFID Application

Please Scan the RFID Tag on the Tool:

Tool Information

TagId **74DD2F6A** is Tool: **Red Tool**

ASP.NET Application

[Hardware Store](#) [Scan](#) [Tool Management](#)

Tool Management

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[New Tool](#)

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[Hardware Store](#) [Home](#) [Tool Management](#)

New Tool

TagId:

Tool Name:

[Save](#)

[Hardware Store](#) [Scan](#) [Tool Management](#)

Edit Tool

Tool Name:

TagId:

[Save](#)

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Summary

- We have made a basic RFID ASP.NET Core Application.
- It is important to take it step by step, i.e., add more and more features slowly step by step.
- Start simple then add more and more features.
- In that way it is so much easier to make it work and test it before you take the next step.
- Make sure that you always have a working Application before you take the next step.
- If you run out of time before, you can finish all the planned steps. Then you can always use the Application as it is.

Steps in the Development of this Application:

1. Scanning RFID Tags into a Textbox
2. Retrieve Information based on the scanned Tag
3. Retrieve Information from Database based on the scanned Tag
4. Get List of available Tools in the Database
5. Add New Tools into the Database
6. Edit Existing Tool in the Database
7. Delete Existing Tool in the Database

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