Writing image to NDEF tag

Simple example MIDlet that can write image to RFID tag and read it from it. Writing is done using TargetListener and NDEFTagConnection. Reading using NDEFRecordListener. Image ised in this example: Media:smiley.png

```
import java.io.ByteArrayOutputStream;
import java.io.IOException;
import java.io.InputStream;

import javax.microedition.contactless.ContactlessException;
import javax.microedition.contactless.DiscoveryManager;
import javax.microedition.contactless.TargetListener;
import javax.microedition.contactless.TargetProperties;
import javax.microedition.contactless.TargetType;
import javax.microedition.contactless.ndef.NDEFMessage;
import javax.microedition.contactless.ndef.NDEFRecord;
import javax.microedition.contactless.ndef.NDEFRecordListener;
import javax.microedition.contactless.ndef.NDEFRecordType;
import javax.microedition.contactless.ndef.NDEFTagConnection;
import javax.microedition.io.Connector;
import javax.microedition.lcdui.Command;
import javax.microedition.lcdui.CommandListener;
import javax.microedition.lcdui.Display;
import javax.microedition.lcdui.Displayable;
import javax.microedition.lcdui.Form;
import javax.microedition.lcdui.Image;
import javax.microedition.midlet.MIDlet;
import javax.microedition.midlet.MIDletStateChangeException;

/*
 * Simple example that can write image to RFID tag and read it from it.
 * Writing is done using TargetListener and NDEFTagConnection.
 * Reading using NDEFRecordListener.
 */
public class ImageWrite extends MIDlet implements TargetListener,
        NDEFRecordListener, CommandListener {

    private DiscoveryManager dm;

    private Form form;

    // Read and write commands to set mode of the application
    private Command readCommand;

    private Command writeCommand;

    // Boolean telling in which mode the application is
    private boolean read = true;

    protected void startApp() throws MIDletStateChangeException {
        dm = DiscoveryManager.getInstance();

        try {
            // Register NDEF tag to target listener..
            dm.addTargetListener(this, TargetType.NDEF_TAG);
            // ..and png image mime type to NDEF record listener.
            dm.addNDEFRecordListener(this, new NDEFRecordType(
                    NDEFRecordType.MIME, "image/png"));
        } catch (IllegalStateException e) {
            form.append(e.toString());
        } catch (ContactlessException e) {
            form.append(e.toString());
        }
        form = new Form("Form");
        readCommand = new Command("Read", Command.OK, 1);
        writeCommand = new Command("Write", Command.OK, 1);
        form.addCommand(writeCommand);
        form.setCommandListener(this);
        Display.getDisplay(this).setCurrent(form);
    }

    protected void pauseApp() {
    }

    protected void destroyApp(boolean arg0) throws MIDletStateChangeException {
    }

    // NDEF tag detected
    public void targetDetected(TargetProperties[] properties) {
        // If application is not in read mode - write image to tag
        if (!read) {
            NDEFTagConnection conn = null;
            try {
                // Open connection to NDEF tag
                conn = (NDEFTagConnection) Connector.open(properties[0]
                        .getUrl());

                // Read image from phone to ByteArrayOutputStream
                InputStream is = getClass().getResourceAsStream("smiley.png");
                ByteArrayOutputStream baos = new ByteArrayOutputStream();
                int c;
                while ((c = is.read()) != -1) {
                    baos.write(c);
                }

                // Create NDEF Record to be added to NDEF Message
                NDEFRecord recordToWrite = new NDEFRecord(new NDEFRecordType(
                        NDEFRecordType.MIME, "image/png"), null, baos
                        .toByteArray());

                // Create NDEF Message and add created record in it.
                NDEFMessage write_container = new NDEFMessage();
                write_container.appendRecord(recordToWrite);

                // Write NDEF Message to tag
                conn.writeNDEF(write_container);

                form.append("Image witten");
```


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```
            } catch (IOException e) {
                form.append(e.toString());
            } catch (Exception e) {
                form.append(e.toString());
            } finally {
                try {
                    if (conn != null) {
                        conn.close();
                    }
                } catch (IOException e) {
                    form.append(e.toString());
                }
            }
        }
    }

    // proper NDEF message detected
    public void recordDetected(NDEFMessage mes) {
        // If application is in read mode - show image from tag
        if (read) {
            // Get png image record from NDEF message
            NDEFRecord rec[] = mes.getRecord(new NDEFRecordType(
                    NDEFRecordType.MIME, "image/png"));

            // Create Image from payload data from record - which is the image
            // as byte array.
            Image img = Image.createImage(rec[0].getPayload(), 0, (int) rec[0]
                    .getPayloadLength());
            form.append(img);
        }
    }

    // Change application mode from reading to writing and vice versa
    public void commandAction(Command c, Displayable d) {
        if (read) {
            read = false;
            form.removeCommand(writeCommand);
            form.addCommand(readCommand);
        } else {
            read = true;
            form.removeCommand(readCommand);
            form.addCommand(writeCommand);
        }
    }
}
```


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