## Writing R Code for CARMEN Services

R is a programming language and software environment for statistical computing and graphics. It is widely used for statistical software development and data analysis. Please note that this is currently under construction and is not ready for general release.

R scripts can be executed from the command line using the Rscript command. i.e.

```
Rscript --vanilla script.R param0 param1
```

Here is an example of some R code written to work with Rscript. It takes two input parameters, and outputs a file. The first input parameter is an input filename and the second is the filename you require for the output file. Obviously I've left the main algorithm out for clarity.

```
# read the arguments into R
args=(commandArgs(TRUE))
inputFile = args[[1]] # get param0
outputFile = args[[2]] # get param1

# redirect output for debugging
sink(file='stdout.txt', type='output')
zz <- file('errors.txt', open='wt')
sink(zz, type='message')

# main algorithm
. . .

# save output to file
pdf(file=outputFile)
. . .

# clean up after redirection
sink(type='output') #restore output
sink(type='message')

#print service output to screen, i.e. output file name
opstr = paste("<output>",outputFile,"</output>", sep="")
print(opstr, quote=F)
```

If multiple outputs are to be returned from the R service, then the outputs must be printed to screen as a comma-seperated string. This is best achieved by using the paste function to create an output string, and works with strings and numeric values.

```
opstr = paste(outputFile, csvfilename, score, sep=",")
opstr = paste("<output>",opstr,"</output>", sep="")
print(opstr, quote=F)
```

which would print three outputs to the screen, something like . . . "output.jpg,output.csv,37"

For those writing R code on Mac machines, the end of line character used is not liked by the unix Rscript command. Therefore, convert the file to the unix convention before wrapping.