



PATENTS ACT 1977

APPLICANT Fisher-Rosemount Systems, Inc.

ISSUE Whether patent application GB1116612.1 is excluded under section 1(2) of the Patents Act 1977

HEARING OFFICER J Pullen

DECISION

Introduction

- 1 Patent application GB1116612.1 entitled “Methods and apparatus to manage process data” was filed on 27th September 2011, claiming a priority date of 27th September 2010. It was published as GB 2484008 on 28th March 2012.
- 2 In his initial examination report, amongst other objections, the examiner, Mr Rob Valkass, found the invention to be excluded under Section 1(2) of the Patents Act 1977 (“the Act”). There followed several rounds of correspondence between the examiner and the applicant’s attorney without agreement being reached. The applicant therefore asked to be heard and the matter came before me at a hearing on the 10th May 2019. The applicant was represented by Mr Russell Sessford. Also attending were the hearing assistant, Mr Ben Widdows, and an observer, Mr Alex Gillam.
- 3 Skeleton arguments were filed on the 2nd May 2019 which included an auxiliary claim set. This auxiliary claim set was to be considered only if the claims currently on file were found to be excluded. A Form 52 and request for a discretionary extension of the compliance period were also filed on the 2nd May 2019, which was allowed. The compliance period was therefore extended to the 25th May 2019.

The invention

- 4 The invention relates to process control systems and, in particular, managing process control data. Process control systems typically include one or more process controllers communicatively coupled to at least one operator workstation and at least one field device. The field devices may be for example valves, valve positioners, sensors, switches and transmitters which generate signals indicative of the operation of the process control plant. The controllers process these signals in accordance

with control routines and generate signals which are then sent back to the field devices (or on to other controllers).

- 5 The invention is concerned with how process data from the field devices is provided to and obtained by the workstation. Workstations display process data from field devices using a corresponding electronic device description language (EDDL) file. EDDL files are text-based files which describe the field devices (their functions, characteristics parameters etc.) and include information about how the process data is to be displayed on the workstation, but do not themselves store the process data. In the prior art the process data is stored by the controllers in a database system in any number of different formats, and an EDDL file typically includes references to the database system identifying how the process data has been stored in the database. Thus, the entire database may need to be searched in order to locate the process data referenced in the EDDL file and if the location of the process data is changed in the database system then the EDDL files for each field device have to be updated accordingly. Furthermore, an interface may have to be provided so as to convert the stored process data into a format which can be communicated to and processed by the applications on the workstation.
- 6 The present invention aims to solve these issues by providing a standardised common file format for storing process data. This common file format is used to create descriptor files of a standardised form which can take over some of the roles of the EDDL files. These descriptor files include the process data in a data portion of the files.
- 7 The claims currently on file, filed 28th February 2019, have two independent claims. Claim 1 is to a method and claim 15 is to an apparatus. It was agreed at the hearing that claim 15 would stand or fall with claim 1. Claim 1 reads:

A method, the method comprising:

receiving a request for process data associated with a field device;

searching a database for a descriptor file that includes the requested process data by searching for a header of the descriptor file that matches information included within the request;

retrieving the process data from the descriptor file by:

accessing a schema within the header that specifies that the process data is located at an object within the descriptor file;

locating a file body that corresponds to the process data within the descriptor file based on the schema;

locating a section that corresponds to the process data within the file body based on the schema;

locating a file entry that corresponds to the process data within the section based on the schema; and

locating the object that corresponds to the process data within the file entry based on the schema; and

accessing an Electronic Device Description Language (EDDL) file for the field device to determine how the process data is to be displayed, the EDDL file including a reference to the process data based on the schema;

generating a display file describing an arrangement of the process data based on the EDDL file; and

executing the display file to display the process data.

- 8 The auxiliary claims filed on the 2nd May 2019 also have respective independent method and apparatus claims 1&15 which would stand or fall together. Claim 1 in the auxiliary request reads:

A method, the method comprising:

receiving a request for process data associated with a field device;

searching a database for a descriptor file that includes the requested process data by searching for a header of the descriptor file that matches information included within the request;

retrieving the process data from the descriptor file by:

accessing a schema within the header that specifies that the process data is located at an object within the descriptor file;

locating a file body that corresponds to the process data within the descriptor file based on the schema;

locating a section that corresponds to the process data within the file body based on the schema;

locating a file entry that corresponds to the process data within the section based on the schema; and

locating the object that corresponds to the process data within the file entry based on the schema; and

accessing an Electronic Device Description Language (EDDL) file for the field device to determine how the process data is to be displayed, the EDDL file including a reference to the process data based on the schema;

generating a display file describing an arrangement of the process data based on the EDDL file;

executing the display file to display the process data.

managing the process data using a display interface, such that an operation of the process is modified.

The law

- 9 The examiner has objected that the invention is excluded from being patented as a program for a computer as such. The relevant section of the Act is 1(2), the most relevant provisions of which (with my emphasis added) are:

Section 1(2)

It is hereby declared that the following (among other things) are not inventions for the purposes of this Act, that is to say, anything which consists of –

- (a) ...;
- (b) ...;
- (c) ...**a program for a computer**;
- (d) ...;

but the foregoing provision shall prevent anything from being treated as an invention for the purposes of this Act only to the extent that a patent or application for a patent relates to that thing as such.

- 10 Whether or not an invention falls within these excluded categories is assessed on the basis of the four-step approach set out by the Court of Appeal in *Aerotel/Macrossan*¹. The steps are:
- (1) *Properly construe the claim;*
 - (2) *Identify the actual contribution;*
 - (3) *Ask whether it falls solely within the excluded subject matter;*
 - (4) *Check whether the actual or alleged contribution is actually technical in nature.*
- 11 Subsequently, the Court of Appeal in *Symbian*² made clear that the *Aerotel* test is not intended to provide a departure from the previous requirement set out in case law, namely that the invention must provide a "technical contribution" if it is not to fall within excluded matter. The *Aerotel* test has subsequently been endorsed by the Court of Appeal in its decisions in both *HTC*³ and *Lantana*⁴.
- 12 In determining whether, or not, a program for a computer makes a relevant technical contribution which takes it beyond being "a program for a computer... as such" it is helpful to consider the five "signposts" first set out in *AT&T/CVON*, and later reformulated in *HTC*. The signposts are:

i. whether the claimed technical effect has a technical effect on a process which is carried on outside the computer;

¹ *Aerotel Ltd v Telco Holdings Ltd & Ors Rev 1* [2007] RPC 7

² *Symbian Ltd's Application* [2009] RPC 1,

³ *HTC v Apple* [2013] EXCA Civ 451

⁴ *Lantana Limited and The Comptroller General of Patents, Designs and Trade Marks* [2014] EWCA Civ 1463

ii. whether the claimed technical effect operates at the level of the architecture of the computer; that is to say whether the effect is produced irrespective of the data being processed or the applications being run;

iii. whether the claimed technical effect results in the computer being made to operate in a new way;

iv. whether the program makes the computer a better computer in the sense of running more efficiently and effectively as a computer;

v. whether the perceived problem is overcome by the claimed invention as opposed to merely being circumvented.

- 13 Mr Sessford agreed that this was the correct approach to take. The claims currently on file shall form the initial assessment.

Assessment

Step 1 -Construe the claims

- 14 Whilst both the examiner and Mr Sessford have gone into detail with regard to the meaning of the claims, I do not think there is any particular difficulty in construing them for the purposes of assessing excluded matter. Nevertheless, the analysis of the claims provided by Mr Sessford in the skeleton arguments, which he reiterated at the hearing, is helpful and is outlined below.
- 15 *“a method, the method comprising: receiving a request for process control data associated with a field device”* Involves receiving a request (possibly from a user but at least from a user application (e.g. operating on the workstation)) for process data for a particular device in the process control system. The process data could be status information, measured parameters, configuration information etc.
- 16 *“searching a database for a descriptor file that includes the requested process data by searching for a header of the descriptor file that matches information included within the request”* A search is then performed to locate the descriptor file that includes the requested process data. To perform the search a header part of the descriptor file is used.
- 17 *“retrieving the process data from the descriptor file by: accessing a schema within the header that specifies that the process data is located at an object within the descriptor file; locating a file body that corresponds to the process data within the descriptor file based on the schema; locating a section that corresponds to the process data within the file body based on the schema; locating a file entry that corresponds to the process data within the section based on the schema; and locating the object that corresponds to the process data within the file entry based on the schema”* The process data is then retrieved (which effectively also defines how the process data was stored) where the ‘schema’ is the standardised structure of the descriptor file. The general structure of the schema is discussed in relation to the ‘locating’ steps. It can be seen that the object is within the file entry which is within the section which is within the file body which is within the descriptor file.

- 18 *“accessing an Electronic Device Description Language (EDDL) file for the field device to determine how the process data is to be displayed, the EDDL file including a reference to the process data based on the schema; generating a display file describing an arrangement of the process data based on the EDDL file”* The EDDL file for the field device or group of devices is accessed and the display information included therein is used in the generation of the display file for rendering. The EDDL file includes a reference to the process data based on the schema (rather than a reference used to search for the process data in a database system).
- 19 *“executing the display file to display the process data.”* Execution of the display file is the rendering of the process data (using the display information from the EDDL file) on a display screen of the workstation (or other operator interface device).

Step 2 – Identify the actual contribution

- 20 In his letter dated 3rd April 2019 the examiner considered the contribution to reside in:

“A computer implemented method of accessing process data stored within a descriptor file in a four-level hierarchy defined by a schema incorporated within the descriptor file, and displaying that data according to an EDDL file, with the alleged advantage of providing a more portable (‘robust’) common file format for descriptor files.”

- 21 At the hearing Mr Sessford stated that his assessment of the contribution was not dissimilar to the examiner’s but places a greater emphasis on the broader nature of what has been added to human knowledge. He considered that the contribution can be applied to different types of data. In particular he noted that the specification (on page 8) refers to generally applying the invention to any type of data within an automation system, a batch processing system, manufacturing system, industrial control system or safety system.
- 22 Mr Sessford then went on to discuss that the contribution could be broader still. Since the examiner had not identified any document that demonstrated that the present invention was known bar the application to process data, which would he said presumably have been found for an inventive step objection, then the technique (i.e. schema) used in the handling of any data for any hardware devices is the contribution. Mr Sessford emphasised that the contribution does not have to be limited to the wording of the claim.
- 23 I’m not sure it is helpful to speculate and theorise on what documents the examiner could or did not find. What is clear from the application itself is that that the contribution relates to the handling of process data. I note, however, that process data may encompass data relating to automation systems, batch processing systems etc. as such data relates to process control systems in a general sense. Indeed, Mr Sessford stated at the hearing that the systems referenced in the specification are “all pretty much process control systems of one type or another”.
- 24 At the hearing and in his letter dated Mr Sessford formularised the contribution as:

“A computer implemented method of storing and retrieving data related to a process control system, in which the data is stored in a hierarchically structured descriptor file

according to a defined schema, and the displaying of that data using EDDL file information, with the actual advantage of providing faster access to the data, in a more portable ('robust') structure."

25 Mr Sessford defined "portable ('robust')" structure with reference to the prior art database where it is easy to lose the association between the data and the information that's in the EDDL file – i.e. the data is stored but you don't know where it is. Having the data in the descriptor file does away with that risk in that it is just there – you access the data because it is in the file. He also noted that robustness is a reference to reliability in practice, and that there is an increase in the speed of data retrieval by the fact that you are not having to search separately for the data within a bigger data structure.

26 When discussing this definition of the contribution Mr Sessford reinforced his opinion about its broad nature, in particular he stated:

"The process data could be used in relation to a huge number of applications, any number of applications, this is the mechanism underlying how the applications get the data, it is not something to do with those applications...we are talking about process data, but that is what the applicant does – they make process control systems. These process control systems only handle process data...a computer system dedicated to one cause – it's only purpose in life is to handle process data. We are providing the contribution in the broad sense to all of those applications, within the process control system, that are using that process control data"

27 In conclusion, I am content to proceed with Mr Sessford's assessment of the contribution defined in paragraph 24 above, and to my mind it is substantially similar to the examiner's. I am also satisfied that the contribution of the present invention can have an effect on a significant number of applications in the system which use the process data for display. As Mr Sessford noted this is a nuanced difference.

Steps 3&4 - Ask whether it falls solely within the excluded subject matter and (4) Check whether the actual or alleged contribution is actually technical in nature

28 At the hearing Mr Sessford considered steps 3&4 together and I shall do likewise. Mr Sessford outlined three threads to his arguments, and I shall consider each in turn.

Technical field of endeavour

29 Mr Sessford referred to BL O/148/19⁵ in which the hearing officer considered the approach set out in BL O/112/18⁶ in light of Halliburton⁷. In BL O112/18 the hearing officer concluded that one can step back from the actual advance over the state of the art and identify the field of endeavour when considering what the inventor has added to the stock of human knowledge. The hearing officer in BL O/148/19 went on to state (at paragraph 44) that:

⁵ BL O/148/19 [Fisher-Rosemount Systems Inc]

⁶ BL O112/18 [Landmark Graphics Corporation]

⁷ Halliburton Energy Services Inc [2011] EWHC 2508 (Pat)

“For this application, the field of endeavour may be considered to be ‘automatically giving visual indications about runtime data in a process control system’. This is undoubtedly a technical field of endeavour”

- 30 Mr Sessford considered the facts of the present invention to be on the same grounds as that of BL O/148/19. He noted that the present invention is a mechanism by which the real time presentation of information is facilitated and that the invention includes (as claimed) the display of the process data – in particular that the system more reliably accesses data, so the presentation of information using the method of the invention is more reliable. Mr Sessford concluded that “in that sense we have an invention where in the field of endeavour of giving indications about runtime data in a process control system and its actually providing an advantage in that field of endeavour.”
- 31 Whilst there are clearly some similarities between the present invention and that of BL O/148/19, there are also clearly quite a number of differences. As Mr Sessford noted the invention in BL O/148/19 was more about the application side of things. Furthermore, I am wary of an exercise in comparing the facts between applications. Nor I am convinced that the field of endeavour of the present invention – namely the retrieval and display of process data – can be readily said to be a technical field of endeavour. What is important in the assessment of the present invention is whether the contribution is technical. Which I believe leads me on to the second thread of Mr Sessford’s arguments.

Providing visual indication of the internal operation of a system is technical

- 32 This line of argument was based on the decision in T 115/85⁸. Mr Sessford stated that the UK courts have frequently commended and followed this case, and noted that Symbian suggested (at paragraph 49) there must be a good reason to not follow the IBM decisions. He further noted that the IPO had followed this reasoning in decisions such as BL O/029/19⁹. I agree, and I see no reasons in the present case why the analysis of T 115/85 should not be followed.
- 33 Mr Sessford considered that the invention in T 115/85 had nothing new in the sensing of the information (i.e. that an event was happening), nor was is new that there was a notification. What was new was how to convert the notification that an event had happened to an understandable and intelligible instruction to the user. In particular, the clever bit was in the table structure in order to convert those messages into text, which was then presented – in other words the difference was the bit in the middle which made the displaying of those messages better and more efficient.
- 34 Mr Sessford considered the present invention to be essentially the same. The process data that is provided to the applications is the same process data that was always provided to the applications. The process data that comes out of the field devices is just the same process data that always came out of the field devices. What the applicant has done is to have taken out the middle bit which was inefficient, unreliable and replaced it with a more efficient more reliable way (i.e. the descriptor

⁸ EPO Board of Appeal in T 115/85 [IBM]

⁹ BL O/029/19 [General Electric Company]

file) of getting that process data from the field devices to the applications. This is, he says, essentially the same type of contribution as in T 115/85. Furthermore, in so far as this reasoning could be made to fit with the AT&T signposts, the first signpost would be met.

- 35 In my opinion the problem in T 115/85 is about giving visual indications about events occurring in a technical device of a computer system. The fact that the inventive concept lay in a program and tables for better displaying phrases did not prevent the contribution from being technical in nature. The present invention is about retrieving and displaying process data which is, as a matter of practical reality, about displaying events associated with a field device(s). This provides a visual indication of the internal operation of a process control system which is arguably quicker and more reliable than the prior art. Even though the manner of enabling data to be retrieved and displayed in a more reliable and quicker manner resides in a computer program – a claim directed to its use in the retrieval and display of events regarding field devices in a process control system does not reside in a computer program as such.

Whether the invention meets signposts (ii), (iii) or (iv)

- 36 Mr Sessford acknowledged that there is quite a lot of overlap between signposts (ii), (iii) and (iv). He considered that the present invention met signposts (ii) and (iv) at least.
- 37 At the hearing Mr Sessford gave a detailed explanation and background to the second signpost. He was of the opinion that the UK IPO¹⁰ was applying the signpost incorrectly, with the phrase ‘that is to say’ being interpreted as ‘and’ by the UK IPO where it should be interpreted as ‘in other words’ (or ‘i.e.’). Mr Sessford felt the UK IPO interprets the architecture of the computer to mean ‘operation of the processor, cache memory and other internal components of the computer’, and so any invention which does not involve the cache etc. (or the fundamental nitty gritty detail of the computer system as Mr Sessford put it), the UK IPO concludes that the invention is not in the architecture of the system.
- 38 Mr Sessford felt that Symbian, which can be considered as operating at the architectural level of the computer, did not involve caches or anything to do with the internal structure of the computer system. He also discussed the AT&T decision and its reference to T 6/83¹¹. Mr Sessford, whilst acknowledging that the invention in T 6/83 was at a fairly fundamental level within the processing system, did not consider it to involve any physical changes to the structures of the processors or the transmission network. He also noted the Board in T 6/83 went on to say:

“Even if the control function in the system according to claim 1 would have to be considered as situated at a higher organisational level, namely that of an on-line Database/Datacommunication environment, the Board is satisfied that the problem to be solved can properly be regarded as being of a technical nature”

¹⁰ Based on the hearing officer’s reasoning in BL O/461/17 [Procure Limited], for example

¹¹ EPO Board of Appeal in T 0006/83 [IBM]

- 39 Mr Sessford thus concluded that the Board were not concentrating on the involvement of processors, handling of memory, data transfer between caches, registers etc. Rather the Board was looking at - does it operate at a level which processes data irrespective of the applications, irrespective of the content of the data?
- 40 Following on from his discussion of the second signpost, Mr Sessford concluded that the present invention cannot be disregarded simply because the invention is not concerned about a computer system architecture in the sense of registers, cache etc. He felt that the present invention, whilst concerned with moving data, reorganising the storage and accessing of data, provided a benefit across a huge swath of applications – such that an effect is produced irrespective of the data being processed or the applications. Mr Sessford also felt that the fourth signpost was met, for essentially the same line of reasoning – i.e. as a result of the system providing a more reliable and faster access to the process data, with the computer system only really accessing process data as its sole task, the computer system has been made better.
- 41 Having concluded that the present invention provides a technical contribution in light of the reasoning in T 115/85 I do not need to go on to consider whether signposts (ii),(iii) and (iv) are met. I would note however that these signposts, whilst useful, are more helpful in some cases than in others. In the present case, I'm not sure how helpful signpost (ii) is when considering a dedicated process control system such as the present invention which, as Mr Sessford put it "is a computer system dedicated to one cause...it's only purpose in life is to handle process data".
- 42 Nevertheless, whilst I can accept that the present invention runs at a certain level of generality within a process control environment – I am of the opinion that the effect is only produced for data from field devices and in conjunction with applications for displaying the process data. I do not believe that this operates at the level of generality suggested by Mr Sessford such that the effect is truly produced irrespective of the applications and data and thus at the architectural level of the computer system.

Conclusion

- 43 I find that the invention as claimed in the current claim set on file is not excluded under Section 1(2).
- 44 I therefore refer the application back to the examiner for further examination. It should be noted that the compliance period ended on the 25th May 2019.

Appeal

- 45 Any appeal must be lodged within 28 days after the date of this decision.

J Pullen

Deputy Director, acting for the Comptroller