

PATENTS ACT 1977

APPLICANT Fisher-Rosemount Systems, Inc.

ISSUE Whether patent application number
GB0809880.8 complies with Section 1(2)

HEARING OFFICER Ben Buchanan

DECISION

- 1 Patent application GB0809880.8 entitled "Apparatus and methods to access information associated with a process control system" was filed by Fisher-Rosemount on the 30 May 2008. The application claims an earliest priority date of 31 May 2007, and was published on 3 December 2008 with the serial number GB2464054. At the search stage, the Examiner issued a report under section 17(5)(b) because he determined that the claims did not define a patentable invention and a search would serve no useful purpose. The application was examined on 16 June 2011 and under rule 30(2)(b) the normal unextended compliance date was set at 18 June 2012. This period has been extended under rule 108(2) until 18 August 2012.
- 2 The examiner has maintained throughout the proceedings that the invention as claimed in this application is excluded from patentability under section 1(2) of the Patents Act 1977. The applicant has not been able to satisfy the Examiner that this objection is overcome, despite amendments to the application.
- 3 The matter therefore came before me at a hearing on 10 August 2012 where the applicant was represented by their attorneys Russell Sessford and Nick Palmer of Forresters. The examiner, Michael Warren, was also present.

The Invention

- 4 The invention relates to an apparatus and method for providing an interface to access information in a process control system. It is well known that when software components in a system communicate with each other, they can do so through an Application Programming Interface (API) which in turn may implement one of a number of underlying standards. The benefit of using an API is that different proprietary components can interact because the format of a value or action returned in response to a request is predefined by the API and hence understood. An API can enable one object to inherit the properties of

another which shares the underlying standard. In this way, components can be built and integrated and each can expose a compatible customised interface.

- 5 In the prior art, when new software such as a process control routine is added to a process control system, a customised data source access interface must be built in order to access data from proprietary data sources. The invention provides a universal interface which enables data to be referred to using user-defined parameters and which may inherit the properties of a proprietary interface. The universal interface allows a user (who may not be a skilled engineer) to configure parameters to the system and thereby to add new software routines without building a customised interface. A further benefit of the universal interface is that it can cache parameter values associated with data sources in a local memory. This means that the last stored parameter value is available from memory without having to access the data source itself.

The Claims

- 6 The most recent set of claims was filed on 14 June 2012 and includes three independent claims: An apparatus to access information in a process control system and to control a process (claim 1); a machine accessible medium having instructions stored thereon (claim 15); and a method to access information in a process control system (claim 28). The claims appear to share a common inventive concept as the Examiner noted in his report under section 17(5)(b).

Claims 1, 15 and 28 read as follows:

Claim 1:

An apparatus to access information in a process control system and to control a process, the apparatus comprising:

- a processor system; and
- a memory communicatively coupled to the processor system, the memory including stored instructions that enable the processor system to:
 - receive a first user-defined parameter name to reference a first datum in a first data source;
 - enable a first one of a plurality of data source interfaces to access the first datum in the first data source;
 - enable referencing the first datum in the first data source based on the first user-defined parameter name;
 - generate a data source interface configured to access a value of the first datum in the first data source in response to receiving a first data access request including the first user-defined parameter name;
 - generate a data store interface configured to store a copy of the value of the first datum in the memory;
 - return, from the data source interface, the value of the stored copy of the first datum in response to a further first data access request including the first user-defined parameter name;
 - write to the memory, using the data store interface, a new value of the first datum;
 - update, using the data source interface, the value of the first datum in

the first data source with the new value of the first datum stored in the memory; and

control the operation of the process using the new value of the first datum in the first data source.

Claim 15:

A machine accessible medium having instructions stored thereon that, when executed, cause a machine in a process control system to:

receive a first user-defined parameter name to reference a first datum in a first data source;

enable a first one of a plurality of data source interfaces to access the first datum in the first data source;

enable referencing the first datum in the first data source based on the first user-defined parameter name;

generate a data source interface configured to access a value of the first datum in the first data source in response to receiving a first data access request including the first user-defined parameter name;

generate a data store interface configured to store a copy of the value of the first datum in the memory;

return, from the data source interface, the value of the stored copy of the first datum in response to a further first data access request including the first user-defined parameter name;

write to the memory, using the data store interface, a new value of the first datum;

update, using the data source interface, the value of the first datum in the first data source with the new value of the first datum stored in the memory; and

control the operation of the process using the new value of the first datum in the first data source.

Claim 28:

A method to access information in a process control system, the method comprising:

receiving a first user-defined parameter name to reference a first datum in a first data source;

enabling a first one of a plurality of data source interfaces to access the first datum in the first data source;

enabling referencing the first datum in the first data source based on the first user-defined parameter name;

generating a data source interface configured to access a value of the first datum in the first data source in response to receiving a first data access request including the first user-defined parameter name;

generating a data store interface configured to store a copy of the value of the first datum in the memory;

returning, from the data source interface, the value of the stored copy of the first datum in response to a further first data access request including the first user-defined parameter name;

writing to the memory, using the data store interface, a new value of

the first datum;
updating, using the data source interface, the value of the first datum in the first data source with the new value of the first datum stored in the memory; and
control the operation of the process using the new value of the first datum in the first data source.

The Law

- 7 The examiner has raised an objection under section 1(2) of the Patents Act 1977 that the invention is not patentable because it relates to a program for a computer as such. The provisions of this section of the Act are shown below:

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) a discovery, scientific theory or mathematical method;*
- (b) a literary, dramatic, musical or artistic work or any other aesthetic creation whatsoever;*
- (c) a scheme, rule or method for performing a mental act, playing a game or doing business, or a program for a computer;*
- (d) the presentation of information;*

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.

- 8 As explained in the notice published by the UK Intellectual Property Office on 8 December 2008¹, the starting point for determining whether an invention falls within the exclusions of section 1(2) is the judgment of the Court of Appeal in *Aerotel/Macrossan*².
- 9 The interpretation of section 1(2) has been considered by the Court of Appeal in *Symbian*³. *Symbian* arose under the computer program exclusion, but as with its previous decision in *Aerotel/Macrossan*, the Court gave general guidance on section 1(2). Although the Court approached the question of excluded matter primarily on the basis of whether there was a technical contribution, it nevertheless (at paragraph 59) considered its conclusion in the light of the *Aerotel/Macrossan* approach. The Court was quite clear (see paragraphs 8-15) that the structured four-step approach to the question in *Aerotel/Macrossan* was never intended to be a new departure in domestic law;

¹ <http://www.ipo.gov.uk/pro-types/pro-patent/p-law/p-pn/p-pn-computer.htm>

² *Aerotel Ltd v Telco Holdings Ltd and Macrossan's Application* [2006] EWCA Civ 1371; [2007] RPC 7

³ *Symbian Ltd v Comptroller-General of Patents*, [2009] RPC 1

that it remained bound by its previous decisions, particularly *Merrill Lynch*⁴ which rested on whether the contribution was technical; and that any differences in the two approaches should affect neither the applicable principles nor the outcome in any particular case. But the *Symbian* judgment does make it clear, that in deciding whether an invention is excluded, one must ask does it make a technical contribution? If it does then it is not excluded.

- 10 Subject to the clarification provided by *Symbian*, it is therefore appropriate to proceed on the basis of the four-step approach explained at paragraphs 40-48 of *Aerotel/Macrossan* namely:
- 1) Properly construe the claim.
 - 2) Identify the actual contribution (although at the application stage this might have to be the alleged contribution).
 - 3) Ask whether it falls solely within the excluded matter.
 - 4) If the third step has not covered it, check whether the actual or alleged contribution is actually technical.
- 11 The operation of this test is explained at paragraphs 40-48 of the decision. Paragraph 43 confirms that identification of the contribution is essentially a matter of determining what it is the inventor has really added to human knowledge, and involves looking at substance, not form. Paragraph 46 explains that the fourth step of checking whether the contribution is technical may not be necessary because the third step should have covered the point.
- 12 Mr. Sessford acknowledged that the Examiner was correct in following this approach and he applied it in response in skeleton arguments and at the hearing.

Construing the claims

- 13 The first step is to construe the claims. The Examiner and Mr. Sessford agree that they may be readily construed in their current form.
- 14 The current authority on claim construction is found in *Kirin-Amgen Inc v Hoechst Marion Roussel Ltd* [2005] RPC 9⁵, where Lord Hoffman held that “When applying a ‘purposive construction’, the question is always what the person skilled in the art would have understood the patentee to be using the language of the claim to mean”.
- 15 This is particularly helpful in respect of several features of the claims which give rise to the alleged contribution. At line 17 claim 1 defines the stored instructions as enabling the processor to

*“return, from the data **source** interface, the value of the **stored copy** of the first datum in response to a **further** first data access request...”*

⁴ *Merrill Lynch's Application* [1989] RPC 561

⁵ *Kirin-Amgen Inc v Hoechst Marion Roussel Ltd* [2005] RPC 9

- 16 The description e.g. at page 51, lines 21 and 22 describes the *data store* interface being used to retrieve data stored in the memory; it is thus unclear whether and how the *data source interface* referred to in the claim can return the value of the *stored copy* of the first datum. I can find no suggestion in the description that the *data source interface* may return the value of the *stored copy*.
- 17 What is clear is that the purpose of the claimed invention is to return the value of the stored (cached) copy in response to a *further* request, rather than interrogating the data source directly on every request. This is consistent with the skeleton arguments on page 4 which refer to “*returning the cached data value...*” and is what a skilled person would understand the applicant to mean. I construe the claim accordingly. With that being clear, it is not necessary to make any finding on the issue of whether the wording of the reference to returning the stored copy from the *data source interface* is correct.
- 18 Claim 1 then defines writing a new value for the first datum to the memory, using the data store interface, and updating the data source with the new value using the data source interface. Finally, the claim defines controlling the operation of the process using the new value of the first datum in the first data source. It is not stated in the claim whether this value is obtained from the memory or the data source directly. However, I have construed the claim in 17 above to define providing a stored copy of the first datum in response to a further first data access request. Once the new value is stored in the memory, then that will be available in response to a further access request. It is clear that the process is controlled using the new value and that the new value is available from the memory.
- 19 The other independent claims may be analogously construed. In claims 15 and 28, “*the memory*” carries no antecedent and the processor system is not referred to at all. However the availability of the cached value of a datum, and the control of the process using a new value of the datum are clear. In this respect they are consistent with claim 1 and need not impede consideration of the assessment of the actual contribution.

Identify the actual contribution

- 20 For the second step, it is necessary to identify the contribution made by the invention. At this stage, the actual contribution is that alleged by the applicant. If the present claims are found to be not novel or inventive, clearly the actual contribution will need to be re-evaluated. Subject to this proviso, the alleged contribution put forward by the applicant, set out in the skeleton arguments and at the hearing, is:

The provision of a process control system including a universal interface which not only (i) reduces the need to retrieve information from the process entities directly on every request but which also (ii) provides a greater level of compatibility with new process entities.

- 21 “Process entities” refers to, for example, a field device. In other words, it is a synonym for the data source of the claims; an entity within the process control system from which information can be retrieved.
- 22 This is something of a two-pronged contribution and at the hearing Mr. Sessford confirmed that for the purposes of the *Aerotel/Macrossan* test he would concentrate on the first aspect. It is important, however, as he emphasised, not to dissect the contribution and to consider that the invention provides both aspects together.
- 23 The Examiner and Mr. Sessford agree on the wording of the contribution, but disagree as to whether or not it is technical. The Examiner asserts that the contribution lies solely in computer software as the process control hardware is entirely conventional, and that there is no technical effect on the process control operation itself.
- 24 At the hearing, Mr. Sessford explained that the problem to be solved is how to handle non-availability of data from a data source when a data source is unavailable (e.g. due to a communication problem). He explained that the advantage of the invention is that the most recent datum value is available from the local memory and can be used, so the process is not “flying blind”. I note that the only support for this assertion in the application as filed appears on page 35 line 22 – page 36 line 1. When I asked Mr. Sessford whether the claim supported his alleged contribution, he assured me the advantages would be immediately apparent to the skilled person, having read the description.
- 25 Having considered this point, and the ambit of the skilled person, on balance I agree. The skilled person would understand that a process control system uses inputs to create outputs. Input parameters may be e.g. sensor readings or physical properties. Output parameters may be e.g. target values or control settings. If a communication problem with the process control system means that a parameter is unavailable directly, then as the application teaches, the value of the most recently stored copy may be obtained from memory. When implementing a process control routine, the skilled person would be able to use this value to control a process, as defined in the claim, instead of no value or an undefined value, which would enable the process to be controlled based on the previously stored value until the connection is re-established. Within their ambit it would therefore be apparent to the skilled person that the universal interface permits the control routine to be designed to improve the reliability of the process in the event of a communication problem.
- 26 As I have construed the claim, when a parameter is updated with a new value, the new value is stored in local memory and may be used to control the process. This should be reflected in the definition of the contribution, which I consider to be:

The provision of a process control system including a universal interface which not only (i) reduces the need to retrieve information from the process entities directly on every request, because information retrieved from local memory may be used to control the process when it cannot be retrieved

directly from a process entity, but which also (ii) provides a greater level of compatibility with new process entities.

- 27 Therefore, although the improvement is embodied using software, the contribution is a ‘better’ process control system, albeit using conventional hardware.

Does the contribution fall solely within excluded subject matter? Is the contribution technical in nature?

- 28 There is no doubt in my mind that the contribution requires a computer program for its implementation. Mr. Sessford agreed with this at the hearing. The question to be decided is whether or not the program of the invention makes a technical contribution, or has a technical effect. Mr. Sessford’s skeleton arguments consider steps 3 and 4 together and consider the *five signposts* which Lewison J set out in *AT&T*⁶. Following *AT&T*, in *Really Virtual*⁷, John Baldwin QC (sitting as a Deputy Judge) noted that the *AT&T signposts*, although useful, are no more than signposts. With this in mind, I shall consider the first signpost, on which Mr. Sessford’s argument focussed:

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

- 29 For the purpose of his argument, Mr. Sessford defined the “computer” as “the process control system”. I understand this to mean the interconnected computing elements which implement the universal interface. The process outside the computer is the control process itself, which may be the control of an industrial process plant. Is there an effect on the control process? Is this effect technical? The contribution identified above undoubtedly enables the control process to operate differently. A different output or control operation will be effected if a cached value as opposed to an undefined parameter value is used to control the process. It is generally accepted that better control is itself technical and I believe that is the case here. Furthermore, if a process plant operates better because of the control process, then that effect is clearly technical.

- 30 At this point I have to qualify my finding. As noted above, there is only one reference, in the application as filed, to *retrieving* a value from a data source where the data source is unavailable. Other advantages cited in the application and referred to during the hearing cite the advantage as faster access to cached values and the potential to store data in memory when a data source is unavailable and write it to the data source when communication is re-established. These are conventional benefits of caching data and I do not think they would necessarily have a technical effect on the control process per se. In the description, none of these features are explicitly described as conferring improved control. Elsewhere, on page 29 at lines 4-23, the application actually teaches away from using “invalid” data from the memory, when up to date data

⁶ *AT&T Knowledge Ventures’ Application and CVON Innovations Ltd’s Application* [2009] FSR 19 para. 40

⁷ *Really Virtual Co Ltd v UK Intellectual Property Office* [2012] EWHC 1086 (Ch).

from a data source is unavailable. Instead an integrity check is performed on data in the memory and components of the system are protected from using memory data which cannot be validated.

- 31 However, the test is whether the alleged contribution falls *solely* within the excluded matter, and the first signpost indicates that it does not. I therefore find that when the process control system uses information retrieved from local memory to control the process when it cannot be retrieved directly from a data source, the invention provides a technical contribution.
- 32 Mr. Sessford also reasoned that the second signpost was fulfilled, and briefly considered the remaining three signposts. I am satisfied that the first signpost adequately indicates the technical effect of the invention as I have construed it. There is no need to check the others, as the third step of *Aerotel/Macrossan* is passed.
- 33 I have found that the invention does not relate to a program for a computer as such, nor does it fall solely within any of the excluded subject matter. The alleged contribution defined by the claims is *technical in nature*.

Auxiliary request

- 34 The applicant filed an auxiliary request to consider an alternative independent claim in the event that the present claims were found to be excluded under section 1(2). Because I have not found them to be excluded, I have not considered the auxiliary request.

Conclusion

- 35 In the light of my findings above, I conclude that the invention as claimed is not excluded under section 1(2) because it does not relate solely to excluded matter. I therefore remit the application to the Examiner for search and substantive examination under section 18(3). The claims are still subject to search and substantive examination which will need to confirm that they are novel, inventive, clear and supported by the application as filed.

Appeal

- 36 Under the Practice Direction to Part 52 of the Civil Procedure Rules, any appeal must be lodged within 28 days.

Ben Buchanan

Deputy Director, acting for the Comptroller