

**CHECKLIST**

**SELF-MANAGED APPLICATION**

**IF YOUR APPLICATION PACKAGE DOES NOT CONTAIN ALL OF THE DOCUMENTS LISTED BELOW, YOUR APPLICATION WILL NOT BE REVIEWED.**

Send to The National Academies Research Associateship Programs Office in Washington, DC:

- \_\_\_\_\_ Application (all four pages)
- \_\_\_\_\_ Laboratory/Center Review (with only the top portion completed)
- \_\_\_\_\_ Research Proposal
- \_\_\_\_\_ Appendix to the Research Proposal
- \_\_\_\_\_ Previous and Current Research (Postdoctoral or Senior form)
- \_\_\_\_\_ Transcripts (Undergraduate and Graduate for Postdoctoral applicants only)
- \_\_\_\_\_ Reference Reports (or Letters of Reference) -- each in a sealed & signed envelope (four)
- \_\_\_\_\_ This signed Checklist

**DEADLINE REMINDER - 2002**

**Fall Review/Summer Faculty Fellowship Programs applications must be postmarked by November 1.**

**DEADLINE REMINDER – 2003**

**\*Winter Review applications must be postmarked by February 1**

**Spring Review applications must be postmarked by May 1**

**\*Summer Review applications must be postmarked by August 1**

**Autumn Review applications must be postmarked by November 1**

**\*NIST participates ONLY in the Winter Review**

**\*NAI participates ONLY in the Winter and Summer Reviews**

The National Academies Research Associateship Program posts, on its website, information on awardees including the Associate's name, the Laboratory or Center where the research is to be conducted, the Research Adviser and the title of Research Proposal. If you receive an award, and **do not wish** to have your name posted, please check this box.

Signature \_\_\_\_\_

Date \_\_\_\_\_

*My signature verifies that I have completed and transmitted all of the documents listed for the Application package above.*

Please also print your name \_\_\_\_\_

**Applications should be sent by express delivery to:**

**Research Associateship Programs  
The National Academies  
2001 Wisconsin Avenue, NW [GR 322A]  
Washington, DC 20007**

Phone 202-334-2760

Fax 202-334-2759

E-mail [rap@nas.edu](mailto:rap@nas.edu)

[www.national-academies.org/rap](http://www.national-academies.org/rap)

**APPLICATION**

We recommend that you print out and refer to the Instructions for this Application.  
 Enter information manually or electronically in Layout view.  
**ORIGINAL SIGNATURES required.**

OFFICE USE ONLY	
ID	
Postdoctoral	
Senior	
Initials	

<i>Applicant Last or Family Name</i>		<i>First Name</i>	
<b>Withers</b>		<b>Paul</b>	
<i>Middle Name</i>		<i>Maiden Name (if applicable)</i>	
<b>Gareth</b>			
<i>CURRENT Address</i>	Home or Institution, MailCode/Stop, Bldg./Room, Number/Street <b>3002 East Hawthorne Street</b>	<i>City</i>	<i>Zip (Postal) Code</i>
		<b>Tucson</b> <i>State / Province</i>	<b>85716</b> <i>Country</i>
		<b>AZ /</b>	<b>USA</b>
<i>PERMANENT Address</i>	Home or Institution, MailCode/Stop, Bldg./Room, Number/Street <b>39 Greenhill Lane, Wheaton Aston</b>	<i>City</i>	<i>Zip (Postal) Code</i>
		<b>Stafford</b> <i>State / Province</i>	<b>ST19 9PL</b> <i>Country</i>
		<b>/</b>	<b>Great Britain</b>
<i>CITIZENSHIP</i>	<i>Country</i>		
	<b>Great Britain</b>		
<i>If you are a naturalized US citizen, enter your naturalization date and number.</i>		<i>Date Month / Day / Year</i>	<i>Number</i>
<i>If you are a non-US citizen already in the US, enter the type of visa you hold.</i>		<i>Visa Type</i>	<i>Date Visa Status Expires</i>
		<b>F-1</b>	<b>July 19, 2003</b>
<i>If you are a US legal permanent resident, enter your alien registration number and <u>enclose</u> a copy of your alien registration (green) card.</i>		<i>Alien Registration Number</i>	

**Education: List in order, beginning with the most recent degree awarded or expected.**

<i>Complete Name of University or College including City, State/Province, Country</i>	<i>Inclusive Dates Year to Year</i>	<i>Degree</i>	<i>Awarded or Expected Month / Year</i>	<i>Degree Discipline / Field Code refer to Field Reference List</i>	
University of Arizona, Tucson, Arizona, USA	1998 - 2003	PhD	05 / 2003	Planetary Science	2173
University of Cambridge, Cambridge, Great Britain	1994 - 1998	MS	06 / 1998	Physics	8299
University of Cambridge, Cambridge, Great Britain	1994 - 1998	BA	06 / 1998	Physics	8299
	-		/		
	-		/		
	-		/		

**All transcripts for Postdoctoral applicants must be enclosed with the application package.**

**Honors and Awards**

<i>Title</i>	<i>Complete Name of Institution including City, State/Province, Country</i>	<i>Inclusive Dates Year to Year</i>
Kuiper Memorial Award for excellence in academic work and research in Planetary Science	Lunar and Planetary Laboratory, University of Arizona, Tucson, Arizona, USA	2002 - 2002
Galileo Circle Graduate Scholarship	University of Arizona, Tucson, Arizona, USA	2001 - 2002
Highly Commended in Young Science Writer Contest	Daily Telegraph, London, Great Britain - a national newspaper	2000 - 2000
Graduate Registration Fellowships	University of Arizona, Tucson, Arizona, USA	1999 - 2002

# APPLICATION

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continued

Last Name

ID

Have you previously applied for a National Academies Associateship?

NO  YES Select Agency from list #1 or #2

Year

Are you a former National Academies Research Associate?

NO  YES Select Agency from list #1 or #2

Tenure Dates Year to Year

Are you also applying for an Alexander von Humboldt Foundation award at this time?

NO  YES

## Employment – Professional, Scientific, Administrative, etc. List in order, beginning with most recent.

Name of Organization including City, State/Province, Country	Employment Sector	Title or Academic Rank	Inclusive Dates Year to Year
University of Arizona, Tucson, Arizona, USA	College/University	Research Associate	1998 - 2003
Open University, Milton Keynes, Great Britain (summer)	College/University	Research Consultant	2001 - 2001
NASA Goddard Spaceflight Center, Greenbelt, Maryland, USA (summer)	Government	Research Assistant	2000 - 2000
Caltech, Pasadena, California, USA (summer)	College/University	Research Assistant	1997 - 1997

Will you be on official leave from your current position, to which you will return?

NO  YES

## Program Information

Number of months for which you are applying

12

Tenure for Senior applicants may range from 3-12 mos.

Proposed Starting Date Month / Day / Year

August 1, 2003

Agency	Laboratory or	NASA Center	Proposed Research Adviser	Research Opportunity Number
or NASA		GSFC	Michael Allison	44 30 21 B 0962
or				
or				

Field of Proposed Research. Refer to the Field Reference List.

Field Name Planetary Science

Code (most appropriate to Research Proposal)

Code 2173

## References – Professional, Scientific, Administrative, etc.

Enter the names, titles, and professional addresses of four (4) respondents who are familiar with your research. For recent doctoral recipients, the first name listed should be that of the thesis adviser.

Full Name of Respondent	Complete Professional Mailing Address of Respondent
1) Stephen Bougher	Space Physics Research Laboratory, AOSS Dept, 2455 Hayward Avenue, University of Michigan, Ann Arbor, Michigan, 48109-2143, USA
2) Don Hunten	Lunar and Planetary Laboratory, University of Arizona, Tucson, Arizona, 85721, USA
3) Bill Hubbard	Lunar and Planetary Laboratory, University of Arizona, Tucson, Arizona, 85721, USA
4) Jay Melosh	Lunar and Planetary Laboratory, University of Arizona, Tucson, Arizona, 85721, USA

**All Reference Reports (or Letters of Reference) must be enclosed with the application package.**

**See Instructions and Checklist**

Signature of Applicant \_\_\_\_\_ Date \_\_\_\_\_

Please also print your name \_\_\_\_\_

**Notice to the applicant:** By signing above, the applicant affirms that this information is true and complete and may be used by the The National Academies as needed to consider and administer an award. **Only original signatures are valid.**

# APPLICATION

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continued

ID

*This information will not be used or appear in the evaluation process.  
It is for statistical purposes only and will remain confidential.*

<b>APPLICANT</b>	<i>Applicant Last or Family Name</i>		<i>First Name</i>		
	<b>Withers</b>		<b>Paul</b>		
	<i>Date of Birth Month / Day / Year</i>		<i>Place of Birth City, State/Province, Country</i>		
	<b>October 3, 1975</b>		<b>Tittensor, Great Britain</b>		
	<i>U.S. Social Security Number</i>	<i>Sex</i>	<i>Marital Status</i>		<i>Race</i>
- -	Male <input checked="" type="checkbox"/> Female <input type="checkbox"/>	Single <input checked="" type="checkbox"/> Married <input type="checkbox"/>		Caucasian	Not Hispanic or Lati

<b>CONTACT INFORMATION</b>	<i>Office Phone</i>		<i>Home Phone</i>		
	<b>520 621 1507</b>		<b>520 327 4827</b>		
	<i>Fax</i>		<i>E-mail</i>		
	<b>520 621 4933</b>		<b>withers@lpl.arizona.edu</b>		

<b>SPOUSE</b>	<i>Spouse's Last or Family Name</i>		<i>First Name</i>		
	<i>Date of Birth Month / Day / Year</i>	<i>Place of Birth City, State/Province, Country</i>			

<i>Dependent Full Name</i>	<i>Date of Birth Month / Day / Year</i>	<i>Place of Birth City, State/Province, Country</i>

# APPLICATION

continued

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Last Name

ID

**To assist us in making information available to a greater number of potential applicants, it is important for us to learn how you initially heard about The National Academies Research Associateship Programs.**

*Please check ONLY one of the following:*

colleague or fellow graduate student

Ph.D. thesis adviser or other professor

university placement office

former or current National Academies Research Associate

Research Adviser or other scientific staff at the federal Laboratory

National Academies staff member at professional scientific meeting

*Title of Meeting*

*Date of Meeting Month / Year*

Advertisement in professional publication

*Name of Publication*

Other

*Please Specify*

*To which review are you applying?*

February

June

October

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**LABORATORY/CENTER REVIEW**

ID

**THE APPLICANT COMPLETES THIS SECTION.**

<i>Applicant Last or Family Name</i>		<i>First Name</i>	
<b>Withers</b>		<b>Paul</b>	
<i>Middle Name</i>		<i>Maiden Name (if applicable)</i>	
<b>Gareth</b>			
<i>Agency</i>	<i>Laboratory</i> or	<i>NASA Center</i>	<i>Research Opportunity Number</i>
or <b>NASA</b>		<b>GSFC</b>	<b>44 30 21 B 0962</b>
<i>Proposed Length of Tenure</i>	<i>Proposed Starting Date</i>		<i>Level</i>
<b>Number of Months</b>	<b>Month / Day / Year</b>		<input checked="" type="checkbox"/> Postdoctoral <input type="checkbox"/> Senior
<b>12</b>	<b>August 1, 2003</b>		
<i>Title of Research Proposal</i>			

**Winds in Planetary Atmospheres**

**PROPOSED RESEARCH ADVISER INFORMATION**

<i>Adviser Name</i>	<i>Adviser Office Phone</i>	<i>Adviser E-mail</i>	
<b>Michael Allison</b>	<b>212 - 678 - 5554</b>	<b>pcmda@giss.nasa.gov</b>	
<i>Adviser Address</i>	<i>City</i>	<i>State</i>	<i>Zip (Postal) Code</i>
<b>NASA/Goddard Institute for Space Studies</b> <b>2880 Broadway</b>	<b>New York</b>	<b>NY</b>	<b>10025</b>

**THE PROPOSED RESEARCH ADVISER COMPLETES THIS SECTION.**

Please respond to all inquiries even if it is not possible to recommend the Research Proposal for review by The National Academies panels. Attach additional sheets, if necessary. Your critical comments on the scientific content of the proposed research are necessary for the evaluation process.

- 1) *Research Adviser (name of person completing this portion of the form)*
  
- 2) *To which Division or Branch would the applicant be assigned (within this Agency-Laboratory/Center)? (Entering information electronically expands the field to accommodate all of the space you need.)*

# LABORATORY/CENTER REVIEW

continued

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ID

*Applicant Last or Family Name*

*First Name*

**Withers**

**Paul**

3) *Discuss the scientific quality of the Research Proposal. Please address the following points: Are the objectives realistic? Is the approach sound and technically feasible? Does the Research Proposal reflect innovative thinking? Can the research be accomplished in the proposed timeframe?*

4) *How will the proposed research contribute to the mission of the sponsoring agency?*

5) *Are the facilities and equipment at the sponsoring laboratory adequate to complete the proposed research, or is funding available to obtain equipment not already in place?*

6) *Other comments that might be useful in the evaluation of this Research Proposal:*

# LABORATORY/CENTER REVIEW

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continued

ID

Applicant Last or Family Name

First Name

Withers

Paul

## PROPOSED RESEARCH ADVISER'S RECOMMENDATION

Recommended for review  Not recommended for review – no Laboratory interest.

Signature of Proposed Research Adviser \_\_\_\_\_ Date \_\_\_\_\_

After completing the above portion, sign, date and forward this form to the Laboratory or Center Program Representative.

## LABORATORY/CENTER PROGRAM REPRESENTATIVE'S RECOMMENDATION

- The Laboratory/Center **recommends** this Research Proposal for review.  
 The Laboratory/Center **does not recommend** this Research Proposal for review.

Laboratory/Center Program Representative's Comments

Signature of Laboratory/Center Program Representative \_\_\_\_\_ Date \_\_\_\_\_

### Applications should be sent by express delivery to:

Research Associateship Programs  
The National Academies  
2001 Wisconsin Avenue, NW [GR 322A]  
Washington, DC 20007

Phone 202-334-2760

Fax 202-334-2759

E-mail [rap@nas.edu](mailto:rap@nas.edu)

[www.national-academies.org/rap](http://www.national-academies.org/rap)

Rev. 09/2002



**RESEARCH PROPOSAL**

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<i>Applicant Last or Family Name</i> <b>Withers</b>	<i>First Name</i> <b>Paul</b>
<i>Middle Name</i> <b>Gareth</b>	<i>Maiden Name (if applicable)</i>

**PROPOSED RESEARCH ADVISER INFORMATION**

<i>Proposed Research Adviser</i>	<i>Agency</i>	<i>Laboratory</i> or	<i>NASA Center</i>
1) <b>Michael Allison</b>	or <b>NASA</b>		<b>GSFC</b>
2)	or		
3)	or		

*Title of Research Proposal*

**Winds in Planetary Atmosphere**

<i>Field of Proposed Research</i> <b>Refer to the Field Reference List.</b> Field Name <b>Planetary Science</b>	<i>Code (enter the code most appropriate to your Research Proposal)</i> Code <b>2173</b>
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**Brief Abstract of Research Proposal** Enter or attach no more than 100 words.

Characterization of winds is essential for understanding a planet's atmospheric circulation and climate, yet winds are challenging to measure. In the initial year-long period of this Associateship, I will pursue two complementary goals. I will develop an innovative technique for measuring winds using latitudinal gradients in density and apply it to upper atmospheric data from Venus and Mars. As a member of the Atmosphere Science Advisory Team for the Landing of NASA's Mars Exploration Rovers, I will analyze accelerometer and gyroscope data to derive vertical profiles of density, pressure, temperature, and winds during their entry in early 2004.

Signature of Applicant \_\_\_\_\_ Date \_\_\_\_\_

**ATTACH DETAILED RESEARCH PROPOSAL**  
 (maximum of 4 pages)

Use additional sheets as necessary, but do not exceed a maximum of 4 pages of no more than 500 words per page. Please sign and date each page at the bottom.

**APPENDIX**  
Research Proposal

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ID

*Applicant Last or Family Name*

*First Name*

**Withers**

**Paul**

**Anticipated Research Needs (Indicate special requirements necessary for you to conduct your research.)**  
(Entering information electronically expands the field to accommodate all of the space you need.)

1) *Describe activities related to the acquisition or collection of data, such as field activities, research voyages, or observatory use*

**Travel to 2 national two day workshops (\$1000 each), 2 national week-long conferences (\$1500), and 1 international week-long conference (\$2500) per year**

2) *Computer resources*

**1 Unix workstation (\$3000 or available from Laboratory supplies), 1 laptop computer (\$2500 or available from Laboratory supplies, computer support, and software (\$300)**

3) *Specialized equipment*

4) *Other*

**Books, computer consumables, office supplies, publication and reprint charges, express shipping, Xerox, and long distance charges (\$1000)**

Signature of Applicant \_\_\_\_\_

Date \_\_\_\_\_

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***PREVIOUS AND CURRENT RESEARCH***  
**to be completed by Postdoctoral applicants only**

OFFICE USE ONLY  
 ID \_\_\_\_\_

<i>Applicant Last or Family Name</i>		<i>First Name</i>	
<b>Withers</b>		<b>Paul</b>	
<i>Middle Name</i>		<i>Maiden Name (if applicable)</i>	
<b>Gareth</b>			
<i>Date of Ph.D. Month/Year</i>	<i>Thesis Adviser</i>		
May / 2003	<b>Steve Bougher</b>		

*Title of Ph.D. Dissertation*  
**Weather in the Martian Atmosphere - And Other Topics**  
*Status of Ph.D. Dissertation*

- Published       Accepted for publication       In preparation for publication       Not to be published

Brief abstract of Ph.D. Dissertation Enter or attach no more than 100 words.

My dissertation includes work on the martian upper atmosphere (the dominant theme), lunar crater Giordano Bruno, the northern plains of Mars, entry accelerometer data analysis, comparison of martian topography between Viking Lander and MOLA data, and simple climate models. Some has been published; the remainder is in preparation for publication. Density in the martian upper atmosphere varies regularly with longitude, unlike the Earth or early predictions for Mars. I have quantified this variability, compared it to classical tidal theory, and identified the dominant tidal modes in the upper atmosphere. I am also developing a novel technique to measure winds.

Provide a concise description of all research investigations conducted within the past five years.

Include a list of publications for the past five years, listed in the following order: 1) refereed journal articles; 2) books; 3) published proceedings; 4) non-refereed articles; and, 5) patents. Citations should include the following: a) authors; b) year of publication; c) full name of journal, d) volume number, and, e) page number(s).

**DO NOT SEND REPRINTS**

See attached pages

Provide a concise description of the nature of any technical or scientific affiliation that you have had, or continue to have with the Agency for which you are applying. Because one of the objectives of The National Academies Research Associateship programs is to bring new talent and ideas to the federal Laboratories, the information you provide in this section will be used by The National Academies to determine your eligibility for an award.

**IF NO AFFILIATION, INDICATE "NONE."**

I spent 10 weeks in 2000 at NASA's Goddard Spaceflight Center as part of the Goddard Summer Student Program. I am an Atmosphere Science Advisor for the Landing of NASA's Mars Exploration Rovers.

Signature of Applicant \_\_\_\_\_ Date \_\_\_\_\_

Use additional sheets as necessary. Do not exceed a maximum of 4 pages , including publications.  
 Please sign and date each page at the bottom.

***PREVIOUS AND CURRENT RESEARCH***  
**to be completed by Senior applicants only**

OFFICE USE ONLY

ID

<i>Applicant Last or Family Name</i>	<i>First Name</i>
<i>Middle Name</i>	<i>Maiden Name (if applicable)</i>

Provide a concise description of all research investigations conducted within the past five years.

Include a list of publications for the past five years, listed in the following order: 1) refereed journal articles; 2) books; 3) published proceedings; 4) non-refereed articles; and, 5) patents. Citations should include the following: a) authors; b) year of publication; c) full name of journal, d) volume number, and, e) page number(s).

**DO NOT SEND REPRINTS**

Provide a concise description of the nature of any technical or scientific affiliation that you have had, or continue to have with the Agency for which you are applying. Because one of the objectives of The National Academies Research Associateship programs is to bring new talent and ideas to the federal Laboratories, the information you provide in this section will be used by The National Academies to determine your eligibility for an award.

**IF NO AFFILIATION, INDICATE "NONE."**

Signature of Applicant \_\_\_\_\_ Date \_\_\_\_\_

**Use additional sheets as necessary. Do not exceed a maximum of 4 pages, including publications.  
Please sign and date each page at the bottom.**

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**REFERENCE REPORT**

ID \_\_\_\_\_

**Respondent must return the Reference to the applicant -- completed, signed, and in a sealed envelope with the respondent's signature clearly written across the envelope flap.**

<i>Applicant Last or Family Name</i>	<i>First Name</i>		
<i>Field of Proposed Research</i>	<i>Agency</i>	<i>Laboratory</i> or	<i>NASA Center</i>
	<i>or</i>		
<i>Title of Research Proposal</i>			

**Applicant: submit a brief abstract of your Research Proposal.**

**If you are applying to more than one Agency with different Research Proposals, please submit each abstract, and identify the Agency to which each refers.**

Enter or attach no more than 100 words per abstract.

**RESPONDENT'S REPLY**

<i>Full Name &amp; Title of Respondent</i>	<i>Institutional Affiliation</i>	
<i>Address</i>	<i>Office Phone</i>	<i>E-mail</i>
	- -	

1) I have known this applicant in the following capacities (you may check more than one)

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> as an undergraduate   | <input type="checkbox"/> as a teaching/research assistant | <input type="checkbox"/> as my thesis advisee |
| <input type="checkbox"/> as a graduate student | <input type="checkbox"/> as a professional colleague      | <input type="checkbox"/> by reputation only   |

2) I was acquainted with the professional work of this applicant from \_\_\_\_\_

Month / Year                      to                      Month / Year

3) I had a     **poor**     **fair**     **good**     **excellent**    opportunity to observe the quality of this applicant's work.

4) The major function of this applicant is/was     research     teaching     administration of research     other (specify below)

.....

5) If the applicant is/was a student, how does he/she compare with students currently in your department?

- Lower half**     **Upper half**     **Top 25%**     **Top 10%**     **Top 1%**

# REFERENCE REPORT

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continued

ID

Applicant Last or Family Name

First Name

6) Please comment on the Applicant's scientific and technical abilities in comparison with other scientists and engineers of similar training and experience. Include in your assessment the following: a) knowledge of the field; b) skill in experimental design; c) technical abilities; d) innovative abilities; e) ability to work independently; f) analytical abilities; and, g) skills in interpreting and reporting research.

7) Please indicate on this scale, your overall impression of this applicant. (Check **ONLY** one.)

Below Average	Average	Good	Excellent	Outstanding	Inadequate Opportunity to Observe
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**RESPONDENT:** Your response below is necessary if applicant requests information from the file.

I ask that the National Academies maintain the confidentiality of my identity to the extent permitted by law. I further ask the National Academies to maintain the confidentiality of these comments to the extent permitted by law.

I ask that the National Academies maintain the confidentiality of my identity to the extent permitted by law. I do not ask the National Academies to hold my comments in confidence.

My preparation of this Reference Report is not conditioned on the request that the National Academies hold my identity or comments in confidence.

Signature of Respondent \_\_\_\_\_ Date \_\_\_\_\_

Please also print your name \_\_\_\_\_

**Respondent must return the Reference to the applicant -- completed, signed, and in a sealed envelope with the respondent's signature clearly written across the envelope flap.**

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