

# Union Calendar No. 208

107<sup>TH</sup> CONGRESS  
2<sup>D</sup> SESSION

# H. R. 3394

**[Report No. 107-355, Part I]**

To authorize funding for computer and network security research and development and research fellowship programs, and for other purposes.

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## IN THE HOUSE OF REPRESENTATIVES

DECEMBER 4, 2001

Mr. BOEHLERT (for himself, Mr. HALL of Texas, Mr. SMITH of Texas, Mr. BAIRD, Mr. SMITH of Michigan, and Ms. EDDIE BERNICE JOHNSON of Texas) introduced the following bill; which was referred to the Committee on Science, and in addition to the Committee on Education and the Workforce, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned

FEBRUARY 4, 2002

Reported from the Committee on Science

FEBRUARY 4, 2002

Additional sponsors: Mr. FORBES, Mrs. MORELLA, and Ms. ESHOO

FEBRUARY 4, 2002

Referral to the Committee on Education and the Workforce extended for a period ending not later than February 4, 2002

FEBRUARY 4, 2002

Committee discharged; committed to the Committee of the Whole House on the State of the Union and ordered to be printed

# A BILL

To authorize funding for computer and network security research and development and research fellowship programs, and for other purposes.

1        *Be it enacted by the Senate and House of Representa-*  
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4        This Act may be cited as the “Cyber Security Re-  
5 search and Development Act”.

6 **SEC. 2. FINDINGS.**

7        The Congress finds the following:

8            (1) Revolutionary advancements in computing  
9            and communications technology have interconnected  
10           government, commercial, scientific, and educational  
11           infrastructures—including critical infrastructures for  
12           electric power, natural gas and petroleum production  
13           and distribution, telecommunications, transportation,  
14           water supply, banking and finance, and emergency  
15           and government services—in a vast, interdependent  
16           physical and electronic network.

17           (2) Exponential increases in interconnectivity  
18           have facilitated enhanced communications, economic  
19           growth, and the delivery of services critical to the  
20           public welfare, but have also increased the con-  
21           sequences of temporary or prolonged failure.

1           (3) A Department of Defense Joint Task Force  
2 concluded after a 1997 United States information  
3 warfare exercise that the results “clearly dem-  
4 onstrated our lack of preparation for a coordinated  
5 cyber and physical attack on our critical military  
6 and civilian infrastructure”.

7           (4) Computer security technology and systems  
8 implementation lack—

9                   (A) sufficient long term research funding;

10                   (B) adequate coordination across Federal  
11 and State government agencies and among gov-  
12 ernment, academia, and industry;

13                   (C) sufficient numbers of outstanding re-  
14 searchers in the field; and

15                   (D) market incentives for the design of  
16 commercial and consumer security solutions.

17           (5) Accordingly, Federal investment in com-  
18 puter and network security research and develop-  
19 ment must be significantly increased to—

20                   (A) improve vulnerability assessment and  
21 technological and systems solutions;

22                   (B) expand and improve the pool of infor-  
23 mation security professionals, including re-  
24 searchers, in the United States workforce; and

1                   (C) better coordinate information sharing  
2                   and collaboration among industry, government,  
3                   and academic research projects.

4 **SEC. 3. DEFINITIONS.**

5       For purposes of this Act—

6           (1) the term “Director” means the Director of  
7       the National Science Foundation; and

8           (2) the term “institution of higher education”  
9       has the meaning given that term in section 101 of  
10      the Higher Education Act of 1965 (20 U.S.C.  
11      1001).

12 **SEC. 4. NATIONAL SCIENCE FOUNDATION RESEARCH.**

13       (a) **COMPUTER AND NETWORK SECURITY RESEARCH**  
14 **GRANTS.—**

15           (1) **IN GENERAL.—**The Director shall award  
16      grants for basic research on innovative approaches  
17      to the structure of computer and network hardware  
18      and software that are aimed at enhancing computer  
19      security. Research areas may include—

20                   (A) authentication and cryptography;

21                   (B) computer forensics and intrusion de-  
22      tection;

23                   (C) reliability of computer and network ap-  
24      plications, middleware, operating systems, and  
25      communications infrastructure; and

1 (D) privacy and confidentiality.

2 (2) MERIT REVIEW; COMPETITION.—Grants  
3 shall be awarded under this section on a merit-re-  
4 viewed competitive basis.

5 (3) AUTHORIZATION OF APPROPRIATIONS.—  
6 There are authorized to be appropriated to the Na-  
7 tional Science Foundation to carry out this  
8 subsection—

9 (A) \$35,000,000 for fiscal year 2003;

10 (B) \$40,000,000 for fiscal year 2004;

11 (C) \$46,000,000 for fiscal year 2005;

12 (D) \$52,000,000 for fiscal year 2006; and

13 (E) \$60,000,000 for fiscal year 2007.

14 (b) COMPUTER AND NETWORK SECURITY RESEARCH  
15 CENTERS.—

16 (1) IN GENERAL.—The Director shall award  
17 multiyear grants, subject to the availability of appro-  
18 priations, to institutions of higher education (or con-  
19 sortia thereof) to establish multidisciplinary Centers  
20 for Computer and Network Security Research. Insti-  
21 tutions of higher education (or consortia thereof) re-  
22 ceiving such grants may partner with one or more  
23 government laboratories or for-profit institutions.

1           (2) MERIT REVIEW; COMPETITION.—Grants  
2 shall be awarded under this subsection on a merit-  
3 reviewed competitive basis.

4           (3) PURPOSE.—The purpose of the Centers  
5 shall be to generate innovative approaches to com-  
6 puter and network security by conducting cutting-  
7 edge, multidisciplinary research in computer and  
8 network security, including the research areas de-  
9 scribed in subsection (a)(1).

10          (4) APPLICATIONS.—An institution of higher  
11 education (or a consortium of such institutions)  
12 seeking funding under this subsection shall submit  
13 an application to the Director at such time, in such  
14 manner, and containing such information as the Di-  
15 rector may require. The application shall include, at  
16 a minimum, a description of—

17                 (A) the research projects that will be un-  
18 dertaken by the Center and the contributions of  
19 each of the participating entities;

20                 (B) how the Center will promote active col-  
21 laboration among scientists and engineers from  
22 different disciplines, such as computer sci-  
23 entists, engineers, mathematicians, and social  
24 science researchers; and

1           (C) how the Center will contribute to in-  
2           creasing the number of computer and network  
3           security researchers and other professionals.

4           (5) CRITERIA.—In evaluating the applications  
5           submitted under paragraph (4), the Director shall  
6           consider, at a minimum—

7                   (A) the ability of the applicant to generate  
8                   innovative approaches to computer and network  
9                   security and effectively carry out the research  
10                  program;

11                   (B) the experience of the applicant in con-  
12                   ducting research on computer and network se-  
13                   curity and the capacity of the applicant to fos-  
14                   ter new multidisciplinary collaborations;

15                   (C) the capacity of the applicant to attract  
16                   and provide adequate support for under-  
17                   graduate and graduate students and  
18                   postdoctoral fellows to pursue computer and  
19                   network security research; and

20                   (D) the extent to which the applicant will  
21                   partner with government laboratories or for-  
22                   profit entities, and the role the government lab-  
23                   oratories or for-profit entities will play in the  
24                   research undertaken by the Center.

1           (6) ANNUAL MEETING.—The Director shall  
2 convene an annual meeting of the Centers in order  
3 to foster collaboration and communication between  
4 Center participants.

5           (7) AUTHORIZATION OF APPROPRIATIONS.—  
6 There are authorized to be appropriated for the Na-  
7 tional Science Foundation to carry out this  
8 subsection—

9                   (A) \$12,000,000 for fiscal year 2003;

10                   (B) \$24,000,000 for fiscal year 2004;

11                   (C) \$36,000,000 for fiscal year 2005;

12                   (D) \$36,000,000 for fiscal year 2006; and

13                   (E) \$36,000,000 for fiscal year 2007.

14 **SEC. 5. NATIONAL SCIENCE FOUNDATION COMPUTER AND**  
15 **NETWORK SECURITY PROGRAMS.**

16           (a) COMPUTER AND NETWORK SECURITY CAPACITY  
17 BUILDING GRANTS.—

18           (1) IN GENERAL.—The Director shall establish  
19 a program to award grants to institutions of higher  
20 education (or consortia thereof) to establish or im-  
21 prove undergraduate and master's degree programs  
22 in computer and network security, to increase the  
23 number of students who pursue undergraduate or  
24 master's degrees in fields related to computer and  
25 network security, and to provide students with expe-



1 rience in government or industry related to their  
2 computer and network security studies.

3 (2) MERIT REVIEW.—Grants shall be awarded  
4 under this subsection on a merit-reviewed competi-  
5 tive basis.

6 (3) USE OF FUNDS.—Grants awarded under  
7 this subsection shall be used for activities that en-  
8 hance the ability of an institution of higher edu-  
9 cation (or consortium thereof) to provide high-quality  
10 undergraduate and master’s degree programs in  
11 computer and network security and to recruit and  
12 retain increased numbers of students to such pro-  
13 grams. Activities may include—

14 (A) revising curriculum to better prepare  
15 undergraduate and master’s degree students for  
16 careers in computer and network security;

17 (B) establishing degree and certificate pro-  
18 grams in computer and network security;

19 (C) creating opportunities for under-  
20 graduate students to participate in computer  
21 and network security research projects;

22 (D) acquiring equipment necessary for stu-  
23 dent instruction in computer and network secu-  
24 rity, including the installation of testbed net-  
25 works for student use;

1           (E) providing opportunities for faculty to  
2 work with local or Federal Government agen-  
3 cies, private industry, or other academic institu-  
4 tions to develop new expertise or to formulate  
5 new research directions in computer and net-  
6 work security;

7           (F) establishing collaborations with other  
8 academic institutions or departments that seek  
9 to establish, expand, or enhance programs in  
10 computer and network security;

11          (G) establishing student internships in  
12 computer and network security at government  
13 agencies or in private industry;

14          (H) establishing or enhancing bridge pro-  
15 grams in computer and network security be-  
16 tween community colleges and universities; and

17          (I) any other activities the Director deter-  
18 mines will accomplish the goals of this sub-  
19 section.

20       (4) SELECTION PROCESS.—

21           (A) APPLICATION.—An institution of high-  
22 er education (or a consortium thereof) seeking  
23 funding under this subsection shall submit an  
24 application to the Director at such time, in such  
25 manner, and containing such information as the

1 Director may require. The application shall in-  
2 clude, at a minimum—

3 (i) a description of the applicant's  
4 computer and network security research  
5 and instructional capacity, and in the case  
6 of an application from a consortium of in-  
7 stitutions of higher education, a descrip-  
8 tion of the role that each member will play  
9 in implementing the proposal;

10 (ii) a comprehensive plan by which the  
11 institution or consortium will build instruc-  
12 tional capacity in computer and informa-  
13 tion security;

14 (iii) a description of relevant collabo-  
15 rations with government agencies or pri-  
16 vate industry that inform the instructional  
17 program in computer and network secu-  
18 rity;

19 (iv) a survey of the applicant's his-  
20 toric student enrollment and placement  
21 data in fields related to computer and net-  
22 work security and a study of potential en-  
23 rollment and placement for students en-  
24 rolled in the proposed computer and net-  
25 work security program; and

1                   (v) a plan to evaluate the success of  
2                   the proposed computer and network secu-  
3                   rity program, including post-graduation as-  
4                   sessment of graduate school and job place-  
5                   ment and retention rates as well as the rel-  
6                   evance of the instructional program to  
7                   graduate study and to the workplace.

8                   (B) AWARDS.—(i) The Director shall en-  
9                   sure, to the extent practicable, that grants are  
10                  awarded under this subsection in a wide range  
11                  of geographic areas and categories of institu-  
12                  tions of higher education.

13                  (ii) The Director shall award grants under  
14                  this subsection for a period not to exceed 5  
15                  years.

16                  (5) ASSESSMENT REQUIRED.—The Director  
17                  shall evaluate the program established under this  
18                  subsection no later than 6 years after the establish-  
19                  ment of the program. At a minimum, the Director  
20                  shall evaluate the extent to which the grants  
21                  achieved their objectives of increasing the quality  
22                  and quantity of students pursuing undergraduate or  
23                  master’s degrees in computer and network security.

24                  (6) AUTHORIZATION OF APPROPRIATIONS.—  
25                  There are authorized to be appropriated to the Na-

1 tional Science Foundation to carry out this  
2 subsection—

3 (A) \$15,000,000 for fiscal year 2003;

4 (B) \$20,000,000 for fiscal year 2004;

5 (C) \$20,000,000 for fiscal year 2005;

6 (D) \$20,000,000 for fiscal year 2006; and

7 (E) \$20,000,000 for fiscal year 2007.

8 (b) SCIENTIFIC AND ADVANCED TECHNOLOGY ACT  
9 OF 1992.—

10 (1) GRANTS.—The Director shall provide  
11 grants under the Scientific and Advanced Tech-  
12 nology Act of 1992 for the purposes of section 3(a)  
13 and (b) of that Act, except that the activities sup-  
14 ported pursuant to this subsection shall be limited to  
15 improving education in fields related to computer  
16 and network security.

17 (2) AUTHORIZATION OF APPROPRIATIONS.—  
18 There are authorized to be appropriated to the Na-  
19 tional Science Foundation to carry out this  
20 subsection—

21 (A) \$1,000,000 for fiscal year 2003;

22 (B) \$1,250,000 for fiscal year 2004;

23 (C) \$1,250,000 for fiscal year 2005;

24 (D) \$1,250,000 for fiscal year 2006; and

25 (E) \$1,250,000 for fiscal year 2007.

1 (c) GRADUATE TRAINEESHIPS IN COMPUTER AND  
2 NETWORK SECURITY RESEARCH.—

3 (1) IN GENERAL.—The Director shall establish  
4 a program to award grants to institutions of higher  
5 education to establish traineeship programs for  
6 graduate students who pursue computer and net-  
7 work security research leading to a doctorate degree  
8 by providing funding and other assistance, and by  
9 providing graduate students with research experience  
10 in government or industry related to the students'  
11 computer and network security studies.

12 (2) MERIT REVIEW.—Grants shall be provided  
13 under this subsection on a merit-reviewed competi-  
14 tive basis.

15 (3) USE OF FUNDS.—An institution of higher  
16 education shall use grant funds for the purposes  
17 of—

18 (A) providing fellowships to students who  
19 are citizens, nationals, or lawfully admitted per-  
20 manent resident aliens of the United States and  
21 are pursuing research in computer or network  
22 security leading to a doctorate degree;

23 (B) paying tuition and fees for students  
24 receiving fellowships under subparagraph (A);

1 (C) establishing scientific internship pro-  
2 grams for students receiving fellowships under  
3 subparagraph (A) in computer and network se-  
4 curity at for-profit institutions or government  
5 laboratories; and

6 (D) other costs associated with the admin-  
7 istration of the program.

8 (4) FELLOWSHIP AMOUNT.—Fellowships pro-  
9 vided under paragraph (3)(A) shall be in the amount  
10 of \$25,000 per year, or the level of the National  
11 Science Foundation Graduate Research Fellowships,  
12 whichever is greater, for up to 3 years.

13 (5) SELECTION PROCESS.—An institution of  
14 higher education seeking funding under this sub-  
15 section shall submit an application to the Director at  
16 such time, in such manner, and containing such in-  
17 formation as the Director may require. The applica-  
18 tion shall include, at a minimum, a description of—

19 (A) the instructional program and research  
20 opportunities in computer and network security  
21 available to graduate students at the applicant’s  
22 institution; and

23 (B) the internship program to be estab-  
24 lished, including the opportunities that will be  
25 made available to students for internships at

1 for-profit institutions and government labora-  
2 tories.

3 (6) REVIEW OF APPLICATIONS.—In evaluating  
4 the applications submitted under paragraph (5), the  
5 Director shall consider—

6 (A) the ability of the applicant to effec-  
7 tively carry out the proposed program;

8 (B) the quality of the applicant’s existing  
9 research and education programs;

10 (C) the likelihood that the program will re-  
11 cruit increased numbers of students to pursue  
12 and earn doctorate degrees in computer and  
13 network security;

14 (D) the nature and quality of the intern-  
15 ship program established through collaborations  
16 with government laboratories and for-profit in-  
17 stitutions;

18 (E) the integration of internship opportu-  
19 nities into graduate students’ research; and

20 (F) the relevance of the proposed program  
21 to current and future computer and network se-  
22 curity needs.

23 (7) AUTHORIZATION OF APPROPRIATIONS.—  
24 There are authorized to be appropriated to the Na-



1 tional Science Foundation to carry out this  
2 subsection—

3 (A) \$10,000,000 for fiscal year 2003;

4 (B) \$20,000,000 for fiscal year 2004;

5 (C) \$20,000,000 for fiscal year 2005;

6 (D) \$20,000,000 for fiscal year 2006; and

7 (E) \$20,000,000 for fiscal year 2007.

8 (d) GRADUATE RESEARCH FELLOWSHIPS PROGRAM  
9 SUPPORT.—Computer and network security shall be in-  
10 cluded among the fields of specialization supported by the  
11 National Science Foundation’s Graduate Research Fellow-  
12 ships program under section 10 of the National Science  
13 Foundation Act of 1950 (42 U.S.C. 1869).

14 **SEC. 6. CONSULTATION.**

15 In carrying out sections 4 and 5, the Director shall  
16 consult with other Federal agencies.

17 **SEC. 7. FOSTERING RESEARCH AND EDUCATION IN COM-**  
18 **PUTER AND NETWORK SECURITY.**

19 Section 3(a) of the National Science Foundation Act  
20 of 1950 (42 U.S.C. 1862(a)) is amended—

21 (1) by striking “and” at the end of paragraph

22 (6);

23 (2) by striking the period at the end of para-  
24 graph (7) and inserting “; and”; and

1 (3) by adding at the end the following new  
2 paragraph:

3 “(8) to take a leading role in fostering and sup-  
4 porting research and education activities to improve  
5 the security of networked information systems.”.

6 **SEC. 8. NATIONAL INSTITUTE OF STANDARDS AND TECH-  
7 NOLOGY RESEARCH PROGRAM.**

8 The National Institute of Standards and Technology  
9 Act is amended—

10 (1) by moving section 22 to the end of the Act  
11 and redesignating it as section 32;

12 (2) by inserting after section 21 the following  
13 new section:

14 “RESEARCH PROGRAM ON SECURITY OF COMPUTER  
15 SYSTEMS

16 “SEC. 22. (a) ESTABLISHMENT.—The Director shall  
17 establish a program of assistance to institutions of higher  
18 education that enter into partnerships with for-profit enti-  
19 ties to support research to improve the security of com-  
20 puter systems. The partnerships may also include govern-  
21 ment laboratories. The program shall—

22 “(1) include multidisciplinary, long-term, high-  
23 risk research;

24 “(2) include research directed toward address-  
25 ing needs identified through the activities of the

1 Computer System Security and Privacy Advisory  
2 Board under section 20(f); and

3 “(3) promote the development of a robust re-  
4 search community working at the leading edge of  
5 knowledge in subject areas relevant to the security  
6 of computer systems by providing support for grad-  
7 uate students, post-doctoral researchers, and senior  
8 researchers.

9 “(b) FELLOWSHIPS.—(1) The Director is authorized  
10 to establish a program to award post-doctoral research fel-  
11 lowships to individuals who are citizens, nationals, or law-  
12 fully admitted permanent resident aliens of the United  
13 States and are seeking research positions at institutions,  
14 including the Institute, engaged in research activities re-  
15 lated to the security of computer systems, including the  
16 research areas described in section 4(a)(1) of the Cyber  
17 Security Research and Development Act.

18 “(2) The Director is authorized to establish a pro-  
19 gram to award senior research fellowships to individuals  
20 seeking research positions at institutions, including the In-  
21 stitute, engaged in research activities related to the secu-  
22 rity of computer systems, including the research areas de-  
23 scribed in section 4(a)(1) of the Cyber Security Research  
24 and Development Act. Senior research fellowships shall be  
25 made available for established researchers at institutions

1 of higher education who seek to change research fields and  
2 pursue studies related to the security of computer systems.

3 “(3)(A) To be eligible for an award under this sub-  
4 section, an individual shall submit an application to the  
5 Director at such time, in such manner, and containing  
6 such information as the Director may require.

7 “(B) Under this subsection, the Director is author-  
8 ized to provide stipends for post-doctoral research fellow-  
9 ships at the level of the Institute’s Post Doctoral Research  
10 Fellowship Program and senior research fellowships at lev-  
11 els consistent with support for a faculty member in a sab-  
12 batical position.

13 “(c) AWARDS; APPLICATIONS.—The Director is au-  
14 thorized to award grants or cooperative agreements to in-  
15 stitutions of higher education to carry out the program  
16 established under subsection (a). To be eligible for an  
17 award under this section, an institution of higher edu-  
18 cation shall submit an application to the Director at such  
19 time, in such manner, and containing such information as  
20 the Director may require. The application shall include,  
21 at a minimum, a description of—

22 “(1) the number of graduate students antici-  
23 pated to participate in the research project and the  
24 level of support to be provided to each;

1           “(2) the number of post-doctoral research posi-  
2           tions included under the research project and the  
3           level of support to be provided to each;

4           “(3) the number of individuals, if any, intend-  
5           ing to change research fields and pursue studies re-  
6           lated to the security of computer systems to be in-  
7           cluded under the research project and the level of  
8           support to be provided to each; and

9           “(4) how the for-profit entities and any other  
10          partners will participate in developing and carrying  
11          out the research and education agenda of the part-  
12          nership.

13          “(d) PROGRAM OPERATION.—(1) The program es-  
14          tablished under subsection (a) shall be managed by indi-  
15          viduals who shall have both expertise in research related  
16          to the security of computer systems and knowledge of the  
17          vulnerabilities of existing computer systems. The Director  
18          shall designate such individuals as program managers.

19          “(2) Program managers designated under paragraph  
20          (1) may be new or existing employees of the Institute or  
21          individuals on assignment at the Institute under the Inter-  
22          governmental Personnel Act of 1970.

23          “(3) Program managers designated under paragraph  
24          (1) shall be responsible for—

1           “(A) establishing and publicizing the broad re-  
2 search goals for the program;

3           “(B) soliciting applications for specific research  
4 projects to address the goals developed under sub-  
5 paragraph (A);

6           “(C) selecting research projects for support  
7 under the program from among applications sub-  
8 mitted to the Institute, following consideration of—

9                 “(i) the novelty and scientific and technical  
10 merit of the proposed projects;

11                 “(ii) the demonstrated capabilities of the  
12 individual or individuals submitting the applica-  
13 tions to successfully carry out the proposed re-  
14 search;

15                 “(iii) the impact the proposed projects will  
16 have on increasing the number of computer se-  
17 curity researchers;

18                 “(iv) the nature of the participation by for-  
19 profit entities and the extent to which the pro-  
20 posed projects address the concerns of industry;  
21 and

22                 “(v) other criteria determined by the Di-  
23 rector, based on information specified for inclu-  
24 sion in applications under subsection (c); and

1           “(D) monitoring the progress of research  
2           projects supported under the program.

3           “(e) REVIEW OF PROGRAM.—(1) The Director shall  
4           periodically review the portfolio of research awards mon-  
5           itored by each program manager designated in accordance  
6           with subsection (d). In conducting those reviews, the Di-  
7           rector shall seek the advice of the Computer System Secu-  
8           rity and Privacy Advisory Board, established under section  
9           21, on the appropriateness of the research goals and on  
10          the quality and utility of research projects managed by  
11          program managers in accordance with subsection (d).

12          “(2) The Director shall also contract with the Na-  
13          tional Research Council for a comprehensive review of the  
14          program established under subsection (a) during the 5th  
15          year of the program. Such review shall include an assess-  
16          ment of the scientific quality of the research conducted,  
17          the relevance of the research results obtained to the goals  
18          of the program established under subsection (d)(3)(A),  
19          and the progress of the program in promoting the develop-  
20          ment of a substantial academic research community work-  
21          ing at the leading edge of knowledge in the field. The Di-  
22          rector shall submit to Congress a report on the results  
23          of the review under this paragraph no later than six years  
24          after the initiation of the program.

25          “(f) DEFINITIONS.—For purposes of this section—





1 **SEC. 10. INTRAMUTAL SECURITY RESEARCH.**

2 Section 20 of the National Institute of Standards and  
3 Technology Act (15 U.S.C. 278g-3) is further amended—

4 (1) by redesignating subsection (d) as sub-  
5 section (e); and

6 (2) by inserting after subsection (c) the fol-  
7 lowing new subsection:

8 “(d) As part of the research activities conducted in  
9 accordance with subsection (b)(4), the Institute shall—

10 “(1) conduct a research program to address  
11 emerging technologies associated with assembling a  
12 networked computer system from components while  
13 ensuring it maintains desired security properties;

14 “(2) carry out research and support standards  
15 development activities associated with improving the  
16 security of real-time computing and communications  
17 systems for use in process control; and

18 “(3) carry out multidisciplinary, long-term,  
19 high-risk research on ways to improve the security  
20 of computer systems.”.

21 **SEC. 11. AUTHORIZATION OF APPROPRIATIONS.**

22 There are authorized to be appropriated to the Sec-  
23 retary of Commerce for the National Institute of Stand-  
24 ards and Technology—

1           (1) for activities under section 22 of the Na-  
2           tional Institute of Standards and Technology Act, as  
3           added by section 8 of this Act—

4                   (A) \$25,000,000 for fiscal year 2003;

5                   (B) \$40,000,000 for fiscal year 2004;

6                   (C) \$55,000,000 for fiscal year 2005;

7                   (D) \$70,000,000 for fiscal year 2006;

8                   (E) \$85,000,000 for fiscal year 2007; and

9                   (F) such sums as may be necessary for fis-

10           cal years 2008 through 2012; and

11           (2) for activities under section 20(d) of the Na-  
12           tional Institute of Standards and Technology Act, as  
13           added by section 10 of this Act—

14                   (A) \$6,000,000 for fiscal year 2003;

15                   (B) \$6,200,000 for fiscal year 2004;

16                   (C) \$6,400,000 for fiscal year 2005;

17                   (D) \$6,600,000 for fiscal year 2006; and

18                   (E) \$6,800,000 for fiscal year 2007.

19 **SEC. 12. NATIONAL ACADEMY OF SCIENCES STUDY ON**  
20 **COMPUTER AND NETWORK SECURITY IN**  
21 **CRITICAL INFRASTRUCTURES.**

22           (a) STUDY.—Not later than 3 months after the date  
23 of the enactment of this Act, the Director of the National  
24 Institute of Standards and Technology shall enter into an  
25 arrangement with the National Research Council of the

1 National Academy of Sciences to conduct a study of the  
2 vulnerabilities of the Nation’s network infrastructure and  
3 make recommendations for appropriate improvements.

4 The National Research Council shall—

5 (1) review existing studies and associated data  
6 on the architectural, hardware, and software  
7 vulnerabilities and interdependencies in United  
8 States critical infrastructure networks;

9 (2) identify and assess gaps in technical capa-  
10 bility for robust critical infrastructure network secu-  
11 rity, and make recommendations for research prior-  
12 ities and resource requirements; and

13 (3) review any and all other essential elements  
14 of computer and network security, including security  
15 of industrial process controls, to be determined in  
16 the conduct of the study.

17 (b) REPORT.—The Director of the National Institute  
18 of Standards and Technology shall transmit a report con-  
19 taining the results of the study and recommendations re-  
20 quired by subsection (a) to the Congress not later than  
21 21 months after the date of enactment of this Act.

22 (c) SECURITY.—The Director of the National Insti-  
23 tute of Standards and Technology shall ensure that no in-  
24 formation that is classified is included in any publicly re-  
25 leased version of the report required by this section.

1       (d) AUTHORIZATION OF APPROPRIATIONS.—There  
2 are authorized to be appropriated to the Secretary of Com-  
3 merce for the National Institute of Standards and Tech-  
4 nology for the purposes of carrying out this section,  
5 \$700,000.



**Union Calendar No. 208**

107<sup>TH</sup> CONGRESS  
2<sup>D</sup> SESSION

**H. R. 3394**

**[Report No. 107-355, Part I]**

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**A BILL**

To authorize funding for computer and network security research and development and research fellowship programs, and for other purposes.

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FEBRUARY 4, 2002

Reported from the Committee on Science

FEBRUARY 4, 2002

Referral to the Committee on Education and the Workforce extended for a period ending not later than February 4, 2002

FEBRUARY 4, 2002

Committee discharged; committed to the Committee of the Whole House on the State of the Union and ordered to be printed